Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 8/9/2024
Facility Name: Galena Park Terminal
Permit or Registration No.: 50054

Nature of Correspondence:
☒ Initial/New
☐ Response/Revision to TCEQ Tracking No.: _____ (from subject line of TCEQ letter regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Notifications
☐ New Notice of Intent	☐ Alternative Daily Cover Report
☐ Notice of Intent Revision	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Compost Report
☐ New Registration (including Subchapter T)	☐ Groundwater Alternate Source Demonstration
☐ Major Amendment	☐ Groundwater Corrective Action
☐ Minor Amendment	☐ Groundwater Monitoring Report
☐ Limited Scope Major Amendment	☐ Groundwater Background Evaluation
☐ Notice Modification	☐ Landfill Gas Corrective Action
☐ Non-Notice Modification	☐ Landfill Gas Monitoring
☐ Transfer/Name Change Modification	☐ Liner Evaluation Report
☐ Temporary Authorization	☐ Soil Boring Plan
☐ Voluntary Revocation	☐ Special Waste Request
☐ Subchapter T Disturbance Non-Enclosed Structure	☐ Other:
☐ Other:	

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Responses
☐ New	☐ Annual/Biennial Site Activity Report
☒ Renewal	☐ CPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☒ Major Amendment	☐ Construction Certification/Report
☒ Minor Amendment	☐ CPT Plan/Result
☐ CCR Registration	☐ Extension Request
☐ CCR Registration Major Amendment	☐ Groundwater Monitoring Report
☐ CCR Registration Minor Amendment	☐ Interim Status Change
☐ Class 3 Modification	☐ Interim Status Closure Plan
☐ Class 2 Modification	☐ Soil Core Monitoring Report
☐ Class 1 ED Modification	☐ Treatability Study
☐ Class 1 Modification	☐ Trial Burn Plan/Result
☐ Endorsement	☐ Unsaturated Zone Monitoring Report
☐ Temporary Authorization	☐ Waste Minimization Report
☐ Voluntary Revocation	☐ Other:
☐ 335.6 Notification	
☐ Other:	

Texas Commission on Environmental Quality

Plain Language Summary

Industrial and Hazardous Waste Permit Applications

Instructions: Complete this form and submit with any industrial hazardous waste, or industrial solid waste, permit application that is subject to 30 Texas Administrative Code §39.405(k) [applications for a Class 3 permit modification, permit amendment, permit renewals, and for a new permit]. Please be concise.

Application Information

Purpose of application: ☐New ☒Renewal ☒Modification/Amendment	
Date Submitted to TCEQ: August 9, 2024	
Customer Name: KM Liquids Terminals LLC	
Facility Name: Galena Park Terminal	
CN: 603254707	**RN:** 100237452
Permit Number: 50054	**Solid Waste Registration Number:** 30573
Facility Street Address: 906 Clinton Drive, Galena Park, TX 77547	
Weblink to Street Address: https://www.bing.com/search?pglt=41&q=906+Clinton+Drive%2C+Galena+Park%2C	

Facility Information *(check all that apply)*

What is the primary type of business?	☐Chemical manufacturing ☐ Oil refinery ☒ Treatment, storage or disposal facility plant ☐Other **If other, enter description:**
What does the facility produce?	☐Chemicals ☐Fuels / lubricants ☒No products ☐Other **If other, enter description:**

Waste Management Information *(check all that apply)*

What types of wastes are managed?	☒Nonhazardous industrial ☒Hazardous ☐Other **If other, enter description:**
Where does the waste come from?	☒Off-site source ☒On-site source
How is the waste managed?	☒Storage ☒Process / Treatment ☒Disposal ☐Other **If other, enter description:**
What type of units manage the waste?	☒Active ☒Post-Closure **Type and count:**
What happens to waste managed at the facility?	☒Transported off-site ☒Disposed on-site ☐Other **If other, enter description:**

Pollution Control Methods *(check all that apply)*	
How will the facility prevent spills, leaks, and releases?	☒Routine inspections ☒Engineered liner systems ☒Spill containment ☒Proper waste handling ☐Operations in enclosed buildings ☒Groundwater monitoring ☐Other **If other, enter description:**
How will the facility clean up spills, leaks, and releases?	☒Spill clean-up supplies ☐Decontamination equipment ☐Other **If other, enter description:**
How will the facility prevent / minimize air emissions?	☒Air monitoring / control systems ☐Filters / scrubbers ☐Routine inspections ☒Proper waste handling ☐Operations in enclosed buildings ☐Other **If other, enter description:**

Description of Update *(for Class 3 Modifications and Amendments only)*

List and explain any changes this modification or amendment would make to the two sections above—**Waste Management Information** and **Pollution Control Methods**.

No changes to above information in proposed amendments to permit.

Clear Form

Comisión de Calidad Ambiental de Texas

Resumen en Lenguaje Sencillo

Solicitudes de Permisos de Desechos Industriales y Peligrosos

Instrucciones

Complete este formulario y envíe con cualquier solicitud de permiso de desechos industriales peligrosos, o desechos sólidos industriales, que esté sujeta al Código Administrativo de Texas 30 §39.405 (k) [es decir, solicitudes para una modificación de permiso de Clase 3, enmienda de permiso, renovaciones de permisos y para un nuevo permiso].

Sea conciso: toda la información debe caber en dos páginas.

Información de la Solicitud

Propósito de la solicitud:	☐Nuevo	☒Renovación	☒Modificación/Enmienda

Sometido a TCEQ: Agosto de 2024

Nombre del Cliente: KM Liquids Terminals LLC

Nombre de la Instalación: Galena Park Terminal

CN: 603254707	**RN:**100237452
Número de Permiso:50054	**Número de Registro de Desechos Sólidos:** 30573

Dirección de la Instalación: 906 Clinton Drive, Galena Park, TX 77547

Enlace Web a la Dirección Postal:
https://www.bing.com/search?pglt=41&q=906+Clinton+Drive%2C+Galena+Park%2C

Información de la Instalación *(marque todas lo que correspondan)*

¿Cuál es el tipo principal de negocio?	☐Planta de manufactura química ☐Refinería de aceite ☒ Instalación de tratamiento, almacenamiento o eliminación ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción
¿Qué produce la instalación?	☐Químicos ☐Combustibles / lubricantes ☒Sin productos ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción

Información sobre la Gestión de Desechos *(marque todas las que correspondan)*

¿Qué tipos de desechos se gestionan?	☒Industrial no peligroso ☒Peligroso ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción
¿De dónde provienen los desechos?	☒Fuente externa ☒Fuente interna
¿Cómo se gestionan los desechos?	☒Almacenar ☒Procesar / Tratar ☒Eliminación ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción

¿Qué tipo de unidades gestionan los desechos?	☒ Activo ☒ Postcierre **Teclee y cuente:** Introduzca el tipo de unidad y un conteo, como Tanques (8), Vertederos (3), Incineradores (1), Unidades posteriores al cierre (2) etc.
¿Qué sucede con los desechos gestionados en la instalación?	☒Transportados fuera del sitio ☒Eliminado en el sitio ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción

Métodos de Control de la Contaminación *(marque todos los que correspondan)*			
¿Cómo evitará la instalación derrames, fugas y liberaciones?	☒Inspecciones de Rutina	☒Sistemas de revestimiento de ingeniería	☒Contención de derrames
	☒Manejo adecuado de desechos	☐Operaciones en edificios cerrados	☒Monitoreo de aguas subterráneas
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo limpiará la instalación los derrames, fugas y liberaciones?	☒Suministros de limpieza de derrames	☐Equipos de descontaminación	
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo evitará / minimizará la instalación las emisiones atmosféricas?	☒Sistemas de monitoreo / control de aire	☐Filtros / depuradores	☐Inspecciones de rutina
	☒Manejo adecuado de desechos	☐Operaciones en edificios cerrados	
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		

Descripción de la Actualización (*solo para Modificaciones y Enmiendas de Clase 3)*

Liste y explique cualquier cambio que esta modificación o enmienda haría a las dos secciones anteriores: **Información de Gestión de Desechos** y **Métodos de Control de la Contaminación**.

No hay cambios a la información anterior en las enmiendas propuestas para el permiso.

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

☐ New Permit or Registration Application

☒ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☒ Requires public notice,

☐ Considered to have significant public interest, **and**

☒ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.

☒ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Significantly low public interest for past permit renewal application public meetings and notices.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

- ☐ Texas Land Application Permit (TLAP)
- ☐ State Only Concentrated Animal Feeding Operation (CAFO)
- ☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

(County)

(Census Tract)
Please indicate which of these three is the level used for gathering the following information.

☐ City ☐ County ☐ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

(b) Per capita income for population near the specified location

(c) Percent of minority population and percent of population by race within the specified location

(d) Percent of Linguistically Isolated Households by language within the specified location

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☐ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☐ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☐ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☐ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☐ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

KINDER MORGAN
KM Liquids Terminals LLC

August 9, 2024

FedEx Tracking No. 777894309652

Ms. Elizabeth Slone
Texas Commission on Environmental Quality
Waste Permits Division (MC-130)
PO Box 13087
Austin, Texas 78711-3087

Re: 2024 Permit Renewal Application
KM Liquids Terminals LLC, Galena Park Terminal, Galena Park, Texas
ISWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA I.D. No. TXD026481523
RN100237452/CN603254707

Dear Ms. Slone:

KM Liquids Terminals LLC (Kinder Morgan) is submitting this Permit Renewal Application in accordance with 30 Texas Administrative Code (TAC) §305.65. The following is included:

1) the original Part A permit application plus one (1) full copy and electronic copy;
2) the original Part B application plus one (1) full copy and an electronic copy;
3) notification of check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division (check # 2269, dated 7/3/2024 for $2,884); and
4) an electronic mailing list on Compact Disk (CD) in MS Word format.

If you have any questions regarding this permit renewal application or require additional information, please feel free to contact me at 713-654-6035, or if you wish you can e-mail me at [redacted]

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Manager

Attachment:

Cc: Maria Sifuentes-Chavez - TCEQ VCP/CA Section - Austin, Texas (w/o enclosure)

LIST OF ATTACHMENTS – VOLUME I

Part A

Attachment A Core Data Form
Attachment B Site Legal Description
Attachment C Facility Maps
Attachment D Photographs
Attachment E Process Flow Diagram

Part B

Attachment A Adjacent Landowners List
Attachment B Core Data Form
Attachment C Flood Plain Map
Attachment D NHB/SEHB Deed Recordation
Attachment E Exposure Information
Attachment F Personnel Training Plan
Attachment G Security System
Attachment H Inspection Schedule
Attachment I Waste Analysis Plan
Attachment J Engineering Report
Attachment K Closure Plan
Attachment L SEHB Closure Certification
Attachment M Geology Report
Attachment N Financial Assurance

LIST OF ATTACHMENTS – VOLUME II

Part B

Attachment O Preliminary Review Checklists
Attachment P RCRA Facility Assessment
Attachment Q General Site Information
Attachment R Groundwater Monitoring and Corrective Action Program Description
Attachment S Report – SEHB Corrective Action System
Attachment T Report – Former NHB Corrective Action System
Attachment U Compliance Plan Attachment A Maps
Attachment V Response Action Plan Reports
Attachment W Corrective Action Program Report
Attachment X Response Action Completion Report
Attachment Y Sampling and Analysis Plan
Attachment Z SEHB GW_SW Calculations

LIST OF ATTACHMENTS – VOLUME III

Integrated Contingency Plan

Texas Commission on Environmental Quality
Instructions and Procedural Information
for Filing a Permit Application for a
Hazardous Waste Storage, Processing, or Disposal Facility

Part A

[**Form Availability**: This form, as well as other Industrial and Hazardous Waste documents, is available on the Internet World Wide Web, Industrial and Hazardous Waste home page at address https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits]

General Instructions

1. A person (individual, corporation or other legal entity) who stores, processes or disposes of hazardous waste (except where such storage and/or processing is excluded from permit requirements in accordance with 30 Texas Administrative Code (TAC) Section 335.2) must obtain a permit pursuant to the Texas Health and Safety Code. In applying to the Texas Commission on Environmental Quality, hereafter referred to as the Commission, the applicant shall follow the procedures outlined below, on the application and in the Rules of the Commission.

2. The application (one original plus three (3) complete copies[1]) should be mailed to:

   Texas Commission on Environmental Quality
   Attention: Waste Permits Division, MC126
   P. O. Box 13087
   Austin, Texas 78711-3087

3. Signature on Application [30 TAC 305.44]. The application shall be signed by the owner and operator or by a duly authorized agent, employee, officer, or representative of the owner or operator and shall be verified before a notary public. When another person signs on behalf of the owner and operator, this person's title or relationship to the owner or operator should be shown. In all cases, the person signing the form should be authorized to do so by the owner or operator (the Commission may require a person signing on behalf of an owner or operator to provide proof of authorization). An application submitted for a corporation must be signed by (or the signatory must be authorized by) a responsible corporate officer such as a president, secretary, treasurer, vice-president, or designated manager; or for a partnership or sole proprietorship, by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application shall be signed by either a principal executive

[1] The third copy may optionally consist of paper copies of all plans and maps and a computer diskette of the remaining document. The document should be formatted in Word processing software up to and including version 6.1 or a 100% compatible format. Files may be compressed using PKZIP Ver. 2 or a 100% compatible program.

officer or ranking elected official.

4. An application will not be processed until all information required to properly evaluate the application has been obtained. When an application is severely lacking in detail and/or the applicant fails to submit additionally requested information in a timely manner, the application will not be considered to be "filed in accordance with the rules and regulations of the Commission."

   Please submit any application revisions with a revised date and page numbers at the bottom of the page(s).

5. Fees and Costs

   a. The fee for filing an application is discussed in Section XII of Part B, form number TCEQ-0376.

   b. The applicant for a permit is required to bear the cost of publication of notice of the application in a newspaper as prescribed by 30 TAC Section 39.405(f).

6. A person may not commence operation of a hazardous waste management facility until the Commission has issued a permit to authorize the storage, processing, or disposal of hazardous waste, except with the approval of the Commission.

7. Designation of Material as Confidential

   The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

   The Commission suggests that the applicant NOT submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, and submitted as a document or binder, and conspicuously marked "CONFIDENTIAL."

   Reasons of confidentiality include the concept of trade secrecy and other related legal concepts which give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under 18 U.S.C. 1905 and special rules cited in 40 CFR Chapter I, Part 2, Subpart B.

   Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial and hazardous waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

   The applicant may elect to withdraw any confidential material submitted with the application. However, the permit cannot be issued, amended, or modified if the application is incomplete.

Part II

Procedural Information

After the submittal of Parts A and B of the application, the TCEQ will provide public notice of receipt of the application. The Executive Director's staff will review the application for completeness of information submitted. During the review, the applicant may be contacted for clarification or additional information. When all pertinent information is present, the application or a summary of its contents will be forwarded for review by other state agencies and local governmental entities interested in water quality control and solid waste management. After technical evaluation, opportunity for public hearing will be afforded.

Note that for facilities which had "commenced on-site storage, processing, or disposal of hazardous waste" [see 30 TAC Section 335.43(b)] on or before the date such waste is identified or listed as hazardous by EPA, the Texas Health and Safety Code provides in Section 361.082(f) that these facilities may continue to manage hazardous waste until such time as the Commission approves or denies the application, provided that the applicant has filed the permit application in accordance with the rules and regulations of the Commission.

The Commission may act upon an application for a permit, permit amendment, permit modification, or renewal of a permit without the necessity of holding a public hearing:

1. (a) When notice of the application has been mailed to persons possibly affected by the proposed permit; and

   (b) When notice has been published at least once in a newspaper regularly published or circulated within each county where the proposed facility is located; and

   (c) Within forty-five (45) days following publication of the Commission's notice, a Commissioner, the Executive Director or an affected person has not requested a public hearing; or

2. For a Class 1 or a Class 2 permit modification or a minor amendment to a permit. The Commission may, in certain cases, hold a public hearing for a Class 2 permit modification or a minor amendment.

A public hearing may be scheduled on an application for a RCRA hazardous waste permit when requested by a Commissioner, the Executive Director, or an affected person within forty-five (45) days following the newspaper publication.

Requirements of Giving Notice of the Application:

1. By the Applicant: Every applicant for a permit, permit amendment, permit modification, or permit renewal shall publish notice (see note below) of the application at least once in a newspaper regularly published or circulated within each county where the proposed facility is located. Where a public hearing has been requested, notice will be mailed to the applicant in ample time for publication, which shall be not less than thirty (30) days prior to the date set for the hearing. Except in the case of a notice of a permit modification request, the Commission will mail the appropriate notice and instructions for publication to the applicant.

   NOTE: Additional publication and direct mail notice to affected persons will result if a public hearing is requested following newspaper publication of the notice of application. The cost of providing this additionally required publication and service of notice to affected persons will be assumed by the applicant.

2. By the Texas Commission on Environmental Quality: The Commission will mail notice of the application (except for permit modifications) to affected persons and certain governmental entities. The notice will be mailed at the same time instructions for newspaper publications are mailed to the applicant.

3. Bilingual Notice Instructions:

   For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

   If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Bilingual Notice Application Form:

Bilingual notice confirmation for this application:

1. Is the school district of the elementary or middle school nearest to the facility required by the Texas Education Code to have a bilingual program?

   ☒YES ☐ NO

   (**If NO**, alternative language notice publication not required)

2. **If YES** to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?

   ☒ YES ☐ NO

   (**If YES** to questions 1 and 2, alternative language publication is required; **If NO** to question 2, then consider the next question)

3. **If YES** to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location?

   ☐ YES ☐ NO

   (**If Yes** to questions 1 and 3, alternative language publication is required; **If NO** to question 3, then consider the next question)

4. **If YES** to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC 89.1205(g)?

☐ YES ☐ NO

(**If Yes** to questions 1 and 4, alternative language publication is required; **If NO** to question 4, alternative language notice publication not required)

If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program? _Spanish_____

Consideration of the Permit Application by the Commission:

The applicant will be notified by the Commission when the application is set for final consideration. If the Commission issues the permit, the applicant will be mailed a copy of the permit by the TCEQ Office of the Chief Clerk within one (1) month following Commission approval. (NOTE: Only one copy is mailed to the applicant and that copy will be sent to the official mailing address of the applicant as shown on the permit application form.)

Table of Contents

Texas Commission on Environmental Quality Instructions and Procedural Information for Filing a Permit Application for a Hazardous Waste Storage, Processing, or Disposal Facility i

Part A i
General Instructions i
Part II iii
Procedural Information iii
Bilingual Notice Application Form: iv

Texas Commission on Environmental Quality Permit Application for a Hazardous Waste Storage/Processing/Disposal Facility Part A - Facility Background Information 1
I. General Information 1

A. Facility Name 1
B. Facility Contact 1
C. Operator 1
D. Owner 3
E. Type of Application Submittal 3
F. Registration and Permit Information 3
G. Give a brief description of the nature of your business. 5
H. TCEQ Core Data Form 5

Signature Page 6
II. Facility Background Information 7

A. Location of Facility for which the application is submitted 7
B. Legal Description of Facility 7
C. SIC Codes 7

III. Wastes and Waste Management 9

A. Waste Generation and Management Activities 9
B. Waste Management Units Summary 9
C. Location of Waste Management Units 10
D. Flow Diagram/Description 11

IV. Index Of Attachments 12
Table III-1 – Hazardous Wastes and Management Activities 13
Table III-2 – Hazardous Waste Management Unit Checklist 15

Texas Commission on Environmental Quality
Permit Application for a Hazardous Waste Storage/Processing/Disposal Facility
Part A - Facility Background Information

I. General Information

A. Facility Name: KM Liquids Terminals LLC – Galena Park Terminal

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: 30573 EPA I.D. No.: TXD026481523

Street Address (If Available): 906 Clinton Drive

City: Galena Park, State: TX Zip Code: 77547

County: Harris

Telephone Number: (346) 352-5923 Charter Number: 80038036

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.

B. Facility Contact

1. List those persons or firms who will act as primary contact for the applicant during the processing of the permit application. Also indicate the capacity in which each person may represent the applicant (engineering, legal, etc.). The person listed first will be the primary recipient of correspondence regarding this application. Include the complete mailing addresses and phone numbers.

Johnny Kennedy
Remediation Manager
1500 Clinton Drive
Galena Park, Texas 77547
Office: (713) 654-6035
[redacted]

Scott Eady
Director-EHS
300 Beltway Green Blvd.
Pasadena, Texas 77053
Office: (713) 450-0416
[redacted]

2. If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.

Not Applicable

C. Operator[1]: Identify the entity who will conduct facility operations.

[1] The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on this

Operator Name KM Liquids Terminals LLC

Address: 906 Clinton Drive

City: Galena Park, State Texas Zip Code 77547-0486

Telephone Number: (346) 352-5923 Charter Number 80038036

application [Section 361.087 Texas Health and Safety Code].

D. Owner

1. Indicate the ownership status of the facility:

   a. Private ____ X_____

      (1) ____X_____Corporation
      (2) _____Partnership
      (3) _____Proprietorship
      (4) _____Non-profit organization

   b. Public _____

      (1) _____Federal
      (2) _____Military
      (3) _____State
      (4) _____Regional
      (5) _____County
      (6) _____Municipal
      (7) _____Other (specify)

2. Does the operator own the facility units and facility property?

   ☒ Yes ☐ No

   If you checked "no",

   a. Submit as "Attachment A" a copy of the lease for use of or the option to buy said facility units and/or facility property, as appropriate; and

   b. Identify the facility units' owner(s) and/or facility property owner(s). Please note that the owner(s) is/are required to sign the application on page 5.

Owner Name: ____Not Applicable_____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

E. Type of Application Submittal:

Initial _____ or Revision ____X_____

F. Registration and Permit Information

Indicate (by listing the permit number(s) in the right-hand column below) all existing or pending State and/or Federal permits or construction approvals which pertain to pollution control or industrial solid waste management activities conducted by your plant or at your location. Complete each blank by entering the *permit number*, or the *date of application*, or *"none"*.

	Relevant Program and/or Law	Permit No.	Agency*
1.	Texas Solid Waste Disposal Act	None	
2.	Wastewater disposal under the Texas Water Code	None	
3.	Underground injection under the Texas Water Code	None	
4.	Texas Clean Air Act	3875	TCEQ
		110945	TCEQ
		2193	TCEQ
5.	Texas Uranium Surface Mining & Reclamation Act	None	
6.	Texas Surface Coal Mining & Reclamation Act	None	
7.	Hazardous Waste Management program under the Resource Conservation and Recovery Act	HW-50054	TCEQ
8.	UIC program under the Safe Drinking Water Act	5X2600543	TCEQ
		5X2600696	TCEQ
9.	TPDES program under the Clean Water Act	TXG670089	TCEQ
10.	PSD program under the Clean Air Act	HGPSDTX14	EPA/TCEQ
11.	Nonattainment program under the Clean Air Act	N232	EPA
12.	National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act	None	
13.	Ocean dumping permits under the Marine		

Protection Research and Sanctuaries Act	None	
14. Dredge or fill permits under section 404 of the Clean Water Act	15714	CORPS
15. Other relevant environmental Permits (Title V Permits)	988	EPA/TCEQ

*Use the following acronyms for each agency as shown below:

TCEQ	= Texas Commission on Environmental Quality
TRC	= Texas Railroad Commission
TDH	= Texas Department of Health
TDA	= Texas Department of Agriculture
EPA	= U.S. Environmental Protection Agency
CORPS	= U.S. Army Corps of Engineers

G. Give a brief description of the nature of your business.

KM Liquids Terminals – Galena Park Facility is a contract liquid storage terminal for bulk quantities of diverse chemical products. The bulk terminal includes tank truck, rail, barge, and ship loading/unloading facilities.

H. TCEQ Core Data Form

The TCEQ requires that a Core Data Form (Form 10400) be submitted on all incoming applications. For more information regarding the Core Data Form, call (512) 239-1575 or go to the TCEQ website at http://www.tceq.texas.gov/permitting/central_registry/guidance.html.

A Core Data Form is included with this Part A application.

Signature Page

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator Signature: Marlin Collins Date: 6-25-25

Name and Official Title (type or print): MARLIN COLLINS General Manager

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Owner Signature: _____ Date: _____

Name and Official Title (type or print): _____

To be completed by the operator if the application is signed by an authorized representative for the operator

I, _____ hereby designate _____
(operator) (authorized representative)
as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

Subscribed and sworn to before me by the said Marlin Collins on this 25 day of June, 2025.

My commission expires of the 20 day of April, 2027

DAWN SWILLEY
Notary Public, State of Texas
Comm. Expires 04/20/2027
Notary ID 13018303-1

Dawn Swilley
Notary Public in and for Harris County, Texas

II. Facility Background Information

A. Location of Facility for which the application is submitted

1. Give a description of the location of the facility site with respect to known or easily identifiable landmarks.

The KM Liquids Terminals – Galena Park Facility is located approximately nine (9) miles south of downtown Houston, Texas. The facility is located on the north side of the Houston Ship Channel approximately 0.75 miles west of the intersection of Federal Road and Clinton Drive.

2. Detail the access routes from the nearest U.S. or State Highway to the facility.

From State Highway 225 (LaPorte Freeway) go north on Shaver Street approximately 1.5 miles to the intersection of Clinton Drive and Federal Road (Note: Shaver Street turns into Federal Road after passing through the Washburn Tunnel). From the intersection of Clinton Drive and Federal Road go west approximately 0.75 miles to the facility.

3. Enter the geographical coordinates of the facility:

Latitude: ____29__ deg ___43__ min __56.62__ sec

Longitude: ___95__ deg ___13__ min __32.16__ sec

4. Is the facility located on Indian lands?

☐ Yes ☒ No

B. Legal Description of Facility

Submit as "Attachment B" a legal description(s) of the tract or tracts of land upon which the waste management operations referred to in this permit application occur or will occur. Although a legal description is required, a metes and bounds description is not necessary for urban sites with appropriate "lot" description(s). A survey plat or facility plan drawing which shows the specific points referenced in the survey should also be included in Attachment B.

C. SIC Codes

List, in descending order of significance, the four digit standard industrial classification (SIC) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the hazardous wastes.

4-digit SIC Code	Description
4226	SPECIAL WAREHOUSING AND STORAGE, NOT ELSEWHERE CLASSIFIED

SIC code numbers are descriptions which may be found in the Standard Industrial

Classification Manual prepared by the Executive Officer of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual.

III. Wastes and Waste Management

A. Waste Generation and Management Activities

Is any hazardous waste [see Title 40, Code of Federal Regulations (CFR), Part 261] presently or proposed to be generated or received at your facility?

☒ Yes ☐ No

If no, skip to question Number 2 below.

If yes, answer the following question.

1. Are you presently registered with TCEQ as a solid waste generator?

   ☒ Yes ☐ No ☐ Pending

   If no, contact the Industrial and Hazardous Waste Division of TCEQ in Austin, Texas to obtain registration information. Also, continue with the application form (go to Number 2 below).

   If yes, go to Section I of your TCEQ Notice of Registration, determine which of your wastes are hazardous, and list these wastes (and mixtures) in Table III-1 (see Number 2 below).

2. Complete Table III-1, Hazardous Wastes and Management Activities, below, listing all hazardous wastes, all mixtures containing any hazardous wastes, and hazardous debris which were, are presently, or are proposed to be handled at your facility in interim status or permitted units. See 40 CFR 261 and 268.2, attaching additional copies as necessary.

   Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance on how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

   If you are not registered with TCEQ, enter "NA" for TCEQ Waste Code Number.

   For the EPA Hazardous Waste Numbers, see 40 CFR 261.20-33. For annual quantity, provide the amount in units of pounds (as generated and/or received) for each waste and/or waste mixture.

B. Waste Management Units Summary

1. For each waste and waste mixture listed in Table III-1 that is stored, processed, and/or disposed on-site (except where such storage and/or processing is excluded from permit requirements in accordance with Texas Administrative Code (TAC) Section 335), complete Table III-2, Hazardous Waste Management Unit Checklist, and enter the name of each hazardous waste management unit (Note: Please make copies of Table III-2 if necessary).

Give the design capacity of each hazardous waste management unit in any of the units of measure shown. In the case of inactive or closed units for which design details are unavailable, an estimate of the design capacity is sufficient.

Please provide a description for each waste management unit described in your own words on the line provided for "Waste Management Unit."

2. Has the applicant at any time conducted the on-site disposal of industrial solid waste now identified or listed as hazardous waste?

   ☒ Yes ☐ No

   If yes, complete Table III-2 indicating the hazardous waste management units which were once utilized at your plant site but are no longer in service (i.e., inactive or closed facility units).

   If no, and if no hazardous waste is presently or proposed to be stored [for longer than 90 days (see 30 TAC Section 335.53)], processed, or disposed of at your facility, then you need not file this permit application. Otherwise proceed with the application form.

3. Provide an estimate of the total weight (lbs) of hazardous waste material that has been disposed of and/or stored within your site boundaries and not removed to another site.

   Approximately 114.4 million pounds

C. Location of Waste Management Units

1. Submit as "Attachment C" a drawn-to-scale topographic map (or other map if a topographic map is unavailable) extending one mile beyond the facility boundaries, depicting the following:

   a. The approximate boundaries of the facility (described in Section II.B) and within these boundaries, the location and boundaries of the areas occupied by each active, inactive, and proposed hazardous waste management unit (see Table III-2). Each depicted area should be labeled to identify the unit(s), unit status (i.e., active, inactive, or proposed), and areal size in acres.

   b. The overall facility and all surface intake and discharge structures;

   c. All on-site injection wells where liquids are injected underground;

   d. All known monitor wells and boreholes within the property boundaries of the facility; and

   e. All wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within the map area and the purpose for which each water well is used (e.g., domestic, livestock, agricultural, industrial, etc.).

2. Submit as "Attachment D" photographs which clearly delineate all hazardous waste management storage, processing, and disposal units, as well as sites of future storage, processing and disposal units.

D. Flow Diagram/Description

Show as "Attachment E" process flow diagrams and step-by-step word descriptions of the process flow, depicting the handling, collection, storage, processing, and/or disposal of each of the hazardous wastes previously listed in this application.

The flow diagrams or descriptions should include the following information:

1. Originating point of each waste and waste classification code;

2. Means of conveyance utilized in every step of the process flow;

3. Name and function of each facility component through which the waste passes;

4. The ultimate disposition of all wastes (if off-site, specify "off-site") and waste residues.

IV. Index Of Attachments

List and index below all attachments to this application and indicate if included or not included:

Item	Attachments	Attachment	Included	Not Included
I.D.2.a	Lease/Option to buy	A		X
II.B	Site legal description	B	X	
III.C.1	Facility boundaries and adjacent waters map	C	X	
III.C.2	Photographs	D	X	
III.D	Process flow diagram/description	E	X	

Table III-1 – Hazardous Wastes and Management Activities

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Contaminated soil from remedial activities (includes NOR Texas Waste Codes 001319H, 0039301H, 0042301H).	Form Codes: 301, 319 Class H	D001, D018, D023, D024, D025, D026, D028, U002, U019, U052, U043, U120, U159, U165, U220, U226, U227, U239	No	No	No	Yes	Yes	Yes	Variable
Tank 100-5 Bottoms	Form Code 301 Class H	D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U055, U056, U077, U112, U120, U125,	No	No	No	Yes	Yes	Yes	No longer generated

[1] "Storage" means the holding of solid waste for a temporary period, at the end of which the waste is processed, disposed of, or stored elsewhere.

[2] "Processing" means the extraction of materials, transfer, volume reduction, conversion to energy, or other separation and preparation of solid waste for reuse or disposal, including the treatment or neutralization of hazardous waste, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material from the waste or so as to render such waste non-hazardous or less hazardous; safer for transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The "transfer" of solid waste for reuse or disposal as used above, does not include the actions of a transporter in conveying or transporting solid waste by truck, ship, pipeline, or other means. Unless the Executive Director determines that regulation of such activity is necessary to protect human health or the environment, the definition of "processing" does not include activities relating to those materials exempted by the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., as amended.

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
		U140, U154, U159, U161, U177, U188, U191, U210, U220, U226, U227, U239, U240							

Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
Corrective Action Management Unit (CAMU)/Former North Holding Basin (NHB)	004	CAMU – Active Former NHB – Closed	50,000 cubic yards*	CAMU – 28 FNHB – 13	CAMU – 1996 to Present FNHB – 1975 to 1988
Southeast Holding Basin (SEHB)	017	Closed	740 cubic yards**	11	1976 to 1987

*The Former North Holding Basin original design capacity was 88,000 cubic yards. After partial closure of the Former North Hold Basin and construction of the CAMU only 50,000 cubic yards of capacity was available for the CAMU

**The Southeast Holding Basin original design capacity was 3,111 cubic yards.

[1] Indicate only one of the following: Active, Inactive, Closed, or Proposed

[2] Cubic yards, gallons, pounds, gallons/minute, pounds/hour, BTUs/hour, etc.

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 603254707		RN 100237452

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 9/5/2024

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

KM Liquids Terminals LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0800838036	12604497227	760561780	048101364

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

Johnny Kennedy
1500 Clinton Drive

City	State	ZIP	ZIP + 4
Galena Park	TX	77547	

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

[redacted]

18. Telephone Number | **19. Extension or Code** | **20. Fax Number** *(if applicable)*

(713) 654-6035		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Galena Park Terminal

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	906 Clinton Drive							
	City	Galena Park	**State**	TX	**ZIP**	77547	**ZIP + 4**	
24. County								

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	On Clinton Drive, approximately 0.8 miles west of the intersection of Clinton Drive and Federal Road				
26. Nearest City			**State**	**Nearest ZIP Code**	
Galena Park			TX	77547	

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	29.732350		**28. Longitude (W) In Decimal:**	-95.225690	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	56.62	-95	13	32.16

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4226		493190	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Storage Complex

34. Mailing Address:	**Johnny Kennedy**							
	1500 Clinton Drive							
	City	**Galena Park**	**State**	**TX**	**ZIP**	**77547**	**ZIP + 4**	
35. E-Mail Address:	[redacted]							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(713) 654-6035		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				30573
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Johnny Kennedy	41. Title:	Remediation Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(713) 654-6035		( ) -	[redacted]

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	KM Liquids Terminals LLC	Job Title:	Remediation Manager
Name *(In Print)*:	Johnny Kennedy	Phone:	(713) 654- 6035
Signature:	[signature]	Date:	9/6/2024

ATTACHMENT B

Site Legal Description

KINDER MORGAN LIQUID TERMINALS LLC
PROPERTIES DESCRIPTION
Galena Park, Texas

FIELD NOTES

373.721 acres of land situated in the Ezekiel Thomas Survey, A-73 Harris County, Texas, being located on the North shore of the Houston Ship Channel and extending Northward to the Southwest side of Hunting Bayou, and being more particularly described in nine (9) tracts, with respect to the "Texas Coordinate System", South Central Zone, NAD27, South Central Zone, said lands being described as follows:

TRACT 1

114.23 acres of land, out of that certain 123.5686 acre tract described in Deed conveying 463.8705 acres of land from Texaco, Inc. to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and being described as follows:

BEGINNING at the Northeast corner of said 123.5686 acre tract on the South line of the T&NO RR 40 foot wide R.O.W., and having coordinates: X=3,200,372.11 and Y=709,442.27;

THENCE South 3° 28' 30" East, 2334.00 feet to the Southeast corner of said 123.5686 acre tract in the waters of the Houston Ship Channel;

THENCE in a Northwesterly direction with the Southerly lines of said 123.5686 acre tract and along the Northerly waters of said ship channel with the following three (3) courses and distances:

1. South 88° 17' 37" West, 769.90 feet to an angle corner;
2. North 75° 09' 23" West, 1039.00 feet to an angle corner;
3. North 72° 13' 55" West, 904.52 feet to the Southwest corner of said 120.00 acre tract;

THENCE North 3° 30' 10" West, with the West line of said 123.5686 acre tract, 1334.37 feet to a point for corner at its intersection with the South line of said T&NO RR 40 foot wide R.O.W.;

THENCE in an Easterly direction with the South lines of said railroad R.O.W. with the following five (5) courses and distances;

1. North 86° 31' 10" East, 1083.22 feet to a point of curve;
2. With said curve to the left having a radius of 478.59 feet, a central angel of 43° 33' 00" and an arc length of 363.77 feet to its point of tangency;
3. North 43° 58' 10" East, 100.00 feet to another point of curve;
4. With said curve to the right having a radius of 438.59 feet, a central angel of 43° 33' 00" and an arc length of 333.37 feet to its point of tangency;
5. North, 86° 31' 10" East, 812.00 feet to the POINT OF BEGINNING and containing 114.23 acres of land.

TRACT 2

36.75 Acres of land being described as follows:

BEGINNING at a point for the northeast corner, on the west line of that certain 123.5686 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and the south line of the 80-foot wide right-of-way of the T&NO RR, and having coordinates: X=3,197,198.14 and Y=708,941.83;

THENCE South 3° 30' 10" East, with the west line of said 123.5686 acre tract 1312.45 feet to its southwest corner within the waters of the Houston Ship Channel;

THENCE South 76° 22' 54" West, along the northerly waters of said ship channel an approximate distance of 1141.58 feet to the southeast corner of a 16-foot wide Texas Pipeline Company right-of-way;

THENCE North 3° 26' 35" West, with the east line of said pipeline right-of-way 1538.71 feet to its intersection with the south line of said T&NO RR right-of-way;

THENCE North 87° 48' 43" East, with the south line of said railroad right-of-way 1122.53 feet to the POINT OF BEGINNING, and containing 36.75 acres of land.

TRACT 3

71.02 Acres of land being described as follows:

BEGINNING at a point for the northeast corner on the south line of the 80-foot wide right-of-way of the T&NO RR at its intersection with the west line of the Arco Pipeline Company 25-foot wide fee strip, and having coordinates: X=3,196,352.59 and Y=708,886.60;

THENCE South 3° 26' 35" East, with the west line of said Arco fee strip 1606.00 feet to the southwest corner of said Arco strip within the waters of the Houston Ship Channel;

THENCE South 63° 01' 16" West, along the north side of said ship channel an approximate distance of 1764.41 feet to a point for corner;

THENCE North 1° 18' 10" West, 2345.72 feet to a point for corner on the south line of said 80-foot wide railroad right-of-way;

THENCE North 87° 48' 43" East, with the south line of said right-of-way 1530.39 feet to the POINT OF BEGINNING and containing 71.02 acres of land.

TRACT 4

0.53 Acres of land being known as a "Pipeline Alley" lying adjacent to and on the east side of a 16-foot wide Texas Pipeline Company right-of-way and being described as follows:

BEGINNING at the northwest corner of a 7.2143 acre tract leased to CXI on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,106,663.42 and Y=709,670.91;

THENCE South 3° 26’ 35” East, with the west line of said CXI tract, 692.04 feet to its southwest corner on the north line of the 80-foot wide T&NO RR right-of-way;

THENCE South 87° 48’ 43” West, with the north line of said railroad right-of-way 33.38 feet to its intersection with the east line of said Texas Pipeline Company right-of-way;

THENCE North 3° 26’ 35” West, with the east lines of said pipeline right-of-way, 692.12 feet to its intersection with the south right-of-way line of Clinton Drive;

THENCE North 87° 56’ 52” East, with said south right-of-way line, 33.38 feet to the POINT OF BEGINNING and containing 0.53 acres of land.

TRACT 4

10.03 Acres of land being described as follows:

BEGINNING at the northwest corner of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc. to South States Terminals Company recorded under Harris County Clerk’s File No. G 876916, on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,197,751.08 and Y=709,710.64’

THENCE South 3° 30’ 10” East, with the west line of said 24.2862 acre tract, 668.98 feet to its intersection with the curved north line of the T&NO RR right-of-way, generally 80 feet wide;

THENCE in a westerly direction with the north lines of said railroad right-of-way with the following two (2) courses and distances:

1. With a curve to the right having a radius of 246.48 fee, a central angle of 23° 57’ 51” and an arc length of 103.09 feet, (the chord of said arc bears South 75° 49’ 53” West,
2. South 87° 48’ 43” West, 789.72 feet to the most southerly southeast corner of the 7.2143 acre tract leased to CXI;

THENCE in a northeasterly direction with the irregular southeast boundary of said CXI tract with that following five (5) courses and distances:

1. North 3° 04’ 30” West, 182.57 feet to an interior corner,
2. North 84° 50’ 40” East, 197.27 feet to another southeast corner,
3. North 3° 04’ 30” West, 343.91 feet to another interior corner,
4. North 87° 56’ 52” East, 490.97 feet to its most easterly southeast corner,
5. North 1° 56’ 57” West, 154.29 feet to its northeast corner on the south right-of-way line of Clinton Drive;

THENCE North 87° 43’ 30” East, with said south right-of-way line, 194.01 feet to the POINT OF BEGINNING and containing 10.03 acres of land.

TRACT 5

0.53 Acres of land being known as “Pipeline Alley” lying adjacent to and on the east side of a 16-foot wide Texas Pipeline Company right-of-way and being described as follows:

BEGINNING at the northwest corner of a 7.2143 acre tract leased to CXI on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,106,663.42 and Y=709,670.91;

THENCE South 3° 26’ 35” East, with the west line of said CXI tract, 692.04 feet to its southwest corner on the north line of the 80-foot wide T&NO RR right-of-way;

THENCE South 87° 48’ 43” West, with the north line of said railroad right-of-way 33.38 feet to its intersection with the east line of said Texas Pipeline Company right-of-way;

THENCE North 3° 26’ 35” West, with the east lines of said pipeline right-of-way, 692.12 feet to its intersection with the south right-of-way line of Clinton Drive;

THENCE North 87° 56’ 52” East, with said south right-of-way line, 33.38 feet to the POINT OF BEGINNING and containing 0.53 acres of land.

TRACT 6

10.03 Acres of land being described as follows:

BEGINNING at the northwest corner of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc. to South States Terminals Company recorded under Harris County Clerk’s File No. G 867916, on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X= 3,197,751.08 and Y=709,710.64;

THENCE South 3° 30’ 10” East, with the west line of said 24.2862 acre tract, 668.98 feet to its intersection with the curved north line of the T&NO RR right-of-way, generally 80 feet wide;

THENCE in a westerly direction with the north lines of said railroad right-of-way with the following two (2) courses and distances:

1. With a curve to the right having a radius of 246.48 fee, a central angle of 23° 57’ 51” and an arc length of 103.09 feet, (the chord of said arc bears South 75° 49’ 53” West, 102.34 feet), to its point of tangency,
2. South 87° 48’ 43” West, 789.72 feet to the most southerly southeast corner of the 7.2143 acre tract leased to CXI;

THENCE in a northeasterly direction with the irregular southeast boundary of said CXI tract with that following five (5) courses and distances:

1. North 3° 04’ 30” West, 182.57 feet to an interior corner,
2. North 84° 50’ 40” East, 197.27 feet to another southeast corner,
3. North 3° 04’ 30” West, 343.91 feet to another interior corner,
4. North 87° 56’ 52” East, 490.97 feet to its most easterly southeast corner,

5. North 1° 56’ 57” West, 154.29 feet to its northeast corner on the south right-of-way line of Clinton Drive;

THENCE North 87° 43’ 30” East, with said south right-of-way line, 194.01 feet to the POINT OF BEGINNING and containing 10.03 acres of land.

TRACT 7

1.48 Acres of land being, in part out of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk’s File No. G-867916, and being described as follows:

BEGINNING at the northwest corner of said 24.2862 acre tract leased on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,197,751.08 and Y=709,710.64;

THENCE North 86° 31’ 10” East, with said south right-of-way line, 91.00 feet to the northwest corner of a 20.0000 acre tract conveyed to Lubripac;

THENCE North 3° 30’ 10” East, with the west line of said Lubripac tract, 708.33 feet to its southwest corner on the north line of a 40 foot wide T&NO RR right-of-way;

THENCE South 86° 31’ 10” West, with said north line, 91.00 feet to a point for corner;

THENCE North 3° 30’ 10” West, in part with the west line of said 24.2862 acre tract, 708.33 feet to the POINT OF BEGINNING and containing 1.48 acres of land.

TRACT 8

1.83 Acres of land being the residue of a 12.16 acre tract of land, in part out of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk’s File No. G 867916, and being described as follows:

BEGINNING at the northeast corner of said 24.2862 acre tract leased on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,200,346.23 and Y=709,868.49;

THENCE South 3° 30’ 10” East, with the east line of said 24.2862 acre tract, 387.00 feet to its southeast corner on the north line of the 40 foot wide T&NO RR right-of-way;

THENCE South 86° 31’ 10” West, with said north line, 812.00 feet to a point of curve;

THENCE 32.30 feet in a westerly direction along the arc of said curve to the left having a radius of 478.59 feet, a central angle of 3° 51’ 59” and a long chord that bears South 84° 35’ 10” West, 32.29 feet to the southwest corner of this 7.478 acre tract;

THENCE North 2° 43’ 25” West, with the east line of 4.686 acre tract of land sold to Texaco, 388.12 feet to its intersection with the south right-of-way line of Clinton Drive;

THENCE North 86° 31’ 10” East, with said south right-of-way line of Clinton Drive, 839.18 feet to the POINT OF BEGINNING and containing 7.48 acres of land.

Save and except the following 5.649 acre tract as described below:

Being a 5.649 acre tract of land out of the Ezekiel Thomas Survey, Abstract Number 73 and situated in Harris County, Texas, being out of and a portion of the residue of a called 24.2862 acre tract of land conveyed to GATX Terminals Corporation (also known as KM Liquids Terminals, L.P.) as described in deed recorded under Harris County Clerk’s File Number (H.C.C.F. No.) G867917, said 5.649 acre tract of land being more particularly described as follows (Bearings shown heron are based on the south line of said residue of a called 24.2862 acre tract of land, being South 86° 31’ 10” West);

COMMENCING, for reference at a 1/8-inch pin inside a 6-inch iron pipe found in the south Right-of-Way (R.O.W.) line of Clinton Drive (100 feet R.O.W.) and marking the northeast corner of said residue of a called 24.2862 tract;

THENCE, South 86° 29’ 11” West, along the south R.O.W. line of said Clinton Drive and the north line of said residue of a called 24.2862 acre tract, a distance of 154.00 feet;

THENCE, South 03° 28’ 41” East, departing the south R.O.W. line of said Clinton Drive and the north line of said residue of a called 24.2862 acre tract, crossing a pipeline corridor and over and across said residue of a called 24.2862 acre tract, a distance of 30.00 feet to a 5/8-inch iron rod with cap stamped “Terra Surveying” set in the south line of said pipeline corridor, marking the northeast corner and the POINT OF BEGINNING of the herein described tract, from which a ½-inch iron rod with cap stamped “Gullett Assoc” bears South 03° 28’ 41” East, 0.59 feet;

THENCE, South 03° 28’ 41” East, a distance of 358.25 feet to a 1/2 –inch iron rod with cap stamped “Gullett Assoc” found in the south line of said residue of a called 24.2862 acre tract and the north line of a called 2.4947 acre tract (40-foot wide Right-of-Way) as described in a deed to Texas and New Orleans Railroad Company recorded under Volume (Vol.) 2501, Page (Pg.) 242 of the Harris County Deed Records (H.C.D.R.) and marking the southeast corner of the herein described tract;

THENCE, South 86° 31’ 10” West, along the south line of said residue of a called 24.2862 acre tract and the north line of said 2.4947 acre tract, at a distance of 561.89 feet (called 561.9 feet) passing a ½-inch iron rod with cap stamped “Gullett Assoc” found, continuing a total distance of 689.32 feet to a 5/8-inch iron rod with cap stamped “Terra Surveying” set marking the southeast corner of a called 4.607 acre tract of land conveyed to Texaco Refining and Marketing Inc., as described in deed recorded under H.C.C.F. No. S836081 and marking the southwest corner of the herein described tract;

THENCE, North 02° 45’ 24” West, departing the south line of said residue of a called 24.2862 acre tract and the north line of said 2.4947 acre tract, along the east line of said 4.607 acre tract, at a distance of 338.12 feet passing the most northeasterly corner of said 4.607 acre tract, continuing over and across said residue of a called 24.2862 acre tract, a total distance of 358.10 feet to a 5/8-inch iron rod with cap stamped “Terra Surveying” set in the south line of the aforesaid pipeline corridor, being South 02° 45’ 24” East, 29.79 feet from the aforesaid south R.O.W. line of Clinton Drive, marking the northwest corner of the herein described tract;

THENCE, North 86° 30’ 15” East, continuing over and across said residue of a called 24.2862 acre tract and along said south line of the pipeline corridor, at a distance of 122.93 feet passing a ½-inch iron rod with cap stamped “Gullett Assoc” which bears South 07° 02’ 30” West, 0.59

feet, continuing a total distance of 684.82 feet to the POINT OF BEGINNING and containing 5.649 acres of land.

TRACT 9

120.36 Acres of land being the residue of a 191.43 acre tract of land, in part out of that certain 316.0457 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and in part out of those certain 43.328 acre and 49.301 acre tracts described in a deed to General American Transportation Company recorded in Volume 2433, Page 332, Harris County Deed Records, said 130.361 acres of land being described as follows:

BEGINNING at the southeast corner of said 316.0157 acre tract leased on the north right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,200,339.61 and Y= 709,968.27;

THENCE South 86° 31' 10" West, with said north right-of-way line, 64.62 feet to the southeast corner of a 50 foot by 100 foot tract conveyed to Entex, Inc.;

THENCE in a counterclockwise direction with the east, north and west lines of said Entex tract with the following three (3) courses and distances:

1. North 3° 31' 20" West, 100.00 feet,
2. South 86° 31' 10" West, 50.00 feet,
3. South 3° 31' 20" East, 100.00 feet to its southwest corner on the north right-of-way line of Clinton Drive;

THENCE in a westerly direction with the South lines of said 316.0157 acre tract and with said north right-of-way line with the following two (2) courses and distances:

1. South 86° 31' 10" West, 2510.70 feet to an angle point,
2. South 88° 04' 16" West, 46.38 feet to the southwest corner of said 316.0157 acre tract, and the southeast corner of said 43.328 acre tract, being the southeast corner of Tract 4-A of seven parcels totaling 107.5551 acres conveyed to Arco Pipeline Company;

THENCE generally in a northerly direction with the easterly and northerly lines of Tract 4-A, Tract 3, Tract E, Tract D, Tract C-2 and Tract C-1 of said seven Arco Pipeline Company parcels, with the following twelve (12) courses and distances:

1. North 3° 24' 05" West, with the west line of said 316.0157 acre tract and the east line of said 43.328 acre tract 1243.39 feet,
2. South 86° 35' 55" West, 300.00 feet to a point within said 43.328 acre tract,
3. North 3° 24' 05" West, 300.00 feet,
4. North 86° 35' 55" East, 300.00 feet to a point on the common line between said 43.328 acre and said 316.0157 acre tracts,
5. South 3° 24' 05" East, with said common line 100.00 feet,

6. North 86° 31’ 10” East, entering said 316.0157 acre tract, 884.30 feet, to the southeast corner of Tract 3,
7. North 3° 24’ 05” West, 161.57 feet,
8. North 86° 29’ 39” East, 735.70 feet to the southeast corner of Tract E,
9. North 3° 24’ 05” West, 1062.41 feet to the northeast corner of said Tract D,
10. South 83° 50’ West, 187.96 feet to a point of curve,
11. With said curve to the right having a radius of 484.28 feet, a central angle of 45° 07’ 31” and an arc length of 381.41 feet to its point of tangency,
12. North 51° 02’ 29” West, 254.36 feet to the lower southwest corner of a 60.57 acre tract surveyed by G.P. Surveyors in October, 1995,

THENCE North 86° 31’ 10” East, 262.45 feet to the center of Hunting Bayou and in the northeasterly line of said 191.43 acre tract;

THENCE in a southeasterly direction down Hunting Bayou with the meanders of its centerline and with the westerly and southerly lines of said 102.1255 acre tract with the following six (6) courses and distances:

1. South 57° 41’ East, 93.94 feet,
2. South 72° 25’ East, 180.00 feet,
3. North 81° 10’ East, 315.00 feet,
4. North 89° 30’ East, 190.00 feet,
5. North 82° 45’ East, 580.00 feet,
6. South 79° 10’ East, 188.00 feet to the southeast corner of said 102.1255 acre tract on the east line of said 316.0157 acre tract;

THENCE South 3° 31’ 20” East, with the east line of said 316.0157 acre tract, 2849.65 feet to the POINT OF BEGINNING and containing 130.36 acres of land.

Also included is following 10.000 acres as described below:

ALL that certain 10.0000 acres (435,600 square feet) of land situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, and being out of the residue of that certain 316.0157 acre tract described as Parcel One in instrument to GATX Terminals Corporation recorded under File Number G867917 of the Harris County Official Public Records of Real Property (H.C.O.P.R.R.P.); said 10.0000 acres (435,600 square feet) of land being more particularly described by metes and bounds as follows (all bearings are referenced to the westerly line of said 316.0157 acre tract, having a bearing of North 03° 24’ 05” West):

COMMENCING at a ½ inch iron rod found for the southwesterly corner of said 316.0157 acre tract, the southeasterly corner of a called 19.396 acre tract described in instrument to ARCO MIDCON, LLC, recorded under File Number V904204, H.C.O.P.R.R.P., from which a concrete monument found with a “TEXACO” star on top bears S67° 28’W, 0.71 feet, said point also being in the northerly right-of-way of Clinton Drive (100 feet wide), as described in instruments

recorded in Volume 704, Page 216, and Volume 1011, Page 47, of the Harris County Deed Records, (H.C.D.R.);

THENCE North 03° 24’ 05” West, 184.69 feet, leaving the northerly right-of-way of said Clinton Drive, with the westerly line of said 316.0157 acre tract, the easterly line of said 19.396 acre tract, to a 5/8 inch iron rod with cap stamped “A.L. SIKES RPLS 2914” set for the POINT OF BEGINNING of the herein described tract;

THENCE North 03° 24’ 05” West, with the westerly line of said 316.0157 acre tract, the easterly line of said 19.396 acre tract, at 818.69 feet, passing the most easterly northeast corner of said 19.396 acre tract, at 1,058.69 feet passing the most southerly northeast corner of the residue of a called 38.1524 acre tract described as Tract-A in instrument to Four Corners Pipe Line Company, recorded under File Number R276485, H.C.O.P.R.R.P., said corner being the southeasterly corner of the residue of a called 40.2186 acre tract described in instrument to GATX Terminals Corporation, recorded in Volume 2433, Page 332, H.C.D.R., in all a distance of 1,089.00 feet, to a 5/8 inch iron rod with cap stamped “A.L.SIKES RPLS 2914” set for the northwesterly corner of this tract;

THENCE North 86° 35’ 55” East, 400.00 feet to 5/8 inch iron rod with cap stamped “A.L. SIKES RPLS 2914” set for the northeasterly corner of this tract;

THENCE South 03° 24’ 05” East, 1eet to 5/8 inch iron rod with cap stamped “A.L. SIKES RPLS 2914” set for the southeasterly corner of this tract;

THENCE South 86° 35’ 55” West, 400.00 feet, to the PLACE OF BEGINNING and containing 10.0000 acres (435,600 square feet) of land.

Total Lands of Kinder Morgan Liquid Terminals LLC: 383.721 Acres

Exhibit A

West Chemical Plant Property Description
Galena Park, Texas

THAT CERTAIN TRACT OR PARCEL OF LAND CONTAINING THIRTY SEVEN (37) ACRES MORE OR LESS OUT OF THE EAST HALF OF THE EZEKIEL THOMAS LEAGUE A-73 IN HARRIS COUNTY, TEXAS, AS CONVEYED TO C. D. KEEN AND W. C. WOOLF BY OSCEOLA E. TOD, AS INDEPENDENT EXECUTRIX OF THE ESTATE OF JOHN G. TOD, DECEASED, BY DEED DATED AUGUST 16TH, 1919, AND RECORDED IN VOLUME 431, PAGE 44 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS; INCLUDING ANY LAND ALONG THE WESTERN BOUNDARIES OF SAID TRACT CONVEYED TO KEEN & WOOLF OIL COMPANY BY CLARION OIL COMPANY BY DEED DATED FEBRUARY 6, 1928, AND RECORDED IN VOLUME 730, PAGE 710 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS, AND EXCEPTING HEREFROM ANY LANDS RELEASED TO SAID CLARION OIL COMPANY BY KEEN & WOOLF OIL COMPANY ALONG THE WESTERN BOUNDARY LINE BY SAID DEED DATED FEBRUARY 6TH, 1923, THE TRACT OF LAND HEREBY CONVEYED BEING FURTHER DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT AN 8 INCH IRON PIPE MARKING THE EXISTING NORTHWEST CORNER OF THE AFORESAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND AT THE NORTHEAST CORNER OF THE CLARION OIL COMPANY TRACT OF LAND ON THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE;

THENCE SOUTH 0° 01' 52" WEST, ALONG THE WEST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND, ON THE EAST LINE OF THE AFORESAID CLARION OIL COMPANY TRACT OF LAND, A DISTANCE OF 3698.06 FEET TO A POINT MARKING THE SOUTH-WESTERLY CORNER OF THE SAID KEEN AND WOOLF 37 ACRE TRACT OF LAND ON THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL;

THENCE NORTH 55° 23' 04" EAST, ALONG THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL, A DISTANCE OF 563.37 FEET TO THE SOUTHEASTERLY CORNER OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND;

THENCE NORTH 0° 02' 12" EAST, ALONG THE EAST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND ON THE WEST LINE OF THE A. M. BAKER, W. G. PRIESTER, IKE EDWARDS, M. TOD, AND J. EDWARDS TRACTS OF LAND, A DISTANCE OF 3381.39 FEET TO A 6 INCH IRON PIPE FOR CORNER ON THE SOUTH LINE OF CLINTON DRIVE;

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 231.30 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 0° 25' EAST, A DISTANCE OF 150.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 89° 35' WEST ALONG A LINE PARALLEL TO AND 150 FEET SOUTH OF THE SOUTH LINE OF CLINTON DRIVE, A DISTANCE OF 200.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

CONTINUED ON ATTACHMENT

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 32.50 FEET TO THE PLACE OF BEGINNING; SAVE AND EXCEPT AN 80 FOOT STRIP CONVEYED BY JOHN G. TOD TO THE TEXAS AND NEW ORLEANS RAILROAD COMPANY BY DEED DATED SEPTEMBER 28, 1916, RECORDED IN VOLUME 371, PAGE 245 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS.

FILED
2007 JUL 31 PM 3:21
COUNTY CLERK
HARRIS COUNTY, TEXAS

Exhibit B

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

JUL 31 2007

COUNTY CLERK
HARRIS COUNTY, TEXAS

Being part of and out of 30,000 square foot tract or land referred to in the deed recorded in volume 431 at page 44 of the deed records of Harris County Texas, in the Ezekiel Thomas Survey, abstract 73 in Galena Park Harris County Texas and being more particular described as follows:

BEGINNING at a 1-inch iron pipe marking the northeast corner of the aforesaid 30,000 square foot tract of land, on the south line of Clinton Drive, 100 feet wide, said beginning corner being located N 89° 35' E, a distance of 232.50 feet from a iron pipe marking the northwest corner of that tract of land described in deed recorded in Volume 431, Page 44 of the Deed Records of Harris County, Texas;

THENCE S 89° 35' W, along the north line of the aforesaid 30,000 square foot tract of land, on the south line of Clinton Drive, 100 feet wide, a distance of 48.40 feet to a point for corner, in a 6 foot chain link fence line;

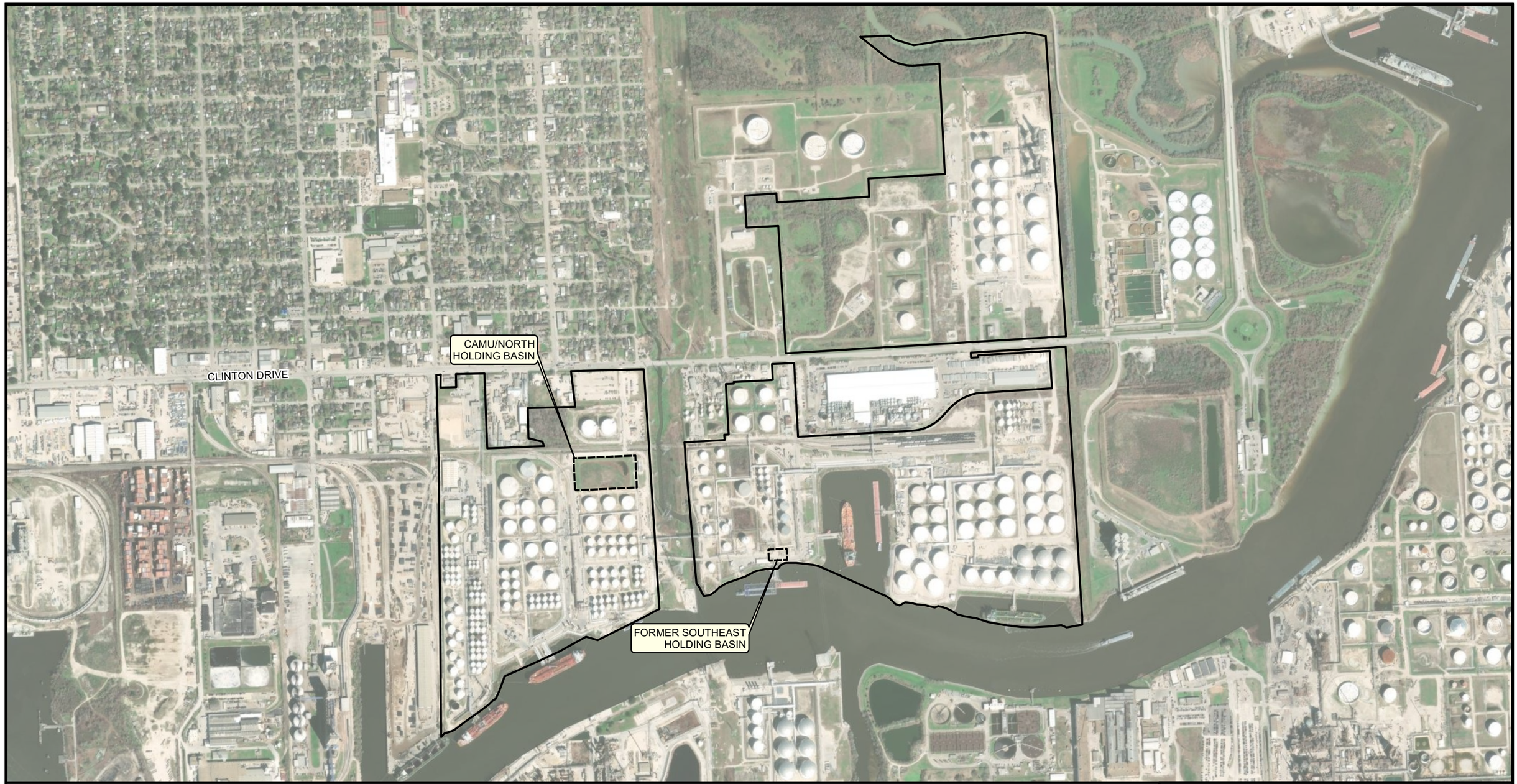
THENCE S 0° 21' W, along the said chain link fence line, a distance of 111.96 feet to a fence post for corner;

THENCE S 89° 08' W, along the said fence line, a distance of 150.10 feet to a point for corner, on the west line of the said 30,000 square foot tract of land;

THENCE S 0° 25' E, along the west line of the said 30,000 square foot tract of land, a distance of 36.87 feet to a 1-inch iron pipe marking the southwest corner of the said 30,000 square foot tract of land;

THENCE N 89° 35' E, along the south line of the said 30,000 square foot tract of land, a distance of 200.00 feet to a 1-inch iron pipe marking the southeast corner of the said 30.000 square foot tract of land;

THENCE N 0° 25' W, along the east line of the said 30,000 square foot tract of land, a distance of 150.00 feet to the PLACE OF BEGINNING.



Approximate Terminal Boundary

RCRA Permitted Units

N
W E
S

0 450 900

Approximate Scale in Feet

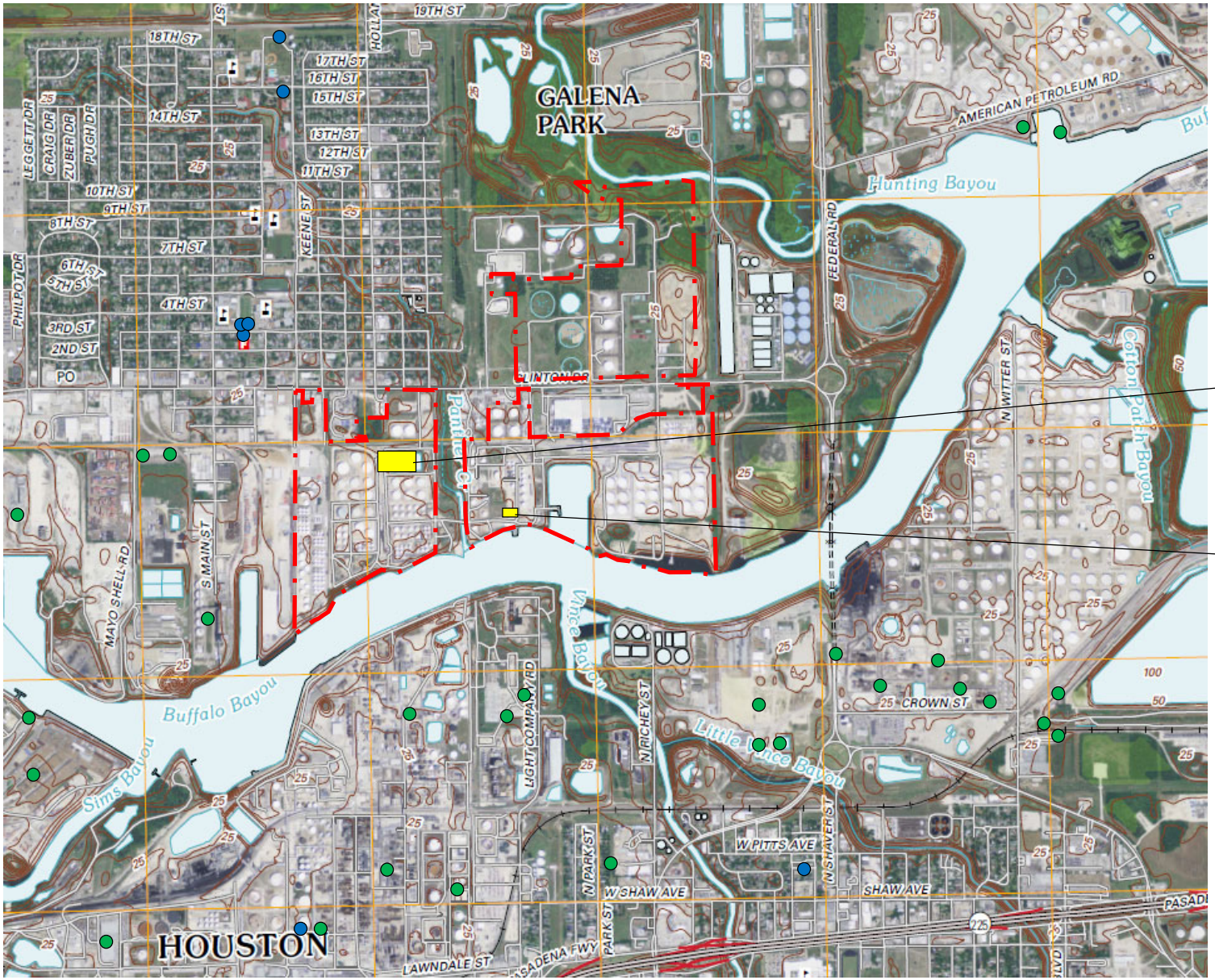
TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

FACILITY PLAN DRAWING

ATTACHMENT C

Facility Maps



LEGEND

- Kinder Morgan Facility Boundary
- Hazardous Waste Management Unit
- Public Supply Water Well Location
- Industrial or Unused Water Well Location

CAMU/Former North Holding Basin (NOR Unit 004 – Active)

Southeast Holding Basin (NOR Unit 017 – Closed)

Base Map Source:
USGS 7.5 Minute Series
Topographic Quadrangle 2013
Pasadena, Texas
Contour Interval = 5'

DRAFTED BY:	**Location of Hazardous Waste Management Units**
CHECKED BY:	PART A ATTACHMENT C-1 KM Liquids Terminals LLC Galena Park, Texas
REVIEWED BY:	Tetra Tech, Inc. 1500 CITYWEST BLVD., SUITE 1000, HOUSTON, TEXAS 77042
NORTH	APPROXIMATE SCALE IN FEET: 0 – 1500
	DATE: 06-6-2024
	FIGURE: **C-1**



Legend

- Monitoring Well
- Recovery Well
- Observation Well
- Piezometer
- ROW Well
- iSOC Oxygenation Installation Individual Oxygen Cylinder at Each Location
- Recovery Trench
- Tracts
- Texmark Boundary
- Plant Areas
- Southeast Holding Basin Boundary
- North Holding Basin Boundary
- Gate 6 Boundary
- OPH5 Boundary

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 125 250 500 750
Feet

AECOM
19219 Katy Freeway, Suite 100
Houston, TX 77094
Tel: (281) 646-2400

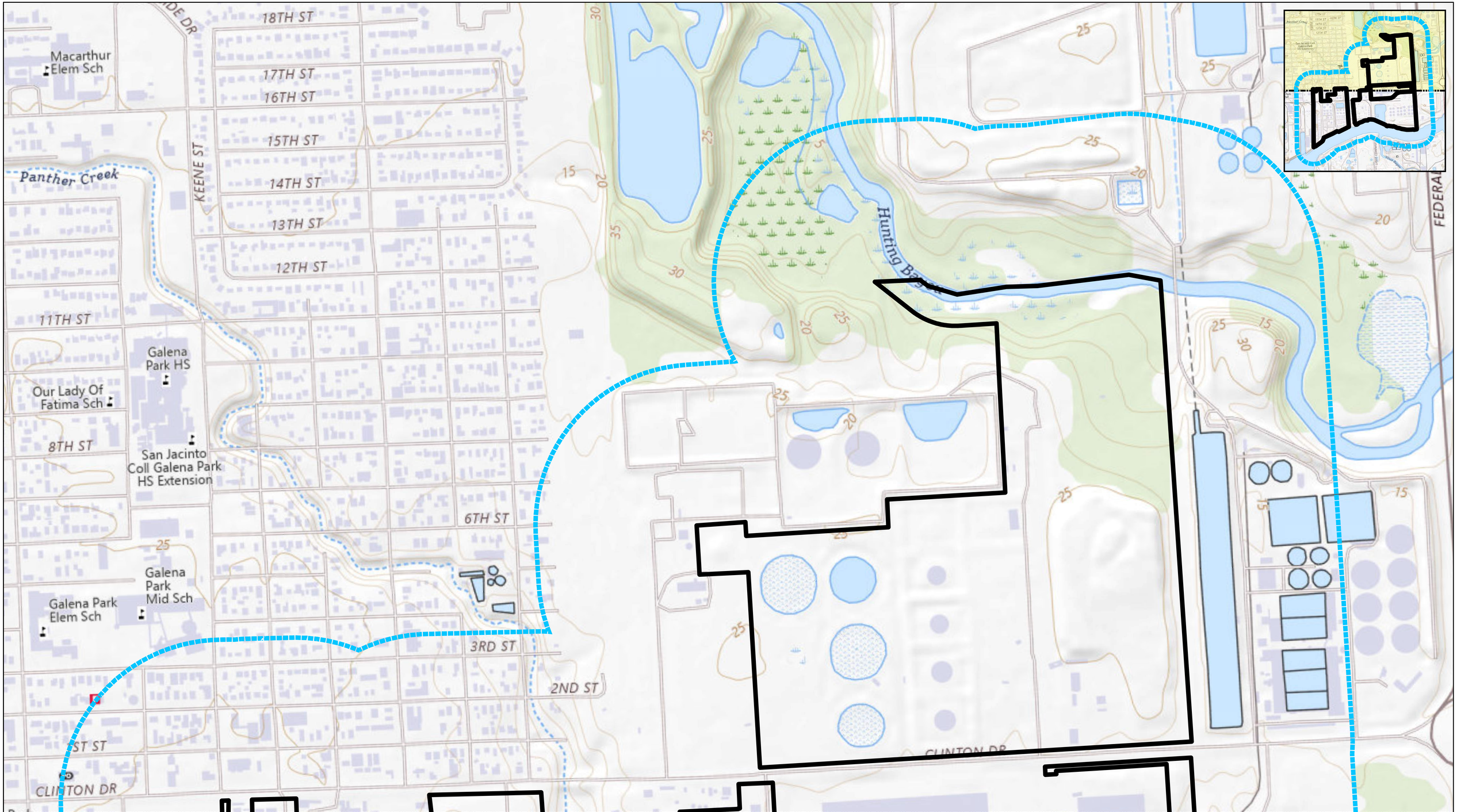
Title: Facility Map

Project: Galena Park Facility
KM Liquids Terminals LLC
Galena Park, Texas

Client: KMLT

Project No.:	Date:	File Name:	Figure:
60725052	7/22/2024	Galena Park Facility	C-2

Path: L:\Legacy\USHOU1FS001\Prod\Projects\...ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\Basemaps\Galena Park Facility.mxd



Approximate Terminal Boundary

1000-Foot Radius

Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.

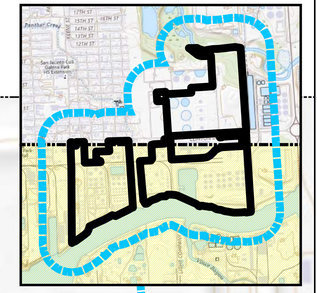
TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

FACILITY SITE MAP
CP ATTACHMENT A-102

0 100 200
Approximate Scale in Feet

MATCH LINE SEE ATTACHMENT A-102



AVE K
AVE J
H ST
G
S MAIN ST
C ST
Panther Creek
TEXAS
Buffalo Bayou
LIGHT COMPANY RD
Vince Bayou
RICHEY

Approximate Terminal Boundary

1000-Foot Radius

Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.

0 100 200
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

FACILITY SITE MAP
CP ATTACHMENT A-103

ATTACHMENT D

Photographs

PHOTOGRAPHIC DOCUMENTATION			
Client:	KM Liquid Terminals LLC	**Date:**	2021
Property Location:	Galena Park Terminal	**City:**	Galena Park, TX



Description:	View of CAMU/Former North Holding Basin, facing east.

PHOTOGRAPHIC DOCUMENTATION			
Client:	KM Liquid Terminals LLC	**Date:**	2021
Property Location:	Galena Park Terminal	**City:**	Galena Park, TX



Description:	Close-up view of CAMU/Former North Holding Basin, facing east.

PHOTOGRAPHIC DOCUMENTATION			
Client:	KM Liquid Terminals LLC	**Date:**	2021
Property Location:	Galena Park Terminal	**City:**	Galena Park, TX

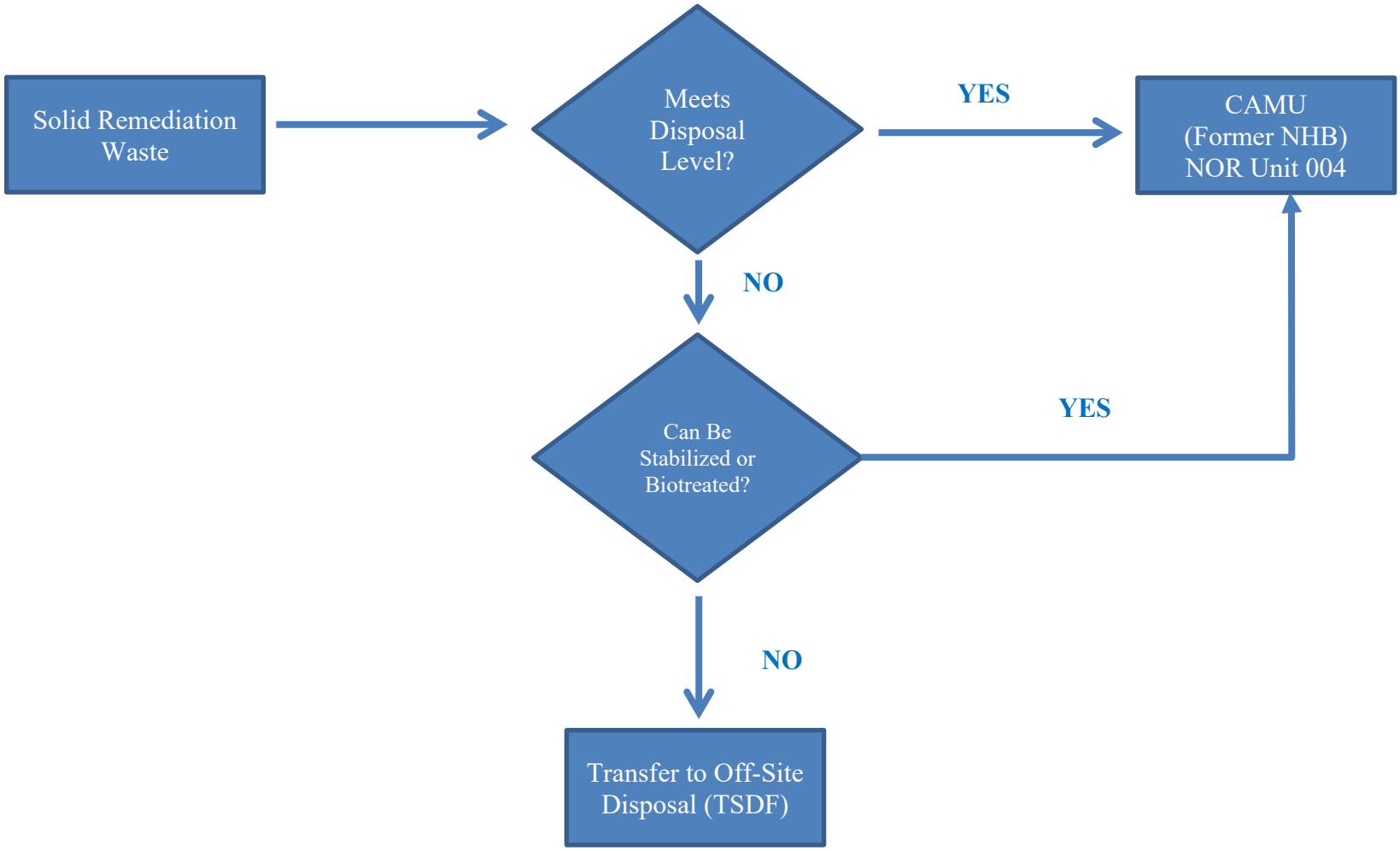


Description:	View of Southeast Holding Basin, facing north.

ATTACHMENT D

Process Flow Diagram

CAMU Process Flow Diagram



Texas Commission on Environmental Quality
Permit Application for
Industrial and Hazardous Waste
Storage/Processing/Disposal Facility
with Compliance Plan

Part B

Form Availability:

This form, as well as other Industrial and Hazardous Waste documents, Part B electronic checklist, and pertinent rules, is available on the Internet. The TCEQ Home Page is at: http://www.tceq.texas.gov. Once you have accessed the home page, select "Forms and Publications" and follow the system prompts. The number for this form is 00376. Questions may be e-mailed to ihwper@tceq.texas.gov.

Introduction:

This permit application is generally a reorganized summary of the Part B information requirements of 40 CFR Part 270 and 30 Texas Administrative Code (TAC) Chapter 305 Subchapters C and D and Chapter 335. The TCEQ may request additional information before a permit is issued, if regulatory requirements change.

The original application plus all copies for New, Renewals, Major Amendments and Class 3 Modifications should be submitted to:

Texas Commission on Environmental Quality
Attention: Waste Permits Division, MC 126
P. O. Box 13087
Austin, Texas 78711-3087

The original application plus all copies for Class 1, Class 1[1], Class 2 Modifications and Minor Amendments should be submitted to:

Texas Commission on Environmental Quality
Attention: Industrial and Hazardous Waste Permits Section, MC 130
Waste Permits Division
P. O. Box 13087
Austin, Texas 78711-3087

Telephone Inquiries:

(512) 239 - 2335 (For RCRA permit application) - Industrial & Hazardous Waste Permits

Section, Waste Permits Division

(512) 239 - 6412 (For industrial and hazardous waste classification) - Technical Analysis Team, Industrial & Hazardous Waste Permits Section, Waste Permits Division

(512) 239 - 6413 (For solid waste registration number, EPA identification number, and notice of registration) - Registration and Reporting Section, Permitting and Registration Support Division

(512) 239 - 0272 (For non-combustion units) - Chemical New Source Review Permits Section, Air Permits Division

(512) 239 - 1583 (For combustion units) - Energy/Combustion New Sources Review Permits Section, Air Permits Division

(512) 239 - 0600 (For legal) - Environmental Law Division

(512) 239 - 6150 (For financial assurance) - Financial Assurance Unit, Revenue Operations Section, Financial Administration Division

(512) 239 - 0300 (For payment of permit application fees) - Cashier's Office, Revenue Operations Section, Financial Administration Division

(512) 239 - 2201 (For compliance plan or corrective action) - Voluntary Cleanup Program/Corrective Action Section, Remediation Division

Application Review Prohibition:

The Texas Commission on Environmental Quality (TCEQ) shall not review an application for a new commercial hazardous waste facility, and the application shall be deemed not to have been received, until the emergency response information required by Section III.F. of the application has been reviewed and declared by TCEQ staff to be complete and satisfactory. [30 TAC 281.26, 30 TAC 305.50(a)(12)(C) and (D)]

Permit Issuance Prohibited [30 TAC 335.205]:

The TCEQ shall not issue a permit for:

1. a new hazardous waste management facility or an areal expansion of an existing facility if the facility or expansion does not meet the requirements of 30 TAC 335.204 (relating to Unsuitable Site Characteristics);
2. a new hazardous waste landfill or the areal expansion of an existing hazardous waste landfill if there is a practical, economic, and feasible alternative to such a landfill that is reasonably available to manage the types and classes of hazardous waste which might be disposed of at the landfill;
3. a new commercial hazardous waste management facility as defined in 30 TAC 335.202 (relating to Definitions) or the subsequent areal expansion of such a facility or unit of that facility if the owner/operator proposes to locate the boundary of the unit within 0.5 of a mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park;
4. a new commercial hazardous waste management facility that is proposed to be located at a distance greater than 0.5 mile (2,640 feet) from an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park unless the applicant demonstrates to the satisfaction of the commission that the facility will be

operated so as to safeguard public health and welfare and protect physical property and the environment, at any distance beyond the facility's property boundaries;

5. a proposed hazardous waste management facility, or a capacity expansion of an existing hazardous waste management facility if a fault exists within 3,000 feet of the proposed hazardous waste management facility or of the capacity expansion of an existing hazardous waste management facility unless the applicant performs the demonstration found in 30 TAC 305.50(a)(4)(D) and 305.50(a)(10)(E) ; and

6. A proposed solid waste facility for the processing or disposal of municipal hazardous waste or industrial solid waste which is located within an area of a municipality or county in which the processing or disposal of municipal hazardous waste or industrial solid waste is prohibited by an ordinance or order. [Texas Health and Safety Code Section 363.112]

See 30 TAC 335 Subchapter G: Location Standards for Hazardous Waste Storage, Processing, or Disposal for additional details and information regarding items 1 through 5 above.

Completing The Application and Electronic Checklist:

Prior to submitting a new permit application, please contact the TCEQ Permitting and Registration Support Division to obtain a Solid Waste Registration Number and an EPA Identification Number for inclusion in Section I.A. of this application. The facility's Solid Waste Registration Number may be proposed in Section I.A. as the Permit Number

This permit application form has been designed to solicit specific information, with reports to be attached or inserted. A response must be made for each informational request in the application form. If an item is not applicable please state "not applicable" and explain. All information included in the application must be listed by the format of the application. For example, if an engineering report is attached to the application to fulfill the requirements of Section V, then each subsection of the engineering report must correlate with the corresponding subsection in the application form (e.g., Subsection V.A.3. of the report would be proposed construction schedules). If information is provided which does not correspond with the application form, the specific rule or regulation which requires submittal of the information must be cited. Each report should be attached behind the summary form or table for the report and submitted as one document with the pages sequentially numbered at the bottom. Maps, bluelines, and drawings that cannot be folded to 8-1/2" x 11" may be submitted as separate documents. Engineering plans and specifications submitted with an application must be approved and sealed by a licensed Professional Engineer, with current license and designating the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act. Geology reports, geologic maps, and geologic cross-sections submitted with an application must be approved and sealed by a licensed Professional Geologist, with current license required by the Texas Geoscience Practice Act. Complete the tables in this application rather than substituting.

Facilities which will receive industrial and hazardous wastes from off-site sources must also provide information on these wastes and associated waste management units in accordance with 30 TAC 335.2.

In addition, the electronic checklist has been designed to facilitate the application preparation and review process, and should be completed and submitted along with applicable applications (see "Submittal" below).

For those who pre-filed a Part A application, certain items may have been omitted. These

omissions must be addressed at this time. Additionally, if hazardous waste management methods have changed since the filing of the Part A, please provide an updated Part A.

Pursuant to Section 361.067 of the Texas Health and Safety Code, the TCEQ is required to mail a copy of this application or a summary of its contents to other regulatory agencies. Section I may be considered a summary of the entire application provided that all questions are completely answered. Therefore, Section I responses must not rely solely on cross-references to other sections of the application.

Groundwater Contamination:

If groundwater monitoring has detected the presence of hazardous constituents in the facility groundwater, the owner or operator must submit a Compliance Plan Application that is included as Section XI of this application. For more detailed instructions concerning a Compliance Plan, please see Section XI.

Submittal:

The complete application should be prepared using word processing. The third copy in the submittal package should consist of paper copies or PDF files of all surveys, reports, plot plans, diagrams, P&IDs, maps, etc., and a Compact Disk (CD) of the completed application form document and tables formatted in MS Word. Files may be compressed using PKZIP Ver. 2 or a 100% compatible program. For Renewal, Amendment, and Modification applications, the MS Word files should include both a finalized version and, where available, a redline/strikeout version clearly identifying all proposed changes from the existing permit. For revised application sections and incorporated documents where redline/strikeout versions are not available, submit a detailed listing of all proposed changes to the existing permit. In addition, the submitted electronic version of the application should be easily searchable during the review process by TCEQ staff.

For a new permit application or renewal, submit:

1. an original updated Part A permit application plus three (3) full copies;
2. the original Part B application plus three (3) full copies (including the electronic third copy);
3. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
4. Pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
5. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For a new compliance plan or renewal of an existing compliance plan, please submit the following in addition to the above:

1. Sections I and XI.A. through XI.E., as applicable;
2. Tables XI.A.I., XI.E.I. through XI.E.III., and CP Tables I, II, V, VI through VIII, are required; and CP Tables III, IIIA, IV, and IVA as applicable; and
3. a Sampling and Analysis Plan (SAP) compliant with "Attachment A" requirements and evaluation of monitoring wells compliant with "Attachment B" well specification requirements.

For a post-closure care permit submit:

1. an original updated Part A permit application plus three (3) full copies;
2. the original Part B application (excluding Sections III B and F; IV A, C and D; VII A and B; VIII.B and C; and X) plus three (3) full copies;
3. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
4. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
5. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For major amendments to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I of the Part B plus replacement pages for the changed portions of the application that change as a result of the amendment;
3. an explanation of why the major amendment is needed;
4. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
5. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
6. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For minor amendments to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I of the Part B plus replacement pages for the changed portions of the application that change as a result of the amendment;
3. an explanation of why the minor amendment is needed;
4. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and
5. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on diskette on Compact Disk (CD) in MS Word format.

For Class 3 modifications (including adding or revising a Compliance Plan) to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a

minimum, Section I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;

3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 3 modification is needed;
5. evidence of the public notice mailing and publication (after the public meeting, please submit a statement that the public meeting was held within the required timeframes);
6. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
7. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
8. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For Class 2 modifications to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 2 modification is needed;
5. evidence of the public notice mailing and publication (after the public meeting, please submit a statement that the public meeting was held within the required timeframes);
6. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and
7. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on diskette on Compact Disk (CD) in MS Word format.

For Class 1[1] modifications to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 1[1] modification is needed;
5. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and

6. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive, for applications involving the partial transfer of some permitted waste management units.

For Class 1 modifications to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 1 modification is needed; and
5. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division.

If several modifications are submitted as one application, the application review will proceed at rate of the amendment or modification which has the longest timeframe.

Application Revisions:

Please submit any application revisions with a revised date and page numbers at the bottom of the page(s).

Waivers:

Any request for waiver of any of the applicable requirements of this permit application must be fully documented.

Designation of Material as Confidential:

The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

The Commission suggests that the applicant not submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, cross-referenced to Section XIII: Confidential Material, and submitted as a separate Section XIII document or binder, and conspicuously marked "CONFIDENTIAL."

Reasons of confidentiality include the concept of trade secrecy and other related legal concepts which give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under, 18 U.S.C. 1905 and special rules cited in 40 CFR Chapter I, Part 2, Subpart B. Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial solid waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

The applicant may elect to withdraw any confidential material submitted with the application.

However, the permit cannot be issued, amended, or modified if the application is incomplete.

Exposure Assessment:

In accordance with 30 TAC 305.50(a)(8) and 40 CFR 270.10(j), any Part B application submitted for a facility that stores, processes, or disposes of hazardous waste in a surface impoundment or a landfill (including post-closure) must be accompanied by exposure information of the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the unit. This exposure information is considered separate from the permit application, as stated in 40 CFR 270.10(c).

Pre-Application Meeting/Public Participation Activities [30 TAC 335.391 and 30 TAC 39.503]:

The TCEQ encourages applicants to conduct an applicant held public meeting prior to submittal of an application to allow the applicant and the public to identify potential issues. A pre-application public meeting is required prior to submittal of an application for an initial permit for hazardous waste management units, an application for hazardous waste part B applications for renewal of permits which propose a significant change in facility operations that would classify as a Class 3 Modification and an application for a major amendment. The pre-application public meeting requirements are described under 40 CFR Part 124.31(b)-(d).

Applicants are encouraged to request a pre-application meeting with TCEQ Permits Section staff and to notify the Industrial and Hazardous Waste Permits Section, Waste Permits Division of intent to file a permit application.

If a local review committee has been established to facilitate communication between the applicant and the local host community, the applicant should summarize the activities of the committee and submit this summary with the application. Any report completed by a review committee must be submitted.

Bilingual Notice Instructions:

For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Bilingual notice confirmation for this application:

1. Is the school district of the elementary or middle school nearest to the facility required by the Texas Education Code to have a bilingual program?

☒ Yes ☐ No

(**If No**, alternative language notice publication not required)

2. **If Yes** to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?

   ☒ Yes ☐ No

   (**IF Yes** to questions 1 and 2, alternative language publication is required; **If No** to question 2, then consider the next question)

3. **If Yes** to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location? ☐ Yes ☐ No

   (**If Yes** to questions 1 and 3, alternative language publication is required; **If No** to question 3, then consider the next question)

4. **If Yes** to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC 89.1205(g)?

   ☐ Yes ☐ No

   (**If Yes** to questions 1 and 4, alternative language publication is required; **If No** to question 4, alternative language notice publication not required)

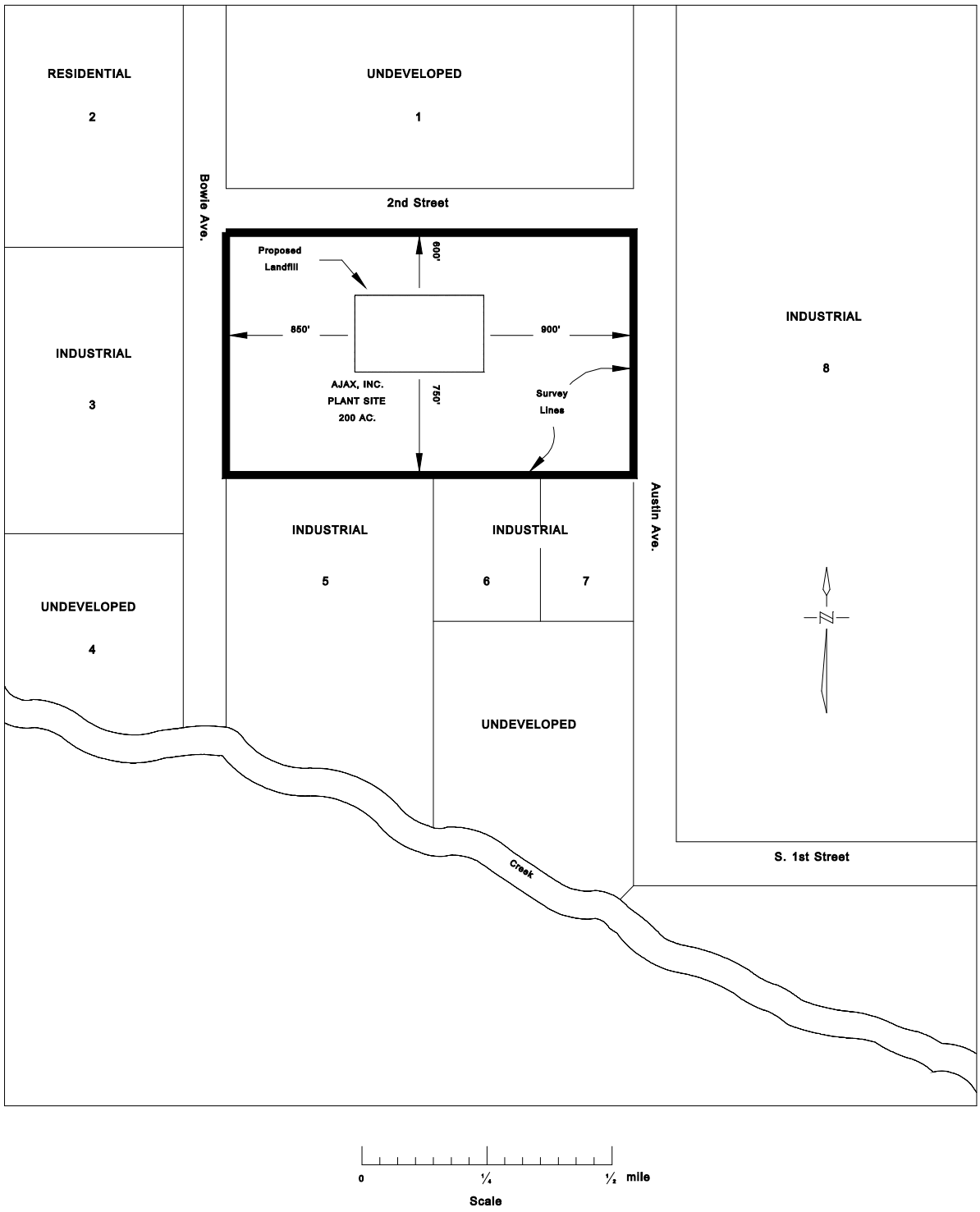
If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program?

_____

Landowners Cross-Referenced To Application Map

SAMPLE APPLICATION MAP

ALL ADJACENT LANDOWNERS SHALL BE IDENTIFIED



The persons identified below would be considered as affected persons.

1. MR & MRS SAMUEL L TEXANS
11901 STARTLE BLVD
ATOWN TX 78759

2. MR & MRS EDWARD CITIZENS
1405 LINEAR ROAD
LITTLE TOWN TX 76710

3. TEXAS LINKED CORP
8411 NNW HWY
BIG PLACE TX 77590

4. MR & MRS TED GOLDEN MUSTARD
3210 AVENUE BLVD
FISHINSPOT TX 76724

5. GENERIC BREWING CO
4240 KNIGHTS BRIDGE
OUTBACK TX 77640

6. PLAIN COMPANY
6647 CRAIGMOUT LANE
BIG PLACE TX 77590

7. ABC CHEMICALS INC
1212 ZIP STREET
BROADBANKS TX 77640

8. BIG LOCAL BOTTLE CO
10024 LOCAL BLVD
URSINUS TX 79402

In accordance with 30 TAC 39.5(b), please also submit this list electronically, for mailing labels, in MS Word. The electronic mailing list must contain only the name, mailing address, city, state, and zip code with no reference to the lot number or lot location. The list should contain 30 names, addresses, etc. (3 columns with 10 per column) per page (MS WORD Avery Standard 5160 – ADDRESS template).

Alternatively, the applicant may elect to submit pre-printed mailing labels of this mailing list with the application. If you wish to provide the list on printed labels, please use sheets of labels that have 30 labels (10 labels per column) to a page (for example: Avery® Easy Peel® White Address Labels for Laser Printers 5160). Please provide four complete sets of labels of the adjacent landowners list.

Table of Contents

Texas Commission on Environmental Quality Permit Application for Industrial and Hazardous Waste Storage/Processing/Disposal Facility with Compliance Plan i

Part B i
Form Availability: i
Application Revisions: vii
Waivers: vii
Designation of Material as Confidential: vii
Exposure Assessment: viii
Pre-Application Meeting/Public Participation Activities [30 TAC 335.391 and 30 TAC 39.503]: viii
Bilingual Notice Instructions: viii
Landowners Cross-Referenced To Application Map x

Texas Commission on Environmental Quality Industrial & Hazardous Waste Part B Permit Application 1

I. General Information 1

A. Applicant Name: [Facility Operator (or Facility Owner & Operator, if same)] 1
B. Facility Owner : Identify the Facility Owner if different than the Facility Operator 1
C. Facility Contact 2
D. Application Type and Facility Status 3
E. Facility Siting Summary 5
F. Wastewater and Stormwater Disposition 6
G. Information Required to Provide Notice 6
H. TCEQ Core Data Form 8
I. Signature on Application 8

II. Facility Siting Criteria 11

A. Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills. 11
B. Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)] 13
C. Additional Requirements for Waste Piles [30 TAC 335.204(c)] 14
D. Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)] 15
E. Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place) 15
F. Flooding 16
G. Additional Information Requirements 18

III. Facility Management 21

A. Compliance History and Applicant Experience 21
B. Personnel Training Plan 21
C. Security 21
D. Inspection Schedule 21

E. Contingency Plan (Not Applicable to Permits for Post-Closure Care Only) 22
F. Emergency Response Plan 23
Table III.D. – Inspection Schedule 26
Table III.E.1 – Arrangements with Local Authorities 27
Table III.E.2. – Emergency Coordinators 29
Table III.E.3. – Emergency Equipment 30

IV. Wastes and Waste Analysis 32

A. Waste Management Information 32
B. Waste Managed In Permitted Units 32
C. Sampling and Analytical Methods 32
D. Waste Analysis Plan 32
Table IV.A. – Waste Management Information 34
Table IV.B. – Wastes Managed In Permitted Units 35
Table IV.C. – Sampling and Analytical Methods 36

V. Engineering Reports 39

A. General Engineering Reports 39
B. Container Storage Areas 41
C. Tanks and Tank Systems 42
D. Surface Impoundments 43
E. Waste Piles 47
F. Land Treatment Units 51
G. Landfills 53
H. Incinerators 57
I. Boilers and Industrial Furnaces 58
J. Drip Pads 59
K. Miscellaneous Units 60
L. Containment Buildings 60
Table V.A. – Facility Waste Management Handling Units 61
Table V.B. – Container Storage Area 62
Table V.C. – Tanks and Tank System 64
Table V.D.1. – Surface Impoundments 65
Table V.D.6. – Surface Impoundment Liner System 66
Table V.E.1. – Waste Piles 67
Table V.E.3. – Waste Pile Liner System 68
Table V.F.1. – Land Treatment Units 69
Table V.F.2. – Land Treatment Unit Capacity 70
Table V.F.3. – Land Treatment Principal Hazardous Constituents 71
Table V.G.1. – Landfills 72
Table V.G.3. – Landfill Liner System 73
Table V.G.4. – Landfill Leachate Collection System 74
Table V.H.1. – Incinerators 75
Table V.H.2. – Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems 76
Table V.H.4. – Maximum Allowable Emission Rates 81
Table V.H.5. - Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems - Short-Term Operation 82
Table V.H.8 - Principal Organic Hazardous Constituents 86
Table V.I.1. - Boilers/Industrial Furnaces 87

Table V.I.2. - Boiler/Industrial Furnace Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems 88
Table V.I.3 - Maximum Constituent Feed Rates 91
Table V.I.4. - Maximum Allowable Emission Rates 92
Table V.I.5 - Boiler/Industrial Furnace Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems - Short-Term Operation 93
Table V.I.8. - Principal Organic Hazardous Constituents 97
Table V.J.1. - Drip Pads 98
Table V.J.2 - Drip Pad Synthetic Liner System 99
Table V.K. - Miscellaneous Units 100
Table V.L. - Containment Buildings 101

VI. Geology Report 102

A. Geology and Topography 102
B. Facility Groundwater 106
C. Exemption from Groundwater Monitoring for an Entire Facility 109
D. Unsaturated Zone Monitoring 110
Table VI.A.1. – Major Geologic Formations 111
Table VI.A.4 – Waste Management Area Subsurface Conditions 112
Table VI.B.3.b. – Unit Groundwater Detection Monitoring Systems 114
Table VI.B.3.c. – Groundwater Detection Monitoring Parameters 116

VII. Closure and Post-Closure Plans 117

A. Closure 117
B. Closure Cost Estimate (including contingent closure) [30 TAC 335.178, 40 CFR 264.142] 118
C. Post-closure 118
D. Post-closure Cost Estimate [40 CFR 264.144] 119
E. Closure and Post-Closure Cost Summary 119
Table VII.A. - Unit Closure 120
Table VII.B. - Unit Closure Cost Estimate 121
Table VII.C.5. - Land-Based Units Closed Under Interim Status 122
Table VII.D. - Unit Post-Closure Cost Estimate 123
Table VII.E.1. - Permitted Unit Closure Cost Summary 124
Table VII.E.2. - Permitted Unit Post-Closure Cost Summary 125

VIII. Financial Assurance 126

A. Financial Assurance Information Requirements for all Applicants (30 TAC Chapter 37, Subchapter P, 305.50(a)(4)(A-E), 335.152(a)(6) and 335.179) 126
B. Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal (30 TAC 305.50(a)(4)) 127
Table VIII.B - Estimated Capital Costs 133

IX. Releases from Solid Waste Units and Corrective Action 134

A. Preliminary Review Checklists 136
B. Appendices to Preliminary Review (PR) 142
C. Preliminary Review Submittal Format 142

X. Air Emission Standards 143

A. Process Vents 143
B. Equipment Leaks 143
C. Tanks, Surface Impoundments, and Containers 144
D. "One-Stop" Permits: 145
Table X.A. – Process Vents 147
Table X.B. - Equipment Leaks 148

XI. Compliance Plan 154

A. Site Specific Information 160
B. Hazardous Constituents In Groundwater And Groundwater Protection Standards (GWPSs) 162
C. Compliance Monitoring Program 165
D. Corrective Action Program 168
E. Cost Estimates For Financial Assurance 180
Table XI.A.1. - Facility History for Waste Management Units 182
Table XI.E.1. Corrective Action Program Cost Estimate 188
F. Cost of on-site disposal per year 189
Table XI.E.3. – Financial Assurance Summary 195
CP Table I: Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring 196
CP Table II: Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167 198
CP Table III: Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard 201
CP Table IIIA: Corrective Action Program Table of Indicator Parameters and Groundwater Protection Standard 205
CP Table IV: Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Quantitation Limits 211
CP Table IVA: Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard 212
CP Table V: Designation of Wells 214
CP Table VI: Compliance Period for RCRA-Regulated Units 217
CP Table VIII: Compliance Schedule 218
Attachment A 219
Attachment B 221
Attachment C - Sampling And Analysis Plan 227

XII. Hazardous Waste Permit Application Fee 231

Table XII.A. – Hazardous Waste Units (For Application Fee Calculations) 233
Table XII.B. - Hazardous Waste Permit Application Fee Worksheet 234

XIII. Confidential Material 235

Texas Commission on Environmental Quality
Industrial & Hazardous Waste Part B Permit Application

I. General Information

A. Applicant Name: [Facility Operator (or Facility Owner & Operator, if same)]

KM Liquids Terminals LLC – Galena Park Terminal

(Individual, Corporation, or Other Legal Entity Name – must match the Secretary of State's database records for the Facility)

Previous or former names of the facility, if applicable: Not applicable

Address: 906 Clinton Drive

City: Galena Park State: TX Zip Code: 77547

Telephone Number: 346-352-5923

TCEQ Solid Waste Registration No.: 30573 EPA I.D. No.: TXD026481523

Permit No.: 50054 County: Harris

Regulated Entity Name: Galena Park Terminal

Regulated Entity Reference Number: RN100237452

Customer Name: KM Liquids Terminals LLC

Customer Reference Number: CN603254707

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.

800838036
(Charter Number)

B. Facility Owner : Identify the Facility Owner if different than the Facility Operator

Same as operator

Address: _____

City: _____, Texas, Zip Code: _____

Telephone Number: _____

The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on Part A of this application [Section 361.087, Texas Health and Safety Code].

C. Facility Contact

1. List those persons or firms, including a complete mailing address and telephone number, who will act as primary contact for the applicant during the processing of the permit application.

Mr. Johnny Kennedy
Remediation Manager
KM Liquids Terminals LLC
1500 Clinton Drive
Galena Park, Texas 77547
Tel: (713) 654-6035
Email: [redacted]

2. If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.

Not Applicable – application is submitted by a corporation residing in state

3. List the individual who will be responsible for causing notice to be published in the newspaper and his/her mailing address, telephone number and fax number. If e-mail is available please provide an e-mail address.

Mr. Johnny Kennedy
Remediation Manager
KM Liquids Terminals LLC
1500 Clinton Drive
Galena Park, Texas 77547
Tel: (713) 654-6035
[redacted]

4. For applications for new permits, renewals, major amendments and Class 3 modifications a copy of the administratively complete application must be made available at a public place in the county where the facility is, or will be, located for review and copying by the public. Identify the public place in the county (e.g., public library, county court house, city hall), including the address, where the application will be made available for review and copying by the public.

Galena Park Branch Library
1500 Keene Street
Galena Park, Texas 77547

5. If an applicant proposes a new industrial or hazardous waste facility that would accept municipal solid waste, the applicant shall hold a public meeting in the county in which the facility is proposed to be located. This meeting must be held before the 45th day after the date the application is filed. In addition, the

applicant shall publish notice of the public meeting in accordance with 30 TAC 39.503(e)(5).

Not Applicable – This application is for an existing facility

Contact: Mr. Johnny Kennedy Title: Remediation Manager

Address: 1500 Clinton Drive

City: Galena Park State: Texas Zip Code: 77547

Telephone Number(s): Office 713-654-6035 Other _____

E-ma[redacted] FAX _____

D. Application Type and Facility Status

1.

☒permit	☒amendment	☐modification
☐new	☒major	☐Class 3
☐ interim status	☐minor	☐Class 2
☒renewal		☐Class 1[1]
☐RD&D		☐Class 1
☒Compliance Plan		

2. Is this submittal part of a Consolidated Permit Processing request, in accordance with 30 TAC Chapter 33?
☐Yes ☒No

If Yes, state the other TCEQ program authorizations requested.

3. Does the application contain confidential material? ☐ Yes ☒ No

If Yes, cross-reference the confidential material throughout the application to Section XIII: Confidential Material, and submit as a separate Section XIII document or binder conspicuously marked "CONFIDENTIAL".

4. In either column, check all that apply.

☐Proposed hazardous waste management facility	☒Existing hazardous waste management facility
☐On-site	☒On-site
☐Off-site	☐Off-site
☐Commercial	☐Commercial
☐Recycle	☐Recycle
☐Land Disposal	☐Land Disposal
	☐Areal or capacity expansion
	☒Compliance plan

5. Is the facility within the Coastal Management Program boundary (for Class 3 Modifications, Permit Renewals, and New Permit applications only)?

   ☒ Yes ☐ No

6. Provide a brief description of the portion of the facility covered by this application in the table below, including the changes for which an amendment or modification is requested: *[**Note:** List all changes requested in the table below. Unlisted requests risk remaining unaddressed or possibly denied if brought to the permit application reviewer's attention at a later time.]*

Permit/Compliance Plan Application Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Permit Section: I	Change in facility boundary/size	Minor	30 TAC 305.69(k)(A)(4)(b)
Permit Section: VII.G and Table VII.G	Extend Post Closure Care Period for Southeast Holding Basin (TCEQ Permit Unit No. 1, NOR No. 017) to October 1, 2037	Minor	30 TAC 305.69(c) 30 TAC 305.69(k)(E)(2)
Permit Section XI (Compliance Plan)	Add new corrective action area to the Corrective Action Program (North Plant AOC)	Major	30 TAC 305.69(d) 30 TAC 305.69(k)(C)(8)(a)
Permit Section XI (Compliance Plan)	Changes in the number of upgradient wells (West Plant PMZ)	Minor	30 TAC 305.69(k)(C)(1)(a); 305.69(k)(C)(2)
Permit Section XI (Compliance Plan)	Changes in indicator parameters, hazardous constituents, or concentration limits as specified in the groundwater protection standard (SEHB and Central Plant PMZ)	Major	30 TAC 305.69(k)(C)(5)(a)
Permit Section XI (Compliance Plan)	NFA of Old Pump House #5 AOC	Minor	30 TAC 305.69(k)(C)(8)(b)

Permit Section XI (Compliance Plan)	Removal of one well at NHB	Minor	30 TAC 305.69(k)(C)(1)(a); 305.69(k)(C)(2)
Permit Section XI (Compliance Plan)	Removal of well and change in PMZ boundary in Central Plant PMZ	Minor	30 TAC 305.69(k)(C)(1)(a); 305.69(k)(C)(2)
Permit Section XI (Compliance Plan)	Updates to CP Tables I, II, III, IIIA and V	Major	305.69(k)(C)(5)(a) 305.69(k)(C)(8)(a)

7. Total acreage of the facility being permitted: 421.410acres

8. Identify the name of the drainage basin and segment where the facility is located: San Jacinto River Basin – Segment 1007

E. Facility Siting Summary

Is the facility located or proposed to be located:

1. within a 100-year floodplain?
☒Yes ☐ No

2. in wetlands?
☐Yes ☒No

3. in the critical habitat of an endangered species of plant or animal?
☐Yes ☒No

4. on the recharge zone of a sole-source aquifer?
☐Yes ☒ No

5. in an area overlying a regional aquifer?
☒Yes ☐ No

6. Within 0.5 mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park? (Use only for a new commercial hazardous waste management facility or areal expansion of an existing commercial hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202)
☐Yes ☐No ☒Not Applicable

If Yes: the TCEQ shall not issue a permit for this facility.

7. In an area in which the governing body of the county or municipality has prohibited the processing or disposal of municipal hazardous waste or industrial solid waste?
☐Yes ☒No

If Yes: provide a copy of the ordinance or order.

F. Wastewater and Stormwater Disposition

1. Is the disposal of any waste to be accomplished by a waste disposal well at this facility?
☒ No ☐Yes (**If Yes**: List WDW Permit No(s):_____).

2. Will any point source discharge of effluent or rainfall runoff occur as a result of the proposed activities?
☐ Yes ☒No

3. If Yes, is this discharge regulated by a TPDES or TCEQ permit?
☐ Yes Permit No._____(TCEQ)
Permit No._____(TPDES)

4. ☐No Date TCEQ discharge permit application filed: _____
Date TPDES discharge permit application filed:_____

G. Information Required to Provide Notice

State Officials List

Provide the name and mailing address for the State Senator and State Representative in the district in which the facility is or will be located. Either local district addresses or capitol addresses are acceptable. This list should not be included in the Adjacent Landowners List required below. [30 TAC 39.103(b)]

State Senator:
The Honorable Carol Alvarado, Senate District 6
4450 Harrisburg
Suite 436
Houston, Texas 77011
Tel: (713) 926-6257
[redacted]

State Representative:
Representative Ana Hernández, House District 143
1233 Mercury Drive
Houston, TX 77029
Tel: (713) 675-8596
Fax: (713) 675-8599
[redacted]

Local Officials List

Provide the name and mailing address of the mayor and health authority of the municipality in whose territorial limits or extraterritorial jurisdiction the facility is or will be located. In addition, please provide the county judge and health authority of the county in which the facility is located. This list should not be included in the Adjacent Landowners List required below. [30 TAC 39.103(c)]

Galena Park Mayor:
Esmeralda Moya
City of Galena Park
2000 Clinton Drive
Galena Park, Texas 77547-3406
Tel: (713) 672-2556

Fax: (713) 672-1840
[redacted]

Galena Park Health Authority:
Zenaida Granados, Commissioner Position 1
City of Galena Park
2000 Clinton Drive
Galena Park, Texas 77547-3406
Tel: (713) 672-2556
Fax: (713) 672-1840
[redacted]

County Judge:
Lina Hildalgo Judge, Harris County
1001 Preston, Suite 911
Houston, TX 77002
Tel: (713) 755-4000
Fax: (713) 755-8379
[redacted]

County Health Authority:
Barbie Robinson, Executive Director
Harris County Public Health
1111 Fannin Street
Houston, TX 77002
Tel: (713) 439-6000
[redacted]

Adjacent Landowners List

Submit a map indicating the boundaries of all adjacent parcels of land, and a list (see samples in the instructions) of the names and mailing addresses of all adjacent landowners and other nearby landowners who might consider themselves affected by the activities described by this application. Cross-reference this list to the map through the use of appropriate keying techniques. The map should be a USGS map, a city or county plat, or another map, sketch, or drawing with a scale adequate enough to show the cross-referenced affected landowners. The list should be updated prior to any required public notice. It is the applicant's responsibility to ensure that the list is up-to-date for any required public notice. For all applications (with the exception of Class 1 and Class 1[1] modifications) this mailing list should be submitted on:

1. a Compact Disk (CD) using software compatible with MS Word [30 TAC 39.5(b)]; or
2. four sets of printed labels.

If the adjacent landowners list is submitted on a compact disk (CD), please label the disk with the applicant's name and permit number. Within the file stored on the disk, type the permit number and applicant's name on the top line before typing the addresses. Names and addresses must be typed in the format indicated below. This is the format required by the U.S. Postal Service for machine readability. Each letter in the name and address must be capitalized, contain no punctuation, and the appropriate two-character abbreviation must be used for the state. Each entity listed must be blocked and spaced consecutively as shown below. The list is to be 30 names, addresses, etc. (10 per column) per page (MS WORD Avery Standard 5160 – ADDRESS template).

Example:

Industrial Hazardous Waste Permit No. 50000, Texas Chemical Plant

HEAVY METALS LP
PO BOX 85624
PUMPKIN PARK TX 79998-5624

MR AND MRS W R NEIGHBOURLY
1405 ACROSSTHE WAY
GREATER METRO CITY TX 79199

A list submitted on compact disk (CD) should be the only item on that disk. Please do not submit a list on a disk that includes maps or other materials submitted with your application.

If you wish to provide the list on printed labels, please use sheets of labels that have 30 labels to a page (10 labels per column) (for example: Avery® Easy Peel® White Address Labels for Laser Printers 5160). Please provide four complete sets of labels of the adjacent landowners list.

Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?

☒Yes ☐No

Bilingual Language(s):__Spanish_____

H. TCEQ Core Data Form

The TCEQ requires that a Core Data Form CDF (Form 10400) be submitted on all incoming applications. Please ensure that the submitted CDF does not show a change for any information that will remain the same as previously submitted. For more information regarding the Core Data Form, call (512) 239 1575 or go to the TCEQ Web site at http://www.tceq.texas.gov/permitting/central_registry/guidance.html

SEE Attachment B to this Part B application

I. Signature on Application

It is the duty of the operator to submit an application for a permit. The person who signs the application form will often be the operator himself; when another person signs on behalf of the applicant, his title or relationship to the applicant will be shown. In all cases, the person signing the form must be authorized to do so by the applicant. An application submitted by a corporation must be signed by a responsible corporate officer such as a president, secretary, treasurer, vice president, or by his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the activity described in the form originates. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application must be signed by a principal executive officer, a ranking elected official, or another duly authorized employee. A person signing an application on behalf of an applicant must provide notarized proof of authorization.

Signature Page

I, MARLIN COLLINS, GENERAL MANAGER,
(Operator) *(Title)*

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Marlin Collins Date: 6-25-25

To be completed by the Operator if the application is signed by an Authorized Representative for the Operator

I, _____, hereby designate _____
[Print or Type Name] *[Print or Type Name]*

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

SUBSCRIBED AND SWORN to before me by the said MARLIN COLLINS
On this 25 day of JUNE, 2025
My commission expires on the 20 day of APRIL, 2027

Notary Public in and for Harris County, Texas
[**Note**: *Application Must Bear Signature & Seal of Notary Public*]

DAWN SWILLEY
Notary Public, State of Texas
Comm. Expires 04/20/2027
Notary ID 13018303-1

Dawn Swilley

Interim Status Land Disposal Unit(s) Certification

For all land disposal units managing wastes which are newly listed or identified as hazardous wastes, the following certification must be executed by or on the date 12 months after the effective date of the rule identifying or listing the waste as hazardous. If the operator fails to certify compliance with these requirements, the operator shall lose authority to operate under interim status. [40 CFR 270.73(d)]

I,_____, _____

(operator) *(title)*

certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete.

I further certify that in accordance with Section 3005(e)(3) of the Resource Conservation and Recovery Act, as amended, the subject land disposal unit(s) are in compliance with all applicable groundwater monitoring and financial responsibility requirements of 30 TAC Sections 335.112, 335.116, and 335.117. I am aware there are significant penalties for submitting false information, including the possibility of civil penalty, criminal fines, and imprisonment.

Signature:_____ Date: _____

II. Facility Siting Criteria

For all new hazardous waste management facilities or areal expansions of existing hazardous waste management facilities provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. The report must address each requirement applicable to the type of activity submitted in the application. Reference specific rule numbers whenever possible. Supporting information may be cross-referenced to other parts of this application such as Section V - Engineering Report or Section VI - Geology Report, but information submitted in previous applications must be fully reproduced herein. In addition, provide the information in Sections II.A. through II.G. below as applicable.

For permit renewals provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. In addition, provide the information in Sections II.A through II.G below, as applicable. The applicant may resubmit the information submitted with the original permit application provided this information has not changed. For a renewal this information is necessary to ensure a complete application is received.

For capacity expansions of existing facilities, please provide information in Sections II.A through II.G, as applicable. Please note however, that additional technical information may be requested to address any facility siting characteristics noted in Section I.E.

> **NOTE:** The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC 335.201(b)]

A. Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills.

Is the facility located or proposed to be located:

1. in wetlands? [as applicable: 30 TAC 335.204(a)(2), (b)(2), (c)(2), (d)(2), and/or (e)(2)]

   ☐ Yes ☒ No

   Provide the source of information.

   Wheeler, Frankie F. Soil Survey of Harris County, Texas. United States Department of Agriculture, Soil Conservation Service, 1972.

   RCRA Facility Investigation Report, Phase I. (GATX, April 15, 1997).

   If Yes: the TCEQ shall not issue a permit for a new hazardous waste management facility or areal expansion of an existing facility into wetlands, pursuant to 30 TAC 335.205(a)(1).

2. in the critical habitat of an endangered species of plant or animal? [as applicable: 30 TAC 335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)]

☐Yes ☒No ☐ Not Applicable

Provide the source of information.

U.S. Fish & Wildlife Service Endangered Species List – Harris County, Texas.

http://ecos.fws.gov/ecos/home.action

The Texas prairie dawn flower and whooping crane are endangered in Harris County. This facility is not a likely habitat for these species as it is an industrial site.

If Yes: submit in Section V information demonstrating that design, construction, and operational features will prevent adverse effects on such critical habitat.

3. on the recharge zone of a sole-source aquifer? [30 TAC 335.204(a)(3), (b)(3), (c)(3), (d)(3), and/or (e)(3)]

☐ Yes ☒ No

Provide the source of the information.

E.T. Baker, Jr. Stratigraphic and Hydro-geologic Framework of Part of the Coastal Plain of Texas. United States Geological Survey. July, 1979.

If Yes, then for storage and processing facilities (excluding storage surface impoundments), submit in Section V information demonstrating that secondary containment is provided to preclude migration to groundwater from spills, leaks, or discharges.

Note: Land treatment facilities, waste piles, storage surface impoundments, and landfills may not be located on the recharge zone of a sole-source aquifer.

4. in an area overlying a regional aquifer? [as applicable: 30 TAC 335.204(a)(4), (b)(4), (c)(4), (d)(4), and/or (e)(4)]

☒ Yes ☐ No

Provide the source of information.

See Attachment M – Geology Report

If Yes: submit site-specific information in Section V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1).

5. in areas where soil unit(s) are within five feet of the containment structure, or treatment zone, as applicable, that have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10-5 cm/sec? [as applicable: 30 TAC 335.204(a)(5), (b)(5), (c)(5), (d)(5), and/or (e)(5)]

☐ Yes ☒ No

Provide information to verify the above.

Wheeler, Frankie F. Soil Survey of Harris County, Texas. United States Department of Agriculture, Soil Conservation Service. 1972.

If Yes: provide additional information in Sections V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1)

6. in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system? [as applicable: 30 TAC 335.204 (a)(6), (b)(7), (c)(6), and/or (e)(8)].

   ☐ Yes ☒ No ☐ Not Applicable

Provide information to verify the above.

Wheeler, Frankie F. Soil Survey of Harris County, Texas. United States Department of Agriculture, Soil Conservation Service. 1972.

If Yes: provide information in Section V demonstrating compliance with 30 TAC 335.205(a)(1).

7. in areas of active geologic processes, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes? [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/or (e)(9)]

   ☒ Yes ☐ No ☐ Not Applicable

Provide the source of the information.

See Attachment M – Geology Report

If Yes: specify in Section V the design, construction, and operational features of the facility that will prevent adverse effects resulting from the geologic processes.

8. within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures? [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]

   ☐ Yes ☒ No ☐ Not Applicable

Provide the source of information.

See Attachment M – Geology Report

If Yes: specify in Section V the design, construction, and operational features that will prevent adverse effects resulting from any fault movement.

If a fault is found to be present, the width and location of the actual or inferred surface expression of the fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, must be determined by a qualified geologist or geotechnical engineer and reported in Section VI.

B. Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]

Is the land treatment facility located or proposed to be located:

1. within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?

☐ Yes ☒ No

If Yes, the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(6) and 335.205(a).

2. either

a. within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?

☐ Yes ☒ No

If Yes: submit in Section V.F design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

b. within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.

☐ Yes ☒ No

If Yes: submit Section V.F design, construction and operational features, which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

3. on a barrier island or peninsula?

☐ Yes ☒ No ☐ Not Applicable

If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(11) and 335.205(a)(1).

C. Additional Requirements for Waste Piles [30 TAC 335.204(c)]

Not Applicable

Is the waste pile located or proposed to be located:

1. either

a. within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?

☐ Yes ☐ No

If Yes: submit in Section V.E design, construction, and operational features on the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

b. within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.

☐ Yes ☐ No

If Yes: submit Section V.E design, construction, and operational features which will

prevent adverse effects resulting from storm surge and erosion or scouring by water.

2. on a barrier island or peninsula?

☐ Yes ☐ No ☐ Not Applicable

If Yes: the TCEQ shall not issue a permit for a new hazardous waste pile or an areal expansion of an existing waste pile, pursuant to 30 TAC 335.204(c)(10) and 335.205(a)(1).

D. Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

Not Applicable

Is the storage surface impoundment located or proposed to be located:

1. either
   a. within 1000 feet of an area of active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?

☐ Yes ☐ No

If Yes: submit in Section V.D design, construction and operational features of the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

   b. within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula?

☐ Yes ☐ No

If Yes: then submit in Section V.D design, construction and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

2. on a barrier island or peninsula?

☐ Yes ☐ No ☐ Not Applicable

If Yes: the TCEQ shall not issue a permit for a new hazardous waste storage surface impoundment or an areal expansion of an existing storage surface impoundment, pursuant to 30 TAC 335.204(d)(10) and 335.205(a)(1).

E. Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place)

Is the landfill located or proposed to the located:

1. within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?

☐ Yes ☒ No

If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(6) and 335.205(a)(1).

2. (for commercial hazardous waste landfills) in the 100-year flood plain of a perennial stream that is delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30?

☐ Yes ☐ No

If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(7) and 335.205(a)(1).

3. either:

a. within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?

☐ Yes ☒ No

If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

b. within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barriers island or peninsula.

☐ Yes ☒ No

If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.

4. on a barrier island or peninsula?

☐ Yes ☒ No ☐ Not Applicable

If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(12) and 335.205(a)(1).

F. Flooding

1. Identify whether the facility is located within a 100-year flood plain [40 CFR 270.14(b)(11)(iii)]. This identification must indicate the source of data for such determination and include a copy of relevant documentation (e.g., flood maps, if used and/or calculations). The boundaries of the hazardous waste management facility must be shown on the flood plain map. If the facility is not subject to inundation as a result of a 100-year flood event, do not complete Sections II.F.2. through II.F.4. below. An applicant for a proposed hazardous waste landfill, areal expansion of a hazardous waste landfill, or a commercial hazardous waste land disposal unit may not rely solely on flood plain maps prepared by the Federal Emergency Management Agency (FEMA) or a successor agency for this determination.

The permitted units, Corrective Action Management Unit (CAMU)/Former North Holding Basin (NHB) (NOR 004) and the Southeast Holding Basin (SEHB) (NOR 017), are within the 100-year flood plain. Attachment C includes the outline of the Terminal and the units to be permitted on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Harris County and the

Incorporated Areas, Panel 905 of 1150, revised May 2, 2019. The permitted units did not fall within the 100-year flood plain prior to the 2019 FIRM map revisions that encompass the Terminal.

2. If the facility is located within the 100-year flood plain the applicant must provide information detailing the specific flooding levels and other events (e.g., Design Hurricane projected by Corps of Engineers) which impact the flood protection of the facility. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (e.g., wave action) which must be considered in designing, construction, operating, or maintaining the facility to withstand washout from a 100-year flood.

   The permitted units were not located within the 100-year flood zone prior to 2019 flood map updates following Hurricane Harvey. The SEHB (NOR 017) unit was closed in 1987 and is located beneath a paved parking lot.

   Flood protection devices exist at CAMU/NHB (NOR 004) and consist of berms approximately 20 feet above mean sea level (msl) around the unit. Storm surge data were referenced for National Oceanic and Atmospheric Administration (NOAA) station 8770777 (Manchester, TX), which is located approximately 2 miles west of the Terminal on Buffalo Bayou. The storm surge data was referenced during the following major storm events: Hurricane Ike, Hurricane Harvey and Hurricane Beryl. The storm surge data from station 8770777 documented a maximum storm surge height of approximately 12 feet above msl during Hurricanes Ike and Harvey and approximately 10 above msl during Hurricane Beryl. This is eight to ten feet below the maximum height of the berms surrounding CAMU/NHB (NOR 004). The storm surge data is included in Attachment C.

3. State whether any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.), designed to prevent washout from the 100-year flood.

   The permitted units were not located within the 100-year flood zone prior to 2019 flood map updates following Hurricane Harvey. Flood protection devices exist at CAMU/NHB (NOR 004) and consist of berms approximately 20 feet above mean sea level around the unit. As presented in the NHB 1995 Engineering Report, the CAMU/NHB (NOR 004) was designed to withstand a 100-year storm event (assuming 12.8 inches of rainfall in 24-hour duration). A safety factor of 2 was utilized and operations in the NHB maintain a minimum of two feet of freeboard. Additionally, as described above, the measured storm surge during major storm events has been eight to ten feet below the maximum height of the berms surrounding CAMU/NHB (NOR 004). The CAMU/NHB did not overtop or washout during recent major flooding events (which include Hurricanes Ike and Harvey), which demonstrates that the containment around the CAMU/NHB has effectively protected the CAMU/NHB from washout during major storm events.

   a. **If Yes**: provide in Section V an engineering analysis to indicate the various

hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)]

Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]

See Attachment J – Engineering Report

b. **If No**: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)]

Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]

4. If applicable, and in lieu of the flood protection devices from above, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. [40 CFR 270.14(b)(11)(iv)(c)] The procedures should include:
   a. Timing of such movement relative of flood levels, including estimated time to move the waste, to show that such movement can be completed before flood waters reach the facility. Indicate which specific events shall be use to begin waste movement (e.g., Hurricane warning, Flash Flood watch, etc.);
   b. A description of the location(s) to which the waste will be moved and a demonstration that these facilities will be eligible to receive hazardous waste in accordance with appropriate regulations (i.e., a permitted facility);
   c. The planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use; and
   d. The potential for accidental discharges of the waste during movement and precautions taken to preclude accidental discharges.

Not applicable. Hazardous waste would not be removed/relocated during potential flood event.

G. Additional Information Requirements

1. For a new hazardous waste management facility, include a map of relevant local land-use plans and descriptions of the major routes of travel in the vicinity of the facility to be used for the transportation of hazardous waste to and from the facility covering at least a five (5)-mile radius from the boundaries of the facility. [30 TAC 305.50(a)(10)(A)&(D)]

   Not Applicable – Application is for existing units

2. For a new commercial hazardous waste management facility as defined in 30

TAC 335.202 or the subsequent areal expansion of such a facility or unit of that facility, indicate on the map the nearest established residence, church, school, day care center, surface water body used for a public drinking water supply, and dedicated public park.

Not Applicable – Application is for existing units

3. For new commercial hazardous waste management facilities, submit the following: [30 TAC 305.50(a)(12)(A)]
   a. the average number, gross weight, type, and size of vehicles used to transport hazardous waste;
   b. the major highways nearest the facility irrespective of distance; and
   c. the public roadways used by vehicles traveling to and from the facility within a minimum radius of 2.5 miles from the facility.

   Not Applicable – Application is for existing units

4. Include the names and locations of industrial and other waste-generating facilities within 0.5 miles for a new on-site hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)]

   Not Applicable – Application is for existing units

5. Include the names and locations of industrial and other waste-generating facilities within 1.0 miles for a new commercial hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)]

   Not Applicable – Application is for existing units

6. For existing land disposal facility units provide documentation that the information required by 30 TAC 335.5 has been placed in the county deed records. If previously submitted, please reference the submittal by date and registration number.

   See Attachment D – Deed Recordation

7. If a surface impoundment or landfill (including post-closure) is to be permitted, provide exposure information to accompany this application and in accordance with 30 TAC 305.50(a)(8) and 40 CFR 270.10(j). This information will be considered separately from the TCEQ application completeness determination.

   See Attachment E – Exposure Information

8. For a hazardous waste management facility requesting a capacity expansion of an existing hazardous waste management facility, please provide in Section VI.A.1.a the requested fault delineation information. [30 TAC 305.50(a)(4)(D)]

Not Applicable – expansion of the units is not requested in this application

III. Facility Management

A. Compliance History and Applicant Experience

1. Provide listings of all solid waste management sites in Texas owned, operated, or controlled by the applicant as required by 30 TAC 305.50(a)(2).

   Listed Below

2. For a new commercial hazardous waste management facility, provide a summary of the applicant's experience in hazardous waste management as required by 30 TAC 305.50(a)(12)(F).

   Not Applicable

Name	RN Number	Address	County
Galena Park Terminal	RN100237452	906 Clinton Dr. Galena Park, TX 77547	Harris
Jefferson Street Truck Rack	RN100225986	400 N Jefferson St. Pasadena, TX 77501	Harris
Pasadena Terminal	RN100224815	530 Witter St. Pasadena, TX 77506	Harris
Kinder Morgan Export Terminal	RN100542877	901 Light Company Rd., Pasadena, TX 77506	Harris

B. Personnel Training Plan

Provide an outline of the facility training plan which includes all the information required by 40 CFR 264.16. Indicate which training will be repeated annually.

See Attachment F – Personnel Training Plan

C. Security

Describe how the facility complies with the security requirements of 40 CFR 264.14 or submit a justification demonstrating the reasons for requesting a waiver of these requirements.

See Attachment G – Security System

D. Inspection Schedule

Provide an inspection schedule summary for the facility which reflects the requirements of 40 CFR 264.15(b), 264.33 and, where applicable, the specific requirements in 40 CFR 264.174, 264.193(i), 264.195, 264.226, 264.254, 264.273, 264.303, 264.347, 264.552, 264.574, 264.602, 264.1033(f), 264.1034, 264.1052, 264.1053(e), 264.1057, 264.1058, 264.1063, 264.1084, 264.1085, 264.1086, 264.1088, 264.1101(c)(4) and 270.14(b)(5). The inspection schedule should reflect the requirements described below. The schedule should encompass each type of hazardous waste management (HWM) unit (i.e., facility

component) and its inspection requirements. For incorporation into a permit, complete Table III.D. - Inspection Schedule for all units to be permitted.

The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to the release of hazardous waste constituents to the environment or which may pose a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

The owner or operator must develop and follow a written schedule for inspecting other basic elements such as monitoring equipment, safety and emergency equipment, security devices, the presence of liquids in leak detection systems, where installed, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

If the owner or operator of a facility which contains a waste pile wishes to pursue an exemption from the groundwater monitoring requirements for that waste management unit, the inspection schedule must include examination of the base for cracking, deterioration, or other conditions that may result in leaks. The frequency of inspection must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability).

See Attachment H – Inspection Schedule

E. Contingency Plan (Not Applicable to Permits for Post-Closure Care Only)

If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this section. Provide a Contingency Plan which includes all the information required by 40 CFR Part 264 Subparts C and D, except for 40 CFR 264.56(d)(1) and 30 TAC 335.153(2). This plan must also include a drawing of the facility which shows the location of all emergency equipment. In addition, complete the following tables to summarize information expressed in more detail in the plan.

Integrated Contingency Plan is included as Volume III to the permit application

1. Arrangements with Local Authorities

   Complete Table III.E.1. - Arrangements With Local Authorities to indicate arrangements (if made) with local authorities to familiarize local fire and police departments, local hospitals, equipment suppliers, and local and State emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes. Provide documentation of the attempts and any arrangements made with local authorities and emergency response teams.

2. Emergency Coordinator's List

   For inclusion into a permit, list in Table III.E.2. - Emergency Coordinators the persons qualified to act as emergency coordinator. List the alternates in the order in which they will assume responsibility.

3. Emergency Equipment List

   For inclusion into a permit, list in Table III.E.3. - Emergency Equipment all types of emergency equipment at the facility [such as fire-extinguishing systems, spill-control equipment, communications and alarm systems (internal and external), and decontamination equipment], if this equipment is required. Briefly outline the equipment capabilities.

4. Waiver from Preparedness and Prevention Requirements

   If the owner or operator wishes to request a waiver from any of the preparedness and prevention requirements, he must submit a justification demonstrating the reasons for requesting the waiver, as discussed below.

F. Emergency Response Plan

For a new commercial hazardous waste management facility, the application shall contain evidence sufficient to demonstrate that emergency response capabilities are available or will be available before the facility first receives waste. An emergency response plan must be provided which satisfies the requirements of 30 TAC 305.50(a)(12)(C) and (D). This plan must show that the proposed facility has sufficient emergency response capabilities for managing a reasonable worst-case emergency condition associated with the operation of the facility. (For financial assurance requirements associated with the emergency response activities, please see Section VIII.C.3.)

Not Applicable – Application is for an existing facility

1. Practice Drills

   In addition to the contingency plan required under 40 Code of Federal Regulations Part 270.14(b)(7), provisions specifying procedures and timing of practice facility evacuation drills are required. Provide a description and a frequency for facility evacuation drills.

2. If a private corporation, municipality or county group will provide emergency response actions at the proposed facility, include a copy of the contract for this type of agreement with this application or state that documentation will be submitted before the facility accepts wastes.

3. Historical weather data for the area should be documented and submitted. Information regarding how emergency response operations may be affected by weather conditions should be included. (Local rainfall extremes, average rainfall amounts, average wind speeds and directions, potential for major weather events such as hurricanes, tornados, icy conditions, flash flooding etc., should be addressed.)

4. A definition of a worst-case emergency for the proposed facility should be described in the application. This worst-case emergency should take into account the possible complications involved with a facility emergency compounded by adverse weather conditions. It should also detail spills, fires, explosions, etc. This worst case scenario should be developed with the help of local governmental entities where possible. Emergency planning should include both unexpected emergencies and emergencies occurring as a result of a predictable event such as

a flood or hurricane. For areas which are prone to hurricanes and flash flooding, the worst case which allows for a realistic situation should be used. For example, response teams should be well versed in reacting to events such as a 100-year flood.

5. A training program for personnel who will respond to these types of emergencies must be provided and must include the requirements described in OSHA Federal Register 1910 and EPA Federal Register 311, the Texas Hazard Communication Act, SARA Title III 302, 304, 311, 312, and 313. If emergency response actions are contracted out, the contracted employees must be properly trained and documentation of this training must be maintained on-site. All responders to emergencies at the proposed facility must be involved in training and drills at the facility in order to be thoroughly familiar with the facility and its operations.

6. The application must include a description and identification of first-responders (i.e. all pertinent facility personnel, local responders, and contractors). The duties of the facility employee who is to be the on-scene coordinator (OSC) must be described. Additional information must be provided detailing the OSC's role in the emergency response activities. This person must have the authority to commit the resources needed to carry out the Emergency Response Plan. His duties must be thoroughly described so that it is clear whether he will remain in control once the emergency response team arrives or whether he will relinquish control to another incident commander upon that person's arrival on the scene. Additionally, there must be a qualified OSC on-site or on call 24 hours a day. The name, address and phone numbers (home and work) of the OSC(s) must be listed in the Emergency Response Plan. Where more than one person is listed, one must be named as the primary OSC and others must be listed in the order in which they will assume responsibility as alternates.

7. Local or regional emergency medical services or hospitals which have experience in hazardous materials training must be identified in the application. The names, addresses and phone numbers of the hospitals or medical centers should be listed here and updated as necessary. Additionally, maps showing the quickest routes to the medical services must be provided. A description of decontamination procedures for injured personnel prior to transport to medical services must also be provided. The decontamination and transport of injured people to appropriate medical centers must be included in the emergency evacuation training and drills.

8. A pre-disaster plan which includes training drills must be included in the application. This plan should include a schedule for staging evacuations of the facility and for emergency response training drills. At least two evacuations and two emergency response drills should occur annually. The plan should also include additional drills for responding to "predictable" emergencies such as floods and hurricanes. The plan must include the following (or must reference applicable sections of the Contingency Plan): a description of arrangements already in place with local authorities; emergency phone numbers; internal communication or alarm systems and proper alarm codes; a list of all types of emergency equipment at the facility, including a physical description and the capabilities of each item on the list, and the location of each item (a map would be useful here); a description of decontamination equipment; an evacuation plan including signals, evacuation routes and alternate evacuation routes; listing of pertinent first responder emergency phone numbers, and codes for other types of

communication devices; and a description of actions that will be performed in the event that a "predictable" emergency occurs.

9. Describe the mechanism which will be used to notify first responders and appropriate local governmental entities that an emergency has occurred. Also describe the mechanism which will be used to notify all applicable governmental agencies when an incident occurs (i.e., TCEQ, Texas Parks and Wildlife, General Land Office, TCEQ Office of Air Quality, Texas Department of Health, and the Texas Railroad Commission).

10. Evidence must be provided that shows coordination with the Local Emergency Planning Committee (LEPC) and any local comprehensive emergency management plan. The applicants should be able to show compliance with SARA Title III.

11. Any medical response capabilities proposed for the facility property must be detailed in the application.

Table III.D. – Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
SEHB NOR 017		
Final Cap	Erosion; Non-Uniform Subsidence	Quarterly
Benchmark	Damaged or missing Accuracy verification completed by Texas Registered Professional Land Surveyor	Quarterly Every Five Years
Perimeter Fence	Damaged	Quarterly
Monitor Wells	Well caps locked; well caps missing; damage to well covers, well casings, well pads and guard posts (if applicable); silt build-up	Semiannually – during sampling event
Recovery Wells	Damage to well covers, well casings, well pads and guard posts (if applicable); silt build-up	Semiannually – during sampling event
CAMU/Former NHB NOR 004		
Freeboard	Equal to Two Feet	Weekly
Dike	Leaks, erosion or cracks	Weekly
Monitor Wells	Well caps locked; well caps missing; damage to well covers, well casings, well pads and guard posts (if applicable); silt build-up	Semiannually – during sampling event
Recovery Wells	Damage to well covers, well casings, well pads and guard posts (if applicable); silt build-up	Semiannually – during sampling event

Table III.E.1 – Arrangements with Local Authorities

Police: **Galena Park Police Department**	
Address: 2207 Clinton Dr. Galena Park, TX 77547	
Person Contacted: NA	Phone: (713) 675-3471
Agreed Arrangements: Emergency response as necessary	
Fire: CIMA – Central Dispatch	
Address: ZONE 1	
Person Contacted: N/A	Phone: CIMA Radio
Agreed Arrangements: Emergency Response	
Hospital: HCA Houston Healthcare Southeast Center	
Address: 4000 Spencer Highway Pasadena, Texas 77504	
Person Contacted: N/A	Phone: (713) 359-2000
Agreed Arrangements: Emergency Medical Response	
Other: OMI Environmental Solutions	
Address: 450 Preston Ave. Pasadena, Texas 77053	

Person Contacted: N/A	Phone: (800) 645-6671
Agreed Arrangements: Emergency Response as necessary	

Table III.E.2. – Emergency Coordinators

Name	Home Address	Office Phone(s) and/or Pager	Home Phone(s)
Primary: Alex Rendon	NA	(281) 678-4653 (24-hours/day)	NA
Alternates: Corey McGuire	NA	(832) 963-4373 (24-hours/day)	NA

Table III.E.3. – Emergency Equipment

Equipment	Location	Physical Description	Capabilities
Alarm System	Galena Park Terminal/Site Wide	Emergency alert horn broadcast facility wide	Notify personnel of emergency situation within the Galena Park Terminal
Communication	On CAMU operations field supervisor during soil management activities in the CAMU	Two-way handheld radios	The radios have direct contact to facility emergency personnel 24 hours a day, 365 days a year
Fire Extinguishers	On vehicles operating within the CAMU during soil management activities in the CAMU	Portable, Multi-Class	Fire fighting
Decontamination Pad	At exit from the CAMU. This is temporary equipment that will only be staged during soil management activities within the CAMU	14-mil plastic sheet over sandbag berm	Decontaminate trucks and earth moving equipment

Equipment	Location	Physical Description	Capabilities

IV. Wastes and Waste Analysis

(Sections IV.A, IV.C, and IV.D do not apply to post closure applications.)

A. Waste Management Information

For a new hazardous waste management facility or for a facility hazardous waste management capacity expansion, complete Table IV.A. - Waste Management Information for each waste, source, and volume of waste to be stored, processed, or disposed of in the facility units to be permitted as required by 30 TAC 305.50(a)(9). For on-site facilities, list "on-site" for the waste source. For off-site facilities, list the source of the waste. If unknown, identify potential sources (e.g., industries/processes to be serviced).

Not Applicable – existing unit will not be modified to expand capacity

B. Waste Managed In Permitted Units

For all hazardous waste management facilities and for inclusion into a permit, complete Table IV.B. - Wastes Managed In Permitted Units for each waste and debris to be managed in a permitted unit. Provide a description, EPA waste codes, and TCEQ waste form codes and classification codes. Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance for how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

Applicants need not specify the complete 8-digit waste code formulas for their wastes but must include the 3-digit form codes and 1-digit classification codes. This allows the applicant to specify major categories of wastes in an overall manner without having to list all the specific waste streams as generated.

C. Sampling and Analytical Methods

For inclusion into a permit, complete Table IV.C. - Sampling and Analytical Methods for each waste and debris proposed to be sampled and analyzed and include sampling location, sampling method, sample frequency, analytical method, and desired accuracy level for each waste and debris to be managed in a permitted, storage, processing, or disposal unit at the facility.

D. Waste Analysis Plan

The Waste Analysis Plan must address the requirements of 40 CFR §264.13 and §268.7. The Plan should include supplemental and coordinating information on how the facility will analyze wastes and debris (as listed in Table IV.B) to be managed in permitted units. The plan must address the determination of land disposal restrictions. Generators must determine and certify with the manifest the land disposal restriction status of a waste, even if the waste or debris is not intended for land disposal. Land disposal treatment facilities must identify the treatment process and analytical procedures to be used, and include them in the waste analysis plan. Land disposal restriction records must be maintained at the facility until closure of the facility [40 CFR §264.73(b)]. Landfill facilities must determine through the Paint Filter Liquids Test (SW-846 Method 9095) if there is free liquid in a bulk or containerized waste to be landfilled. If so, it must be

stabilized; adding adsorbents alone is not acceptable, even for containerized waste.

For off-site facilities the waste analysis plan must specify procedures which will be used to inspect and, if necessary, analyze each movement of industrial and hazardous waste or hazardous debris received at the facility to ensure it matches the identity of the waste designated on the accompanying shipping ticket. The plan must describe methods which will be used to determine the identity of each movement of waste and debris managed at the facility and sampling method used if the identification method includes sampling in order to store, process, or dispose of the wastes and debris in accordance with 40 CFR Parts 264 and 268 and any abnormal characteristics which may upset further treatment or processing operations. Include rejection criteria for shipments of waste and debris received at the facility

For on-site facilities the waste analysis plan must specify the normal characteristics of the waste (including EPA hazardous waste codes, EPA hazard codes, and 40 CFR Part 261, Appendix VIII Hazardous Constituents) which must be known to store, process, or dispose of the wastes and debris in accordance with 40 CFR Parts 264 and 268 and any abnormal characteristics which may upset further treatment or processing operations.

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Those sampling methods listed in 40 CFR Part 261 Appendix I, for sampling waste with properties similar to the indicated materials, or equivalent sampling methods approved by EPA under 40 CFR §260.20 and §260.21, will be considered by the TCEQ to be acceptable.

See Attachment I – Waste Analysis Plan

Table IV.A. – Waste Management Information

Waste Type(s)	Source	Volume (tons/year)
Not Applicable – Existing Unit, No Capacity Expansion		

Table IV.B. – Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
1	Corrective Action Soil – NH Class II	N/A	301 2
2	Corrective Action Soil – NH Class I	N/A	301 1
3	Corrective Action Soil H	*See Below	301, 319 H
4	Tank 100-5 Bottoms	**See Below	301 H
* D001, D018, D023, D024, D025, D026, D028, U002, U019, U052, U043, U120, U159, U165, U220, U226, U227, U239			
** D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U055, U056, U077, U112, U120, U125, U140, U154, U159, U161, U177, U188, U191, U210, U220, U226, U227, U239, U240			
* While several constituents expected to be present in the corrective action soil waste, as described by the U-codes, above, may be ignitable, based on historical experience, it is not expected that the soil waste will be ignitable.			

Table IV.C. – Sampling and Analytical Methods

Sampling Location	Sampling Method	Frequency	Parameter	Test Method	Reporting Limit (mg/kg)	Proposed Treatment Standards (mg/kg)
Roll-Off Boxes OR Soil Stockpiles in CAMU	See Section 4.1 of the Waste Analysis Plan	Initial 100 cy per 500 yards of similar corrective action area	Methanol	GC/FID	50	8,400
			Isobutyl Alcohol		50	5,200
			n-butyl Alcohol		50	3,100
			Benzene	SW-846/ 8260B	0.005	37
			Methyl ethyl ketone		0.05	16,000
			Methyl isobutyl ketone		0.05	2,800
			Methyl t-butyl ether		0.005	4,800
			Toluene		0.005	4,300
			o-xylene		0.005	4,800
			m+p xylene		0.005	4,800
			Ethyl acetate		0.05	16,000
			Acetone		0.005	7,600
			Acetonitrile		0.05	940
			Acrylonitrile		0.05	4.2
			Chloroform		0.005	13
			1,2-Dichloroethane		0.005	11
			Cumene		0.005	6,300
			Cyclohexane		0.01	8,800

Method Reference: *SW-846 Test Methods for Evaluating Solid Wastes.*
mg/kg Milligrams per kilogram.

Table IV.C. - Sampling and Analytical Methods

Sampling Location	Sampling Method	Frequency	Parameter	Test Method	Reporting Limit (mg/kg)	Proposed Treatment Standards (mg/kg)
Roll-Off Boxes OR Soil Stockpiles in CAMU	See Section 4.1 of the Waste Analysis Plan	Initial 100 cy per 500 yards of similar corrective action area	Ethylbenzene	SW-846/ 8260B	0.005	10,000
			Naphthalene		0.005	190
			Ethyl Ether		0.05	13,000
			Tetrachloroethylene		0.005	270
			1,1,1-Trichloroethane		0.005	10,000
			1,1,2-Trichloroethane		0.005	19
			o-cresol	SW-846/ 8270C	2.0	1,900
			m-cresol		2.0	2,000
			p-cresol		2.0	1,300
			Aniline		2.0	94
			Creosote		NA	NA
			Phenol		2.0	2,400
			Picoline		2.0	12
			Furfural		2.0	380
			2,4-Dichlorophenoxyacetic acid (2,4-D)	SW-846/ 8151A	2.0	920
			TPH	TCEQ-1005/1006	50/10	2,100

Sampling Location	Sampling Method	Frequency	Parameter	Test Method	Reporting Limit (mg/kg)	Proposed Treatment Standards (mg/kg)
			Lead	SW-846 6010/7421	150	1,600

Method Reference: *SW-846 Test Methods for Evaluating Solid Wastes.*
mg/kg = Milligrams per kilogram

V. Engineering Reports

The engineering report represents the conceptual basis for the storage, processing, or disposal units at the hazardous waste management (HWM) facility. It should include calculations and other such engineering information as may be necessary to follow the logical development of the facility design. Plans and specifications are an integral part of the report. They should include construction procedures, materials specifications, dimensions, design capacities relative to the volume of wastes (as appropriate), and the information required by 40 CFR 270.14(b)(8), 270.14(b)(10). Since these reports may be incorporated into any issued permit, the report should not include trade names, manufacturers, or vendors of specific materials, equipment, or services unless such information is critical to the technical adequacy of the material. Technical specifications and required performance standards are sufficient to conduct a technical review. For landfills, surface impoundments, and waste piles, a Construction Quality Assurance Plan, which considers the guidance in EPA publication 530-SW-85-014, Minimum Technology Guidance on Double Liner Systems for Landfills and Surface Impoundments; Design, Construction, and Operation, and/or EPA/600/R-93/182, Quality Assurance And Quality Control For Waste Containment Facilities, should be submitted.

For facilities which will receive wastes from off-site sources, the engineering report must also contain information on the units which will manage these off-site wastes in accordance with 30 TAC 335.45(a).

Certain ancillary components or appurtenant devices must be addressed in the Part B application. These include but are not limited to sumps, pipelines, ditches, and canals. The technical information and the level of detail required will vary with the nature, scope, and location of the ancillary component. At a minimum they should be included in descriptions of piping and process flow. More information may be required. A single area containing a large number of ancillary components or a remote appurtenant device in an unusually sensitive location may warrant some specific permit requirements. All ancillary components must be included in calculating closure cost estimates.

In each of the unit-specific sections, describe precautions taken to prevent accidental commingling of incompatible wastes. If reactive or ignitable wastes are to be managed, or if incompatible wastes are deliberately commingled, provide information to ensure that precautions are taken to avoid danger due to:

- generation of extreme heat or pressure, fire, explosion, or violent reaction;
- production of uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health;
- production of uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion;
- damaging the structural integrity of the device or facility containing the waste; or
- threatening human health or the environment by any other means.

Comprehensive consideration should be given to ensure that the facility is designed in accordance with good public health and hazardous waste management practices. The application will be evaluated primarily for the aspects of design covered by the regulations. Nothing in any approval is intended to relieve the facility owner or operator of any liabilities or responsibilities with respect to the design, construction, or operation of the project.

A. General Engineering Reports

1. General Information

Complete Table V.A. – Facility Waste Management Handling Units listing all past, current or proposed units. *[Indicate units' status as* Active, Closed, Inactive *(built but not yet managing waste)*, Proposed *(not yet built)*, Never Built, Transferred, or Post-Closure. *Indicate appropriate units for Capacity information.]* **Note for renewals and modifications involving adding or dropping units from the permit:** List all TCEQ Permit Unit Numbers that have been assigned previously as in a current permit Attachment D –Authorized Facility Units table and do not reuse or reassign permit numbers for units that have been replaced, closed, removed from the permit, or transferred to other ownership. All Notice of Registration (NOR) Numbers must match the State of Texas Environmental Electronic Reporting System (STEERS) and may not be reused for replacement units.

Provide an overall plan view of the entire facility. Identify each hazardous or industrial solid waste management unit (container storage area, tank, incinerator, etc.) to be permitted in relation to its location and the type of waste managed in that unit. Also provide a plan view at an appropriate scale to clearly show the location of all hazardous waste management units to be permitted on one or more 8 1/2" x 14" sheets. Indicate on this plan view how the design or operation provides for buffer zones or waste segregation as appropriate for incompatible, ignitable, or reactive wastes.

Submit a topographic map or maps of the facility which clearly shows the information specified in 40 CFR 270.14(b)(19), 270.14(c)(3), and 270.14(d)(1)(i) (for large HWM facilities, the TCEQ will allow the use of other scales on a case-by-case basis). Please note that the term "facility" includes all contiguous land, structures, other appurtenances, and improvements on the land for storing, processing, or disposing of hazardous and industrial solid waste.

See Attachment J – Engineering Report

2. Features to Mitigate Unsuitable Site Characteristics

   For all new hazardous waste management storage and/or processing facilities or areal expansions of existing hazardous waste management storage and/or processing facilities, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(a)(1) and (a)(3) through (9).

   Not Applicable – This application is for existing units that will not undergo areal expansion

3. Construction Schedules

   a. In order to meet the required design standards, extensive retrofitting of some facilities may be required. In the worst case, the applicant may elect to close certain operations rather than comply with the RCRA standards. Thus, the permit may specify a schedule of compliance requiring the accomplishment of given tasks within specific time frames. As required, indicate an appropriate schedule(s) of compliance in this application. The schedule should provide for facility compliance as soon as possible and in accordance with 40 CFR 270.33(a)(2) and 270.33(b).

   b. For commercial hazardous waste management facilities, permit applications (new, renewal, or interim status applications), major amendments, and Class 3 modifications must include a construction schedule. A construction schedule must be submitted even if the application does not include an

addition of units or a revision to permitted units. This schedule should comply with the requirements of 30 TAC 305.149.

Not Applicable – Construction has been completed

4. Provide detailed plans and specifications which when, accompanied by the engineering report, will be sufficiently detailed and complete to allow the Executive Director to ascertain whether the facility will be constructed and operated in compliance with all pertinent permitting requirements. Engineering plans and specifications must be prepared under the supervision of and sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act. For some facilities, plans in the form of a standard piping and instrumentation diagram will be sufficient. Overall dimensions and materials of construction must be shown.

See Attachment J – Engineering Report, Attachment A - CAMU Construction Certification

B. Container Storage Areas

1. Provide an engineering report which includes all of the information specified in 40 CFR 264.170-264.173, 264.175-264.177, and 270.15.

Complete Table V.B - Container Storage Areas and list the container storage areas covered by this application to be permitted. List the N.O.R. unit number, the rated capacity or size of each unit (including the maximum number of each type of container to be stored at each unit and total maximum capacity of all types wastes stored in the unit), the areal dimensions, containment volume, aisle space requirements, whether ignitable, reactive, or incompatible waste will be stored in each unit, and whether processing will occur within the unit.

Not Applicable

2. Container storage areas must have a containment system that is capable of collecting and holding spills, leaks, and precipitation. In addition to the requirements of 40 CFR 270.15, the design report should include the following:
   a. Capacity of the containment relative to the number and volume of containers to be stored; in addition, for unenclosed areas, the amount of rainfall collected prior to removal. The TCEQ recommends using a 25-year, 24-hour rainfall event for this extra capacity; and
   b. Run-on into the containment system must be prevented, or a collection system with sufficient excess capacity must be provided. If run-on is collected within the containment system, delineate the area(s) from which run-on is collected. The 25-year, 24-hour rainfall event should be used to calculate the excess capacity.

Not Applicable

3. Wastes Containing No Free Liquids

With the exception of 40 CFR 264.175(d), storage areas that hold only wastes that do not contain free liquids need not have a containment system, provided that compliance with 40 CFR 264.175(c) is demonstrated. This demonstration must be submitted as part of the application and must include:

a. test procedures and results or other documentation or information to show that the wastes do not contain free liquids; and

b. a description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids.

Not Applicable

4. Managing Ignitable or Reactive Wastes

If a container storage area will manage ignitable or reactive waste, as indicated on Table V.B, provide in the engineering report drawings demonstrating compliance with the buffer zone requirement of 40 CFR 264.17 and 264.176.

Not Applicable

5. Managing Incompatible Wastes

If a container storage area will manage incompatible waste, as indicated on Table V.B, provide in the engineering report a description of the procedures used to ensure compliance with 40 CFR 264.17 and 264.177.

Not Applicable

6. Managing Nonhazardous Wastes and/or Universal Wastes

If a container storage area will manage nonhazardous wastes, and/or universal wastes in addition to hazardous waste, provide a description of all types of wastes managed in the engineering report and procedures used to ensure compliance with 40 CFR 264 Subpart I.

Not Applicable

C. Tanks and Tank Systems

Provide an engineering report which includes all of the information specified in 40 CFR 264.190-264.194, 264.196, 264.198-264.199, and 270.16.

1. For inclusion into a permit, complete Table V.C - Tanks and Tank Systems and list the tanks covered by this application to be permitted. List the N.O.R. unit number, whether the unit is for storage and/or processing, the waste managed in each unit, the rated capacity of each unit, overall dimensions of each unit, containment volume, and whether ignitable, reactive, or incompatible waste will be stored in each unit.

2. If a tank will manage ignitable or reactive waste, as indicated on Table V.C, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.198 and provide drawings demonstrating compliance with any applicable buffer zone requirements and 40 CFR 264.17.

3. If a tank will manage incompatible waste, as indicated on Table V.C, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.199.

4. Submit written assessments that were reviewed and certified by an independent, qualified licensed Professional Engineer that attests to the structural integrity and suitability of handling the hazardous waste for each tank system, as required under 40 CFR 264.191-264.192 for existing tanks which do not have secondary containment meeting the standards of 40 CFR 264.193. The engineer signing the written assessment must make the certification specified in 40 CFR 270.11(d).

The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.

5. If a tank has been de-rated or if the permitted capacity is otherwise different from the design capacity, specify any such change(s) in the engineering report.

Provide in the report any additional information for tanks and tank systems as specified in the above regulatory citations including: specifics of leak, spill, and unfit for use systems responses; assessments of tank systems; new tank systems or components; overfill control and prevention; special requirements for ignitable and/or reactive wastes; incompatible wastes; air emissions control; detection of leaks into secondary containment; ancillary equipment; and plans and specifications individually sealed by a licensed professional engineer with current Texas registration with the Registered Engineering Firm's name and Registration number.

Not Applicable

D. Surface Impoundments

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(6), 335.168, 335.169, and 40 CFR 264.19, 264.220, 264.221, 264.222, 264.223, 264.226(a) and (c), 264.227, 264.229-264.231, and 270.17.

For storage surface impoundments at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(d). For any surface impoundment to be closed as a landfill (where wastes will remain after closure of the impoundment) at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(e).

For all impoundments, include in the report the following information.

1. Complete Table V.D.1 - Surface Impoundments and list the surface impoundments, covered by this application, to be permitted. List the waste(s) managed in each unit and the rated capacity or size of each unit.

2. If a surface impoundment will manage ignitable or reactive waste, as indicated on Table V.D.1., describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.229.

   Not Applicable – The units will not manage ignitable or reactive waste

3. If a surface impoundment will manage incompatible waste, as indicated on Table V.D.1., describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.230.

   Not Applicable – The units will not manage incompatible waste

4. If a surface impoundment will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.D.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.231.

   Not Applicable – The units will not manage the wastes identified above

5. Describe the surface impoundment. Detailed plan view and cross-sectional drawings of the surface impoundment should be included with the engineering report.

See Attachment J– Engineering Report, Attachment A - CAMU Construction Certification and Attachment K – Closure Plan for NHB (NOR 004)

6. Freeboard

Specify the minimum freeboard to be maintained and the basis of the design to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error. Show that adequate freeboard will be available to prevent overtopping from a 100-year, 24-hour storm. [40 CFR 264.221(g)]

If the impoundment is inflow sensitive, it should be equipped with a high-level alarm based on a different level sensor than that used for automatic control.

See Attachment J – Engineering Report

7. Waste Flow

Describe the means that will be used to immediately shut off the flow of waste to the impoundment to prevent overtopping or in the event of liner failure, and include appropriate detailed drawings.

If the surface impoundment is a flow-through facility describe the flow of waste, including a hydraulic profile.

See Attachment J – Engineering Report

8. Dike Construction

a. If dikes are used, include the following certification as part of the engineering report:

"I, *(qualified licensed Professional Engineer)*, Texas P.E. License Number _____, of Registered Firm *(Name)* Registered Firm No. *(Registration Number)* certify under penalty of law that I have personally examined and am familiar with the design and construction of the dikes that are a portion of *(surface impoundment unit name)*.

I further certify that I have evaluated the dike design and materials of construction using accepted engineering procedures, and have determined that the dike, including the portion of the dike providing freeboard, has structural integrity, and

(1) will withstand the stress of the pressure exerted by the types and amounts of wastes to be placed in the impoundment; and
(2) will not fail due to scouring or piping, without dependence on any liner system included in the impoundment construction.

Date: _____"

"(Signature)"

"(Seal)"

b. The structural integrity of the dike system must be certified by a qualified Professional Engineer before a permit is issued. If the impoundment is not

being used, the dike licensed system must be certified before it can be put into use. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.

c. A report shall accompany the dike certification which summarizes the activities, calculations, and laboratory and field analyses performed in support of the dike certification. Describe the design basis used in construction of the dikes. Provide the following analyses as attachments to the engineering report (A Quality Assurance Project Plan <QAPP> should be included in the report to ensure that each analysis is performed appropriately):

(1) Slope Stability Analysis
(2) Hydrostatic and Hydrodynamic Analysis
(3) Storm Loading
(4) Rapid Drawdown

d. Earthen dikes should have a protective cover to minimize wind and water erosion and to preserve the structural integrity of the dike. Describe the protective cover used and describe its installation and maintenance.

See Attachment J – Engineering Report

9. Containment System

We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

a. Complete Table V.D. 6. - Surface Impoundment Liner System for each surface impoundment to be permitted.

b. In the engineering report, describe the design, installation and operation of liner and leak detection components. The description must demonstrate that the liner and leak detection system will prevent discharge to the land, and ground and surface water. Include the following analyses as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

(1) Seaming method
(2) Surface preparation method
(3) Tensile Strength
(4) Impact Resistance
(5) Compatibility Demonstration
(6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For soil liners:

(7) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated waste constituents

(8) Atterberg Limits, % passing a #200 sieve, and Permeability
(9) Moisture Content
(10) Standard Proctor Density, Compaction Data

For leachate collection systems:

(11) Pipe Material and Strength
(12) Pipe Network Spacing and Grading
(13) Collection Sump(s) Material and Strength
(14) Drainage Media Specifications and Performance
(15) Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
(16) Compatibility Demonstration
(17) Capacity of System
  (a) rate of leachate removal
  (b) capacity of sumps
  (c) thickness of mounding and maximum hydraulic head

c. Specify the liner system installation date and expected lifetime of liner system (years).

d. Specify whether the liner is chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

e. Submit a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

f. Submit a Response Action Plan that proposes actions to be taken if the Action Leakage Rate for the surface impoundment exceeds. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.223.

See Attachment J – Engineering Report

10. Surface impoundments that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. The owner or operator of each new surface impoundment unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing surface impoundment unit where construction commences after July 29, 1992, or replacement of an existing surface impoundment unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. Plans and specifications for both new and existing surface impoundments must demonstrate conformity with 30 TAC 335.168 and 40 CFR 264.221

See Attachment J– Engineering Report

11. Run-on Diversion

Describe in detail how the surface impoundment system will manage stormwater run-on away from the surface impoundment. Stormwater run-on must be diverted away from a surface impoundment. Use at least a 100-year, 24-hour

rainfall event in the design and analysis of diversion structures. Where dikes are used to divert run-on, they must be protected from erosion. Include all analyses used to calculate run-on volumes.

See Attachment J – Engineering Report

12. The Commission may approve an alternate design or operating practice for a surface impoundment if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.221(d)]:
    a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system required by 40 CFR 264.221; and
    b. Will allow detection leaks of hazardous constituents through the top liner at least as effectively.

    See Attachment J– Engineering Report

13. Exemption from Double-Liner Requirements for Monofills [264.221(e)]

    Owners or operators of hazardous waste surface impoundment monofills will be exempted from the double-liner requirements if the Commission finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics are at least as effective as a double liner in preventing migration of hazardous constituents to the groundwater or surface water. If an exemption is sought, submit detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

    Attachment J – Engineering Report

    Attachment E – Exposure Information

E. Waste Piles

This section applies to owners or operators of industrial solid waste facilities that store or process hazardous waste in piles. A hazardous waste pile that will be closed with wastes left in place must be managed as a landfill. Existing portions of waste piles are those areas that were listed on the original Part A and on which wastes have been lawfully placed.

Provide an engineering report which includes all of the information specified in 30 TAC 335.170 and 40 CFR 264.19, 264.250, 264.251, 264.252-264.253, 264.254(a) and (c), 264.256, 264.257, 264.259, and 270.18.

For waste piles at a new hazardous waste management facility or which are part of any areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(c).

For all waste piles, include in the report the following information.

1. For inclusion into a permit, complete Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.
2. If a waste pile will manage ignitable or reactive waste, as indicated on Table

V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.256.

3. If a waste pile will manage incompatible waste, as indicated on Table V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.257.

4. If a waste pile will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.259.

5. Describe the waste pile, including any structure surrounding or enclosing the waste pile.

6. Containment System

We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

a. For inclusion into a permit, complete Table V.E. 3 - Waste Pile Liner System and specify the type of containment/liner system.

b. In the engineering report, describe the design, installation, construction, and operation of the liner and leachate collection system. The description must demonstrate that containment systems will prevent discharge to the land, surface water, or groundwater. Include the following analyses as attachments to the engineering report, when applicable to the containment system being described (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

(1) Seaming method
(2) Surface preparation method
(3) Tensile Strength
(4) Impact Resistance
(5) Compatibility Demonstration
(6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For soil liners:

(7) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated constituents.
(8) Atterberg Limits, % passing a #200 sieve, and Permeability
(9) Moisture Content
(10) Standard Proctor Density, Compaction Data

For leachate detection, collection, and removal system:

(11) Capacity of system

(a) rate of leachate removal
(b) capacity of sumps
(c) thickness of mounding and maximum hydraulic head

(12) Pipe Material and Strength
(13) Pipe Network Spacing and Grading
(14) Collection Sump(s) Material and Strength
(15) Drainage Media Specifications and Performance
(16) Analysis showing that pipe and perforation size will prevent clogging and allow free liquid access to the pipe.
(17) Compatibility Demonstration

c. Containment/liner system installation date and expected lifetime of liner system (years).

d. Specify whether the containment/liner system is chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

e. Submit a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

f. Submit a Response Action Plan that proposes actions to be taken if the Action Leakage Rate for the waste pile exceeds. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.253.

7. Wind Dispersal [30 TAC 335.170(j)]

Waste piles containing hazardous waste which could be subject to dispersal by wind must be covered or otherwise managed so that wind dispersal is minimized. Describe practices to control wind dispersal (e.g., cover or frequent wetting) of the hazardous waste.

8. Run-on Diversion [30 TAC 335.170(g)]

Describe in detail the measures used to control and divert run-on from the unit. The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 100-year, 24-hour storm.

Include all analyses used to calculate: flow rates; run-on volume and depth; and back-water calculations for the ditches on plant property.

Any tanks or basins associated with the run-on control systems must be emptied or otherwise managed expeditiously after a storm to maintain the design capacity of the system. [30 TAC 335.170(i)]

9. Run-off Control [30 TAC 335.170(h)]

Describe in detail the measures used to control run-off from the unit. Include all analyses used to calculate the run-off volumes.

The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 100-year, 24-hour storm.

Collection and holding facilities (e.g., tanks or basins) associated with the run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system. [30 TAC 335.170(i)]

10. Give a description of design and operating procedures to properly manage and/or dispose of any residuals (e.g., leachate) that may be generated during waste management. Describe the management process and any equipment used.

11. Provide a description and list of all equipment and procedures used to place the waste in or on the waste pile, and how the liner surface will be exposed for inspection, if necessary. A containment system must be protected from plant growth which could puncture any component of the system.

12. Exemption from Liner and Leachate Collection Requirements

    The Commission may approve an alternate design or operating practice for a waste pile if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.251(d)]:

    a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system; and
    b. Will allow detection leaks of hazardous constituents through the top liner at least as effectively.

13. Exemption from Groundwater Monitoring under 40 CFR 264.250(c)

    A waste pile may be exempt from groundwater monitoring if the following standards are met:

    a. The waste pile (including its underlying liners) must be located entirely above the seasonal high water table; and
    b. The waste pile is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated, provided that:
        (1) Liquids or materials containing free liquids are not placed in the pile;
        (2) The waste pile is protected from surface water run-on by the structure or in some other manner;
        (3) The waste pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting; and
        (4) The waste pile will not generate leachate through decomposition or other reactions; or
    c. The waste pile must have a leachate collection and removal system above the top liner; and
    d. Underlayment:
        (1) either:
            (a) The waste pile must be underlain by two liners, which are designed and constructed in a manner that prevents the migration of liquids into or out of the space between the liners and a leak detection system which must be designed, constructed, maintained, and operated between the liners to detect any migration of liquids into the space between the liners; and
            (b) A demonstration must be made that there is a low potential for migration of liquid from the waste pile to the uppermost aquifer during the life of the waste pile (including the closure period). The owner or operator must base any predictions made on assumptions that

maximize the rate of liquid migration;

(2) or:

(a) The waste pile must be underlain by a liner (base) that is designed, constructed, and installed in a manner that prevents the migration of liquids or waste beyond the liner; and

(b) The wastes in the waste pile must be removed periodically, and the liner must be inspected for deterioration, cracks, or other conditions that may result in leaks. The frequency of inspection will be specified in the inspection plan and must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates and subsurface stability).

The liner(s) used to satisfy V.D.13.d. must be of sufficient strength and thickness to prevent failure due to puncture, cracking, tearing, or other physical damage from equipment used to place waste in or on the pile or to clean and expose the liner surface for inspection.

Not Applicable

F. Land Treatment Units

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(6), 335.171, 335.172, 40 CFR 264.270-264.272, 264.273, 264.276, 264.278, 264.279, 264.281-264.283, and 270.20 for each land treatment unit.

For land treatment units at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(b).

For all land treatment units, include in the report the following information.

1. Complete Tables V.F.1 - Land Treatment Units and V.F.2 - Land Treatment Unit Capacity and list the land treatment units covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If different wastes are placed on separate portions of the land treatment area, each portion is considered a land treatment unit, and requires a separate summary form and engineering report.

   The treatment zone is defined as the soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed, or immobilized. In this section, specify the depth of the treatment zone. The maximum depth of the treatment zone for new land treatment units must be [40 CFR 264.271(c)]:

   a. No more than 1.5 meters (5 feet) from the surface; and

   b. More than 1 meter (3 feet) above the seasonal high water table.

2. If a land treatment unit will manage ignitable or reactive waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.281.

3. If a land treatment unit will manage incompatible waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.282.

4. If a land treatment unit will manage F020, F021, F022, F023, F026 and F027 waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.283.

5. Describe the land treatment unit. The report shall include all the information requested in this section including drawings. At a minimum, a plan view and cross-section of the unit should be included with the engineering report.

6. Complete Table V.F.3. - Land Treatment Principal Hazardous Constituents and list the wastes for which the treatment demonstration will be made and the principal hazardous constituents in each waste. Specify in the report the data sources to be used to make the demonstration such as laboratory data, field data, operating data, literature, or other.

7. Run-on Diversion

   Describe in detail the measures used to control run-on and divert run-on from the unit. Include all the analyses used to calculate the run-on volumes.

   The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the land treatment unit during peak discharge from a 100-year, 24-hour storm. [30 TAC 335.171(3)]

   Collection holding facilities (e.g., tanks or basins) associated with the run-on control system must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system. [30 TAC 335.171(5)]

8. Run-off Control

   Describe in detail the measures used to control the run-off from the unit, and minimize hazardous constituents in the run-off, include all the analyses used to calculate the run-off volumes.

   The owner or operator must design, construct, operate and maintain a run-off management system to collect and control at least the water volume resulting from a 100-year, 24-hour storm. [30 TAC 335.171(4)]

   Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.171(5)]

9. Wind Dispersal

   The owner or operator of a land treatment unit containing hazardous waste which could be subject to dispersal by wind must cover or otherwise manage the land treatment unit so that wind dispersal is minimized. Describe practices to control wind dispersal (e.g., cover or frequent wetting) of the hazardous waste. [30 TAC 335.171(6)]

10. Treatment Demonstration

    A description of the treatment demonstration required under 40 CFR 264.272 and 270.20(a) shall be included with the engineering report. If the owner or operator intends to conduct field tests or laboratory analyses in order to make the

demonstration, he must obtain a treatment or disposal permit.

11. The owner or operator must establish an unsaturated zone monitoring program in accordance with 40 CFR 264.278 and a detailed monitoring program must be included in the application.

12. Food Chain Crops [40 CFR 264.276]

    Several conditions must be satisfied if food-chain crops are to be grown in or on the treatment zone. A demonstration must be prepared similar to the one described in the Treatment Demonstration and submitted at least 90 days prior to the planting of crops. The demonstration need not be submitted with this application. However, a description of the demonstration must be included as part of the engineering report. This demonstration may be combined with the Treatment Demonstration description, as some of the information required is identical.

    Not Applicable

G. Landfills

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(5), (6), (9), (10), and (12), 335.173, 40 CFR 264.19, 264.300, 264.301, 264.302, 264.303(a), 264.304, 264.309, 264.312, 264.313, 264.315-264.317, and applicable requirements of 270.21. The text of the report should be written to supplement engineering plans, specifications, and test results necessary to provide a detailed description of how the landfill will comply with these standards.

For landfills at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(e).

For all landfills, include in the report the following information.

1. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

2. If a landfill will manage ignitable or reactive waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.312.

3. If a landfill will manage incompatible waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.313.

4. If a landfill will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.317.

5. Describe the landfill. A plan view and cross-section of the landfill should be included with the engineering report. As appropriate, detailed plan, elevation, cross-section of landfill containment facilities shall be included with the report.

6. Containment System

    We suggest that the applicant use available recognized guidance documents, such

as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

a. Complete Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

b. In the engineering report, describe the design, installation, construction, and operation of the liner and leachate collection system. The description must demonstrate that the liner system will prevent discharge to the land, groundwater, and surface water. The following analyses should be included as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

(1) Seaming method
(2) Surface preparation method
(3) Tensile Strength
(4) Impact Resistance
(5) Compatibility Demonstration
(6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For soil liners:

(7) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated waste constituents
(8) Atterberg Limits, % passing a #200 sieve, and Permeability
(9) Moisture Content
(10) Standard Proctor Density, Compaction Data

For Leachate Collection System

For incorporation into the permit, complete Table V.G.4. - Landfill Leachate Collection System used for the landfill.

(11) Capacity of the system:
  (a) rate of leachate removal
  (b) capacity of sumps
  (c) thickness of mounding and maximum hydraulic head
(12) Pipe Material and Strength
(13) Pipe Network Spacing and Grading
(14) Collection Sump(s) Material and Strength
(15) Drainage Media Specifications and Performance
(16) Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
(17) Compatibility Demonstration

c. State whether the liner system components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

d. Provide a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.
e. Whether the leachate collection components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.
f. Provide a Response Action Plan that proposes actions to be taken in the case of exceedance of the landfill Action Leakage Rate. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.304.

7. For Dikes:
   a. Slope Stability Analysis;
   b. Hydrostatic and Hydrodynamic Analyses
   c. Ability to withstand scouring from leaking liner.

8. Landfills that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. The owner or operator of each new landfill unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing landfill unit where construction commences after July 29, 1992, or replacement of an existing landfill unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. Plans and specifications for both new and existing landfills must demonstrate conformity with 30 TAC 335.173 and 40 CFR 264.301(c).

9. Site Development Plan

   Describe the methods used to deposit waste in the landfill. This description should include rate of waste deposition, waste segregation, average lift size, maximum lift, average cell or trench size, maximum cell or trench size, and other information necessary to depict how the landfill will be developed. Do not include liner or leachate collection system information, closure information, or handling of special wastes. This will be included elsewhere in the report.

10. Run-on Control [30 TAC 335.173(g)]

    The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 100-year, 24-hour storm.

    In the engineering report, include the following analyses:

    a. Run-on volume and depth calculations from the peak discharge of the 100-year, 24-hour storm; and
    b. For ditches on the plant property, back-water calculations.

    Collection and holding facilities (e.g., tanks or basins) associated with the run-on control system must be emptied or otherwise managed expeditiously. [30 TAC 335.173(i)]

11. Run-off Control [30 TAC 335.173(h)]

The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control the water volume resulting from a 100-year, 24-hour storm.

Include all analyses used to calculate run-off volumes.

Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.173(i)]

12. Wind Dispersal [30 TAC 335.173(j)]

    If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to minimize wind dispersal. Based upon the characteristics of the material to be landfilled describe the likelihood of wind dispersal occurring. Describe in detail any method and/or control mechanism used to prevent wind dispersal.

13. Liquid Waste

    If liquid waste or waste containing free liquids is to be stabilized and then placed in the landfill, the procedures used to stabilize the waste must be described in the engineering report. The waste must be treated prior to landfilling using a treatment technology that does not solely involve the use of a material that functions primarily as a sorbent. Provide supporting documentation to verify that an appropriate stabilization procedure is used to comply with 30 TAC 335.175.

14. The Commission may approve an alternate design or operating practice for a landfill if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.301(d)]:
    a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system; and
    b. Will allow detection leaks of hazardous constituents through the top liner at least as effectively.

15. Exemption from Double-Liner Requirements for Monofills [264.301(e)]

    Owners or operators of hazardous waste monofills will be exempted from the double-liner requirements if the Commission finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics are at least as effective as a double liner in preventing migration of hazardous constituents to the groundwater or surface water. If an exemption is sought, submit detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

16. Above-grade Benefits

    The engineering report must evaluate the benefits, if any, associated with the construction of the landfill above existing grade at the proposed site, the costs associated with the above-grade construction, and the potential adverse effects, if any, which would be associated with the above-grade construction. [TX. Health and Safety Code 361.108]

Not Applicable

H. Incinerators

As applicable, provide an engineering report which includes all of the information specified in 30 TAC 305.171-305.176, 40 CFR 264.340, 264.342-264.346, 264.347(a), and 270.19. In addition, the Executive Director may require additional information to address the requirements in 30 TAC 305.50(a)(15).

Note: Please review the information provided in the section above entitled "Engineering Report for Combustion Units" and 40 CFR 270.19(e) to determine applicability of standards and associated requirements in 40 CFR Part 264, Subpart O. If the permit contains risk-based permit conditions, please ensure that all applicable supporting information is included in the engineering report.

1. Complete Table V.H.1 - Incinerators and list the incinerators covered by this application and list the waste managed in each unit.
2. Complete Table V.H.2 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems for each Incinerator.
3. Complete Table V.H.3 - Maximum Constituents Feed Rate for each Incinerator.
4. Complete Table V.H.4 - Maximum Allowable Emission Rates for each Incinerator.
5. For use during the shakedown period, the trial burn period and the period after completion of the initial trial burn, complete Table V.H.5 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff-Short-Term Operation for each new or modified Incinerator.
6. If an incinerator will manage reactive or incompatible waste, as indicated on Table V.H.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17.
7. If an incinerator will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.H.1, the DRE requirement is 99.9999%.
8. If a trial burn for a modified unit and Comprehensive Performance Test under 40 CFR Part 63, Subpart EEE (HWC MACT) (for all new and modified units) will be performed, designate one or more of the 40 CFR 261 Appendix VIII organic compounds present in the wastes to be incinerated as Principal Organic Hazardous Constituents (POHCs). Selection will be based upon the degree of difficulty of incineration of these compounds and upon their concentration or mass in the waste feed. These POHCs will be used to determine the destruction and removal efficiency (DRE) specified in the performance standards of 40 CFR 264.343 and HWC MACT. In addition, complete Table V.H.8 - Principal Organic Hazardous Constituents.
9. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities which will occur in conjunction with the trial burn.
10. As applicable, facilities with existing permits may request that the Executive Director to address permit conditions that minimize emissions from startup, shutdown, and malfunction events in accordance with the options under 40 CFR 270.235 when requesting the removal of permit conditions that are no longer applicable according to 30 TAC 305.175. Please provide the relevant information needed to process the requested option to minimize emissions identified in 40

CFR 270.235(1)(a)(i)-(iii). (30 TAC 305.176)

Not Applicable

I. Boilers and Industrial Furnaces

As applicable, provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(13), 305.571-573, 40 CFR 266.100 and 266.102 (as incorporated by reference in 30 TAC 335.221 through 335.225), 266.104-266.112, and 270.22. In addition, the Executive Director may require additional information to address the requirements in 30 TAC 305.50(a)(15).

Note: Please review the information provided in the section above entitled "Engineering Report for Combustion Units" and 40 CFR 270.22 to determine applicability of standards and associated requirements in 40 CFR Part 266, Subpart H. Area sources that elect to comply with the standards and associated requirements of 40 CFR 266.105, 266.106, and 266.107 should address those elected standards and requirements in the engineering report. If the permit contains risk-based permit conditions, please ensure that all applicable supporting information is included in the engineering report.

1. Complete Table V.I.1 - Boilers and Industrial Furnaces and list the boilers and/or industrial furnaces covered by this application to be permitted and list the waste managed in each unit.
2. Complete Table V.I.2 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems for each unit.
3. Complete Table V.I.3 - Maximum Constituent Feed Rate for each unit.
4. Complete Table V.I.4 - Maximum Allowable Emission Rates for each unit.
5. For use during the shakedown period, trial burn period and the period after completion of the initial trial burn, complete Table V.I.5 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems-Short-Term Operation for each new or modified unit.
6. If a boiler or industrial furnace will manage reactive or incompatible waste, as indicated on Table V.I.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17.
7. If a boiler and industrial furnace will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.I.1, the DRE requirement is 99.9999%.
8. If a trial burn for modified units and Comprehensive Performance Test under 40 CFR Part 63, Subpart EEE (HWC MACT) (for all new and modified units) will be performed, designate one or more of the 40 CFR 261 Appendix VIII organic compounds present in the wastes to be incinerated as Principal Organic Hazardous Constituents (POHCs). Selection will be based upon the degree of difficulty of incineration of these compounds and upon their concentration or mass in the waste feed. These POHCs will be used to determine the destruction and removal efficiency (DRE) specified in the performance standards of 40 CFR 266.104 and HWC MACT. In addition, complete Table V.I.8 - Principal Organic Hazardous Constituents.
9. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities.
10. As applicable, facilities with existing permits may request that the Executive

Director to address permit conditions that minimize emissions from startup, shutdown, and malfunction events in accordance with the options under 40 CFR 270.235 when requesting the removal of permit conditions that are no longer applicable according to 30 TAC 305.571(b). Please provide the relevant information needed to process the requested option to minimize emissions identified in 40 CFR 270.235(1)(a)(i)-(iii). [30 TAC 305.572(a)(6)]

Not Applicable

J. Drip Pads

Provide an engineering report which includes all of the information specified in 40 CFR 264.570-573 and 270.26.

1. Complete Table V.J.1. - Drip Pads and list the drip pads, covered by this application, to be permitted. List the N.O.R. unit number, the waste managed in each unit, the rated capacity of each unit, and the overall dimensions of the unit (including perimeter curb or berm height) that will be in contact with the waste.
2. For either new drip pads[1] or existing drip pads for which the owner/operator elects to comply with the synthetic liner requirement of 40 CFR 264.573(b), please complete Table V.J.2. - Drip Pad Synthetic Liner System.
3. In the engineering report, describe the design, installation, construction, and operation of the liner and leakage collection system. The description must demonstrate that the liner system will prevent discharge to the land, groundwater, and surface water. The following analyses should be included as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

a. Seaming method
b. Surface preparation method
c. Tensile Strength
d. Impact Resistance
e. Compatibility Demonstration
f. Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For Leakage Collection System

g. Capacity of the system:
    (1) rate of leachate removal
    (2) capacity of sumps
    (3) thickness of mounding and maximum hydraulic head
h. Pipe Material and Strength
i. Pipe Network Spacing and Grading

1 New drip pads are those drip pads constructed after 12/06/90 and which had no binding contract for construction. If electing to comply with 40 CFR 264.573(b), the requirement to install a leakage collection system of 40 CFR 264.573(b)(3) applies only to those drip pads constructed after 12/24/92 and which had no binding contract for construction.

j. Collection Sump(s) Material and Strength
k. Drainage Media Specifications and Performance
l. Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
m. Compatibility Demonstration

Not Applicable

K. Miscellaneous Units

A miscellaneous unit is a unit other than a container, tank, incinerator, boiler, industrial furnace, landfill, surface impoundment, waste pile, underground injection well, land treatment area, drip pad, or unit eligible for an R, D & D permit that is used to process, store, or dispose of hazardous waste.

For each miscellaneous unit for which an operating permit is sought, provide an engineering report which includes all of the information specified in 40 CFR 264.600-264.602, and 270.23.

1. Complete Table V.K - Miscellaneous Units and list the miscellaneous units covered by this application. List the waste managed in each unit and the rated capacity or size of the unit. If the information requested is not applicable, an explanation must be submitted.
2. Provide any other information which is descriptive of the relationship between the miscellaneous unit and the environment. Application information may include design requirements of 30 TAC 305 and 335, 40 CFR Part 264 Subparts I through O, and Part 270 that are appropriate for the miscellaneous unit or portions of the unit being permitted.
3. For a unit which involves combustion, please provide emissions data or a trial burn plan. Tables V.H.1-5 for incinerators or Tables V.I.1-5 for boilers and industrial furnaces may be adapted as appropriate to provide operation, monitoring, and emission information for a miscellaneous combustion unit.

Not Applicable

L. Containment Buildings

Provide an engineering report which includes all of the information specified in 40 CFR 264.1100-1101(c)(3), and 264.1101(d)-(e).

Complete Table V.L. - Containment Buildings and list the containment buildings covered by this application to be permitted. List the N.O.R. unit number, whether the unit is for storage and/or processing, the waste or debris managed in each unit, the rated capacity of each unit, and the overall dimensions of the unit (including containment wall height) that will be in contact with the waste or debris.

Not Applicable

Table V.A. – Facility Waste Management Handling Units

TCEQ Permit Unit No.[1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
Not Applicable					

1. Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.
2. Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.
3. If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of Table V.A.

Table V.B. – Container Storage Area

Permit Unit No.	Container Storage Area	N.O.R. No.	Waste Nos.[4]	Rated Capacity[3]	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable[1], Reactive[1], or Incompatible[2] waste (state all that apply)
3	[Former] East Plant Turnaround Container Storage Area TCEQ Permit Unit No. 3 **(Unit certified closed)** **(Date of acceptance of Closure Certification Report by the TCEQ 10/21/2010)**	029	3	20 Roll-off boxes at 20 cubic yards each **(Unit no longer exists)**	Approximately 100 feet x 125 feet **(Unit no longer exists)**	400 cubic yards **(Unit no longer exists)**	Does not apply

1 Containers managing ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line.
2 Incompatible waste must be separated from other waste or materials stored nearby in other containers, piles, open tanks, or surface impoundments by means of a dike, berm, wall, or other device.
3 Container Storage Areas need to include in capacity calculations any nonhazardous wastes and universal wastes managed in the unit in addition to hazardous wastes.

4 from Table IV.B, first column

Table V.C. – Tanks and Tank System

Permit Unit No.	Tank	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable, Reactive, or Incompatible Waste (state all that apply)
Not Applicable								

1 from Table IV.B, first column

Table V.D.1. – Surface Impoundments

Permit Unit No.	Surface Impoundment	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)
1	SEHB (Currently in Post-Closure Care and is included in Compliance Plan)	017	N/A	740**	100 x 70' x 12'	24"	NOT REQUIRED	NONE APPLY
2	CAMU/ Former NHB	004	1, 2, 3, 4	50,000*	480' x 276' ~18' deep	10'	NOT REQUIRED	NONE APPLY

1from Table IV.B, first column
2Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

*The Former North Holding Basin original design capacity was 88,000 cubic yards. After partial closure of the Former North Hold Basin and construction of the CAMU only 50,000 cubic yards of capacity was available for the CAMU

**The Southeast Holding Basin original design capacity was 3,111 cubic yards.

Table V.D.6. – Surface Impoundment Liner System

Surface Impoundment	Primary Liner			Secondary Liner			Clay Liner		
	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness
SEHB (NOR 017) (Currently in Post-Closure Care and is included in Compliance Plan)	Limestone/ cement aggregate	Unknown	18”	Soil	3.7×10^{-4}	6”	N/A	N/A	N/A
CAMU/Former NHB (NOR 004)	Stabilized Sludge	0	6”	Clay/Soil	1×10^{-7}	3-6”	N/A	N/A	N/A

Table V.E.1. – Waste Piles

Permit Unit No.	Waste Pile	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)
Not Applicable								

1from Table IV.B, first column
2Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Table V.E.3. – Waste Pile Liner System

Waste Pile	Primary Liner			Secondary Liner			Clay Liner		
	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness
Not Applicable									

Table V.F.1. – Land Treatment Units

List the land treatment units covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.

Permit Unit No.	Land Treatment Unit	N.O.R. No.	Waste Nos.[1,2]	Dimensions[3]	Distance from lowest liner to groundwater	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)
Not Applicable						

1from Table IV.B, first column
2If cadmium is present in the waste, state the concentration in the report.
3Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Table V.F.2. – Land Treatment Unit Capacity

For the land treatment units listed in Table IV.F.1, specify the waste treatment capacity.

Permit Unit No.*	Land Treatment Unit	N.O.R. No.	Rated Capacity				Treatment Zone Depth
			Monthly Hydraulic Loading	Monthly Organic Loading	Monthly Inorganic Loading	Cumulative Lifetime Loading	
Not Applicable							

* This number should match the Permit Unit No. given on Table V.F.1.

Table V.F.3. – Land Treatment Principal Hazardous Constituents

List the wastes for which the demonstration will be made and the principal hazardous constituents in each waste. Indicate by an (*) asterisk which constituents will be treated and rendered nonhazardous.

Waste	Hazardous Constituents
Not Applicable	

Table V.G.1. – Landfills

Permit Unit No.	Landfill	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)
Not Applicable								

1from Table IV.B, first column
2Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Table V.G.3. – Landfill Liner System

Permit Unit No.*	Landfill	Primary Liner			Secondary Liner			Clay Liner		
		Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness
Not Applicable										

* This number should match the Permit Unit No. given on Table V.G.1.

Table V.G.4. – Landfill Leachate Collection System

Landfill	Primary Leachate Collection System					Secondary Leachate Collection System				
	Drainage Media	Collection Pipes (including risers)	Filter Fabric	Geofabric	Sump Material	Drainage Media	Collection Pipes (including risers)	Filter Fabric	Geofabric	Sump Material
Not Applicable										

Table V.H.1. – Incinerators

List the incinerators covered by this application to be permitted. List the waste managed in each unit and the rated capacity or size of each unit.

Permit Unit No.*	Incinerators	N.O.R. No.	Waste Nos.[1]	Waste Physical Form (Pumpable or Non-pumpable	Reactive, Incompatible, or F020, F021, F022, F023, F026, or F027 Waste
Not Applicable					

1From the first column of Table IV.B.

* If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator.

Table V.H.2. – Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems

Not Applicable

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N2	Secondary Combustion Chamber AWFCO Y/N[2]
Operating Parameters						
Maximum Total Hazardous Waste Feed Rate *[Additional hazardous waste feed limits shall be added as determined necessary based upon feed mechanism and/or waste-specific needs]*		*[Volumetric Flow Meter[3] or Mass Flow Meter as applicable to the feed mechanism]*	Feed System	lb/hr	Y	Y
Maximum Total Pumpable Hazardous Waste Mass Feed Rate *[Not applicable for Tier I or Tier I adjusted metals control limits]*		Volumetric Flow Meter[3] or Mass Flow Meter	Feed System	lb/hr		
Minimum Primary Combustion Chamber Temperature		Thermocouple *[or other device]*	Primary Chamber Exit	lb/hr		
Minimum Secondary Combustion Chamber Temperature		Thermocouple *[or other device]*	Secondary Chamber Exit	°F	Y	Y
Maximum Secondary and/or Primary Combustion Chamber Temperature [Include if using Tier II, III metals controls only]		Thermocouple *[or other device]*	Secondary Chamber Exit	°F	Y	Y
Maximum Flue Gas Temperature at PM Control Device Inlet [Tier II and Tier III Metals only as applicable]		Thermocouple *[or other device]*	At entrance to PM Control	°F	Y	Y
Maximum Combustion Gas Velocity Indicator *[If condition is something other than "maximum combustion gas velocity", write specific name of condition]*					Y	Y
Atomization parameters *[as necessary]*						[as appropriate]

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N2	Secondary Combustion Chamber AWFCO Y/N[2]
Feed Rates: (Metals, Total Chlorine, and Ash)			Volumetric Flow Meter[3]			
or Mass Flow Meter	Feed Systems	Limits Specified in Table _____ *[Maximum Constituent Feed Rates]*	N	N		
Secondary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O	*[Yes, if neg. pressure is used to control fugitives.]*	*[Yes, if neg. pressure is used to control fugitives.]*
Primary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O	*[Yes, if neg. pressure is used to control fugitives.]*	*[Yes, if neg. pressure is used to control fugitives.]*
CEMS Monitoring Parameters						
Stack Oxygen	Continuous	CEMS	Stack	No Limit (for correction to 7% O2)	N	N
Stack CO	Continuous HRA	CEMS	Stack	100 ppmv HRA, 7% O2, dry basis	Y	Y
Stack THC *[If specified in the permit]*	Continuous HRA	CEMS	Stack	20 ppmv HRA, 7% O2, dry basis	Y	Y
APCD Parameters						
Pressure drop across Baghouse *[or fabric filter]*				_____ in. W.C.		
[Wet Scrubbers:]						

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N2	Secondary Combustion Chamber AWFCO Y/N[2]
Ionizing Wet Scrubber minimum voltage				_____ kilovolts (kV)		
Minimum liquid to flue gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)		
Minimum scrubber blowdown				_____ gallons/min		
Minimum scrubber water pH				_____		
[Venturi Scrubbers:]						
Venturi scrubber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet minute (acfm		
Minimum differential gas pressure across venturi scrubber				_____ in. W.C.		
[Dry Scrubbers:]						
Minimum alkaline reagent *[insert name of reagent here, such as lime]* flow to the dry scrubber				_____ pounds per minute		
Maximum flue gas flow rate				_____acfm		
[Absorbers:]						
Absorber minimum pH of incoming liquid				_____		
Absorber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)		
Other Air Pollution Control Devices permit conditions as necessary						

1Instantaneous as defined in 40 CFR 266.102(e)(6)(i)(A) shall mean a value which occurs at any time. A value shall be determined by the monitoring device no less than every 15 seconds.

Continuous monitor is one which continuously samples or measures the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.
Hourly Rolling Average (HRA) as defined in 40 CFR 266.102(e)(6)(i)(B).
- For carcinogenic metals and lead feed rates: Instantaneous as defined above or, rolling average as defined in 40 CFR 266.102(e)(6)(ii).
2AWFCO: Automatic Waste Feed Cutoff. For AWFCOs indicated by "Y", the Permit Limit in the table triggers an AWFCO.
3The respective specific gravity and constituent concentration of each stream associated with a volumetric rate must be known to determine the mass feed rate.

Table V.H.3. – Maximum Constituent Feed Rates

[Multi-chamber Incinerators (e.g., rotary kilns) may need feed rate limits to each combustion chamber.] The total feed rate of constituents to the incinerator(s) shall not exceed the following limitations in grams per hour (g/hr) or tons per year (T/yr), as noted. The metals limitations have been evaluated through the risk assessment. The ash and chlorine limits are based upon testing or regulatory limits.

Constituent	Maximum Allowable Feed Rate In All Feedstreams Hourly Basis (g/hr)	Maximum Allowable Feed Rate In All Hazardous Waste Feedstreams Hourly Basis (g/hr)[1]	Maximum Allowable Feed Rate in All Pumpable Hazardous Waste Feedstreams Hourly Basis (g/hr)[1]	Maximum Allowable Feed Rate in All Feedstreams Annual Basis (T/yr)
Not Applicable				
Arsenic				
Beryllium				
Cadmium				
Total Chromium				
Antimony				
Barium				
Lead				
Mercury				
Silver				
Thallium				
(Others as Necessary)				
Total Chlorine		Not applicable	Not applicable	Not applicable
Ash to Secondary Combustion Chamber or Other Primary Chamber if Only Pumpable Waste is Fed		Not applicable	Not applicable	Not applicable

1Not applicable for Tier I or Tier I adjusted metals feed rate screening limits.

[Hourly feed rate limits must comply with the requirements of 40 CFR 266.106 for carcinogenic metals and non-carcinogenic metals. As applicable, the feed rate limit for chromium may be specified as hexavalent and total chromium limits.]

Table V.H.4. – Maximum Allowable Emission Rates

[Use a table for each operating mode as applicable]

Carcinogenic Constituent (Compliance Tier)	Maximum Allowable Emission Rate[1]	Units[2]
Not Applicable		
Arsenic (Tier____)		g/hr
Beryllium (Tier____)		g/hr
Cadmium (Tier____)		g/hr
Chromium, Total (Tier____)		g/hr
Non-Carcinogenic Constituent(Compliance Tier)	Maximum Allowable Emission Rate1	Units2
Antimony (Tier____)		g/hr
Barium (Tier____)		g/hr
Lead (Tier____)		g/hr
Mercury (Tier____)		g/hr
Silver (Tier____)		g/hr
Thallium (Tier____)		g/hr
Hydrogen Chloride (Tier____)		g/hr
Free Chlorine (Tier____)		g/hr
Particulate Matter	0.08	Grains/dscf

1 Not applicable for Tier I or Tier I adjusted feed rate screening limits.
2g/hr denotes grams per hour. Grains/dscf denotes grains per dry standard cubic foot (standard conditions: 760 mm Hg, 68 °F) after correction to a stack gas concentration of 7% oxygen.

Note: Site-specific dispersion modeling factor x.xxx *[insert dispersion factor for Tier III as applicable]* micrograms per cubic meter per grams per second emission rate.

Table V.H.5. - Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems - Short-Term Operation

[Use this table for each new or modified Incinerator unit and fill in all columns with the appropriate information]

Not Applicable

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Operating Parameters								
Maximum Total Hazardous Waste Feed Rate *[Additional hazardous waste feed limits shall be added as determined necessary based upon feed mechanism and/or waste-specific needs]*		*[Volumetric Flow Meter[3] or Mass Flow Meter as applicable to the feed mechanism]*	Feed System	lb/hr			Y	Y
Maximum Total Pumpable Hazardous Waste Mass Feed Rate *[Not applicable for Tier I or Tier I adjusted metals screening limits]*		Volumetric Flow Meter[3] or Mass Flow Meter	Feed System	lb/hr				
Minimum Primary Combustion Chamber Temperature		Thermocouple *[or other device]*	Primary Chamber Exit	°F			Y	N
Minimum Secondary Combustion Chamber Temperature		Thermocouple *[or other device]*	Secondary Chamber Exit	°F			Y	Y
Maximum Secondary and/or Primary Combustion Chamber Temperature *[Include if using Tier II/ III metals controls.]*		Thermocouple *[or other device]*	Secondary Chamber Exit	°F			Y	Y
Maximum Flue Gas Temperature at PM Control Device Inlet *[Tier II/III metals controls as applicable.]*		Thermocouple *[or other device]*	At entrance to PM Control Device	°F			Y	Y

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Maximum Combustion Gas Velocity Indicator *[If condition is something other than "maximum combustion gas velocity", write specific name of condition]*							Y	Y
Atomization parameters *[as necessary]*								*[as appropriate]*
Feed Rates: (Metals, Total Chlorine, and Ash)		Volumetric Flow Meter[3] or Mass Flow Meter	Feed Systems	Limits Specified in Table _____			N	N
Secondary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O			*[Yes, if neg. pressure is used to control fugitives.]*	*[Yes, if neg. pressure is used to control fugitives.]*
Primary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O			*[Yes, if neg. pressure is used to control fugitives.]*	N
CEMS Monitoring Parameters								
Stack Oxygen	C	CEMS	Stack	No Limit (for correction to 7% O2)			N	N
Stack CO	C, HRA	CEMS	Stack	100 ppmv HRA, 7% O2, dry basis			Y	Y
Stack THC *[If specified in the permit]*	C, HRA	CEMS		20 ppmv HRA, 7% O2, dry basis			Y	Y

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
APCD Parameters								
Pressure drop across Baghouse *[or fabric filter]*				_____ in. W.C.				
[Wet Scrubbers:]								
Ionizing Wet				_____ kilovolts (kV)				
Scrubber minimum voltage								
Minimum liquid to flue gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)				
Minimum scrubber blowdown				_____ gallons/min				
Minimum scrubber water pH				_____				
[Venturi Scrubbers:]								
Venturi scrubber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet minute (acfm)				
Minimum differential gas pressure across venturi scrubber				_____ in. W.C.				
[Dry Scrubbers:]								
Minimum alkaline reagent [insert name of reagent here, such as lime] flow to the dry scrubber				_____ pounds per minute				

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Maximum flue gas flow rate				_____acfm				
[Absorbers:]								
Absorber minimum pH of incoming liquid				_____				
Absorber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)				
Other Air Pollution Control Devices permit conditions as necessary								

1 **(I)** *Instantaneous* as defined in 40 CFR 266.102(e)(6)(i)(A) shall mean a value which occurs at any time. A value shall be determined by the monitoring device no less than every 15 seconds.
(C) *Continuous monitor* is one which continuously samples or measures the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.
(HRA) *Hourly Rolling Average* as defined in 40 CFR 266.102(e)(6)(ii).
For carcinogenic metals and lead feed rates: *Instantaneous* as defined above or, *Rolling average* as defined in 40 CFR 266.102(e)(6)(ii)
2**AWFCO**: *Automatic Waste Feed Cutoff*. For AWFCOs indicated by "Y", the Permit Limit in the table triggers an AWFCO.
3The respective specific gravity and constituent concentration of each stream associated with a volumetric rate must be known to determine the mass feed rate.

Table V.H.8 - Principal Organic Hazardous Constituents

List the wastes for which the trial burn demonstration will be made and the principal organic hazardous constituents (POHCs) in each waste.

Waste	Principal Organic Hazardous Constituents
Not Applicable	

Table V.I.1. - Boilers/Industrial Furnaces

Permit Unit No.	Boilers/Industrial Furnaces	N.O.R. No.	Waste Nos.[1]	Waste Physical Form (Pumpable or Non-pumpable)	Reactive, Incompatible, or F020, F021, F022, F023, F026, or F027 Waste
Not Applicable					

1From the first column of Table IV.B.

* If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator.

Table V.I.2. - Boiler/Industrial Furnace Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems

[Use a table for each unit and fill in all columns with the appropriate information]

Not Applicable

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Permit Limit	AWFCO Y/N[2]
Operating Parameters					
Maximum Total Hazardous Waste Feed Rate *[Additional hazardous waste feed limits shall be added as determined necessary based upon feed mechanism and/or waste-specific needs]*		*[Volumetric Flow Meter[3] or Mass Flow Meter as applicable to the feed mechanism]*	Feed System	lb/hr	Y
Maximum Total Pumpable Hazardous Waste Mass Feed Rate *[Not applicable for Tier I or Tier I adjusted metals control limits]*		Volumetric Flow Meter[3] or Mass Flow Meter	Feed System	lb/hr	
Minimum Primary Combustion Chamber Temperature		Thermocouple *[or other device]*	Primary Chamber Exit	°F	Y
Minimum Secondary Combustion Chamber Temperature		Thermocouple *[or other device]*	Secondary Chamber Exit	°F	Y
Maximum Secondary and/or Primary Combustion Chamber Temperature *[Include if using Tier II, III metals controls only]*		Thermocouple *[or other device]*	Secondary Chamber Exit	°F	Y
Maximum Flue Gas Temperature at PM Control Device Inlet *[Tier II and Tier III Metals only as applicable]*		Thermocouple *[or other device]*	At entrance to PM Control Device	°F	Y
Maximum Combustion Gas Velocity Indicator *[If condition is something other than "maximum combustion gas velocity", write specific name of condition]*					Y
Atomization parameters *[as necessary]*					
Feed Rates: (Metals, Total Chlorine, and Ash)		Volumetric Flow Meter[3]			
or Mass Flow Meter	Feed Systems	Limits Specified in Table _____ *[Maximum Constituent Feed Rates]*	N	N	

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Permit Limit	AWFCO Y/N[2]
Secondary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O	*[Yes, if neg. pressure is used to control fugitives.]*
Primary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O	*[Yes, if neg. pressure is used to control fugitives.]*
CEMS Monitoring Parameters					
Stack Oxygen	Continuous	CEMS	Stack	No Limit (for correction to 7% O2)	N
Stack CO	Continuous HRA	CEMS	Stack	100 ppmv HRA, 7% O2, dry basis	Y
Stack THC *[If specified in the permit]*	Continuous HRA	CEMS	Stack	20 ppmv HRA, 7% O2, dry basis	Y
APCD Parameters					
Pressure drop across Baghouse *[or fabric filter]*				_____ in. W.C.	
[Wet Scrubbers:]					
Ionizing Wet Scrubber minimum voltage				_____ kilovolts (kV)	
Minimum liquid to flue gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)	
Minimum scrubber blowdown				_____ gallons/min	
Minimum scrubber water pH				_____	
[Venturi Scrubbers:]					

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Permit Limit	AWFCO Y/N[2]
Venturi scrubber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet minute (acfm)	
Minimum differential gas pressure across venturi scrubber				_____ in. W.C.	
[Dry Scrubbers:]					
Minimum alkaline reagent *[insert name of reagent here, such as lime]* flow to the dry scrubber				_____ pounds per minute	
Maximum flue gas flow rate				_____acfm	
[Absorbers:]					
Absorber minimum pH of incoming liquid				_____	
Absorber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)	
Other Air Pollution Control Devices permit conditions as necessary				_____ gallons/1000 actual cubic feet (acf)	

1 *Instantaneous* as defined in 40 CFR 266.102(e)(6)(i)(A) shall mean a value which occurs at any time. A value shall be determined by the monitoring device no less than every 15 seconds.
Continuous monitor is one which continuously samples or measures the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.
Hourly Rolling Average as defined in 40 CFR 266.102(e)(6)(ii).
For carcinogenic metals and lead feed rates: *Instantaneous* as defined above or, *Rolling average* as defined in 40 CFR 266.102(e)(6)(ii)
2*AWFCO*: *Automatic Waste Feed Cutoff*. For AWFCOs indicated by "Y", the Permit Limit in the table triggers an AWFCO.
3The respective specific gravity and constituent concentration of each stream associated with a volumetric rate must be known to determine the mass feed rate.

Table V.I.3 - Maximum Constituent Feed Rates

The total feed rate of constituents to the boiler/industrial furnace(s) shall not exceed the following limitations in grams per hour (g/hr) or tons per year (T/yr), as noted. The metals limitations have been evaluated through risk assessment. The ash and chlorine limits are based upon testing or regulatory limits.

Constituent	Maximum Allowable Feed Rate In All Feedstreams Hourly Basis (g/hr)	Maximum Allowable Feed Rate In All Hazardous Waste Feedstreams Hourly Basis (g/hr)[1]	Maximum Allowable Feed Rate in All Pumpable Hazardous Waste Feedstreams Hourly Basis (g/hr)[1]	Maximum Allowable Feed Rate in All Feedstreams Annual Basis (T/yr)
Not Applicable				
Arsenic				
Beryllium				
Cadmium				
Total Chromium				
Antimony				
Barium				
Lead				
Mercury				
Silver				
Thallium				
(Others as Necessary)				
Total Chlorine		Not applicable	Not applicable	Not applicable
Ash		Not applicable	Not applicable	Not applicable

1Not applicable for Tier I or Tier I adjusted metals feed rate screening limits.

[Hourly feed rate limits must comply with the requirements of 40 CFR 266.106 for carcinogenic metals and non-carcinogenic metals. As applicable, the feed rate limit for chromium may be specified as hexavalent and total chromium limits.]

Table V.I.4. - Maximum Allowable Emission Rates

[Applicant to use a table for each operating mode as applicable and for each unit]

Carcinogenic Constituent (Compliance Tier)	Maximum Allowable Emission Rate[1]	Units[2]
Not Applicable		
Arsenic (Tier____)		g/hr
Beryllium (Tier____)		g/hr
Cadmium (Tier____)		g/hr
Chromium, Total (Tier____)		g/hr
Non-Carcinogenic Constituent(Compliance Tier)	Maximum Allowable Emission Rate[1]	Units[2]
Antimony (Tier____)		g/hr
Barium (Tier____)		g/hr
Lead (Tier____)		g/hr
Mercury (Tier____)		g/hr
Silver (Tier____)		g/hr
Thallium (Tier____)		g/hr
Hydrogen Chloride (Tier____)		g/hr
Free Chlorine (Tier____)		g/hr
Particulate Matter	0.08	Grains/dscf

1 Not applicable for Tier I or Tier I adjusted feed rate screening limits.
2 *g/hr* denotes grams per hour. *Grains/dscf* denotes grains per dry standard cubic foot (standard conditions: 760 mm Hg, 68 °F) after correction to a stack gas concentration of 7% oxygen.

Note: Site-specific dispersion modeling factor 'x.xxx *[insert dispersion factor for Tier III as applicable]* micrograms per cubic meter per grams per second emission rate.

Table V.I.5 - Boiler/Industrial Furnace Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems - Short-Term Operation

[Use this table for each new or modified Boiler/Industrial Furnace unit and fill in all columns with the appropriate information]

Not Applicable

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Operating Parameters								
Maximum Total Hazardous Waste Feed Rate *[Additional hazardous waste feed limits shall be added as determined necessary based upon feed mechanism and/or waste-specific needs]*		*[Volumetric Flow Meter[3] or Mass Flow Meter as applicable to the feed mechanism]*	Feed System	lb/hr			Y	Y
Maximum Total Pumpable Hazardous Waste Mass Feed Rate *[Not applicable for Tier I or Tier I adjusted metals screening limits]*		Volumetric Flow Meter[3] or Mass Flow Meter	Feed System	lb/hr				
Minimum Primary Combustion Chamber Temperature		Thermocouple *[or other device]*	Primary Chamber Exit	°F			Y	N
Minimum Secondary Combustion Chamber Temperature		Thermocouple *[or other device]*	Secondary Chamber Exit	°F			Y	Y
Maximum Secondary and/or Primary Combustion Chamber Temperature *[Include if using Tier II/ III metals controls.]*		Thermocouple *[or other device]*	Secondary Chamber Exit	°F			Y	Y
Maximum Flue Gas Temperature at PM Control Device Inlet *[Tier II/III metals controls as applicable.]*		Thermocouple *[or other device]*	At entrance to PM Control Device	°F			Y	Y

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Maximum Combustion Gas Velocity Indicator *[If condition is something other than "maximum combustion gas velocity", write specific name of condition]*							Y	Y
Atomization parameters *[as necessary]*								*[as appropriate]*
Feed Rates: (Metals, Total Chlorine, and Ash)		Volumetric Flow Meter[3] or Mass Flow Meter	Feed Systems	Limits Specified in Table _____			N	N
Secondary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O			*[Yes, if neg. pressure is used to control fugitives.]*	*[Yes, if neg. pressure is used to control fugitives.]*
Primary Combustion Zone Pressure *[or other method for fugitives monitoring]*				e.g., in. H2O			*[Yes, if neg. pressure is used to control fugitives.]*	N
CEMS Monitoring Parameters								
Stack Oxygen	C	CEMS	Stack	No Limit (for correction to 7% O2)			N	N
Stack CO	C, HRA	CEMS	Stack	100 ppmv HRA, 7% O2, dry basis			Y	Y
Stack THC *[If specified in the permit]*	C, HRA	CEMS		20 ppmv HRA, 7% O2, dry basis			Y	Y
APCD PARAMETERS								

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Pressure drop across Baghouse *[or fabric filter]*				_____ in. W.C.				
[Wet Scrubbers:]								
Ionizing Wet				_____ kilovolts (kV)				
Scrubber minimum voltage								
Minimum liquid to flue gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)				
Minimum scrubber blowdown				_____ gallons/min				
Minimum scrubber water pH				_____				
[Venturi Scrubbers:]								
Venturi scrubber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet minute (acfm)				
Minimum differential gas pressure across venturi scrubber				_____ in. W.C.				
[Dry Scrubbers:]								
Minimum alkaline reagent [insert name of reagent here, such as lime] flow to the dry scrubber				_____ pounds per minute				
Maximum flue gas flow rate				_____acfm				
[Absorbers:]								

Parameter	Monitoring Basis[1]	Monitoring Device	Device Location	Short-Term Operating Permit Limits			Primary Combustion Chamber AWFCO Y/N[2]	Secondary Combustion Chamber AWFCO Y/N[2]
				Pre-Trial Burn - Shakedown	Trial Burn	Post Trial Burn		
Absorber minimum pH of incoming liquid				_____				
Absorber minimum liquid to gas ratio (L/G)				_____ gallons/1000 actual cubic feet (acf)				
Other Air Pollution Control Devices permit conditions as necessary								

1 **(I)** *Instantaneous* as defined in 40 CFR 266.102(e)(6)(i)(A) shall mean a value which occurs at any time. A value shall be determined by the monitoring device no less than every 15 seconds.

(C) *Continuous monitor* is one which continuously samples or measures the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

(HRA) *Hourly Rolling Average* as defined in 40 CFR 266.102(e)(6)(i)(B).

- For carcinogenic metals and lead feed rates: *Instantaneous* as defined above or, *Rolling average* as defined in 40 CFR 266.102(e)(6)(ii).

2 **AWFCO**: *Automatic Waste Feed Cutoff*. For AWFCOs indicated by "Y", the Permit Limit in the table triggers an AWFCO. During the Trial Burn phase, AWFCOs will be as necessary to ensure protection of human health and the environment.

3 The respective specific gravity and constituent concentration of each stream associated with a volumetric rate must be known to determine the mass feed rate

.

Table V.I.8. - Principal Organic Hazardous Constituents

List the wastes for which the trial burn demonstration will be made and the principal organic hazardous constituents in each waste.

Waste	Principal Organic Hazardous Constituents
Not Applicable	

Table V.J.1. - Drip Pads

Permit Unit No.*	Drip Pad	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Overall Dimensions	Collection System Volume
Not Applicable						

1from Table IV.B, first column

* If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator.

Table V.J.2 - Drip Pad Synthetic Liner System

Drip Pad	Synthetic Liner			Leakage Detection System			Leak Collection System		
	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness
Not Applicable									

Table V.K. - Miscellaneous Units

Permit Unit No.*	Miscellaneous Unit	N.O.R. No.	Storage, Processing, and/or Disposal	Waste Nos.[1]	Rated Capacity	Dimensions	Unit will manage Ignitable, Reactive, or Incompatible Waste (state all that apply)
Not Applicable							

1from Table IV.B, first column

*If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator.

Table V.L. - Containment Buildings

Permit Unit No.*	Containment Building	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity	Overall Dimensions
Not Applicable						

1 from Table IV.B, first column

*If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator.

VI. Geology Report

This portion of the application applies to owners or operators of new hazardous waste management facilities; areal and/or capacity expansions of existing hazardous waste management facilities; and existing industrial solid waste facilities that store, process or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles (except those waste piles that meet the requirements of Section V.E.10.b. of this application), and tanks or drip pads which require a contingent post-closure plan.

For a new Compliance Plan or modification/amendment to an existing Compliance Plan of Section XI of this application, submit a Geology Report which contains updated site geologic information derived from on-going investigations since submittal of the last Permit modification/amendment application.

Submit a Geology Report which includes at a minimum the following information. This report and all specifications, details, calculations/estimates and each original sheet of plans, drawings, maps, cross-sections, other graphics, such as limits of contamination maps, etc. or any other geoscientific work must be signed and sealed by a Professional Geoscientist licensed in the State of Texas under the Professional Geoscientists Practice Act.

Attachment M – Geology Report for Galena Park Terminal

Affected Property Assessment Reports (APARs), not included in this Permit Renewal Application, can be referenced for the Galena Park Terminal SWMUs/AOCs areas listed in CP Table I.C.

A. Geology and Topography

1. Active Geologic Processes

   Provide a description and interpretation of the active geologic processes in the vicinity of the facility. This description should include:

   a. An identification of any faults (active or otherwise) in the area of the facility. The preparer should determine which Holocene sediments or man-made structures have been displaced. The report should contain a description of the investigation techniques used to identify faults and should assess the degree, if any, to which a particular fault increases the long-term potential for waste migration. The clearance required from active faults to ensure that liner systems will not be disrupted will be based upon site specific factors such as the zone of significant surface deformation, uncertainty in locating the fault, activity of the fault, and a distance to provide a reasonable margin of safety. These issues should be addressed when discussing the offset of an industrial solid waste facility unit from an active fault.

      To satisfy the requirements of 30 TAC 305.50(a)(4)(D) and 305.50(a)(10)(E), for a proposed hazardous waste management facility or a modification or amendment of a permit which includes a capacity expansion of an existing hazardous waste management facility, submit the following.

      (1) A geologic literature review should be conducted, from which useful information on the possibility of faulting at a given site may be revealed. This includes, but is not limited to, maps of surface faults, subsurface structure, and field investigations by the author(s).

(2) Descriptions and maps of faulting, fracturing, and lineations in the area are necessary. An aerial photo with lineation interpretations is suggested.

(3) The maps and cross-sections are to be constructed using an amount of data necessary to adequately describe the geology of the area. Surface data, including data regarding known surface expressions, such as surface faults, gas seeps, lineations, etc., should be accounted for in the subsurface interpretations. A surface structure map should be prepared, incorporating all of the subsurface data as well as known surface features.

(4) A minimum of two structural cross-sections, utilizing available oil field and/or water well electric log data, shall be made perpendicular to each other, crossing at the proposed surface unit location. These cross-sections should define geologic units, indicating especially Holocene sediments and Underground Sources of Drinking Water (USDWs), as well as lithology. The cross-sections should be constructed from the surface, down through the shallowest major structure or the base of the Holocene, whichever is deeper. These cross-sections need to be on a scale necessary to depict the local geology (3000' radius from the site location minimum). If needed to adequately describe the local geology, then a larger radius or deeper area of review may be necessary.

(5) A minimum of two structural subsurface maps need to be prepared. One map should be made on the shallowest mappable subsurface marker, the other on a deeper horizon that shows the underlying major structure. Additional maps may be necessary.

(6) Field surveillance will be necessary to check the area of the facility for surface features, such as lineations, and to investigate potential surface faults as indicated by, but not limited to, aerial photos, topographic maps, and seismic and subsurface structural maps.

(7) The above requirements do not limit the use of any additional information, such as seismic data, isopach maps, or potentiometric maps, that may help in defining the geology of the area of review.

(8) If faulting exists within 3000 feet of the surface unit, it must be demonstrated that the fault has not had displacement within Holocene time. If such a fault does exist, it cannot pass within 200 feet of the surface unit.

(9) If a fault that has been active within the Holocene is located within 3000 feet of the surface unit, it must be demonstrated that, a.) the fault is not transmissive, i.e., it will not provide for groundwater movement that would result in endangerment to human health or the environment, and b.) there is no actual and/or potential problem of subsidence, which could endanger the stability of the surface unit.

b. A discussion of the extent of land surface subsidence in the vicinity of the facility including total recorded subsidence and past and projected rates of subsidence. For facilities located at low elevations along the coast which have experienced appreciable rates of subsidence, the potential for future submergence beneath Gulf water should be addressed.

c. A discussion of the degree to which the facility is subject to erosion. The potential for erosion due to surface water processes such as overland flow, channeling, gullying, and fluvial processes such as meandering streams and undercut banks should be evaluated. If the facility is located in a low-lying coastal area, historical rates of shoreline erosion should also be provided.

d. Complete Table VI.A.1. – Major Geologic Formations.

2. Regional Physiography and Topography (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan)

a. Distance and direction to nearest surface water body

b. Slope of land surface

c. Direction of slope

d. Maximum elevation of facility

e. Minimum elevation of facility

3. Regional Geology (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan)

Provide a description of the regional geology of the area. This section should include:

a. A geologic map of the region with text describing the stratigraphic and lithologic properties of the map units. An appropriate section of a published map series such as the Geologic Atlas of Texas prepared by the Bureau of Economic Geology is acceptable.

b. A description of the generalized stratigraphic column in the facility area from the base of the lowermost aquifer capable of providing usable groundwater to the land surface. At least the uppermost 1,000 feet of section below the facility should be described. The geologic age, lithology, variation in lithology, thickness, depth, geometry, hydraulic conductivity, and depositional history of each geologic unit should be described based upon available geologic information. Regional stratigraphic cross sections should be provided, where available.

4. Subsurface Soils Investigation Report

This section should contain the results of an investigation of subsurface conditions for each land based unit and/or unit which requires contingent closure and post-closure care. If several units are in close proximity, a single investigation for the area will suffice. This report should include:

a. The logs of borings performed at the waste management area. All borings must be conducted in accordance with established field exploration methods. Investigation procedures should be discussed in the report. A sufficient number of borings should be performed to establish subsurface stratigraphy and to identify and allow assessment of potential pathways for pollution migration. Borings must be sufficiently deep to allow identification of the uppermost aquifer and underlying hydraulically interconnected aquifers.

Borings should penetrate through the uppermost aquifer and all deeper hydraulically interconnected aquifers, deep enough to identify the aquiclude at the lower boundary. Borings should be completed to a depth at least 30 feet below the deepest excavation planned at the waste management area. The required number of borings will increase or decrease depending on the heterogeneity of subsurface materials. Locations with stratigraphic complexities such as non-uniform beds which pinch out, vary significantly in thickness, coalesce, or grade into other units, will require a significantly greater degree of subsurface investigation than areas with simple hydrogeologic frameworks. Boring logs should include a detailed description of materials encountered including any discontinuities such as fractures, fissures, slickensides, lenses or seams. Whenever possible, electric logs should be run on each borehole. The hollow stem auger boring method is recommended in those instances where an accurate determination of initial water levels is important. A key explaining both the symbols used on the boring logs and the classification terminology for soil type, consistency, and structure should be provided.

b. Cross-sectional drawings prepared from the borings depicting the generalized soil strata profile at the site. For small waste management areas two cross sections prepared perpendicular to each other will normally suffice.

c. A text which describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation. If appropriate, soils may be assigned to generalized strata to aid in the discussion.

d. Complete Table VI.A.4. - Waste Management Area Subsurface Conditions and provide in the report data which describes the geotechnical properties of the subsurface soil materials. All laboratory and field tests must be performed in accordance with recognized procedures. A brief discussion of test procedures should be included. All major strata encountered during the field investigation phase should be characterized with regard to: Unified Soil Classification, moisture content, percent less than number 200 sieve, Atterberg limits (liquid limit, plastic limit, and plasticity index), and coefficient of permeability. Field permeability tests should be used to determine the coefficient of permeability of sand or silt units and should also be used to supplement laboratory tests for more clay-rich soils. In addition, particle size distribution and relative density based upon penetration resistance should be determined for coarse-grained soils. For fine-grained soils the following parameters should also be determined: cohesive shear strength based upon either penetrometer or unconfined compression tests, dry unit weight, and degree of saturation(s). For the major soil strata encountered, the maximum, minimum, and average for each of these variables should be compiled.

e. For land treatment units, provide a description of the surficial soils at the site which includes:

    (1) The name and description of the soil series at the site;
    (2) Important physical properties of the series such as depth, permeability, available water capacity, soil pH, and erosion factors;
    (3) Engineering properties and classifications such as USDA texture, Unified Soil Classification, size gradation, and Atterberg limits (liquid limit, plastic limit, and plasticity index); and

(4) The cation exchange capacity (CEC) of the soil(s) expressed in units of meq/100g.

Much of this information may be obtained by consulting the county soil survey published by the United States Department of Agriculture, Soil Conservation Service. If available, a copy of an aerial photograph showing soil series units on the land treatment area should be provided.

If an aerial photograph is not available, include a soil series map as an attachment to this subsurface soils investigation report.

B. Facility Groundwater

If past monitoring has shown the presence of hazardous constituents in the groundwater, the owner or operator must submit a Compliance Plan Application with this application. The Compliance Plan Application and instructions can be found in Section XI of this application form.

1. Regional Aquifers

Provide a description of the regional aquifers in the vicinity of the facility based upon available geologic references. The section should provide:

a. Aquifer names and their association with geologic units described in Section VI.A.3.b.;
b. A description of the constituent materials of the aquifer(s);
c. A description of the water-bearing and transmitting properties of the aquifer(s);
d. Whether the aquifers are under water table or artesian conditions;
e. Whether the aquifers are hydraulically connected;
f. A regional water table contour map or potentiometric surface map for each aquifer, if available, from published references;
g. An estimate of the rate of groundwater flow in units of ft/yr;
h. Values for total dissolved solids content of groundwater from the aquifers;
i. Identification of areas of recharge to the aquifers; and

Note: An application for a new hazardous waste surface impoundment, waste pile, land treatment unit, or landfill, which is to be located in the apparent recharge zone of a major or minor aquifer, as designated by the Texas Water Development Board, must include a hydrogeologic report documenting the potential effects, if any, on the regional aquifer in the event of a release from the waste containment system. See the publication entitled Water for Texas, Today and Tomorrow (1990) or subsequent revision (Available at http://www.twdb.texas.gov/waterplanning/swp/1990/index.asp) for more information [30 TAC 305.50(6)]

j. The present use of groundwater withdrawn from aquifers in the vicinity of the facility.

The preparer should update Section III.C.1.e. of the Part A permit application to ensure that all water wells within 1 mile of the property boundaries of the facility have been located. The aquifer(s) yielding water should be identified for each well.

2. Provide groundwater conditions for each land based unit or unit which requires post closure care which includes all the information specified in 30 TAC 335.156-335.167. This discussion should also include:

   a. Records of water level measurements in borings. The boring logs prepared in response to Section VI.A.4.a. should be annotated to note the level at which groundwater is first encountered and the level of groundwater after equilibration. Normally a 24-hour period is adequate for equilibration of groundwater but an extended period may be required for saturated clay deposits. This information should also be presented on the cross-sections required in Section VI.A.4.b. and recorded and retained in the facility groundwater monitoring record.

   b. Records of historical maximum and minimum static water level measurements in monitor wells. Historic water level measurements made during any previous groundwater monitoring should be presented in a table for each well.

   c. Upper and lower limits of the uppermost aquifer and deeper aquifers which are hydraulically interconnected to it beneath the facility boundary. In most cases this identification would include surface contour maps of the top and bottom surfaces. Indicate the typical depth at which groundwater is first encountered.

   d. A site specific water table contour map or potentiometric surface map for the uppermost aquifer, and the basis for such identification (the information obtained from hydrogeologic investigations of the facility area). The predicted groundwater flow direction and rate should be indicated.

   e. A discussion of the variation of hydraulic gradient across the site, including vertical gradient. Calculations for the maximum, minimum, and average groundwater flow velocities for each aquifer identified should also be provided, including pump test data where appropriate.

   f. An analysis of the most likely pathway(s) for pollutant migration in the event that the primary barrier liner system is penetrated.

3. Description of the Detection Monitoring Program

   The groundwater monitoring standards apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in surface impoundments, waste piles, land treatment units, landfills, or tanks without satisfactory secondary containment for which a post-closure care plan or permit is required. If a waste management unit meets certain standards it may qualify for an exemption to the groundwater monitoring requirements. An exemption for a unit does not exempt an entire facility. (See the instructions for each type of unit for a specific exemption.) A facility-wide exemption is described in Section VI.C.

   Not Applicable

   It is important to note that even if the proposed program may use the same well system as the present program, the sampling parameters may be different.

   a. Include in the design report a description of the proposed detection monitoring program. This description should contain all requirements of 30

TAC 335.163-335.164.

b. Provide a justification for the selected suite of waste specific parameters specified in Table VI.B.3.c. - Groundwater Sample Analysis based on toxicity, mobility, persistence, and concentrations in light and dense non-aqueous phase components of the waste.

c. (Sampling and Analysis Plan) Describe the proposed sampling and analysis methods, as well as statistical comparison procedures to be utilized in evaluating groundwater monitoring data. Note: Methods listed for use in groundwater programs may provide flexibility allowing for updates of the base method. For methods other than the standard acceptable methods, applicant must provide a demonstration that the proposed methods are appropriate for groundwater analysis per 30 TAC 335.163(5).

d. Specify the statistical method and process for determining whether constituent concentrations in groundwater are above background, in accordance with 30 TAC 335.163. Refer to the EPA guidance document entitled Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Unified Guidance (March 2009) (document # EPA 530-F-09-020) for recommended methods.

   All data submitted to the TCEQ shall be in a manner consistent with the latest version of the "*Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation Recovery Act and Underground Injection Control*" (TCEQ QAPP) which a can be found on the agency's website.

   Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity. The method used to obtain a representative sample of the material to be analyzed shall be the appropriate method from ***Ground Water, Volume II: Methodology***, (document # EPA/625/6-90/016b) or an equivalent method approved by the Executive Director of the TCEQ. Laboratory methods shall be those specified in ***Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846***, 1987, as revised; ***Standard Methods for the Examination of Water and Wastewater, Fifteenth Edition***, 1980, and 1981 supplement, or current adopted edition; ***RCRA Ground-Water Monitoring: Draft Technical Guidance***, 1992, ***OSWER Directive 9950.1***, or an equivalent method approved in writing prior to use by the Executive Director. [30 TAC Section 305.125(11)(A)]

e. For inclusion into a permit, complete Table VI.B.3.b. - Unit Groundwater Detection Monitoring System to specify the proposed well system for each unit or waste management area which requires groundwater monitoring.

f. For inclusion into a permit, complete Table VI.B.3.c to specify:
   (1) the suite of waste specific parameters (indicator parameters, waste constituents, or reaction products) which will be analyzed at each sampling event for each well or group of wells. These parameters must provide a reliable indication of the presence of hazardous constituents in the groundwater;
   (2) the sampling frequencies and calendar intervals (e.g., monthly; quarterly within the second 30 days of each quarter; semiannually within the first 30 days of the 2nd and 4th quarters, etc.);

(3) the analytical method and the laboratory predicted detection limit and predicted Practical Quantification Limit (PQL) of the sample preparation and analysis methods for the selected parameters. This detection limit will represent the capability of the sampling and analysis to reliably and accurately determine the presence of the selected parameters in the sample; and

(4) the concentration limit which will be the basis for determining whether a release has occurred from the waste management unit/area. Concentration limits shall be based on background values for the waste management unit/area, or PQL values developed through laboratory data obtained using practices consistent with the latest version of the TCEQ QAPP. If background values are lower than PQLs, the applicant may choose respective PQLs as concentration limits for hazardous constituents.

g. Submit drawings depicting the monitoring well design, current and proposed.

h. Submit at least one map of the entire facility and additional maps or drawings if necessary on one or more 8.5" x 11" sheets of sufficient scale to show the following in adequate detail:

(1) Monitoring well locations, current and proposed;
(2) Soil-pore liquid and core sampling points, current and proposed;
(3) Waste management unit(s)/area;
(4) Property boundary;
(5) Point of compliance;
(6) Direction of groundwater flow; and
(7) Extent of any known plume of contamination

i. For the description of site-specific groundwater for inclusion in permit summary documents, please complete the following brief description:

Groundwater is typically encountered approximately *[###]* feet below grade (*[###]* feet *[above/below]* Mean Sea Level) in the uppermost aquifer. The uppermost aquifer is part of the *[Name]* Formation and consists of *[brief lithological description]* ranging in thickness from *[### to ###]* feet. Groundwater flow is generally toward the *[north/east/south/west]*.

C. Exemption from Groundwater Monitoring for an Entire Facility

Not Applicable

In accordance with 30 TAC 335.156(b)(4), a waste management facility may be exempt from groundwater monitoring if the owner or operator can demonstrate that there is no potential for migration of liquid from any regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and post-closure care period. This demonstration must be submitted with the permit application, and must be certified by a qualified geologist or geotechnical engineer.

This exemption does not apply to Unsaturated Zone Monitoring. Owners and operators of Land Treatment Units must monitor the unsaturated zone under all circumstances.

The following areas should be addressed in the demonstration, and any predictions must

be made on assumptions that maximize the rate of liquid migration:

1. Thickness of soil between the base of the unit and saturated zone;
2. Thickness of saturated zone;
3. Head pressure of the fluids;
4. Properties of the saturated and unsaturated zone (including permeability, effective porosity, and homogeneity), and
5. Total life of facility

The criteria used for the evaluation of this demonstration are more stringent than those used for evaluations of demonstrations submitted prior to permitting. Thus it is necessary for an owner or operator to submit another demonstration even if one was submitted and approved previously.

This type of exemption differs from the exemptions described in Sections V.D. (Surface Impoundments), V.E. (Waste Piles), and V.G. (Landfills). An owner or operator may pursue a facility-wide exemption as well as an exemption for a particular unit, if the owner or operator wishes.

D. Unsaturated Zone Monitoring

Not Applicable

This section applies only to facilities which contain land treatment units. Attach any previous monitoring data to the monitoring report. Provide any additional information necessary to demonstrate compliance with 40 CFR 264.278.

1. List all hazardous constituents that have been or will be monitored.
   a. Current parameters.
   b. Proposed parameters.
2. Number of soil-pore liquid sampling points.
   c. Depth of sampling points.
   d. Equipment used for soil pore liquid monitoring.
3. Number of soil core sampling points.
   e. Depth of soil core sampling points.
   f. Indicate on a facility map locations of all sampling points.

Table VI.A.1. – Major Geologic Formations

Names Of Major Geologic Formation(s) Beneath The Facility	Lithology Of The Major Geologic Formation	Formation Thickness (Feet)	Depth To Top Of Formation	
			Feet/MSL(1)	Feet/BGS(2)
Beaumont Formation	Poorly bedded, calcareous clay of various colors, containing thin, discontinuous stringers and lenses of silt and fine sand.	100	0-100	0-100
Montgomery Formation	Clay, silt, sand, and very minor amounts of gravel of granule to small pebble size	100	100-200	100-200
Bentley Formation	Clay, silt, sand, and very minor amounts of coarse gravel	100	200-300	200-300
Willis Formation	Clay, silt, sand, siliceous granule to pebble gravel	75	300-375	300-375
Goliad Formation	Clay, sandstone, marl, caliche, limestone, and conglomerate	100-500	375-975	375-975
Fleming Formation	Clay and Sandstone	1200	975-2175	975-2175

(1) MSL: Mean Sea Level
MLGL: Mean Low-tide Gulf Level
(2) BGS: Below Grade Surface

Table VI.A.4 – Waste Management Area Subsurface Conditions

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit	Plasticity Index	Percent Passing #200 Sieve	Permeability	Percent Porosity
3	24-26ft	UNTC	N/A	52	35	N/A	2.1x10(-8)	N/A
3	44-46ft	SSC/CU	N/A	68	43	N/A	1.0x10(-8)	N/A
6	43-44ft	SSC/CU	N/A	67	42	N/A	1.6x10(-8)	N/A
9	23-24ft	UNTU	N/A	26	11	N/A	5.8x10(-8)	N/A
11	12-13ft	UCS/SCU	N/A	36	22	N/A	2.9x10(-7)	N/A
12	11-12ft	UCS/SCU	N/A	39	25	N/A	2.8x10(-9)	N/A
12	21-22ft	UNTU	N/A	25	8	N/A	2.4x10(-6)	N/A
12	31-32ft	SSC/CU	N/A	47	30	N/A	2.4x10(-8)	N/A
15	28-29ft	FSCU	N/A	46	30	N/A	2.4x10(-9)	N/A
13	14ft	SCF	N/A	N/A	N/A	47	N/A	N/A
14	12ft	UCS/SCU	N/A	N/A	N/A	92	N/A	N/A
14	26ft	UNTU	N/A	N/A	N/A	47	N/A	N/A
15	16ft	UCS/SCU	N/A	N/A	N/A	38	N/A	N/A
31	29ft	UNTU	N/A	N/A	N/A	39	N/A	N/A
16	18-20ft	FSCU	N/A	36	21	N/A	2.3x10(-7)	N/A
18	29-30ft	FSCU	N/A	61	42	N/A	1.8x10(-8)	N/A
22	10-12ft	UCS/SCU	N/A	44	29	N/A	1.1x10(-8)	N/A
25	63-63ft	LNTU	N/A	56	34	83	1.3x10(-8)	N/A
29	14-15ft	SCF	N/A	20	2	34	5.6x10(-5)	N/A
31	16-17ft	UNTU	N/A	23	5	44	6.0x10(-6)	N/A

Maximum depth: 64 feet below grade
49 feet above MSL

N/A – Data not available because geotechnical analysis for has not been collected.

*For the major soil strata encountered, record the minimum, maximum, and average values of these parameters as applicable.

Table VI.B.3.b. – Unit Groundwater Detection Monitoring Systems

Waste Management Unit/Area Name[1]	***Not Applicable***					
Well Number(s):						
Hydrogeologic Unit Monitored						
Type (e.g., point of compliance, background, observation, etc.)						
Up or Down Gradient						
Casing Diameter and Material						
Screen Diameter and Material						
Screen Slot Size (in.)						
Top of Casing Elevation (Ft, MLGL or MSL)						
Grade or Surface Elevation (Ft, MLGL or MSL)						
Well Depth (Ft, Below Grade Surface *[BGS]*)						
Well Depth (Ft, Below Top of Casing *[BTOC]*)						
Screen Interval From(Ft, BGS) To(Ft, BGS)						
Screen Interval From(Ft, BTOC) To(Ft, BTOC)						
Facility Coordinates (e.g., lat./long. or company coordinates)						

1From Tables in Section V.

MSL: Mean Sea Level; *MLGL*: Mean Low-tide Gulf Level; *BGS*: Below Grade Surface; *BTOC*: Below Top of Casing

Table VI.B.3.c. – Groundwater Detection Monitoring Parameters

Unit/Waste Management Area:

Well No(s):

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Not Applicable				

1 The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.

2 a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.

2 b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

VII. Closure and Post-Closure Plans

Submit a full closure plan and post-closure plan, if applicable, which contains all the information required by 30 TAC 335.8, 335.169, 335.172, 335.174, 335.177, 335.178, 335.551-335.569, 30 TAC Chapter 350, 40 CFR 264.112, 264.118, 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.575, 264.601, 264.603, 264.1102, 270.14(b)(13), 270.17(f), 270.18(h), 270.20(f), 270.21(e), 270.23(a)(2) & (3), and 270.26(c)(16) where applicable. The owner of property on which an existing disposal facility is located must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage hazardous wastes and its use is restricted (see 30 TAC 335.5). For hazardous waste disposal units that were closed before submission of the application, the applicant should submit documentation to show that plats and notices required under 40 CFR 264.116 and 264.119 have been filed.

Attachment K – Closure Plan for CAMU/Former NHB (NOR 004)

Attachment L – Certification of Closure for the SEHB (NOR 017)

A. Closure

This section applies to the owners and operators of all hazardous waste management facilities to be permitted. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of hazardous waste, hazardous constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The facility type and type of unit to be closed can determine the level of detail sufficient for a closure plan.

For each unit to be permitted, complete Table VII.A. - Unit Closure and list the facility components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be included in calculating closure cost estimates.

Additionally, if the applicant plans to close a surface impoundment in accordance with 30 TAC 335.169(a)(1) and the impoundment does not comply with the liner requirements of 30 TAC Section 335.168(a) then the closure plan for the impoundment must include both a plan for complying with 30 TAC 335.169(a)(1) and a contingent plan for complying with 30 TAC 335.169(a)(2).

Guidance on design of a closure cap and final cover for landfills is given in TCEQ Technical Guideline No. 3, and EPA publication 530-SW-85-014 presents guidance on construction quality assurance of liner construction.

If a waste pile does not comply with the liner requirements of 30 TAC Section 335.170(a)(1) then the closure plan for the waste pile must include both a plan for complying with 40 CFR 264.258(a) and a contingent plan for complying with 40 CFR 264.258(b).

The final certification of closure of a land treatment unit may be prepared by an independent licensed Professional Geoscientist in lieu of an independent licensed Professional Engineer. [30 TAC 335.172(b)]

B. Closure Cost Estimate (including contingent closure) [30 TAC 335.178, 40 CFR 264.142]

This section applies to owners or operators of all hazardous waste facilities, except state and federal agencies. A detailed estimate, in current dollars, of the cost of closing the facility should be included in the report. The cost estimate must include the cost of closure at the point in the facilities operating life when the extent and manner of its operation would make closure the most expensive. The TCEQ has published Technical Guideline No. 10, Closure and Post-Closure Cost Estimates, for calculating closure costs which should be consulted. Closure costs should be developed on the basis of abandonment of the site at full capacity and closure activities to be conducted by a third party with no operable on-site equipment. The costs for closing each unit must be detailed.

1. If closure costs are based on contractor bids, the applicant should submit a copy of the bid specification and each contractor's response.

2. If closure costs are based on a detailed analysis, the applicant should submit details of item costs and number of each item, and details of costs for equipment rental, third party labor and supervision, transportation, analytical costs, etc. Provide an itemized cost on Table VII.B. - Unit Closure Cost Estimate for a complete, third party permitted facility closure.

   As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

3. The closure plan may propose on-site disposal of wastes, residues, etc. during closure of a unit, and this may be executed if on-site capacity exists in other units during closure of a unit. However, the cost estimate for closure must be based on off-site shipment and disposal during closure of all wastes, waste residues, wastes generated by decontamination, contaminated stormwater, and leachate.

4. For each surface impoundment, waste pile, or tank system required to have a contingent closure plan, the cost for closure under the contingent closure plan should be detailed, as well as the cost of proposed closure. The more expensive of the cost of the proposed closure of a unit versus the cost of the contingent closure of the unit should be used in the total facility closure cost estimate.

C. Post-closure

This section applies to owners or operators of all hazardous waste disposal facilities. This section also applies to certain waste piles, tanks and surface impoundments from which the owner or operator intends to remove wastes at closure but which are required to have contingent post-closure plans.

Post-closure care of each hazardous waste management unit must continue for 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems in addition to the maintenance and monitoring of waste containment systems. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which hazardous waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information.

1. The post-closure care plan for a landfill or of a surface impoundment, waste pile, miscellaneous unit, or tank system closed with wastes or waste constituents left

in place, or closed under a contingent closure plan, must demonstrate compliance with 30 TAC 335.174(b).

2. The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period; and

3. A discussion of the future use of the land associated with each unit.

4. For landfills, surface impoundments, waste piles, and land treatment areas closed under interim status, submit the required documentation of 40 CFR 270.14(b)(14).

5. Landfills, surface impoundments, waste piles and land treatment areas that received hazardous wastes after July 26, 1982 or for which closure was certified after January 26, 1983 must be included in post-closure care plans unless they have been determined to have closed by removal equivalent to the closure standards in 40 CFR 264 Subpart G. If such a demonstration has been made pursuant to 40 CFR 270.1(c)(5), but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made pursuant to 40 CFR 270.1(c)(6), applicant should submit a copy of the determination. Complete Table VII.C.5. - Land-Based Units Closed Under Interim Status for all land based units closed under interim status.

D. Post-closure Cost Estimate [40 CFR 264.144]

This section regarding post-closure cost estimate applies to owners or operators of all hazardous waste disposal facilities, except state and federal agencies, and certain waste piles, tank systems, and surface impoundments from which the owner or operator intends to remove wastes at closure, but which are required to have contingent closure and post-closure plans. A detailed estimate, in current dollars, of the annual cost of monitoring and maintenance of the facility in accordance with the applicable post-closure regulations must be included in the report. The TCEQ has published Technical Guideline No. 10 for calculating post-closure costs, which should be consulted. Costs should be developed in detail for 30 years of post-closure care activities to be conducted by a third party, for each applicable unit.

1. The applicant should submit details of item costs and number of each item for off-site disposal of leachate and bailed monitor well water, labor and supervision, monitor well sampling and analyses, inspection and repair of the cap(s), mowing and re-seeding of the vegetative cover, maintaining site security, etc. Provide an itemized cost estimate on Table VII.D. - Unit Post-Closure Cost Estimate for complete, third party permitted facility post-closure care.

2. As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

3. Total annual cost of post-closure care for the facility including costs of contingent post-closure care should be multiplied by 30 years.

E. Closure and Post-Closure Cost Summary

Please complete Table VII.E.1 - Permitted Unit Closure Cost Summary.

Please complete Table VII.E.2 - Permitted Unit Post-Closure Cost Summary.

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
Ancillary Equipment	Triple rinse and sample the final rinsate. Sample will be compared to potable water and will be analyzed for TOC (EPA 9060). Decontamination will be complete when TOC levels in rinsate are less than or equal to TOC levels in potable water.	Equipment determined not to be decontaminated will be placed into the impoundment after stabilization of the sludges for final disposal.
Piping: All piping leading into or out of the NHB will be severed at its point of entry. The piping will be blinded on each side of the cut.	Triple rinse and sample the final rinsate. Sample will be compared to potable water and will be analyzed for TOC (EPA 9060). Decontamination will be complete when TOC levels in rinsate are less than or equal to TOC levels in potable water.	Equipment determined not to be decontaminated will be placed into the impoundment after stabilization of the sludges for final disposal.

1Applicants may list more than one appropriate method.

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
CAMU/Former NHB (NOR 004)	
1. De-watering to GCWDA	
Disposal:4 million gallons @ $0.02/ 1 gallon	$200,000
Pumping:4 million gallons @ $10.10/1,000 gallons	$40,400
2. Contractor Mobilization – 1 Each @ $23,000	$23,000
3. Grading and Slope Prep – 3.1 acres x $7,700/acre	$23,870
4. Stabilization material for sludge – 1,700 cy x $18.50/cy	$31,450
5. Earthwork for sludge stabilization – 6,700 cy x $12.50/cy	$87,750
6. Intermediate cover (fill) – 2,800 cy x $27.00/cy	$75,600
7. Compacted Clay Cover – 15,000 cy x $31.00/cy	$465,000
8. Drainage Sand Layer – 5,000 cy x $18.50/cy	$92,500
9. Topsoil – 5,000 cy x $17.50/cy	$87,500
10. Drainage Piping – 2,000 x $23/ft.	$46,000
11. Hydromulch (seeding) – 135,000 sf x $0.10/sf	$13,500
12. Other Tasks (engineering, soil QA/QC testing, plat survey, PE certification, certification report	$50,000
subtotal	**$1,236,570**
Contingency (10% minimum)	**$123,657**
Total Unit Closure Cost	**$1,360,227 (2023)**
Reserved	
Total Permitted Facility Closure Cost *(all unit costs combined)*	**$1,360,227 (2023)**

Table VII.C.5. - Land-Based Units Closed Under Interim Status

N.O.R. Unit #	Unit Description[1,2]	Date of Receipt of Last Waste[3]	Date of Closure Certification[3]
Reserved			

1Indicates a unit for which a 40 CFR 264 closure equivalency determination has been requested pursuant to 40 CFR 270.1(c)(5).
2Indicates a unit for which a 40 CFR 264 closure equivalency determination has been made pursuant to 40 CFR 270.1(c)(6).
3Enter month, day, and year.

Table VII.D. - Unit Post-Closure Cost Estimate

Task	Cost
CAMU/Former NHB (NOR 004)	
Inspections – semiannually (4 hrs/event x $85/hr)	$680
Maintenance – labor: semiannually (8 hrs/event x 85/hr)	$1,360
materials: semiannually $1,500/event	$3,000
Groundwater Sampling (assuming 15 wells semiannually)	$7,500
Laboratory Analytical Fees (assuming 15 wells and 3 QA/QC samples semiannually)	4,000
Annual Reporting	$4,500
Administration of Post Closure (20%)	$4,208
subtotal	**$25,248**
Contingency (10% minimum)	**$2,525**
Total Unit Post-Closure Care Cost (x 30 yrs.)	**$833,190 (2023)**
Southeast Holding Basin (NOR 017)	
Inspection – semiannually (8 hrs/event x $85/hr)	$1,360
Maintenance – labor: semiannually (16 hrs/event x 85/hr)	$2,720
materials: semiannually $2,000/event	$4,000
Groundwater Sampling (assuming 32 wells semiannually)	$12,000
Laboratory Analytical Fees (assuming 32 wells and 3 QA/QC samples semiannually)	$35,000
Annual Reporting	$5,000
Administration of Post Closure (20%)	$12,016
Subtotal	**$72,096**
Contingency (10% minimum)	**$7,210**
Total Unit Post-Closure Care Cost (x 10 yrs.)	**$793,060 (2023)**

Total Permitted Facility Post-Closure Cost *(all unit costs combined)*	**$1,626,250 (2023)**

Table VII.E.1. - Permitted Unit Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
CAMU/Former NHB (NOR 004)	**$1,360,227 (2023)**
Total Existing Unit Closure Cost Estimate	**$1,360,227 (2023)**[2]

Proposed Unit Closure Cost Estimate	
Unit	Cost
Not Applicable	

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

[2]As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

Existing Unit Post-Closure Cost Estimate	
Unit	Cost
CAMU/Former NHB (NOR 004)	**$833,190**
Southeast Holding Basin (NOR 017)	**$793,060**
Total Existing Unit Post-Closure Cost Estimate	**$1,626,250 (2024)**

Proposed Unit Post-Closure Cost Estimate	
Unit	Cost
Not Applicable	

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

VIII. Financial Assurance

A. Financial Assurance Information Requirements for all Applicants (30 TAC Chapter 37, Subchapter P, 305.50(a)(4)(A-E), 335.152(a)(6) and 335.179)

1. Financial Assurance for Closure

   An owner or operator must establish financial assurance for the closure of the facility no later than 60 days prior to the first receipt of waste [30 TAC Section 37.31(a)]. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If a financial mechanism has been obtained, provide a copy of the mechanism.

   For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

   See Attachment N – Financial Assurance

2. Financial Assurance for Post-Closure Care (applicable to disposal facilities and contingent post-closure care facilities only)

   An owner or operator subject to post-closure monitoring or maintenance requirements must establish financial assurance for the post-closure care of the facility no later than 60 days prior to the first receipt of waste [30 TAC Section 37.31(a)]. Please refer to 30 TAC Chapter 37, Subchapter P for the financial assurance requirements for post-closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If a financial mechanism has been obtained, provide a copy of the mechanism.

   For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

   See Attachment N – Financial Assurance

3. Financial Assurance for Corrective Action

   An owner or operator must establish financial assurance for corrective action of the facility no later than 60 days after the permit or order requiring the corrective action financial assurance is signed by the executive director or commission [30 TAC Section 37.31(b)]. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or

operator will comply with this provision and indicate below the type of financial assurance mechanism to cover corrective action for the facility.

If a financial mechanism has been obtained, provide a copy of the mechanism.

For applications involving permit transfers, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

See Attachment N – Financial Assurances

4. Liability Requirements (not required for post-closure care)

All owners or operators must establish financial assurance for third party sudden liability coverage of the facility no later than 60 days prior to the first receipt of waste [30 TAC Section 37.31(a)]. Owners or operators of disposal facilities must establish financial assurance for third party sudden and nonsudden liability coverage of the facility no later than 60 days prior to the first receipt of hazardous waste. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for liability coverage, and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

If a financial mechanism has been obtained, provide a copy of the mechanism.

For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

See Attachment N – Financial Assurances

B. Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal (30 TAC 305.50(a)(4))

Refer to the Supplemental Technical Information Guidance for Applicants Subject to Financial Capability Requirements, included in Section VIII.B., and the requirements listed below as you complete this section.

1. Provide information required in 30 TAC 305.50(a)(4), as applicable to the application request.
2. Complete Table VIII.B. if requesting capacity expansion or new construction.
3. For new commercial hazardous waste management facility applications, a written statement signed by an authorized signatory per 30 TAC 305.44 explaining how the applicant intends to provide emergency response financial assurance per 30 TAC 305.50(a)(12)(C) or (D).
4. For renewal applications with no capacity expansion, please complete and submit the attached Financial Disclosure Letter.

See Attachment N – Financial Assurances

Information for Applicants Subject to Financial Capability Requirements

Certain applications involving Hazardous Waste facilities are subject to review of the applicant's financial ability to construct, operate, and/or close the facility, perform post-closure care and corrective action at the facility in accordance with State law as specified in Section 361.085 of the Texas Health and Safety Code. TCEQ refers to these reviews as financial capability reviews. This document summarizes and clarifies the information required in an application to meet the TCEQ requirements of 30 Texas Administrative Code (TAC) 305.50.

Information requirements vary depending on the type of financial information available to applicants, primarily whether audited financial statements are available as well as the type of application submitted. For each scenario described below, financial information must be provided for the specific applicant.

I. New Facilities, Facility Expansions and Permit Transfers

A. Publicly traded Entities

1. Securities and Exchange Commission (SEC) Form 10-Ks

   This portion of the requirement calls for the two most recent 10-K reports filed.

2. SEC Form 10-Q

   This portion of the requirement calls for a copy of the most recent quarterly report.

3. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure care, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met. (ie. which financial assurance mechanism is or will be used).

4. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

B. Privately held entities with audited financial statements

1. Audited financial statements

   This portion of the requirement calls for complete copies of the audited financial statements for each of the most recent two fiscal years. If an audit has not been completed for one of the previous two years, a complete copy of the fiscal year end financial statement and federal tax return may be substituted in lieu of the audit not performed. The tax return must be certified by original signature of an authorized signatory as being a "true and correct copy of the return filed with the Internal Revenue Service." Financial statements must be prepared consistent with generally accepted accounting principles and include a balance sheet, income statement, cash flow statement, notes to the financial statement, and an accountant's opinion letter.

2. Quarterly financial statement

   This portion of the requirement calls for a complete copy of the most current quarterly financial statement prepared consistent with generally accepted accounting principles. Internally prepared statements are satisfactory.

3. Supplementary information statement

   This portion of the requirement calls for a written statement detailing the information that would normally be found in SEC's Form 10-K including descriptions of the business and its operations; identification of any affiliated relationships; credit agreements and terms; any legal proceedings involving the applicant; contingent liabilities; and significant accounting policies.

4. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

5. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure care, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

C. Entities without audited financial statements or entities choosing not to provide the information listed above

1. Financial Plan

   This portion of the requirement calls for a financial plan (including balance sheets listing assets, liabilities and capital accounts) sufficiently detailed to clearly demonstrate that the applicant will be in a position to readily secure financing for construction, operation, and closure, post-closure, and corrective action if the permit is issued. At least 3 balance sheets should be included as of: a) approximately the date of the permit application, b) 12 months after any construction is completed (or assumption of operational control for a permit transfer), and c) 24 months after any construction is completed (or assumption of operational control for a permit transfer).

2. Letters of opinion

   The submitted financial plan must be accompanied by original letters of opinion from two financial experts, not otherwise employed by the applicant, who have the demonstrated ability to either finance the facility or place the required financing. If the permit action sought involves construction of a new facility or expansion of an existing facility, the opinion letters must certify that financing is obtainable within 180 days of permit approval and include the time schedule contingent upon permit finality for securing the financing as well as certify the financial plan is reasonable. Even if the application does not involve a facility or capacity expansion, the opinion letters must certify that the financial plan is reasonable. Only one opinion letter from a financial expert, not otherwise

employed by the applicant, is required if the letter renders a firm commitment to provide all the necessary financing.

Letters of opinion are usually issued by investment or commercial bankers but there could be additional sources. Applicants are encouraged to verify the adequacy of the credentials of their chosen financial expert with TCEQ's financial assurance unit prior to a formal engagement. Financial experts should describe their qualifications and disclose their independence from the applicant and/or any entity or person affiliated with the applicant.

3. Operating and cash flow statement

   This portion of the requirement calls for a written detail of the annual operating costs of the facility and a projected cash flow statement including the period of construction and first two years of operation. The cash flow statement must demonstrate the financial resources to meet operating costs, debt service, and provide financial assurance for closure, post-closure care, and liability coverage requirements. A list of the assumptions made to forecast cash flow must also be provided.

4. Explanation statement

   This portion of the requirement calls for a statement addressing how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

5. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

D. Entities with a resolution from a governing body approving or agreeing to approve the issuance of bonds to satisfy financial assurance requirements (e.g. a city or county)

1. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC30 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

2. Certified copy of the resolution from the governing body,

3. Certification by the governing body of passage of the resolution.

Not Applicable – this application does not request expansion or new construction

II. Permit Renewals

Complete the attached letter with applicable information inserted into the parentheses. *Note that additional information must be provided if requested by TCEQ.*

[Date]

Mr. Gulay Aki
Manager, Industrial and Hazardous Waste Permits Section
Texas Commission on Environmental Quality
Building F, MC 130
12100 Park 35 Circle
Austin, Texas 78753

Re: Financial Disclosure Letter for [name of applicant]

Permit Renewal
Hazardous Waste Permit No. [xxxxx] / Compliance Plan No. [xxxxx]
Industrial Solid Waste Registration No. [xxxxx]
EPA ID No. [TXDxxxxxxxxx]
RN[xxxxxxxxx]; CN[xxxxxxxxx]

Dear Ms. Aki:

This letter is furnished to you in response to financial disclosure requirements as applicable under Texas Health and Safety Code Section 361.085 and Title 30, Texas Administrative Code (30 TAC), Section 305.50 to provide assurance that Kinder Morgan Liquid Terminals has sufficient financial resources.

In keeping with the above law and rule requirements I hereby certify that [name of applicant] is adequately capitalized and has sufficient financial resources to operate, close, provide post-closure care for and perform corrective action for the above-referenced facility in a safe manner, and in compliance with the permit and all applicable rules.

[name of applicant] currently provides a [describe type of mechanism, i.e., letter of credit, surety bond, etc.] financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet Kinder Morgan Liquid terminal's financial assurance obligations.

I am authorized to make these statements on behalf of [name of applicant]. I understand that the TCEQ may request additional information as part of their review.

Sincerely,

[Signature block]
[Title of Signatory]

*[**Note**: signatory must be person whose title and job responsibilities meet the requirements in 30 TAC § 305.44]*

Table VIII.B - Estimated Capital Costs

Not Applicable

	Estimated Capital Costs
Site preparation, fencing, paving, curbing, lighting, roadways:	$_____
Foundations, buildings, other structures, utilities and connections, drainage system, HVAC system, electrical system, wastewater system:	$_____
Process and control equipment:	$_____
Auxiliary equipment, including but not limited to exhaust hoods fans, ducting, pumps, piping, conveyors, stacks, storage tanks, process tanks, waste disposal facilities, pollution control equipment, and fire protection system:	$_____
Process integration and instrumentation:	$_____
Emergency response equipment:	$_____
Transportation equipment:	$_____
Office equipment:	$_____
Engineering design, supervision, overhead:	$_____
Construction expenses including permits, insurance, temporary facilities, and clean-up	$_____
Contractor's fees and overhead	$_____
Contingency	$_____
Total	$_____

The estimates listed above were derived from the following sources:

IX. Releases from Solid Waste Units and Corrective Action

The Texas Solid Waste Disposal Act, 30 TAC 335.167, 40 CFR 270.14(d) and Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA) *require that each hazardous waste management permit application review shall address corrective action for all releases of hazardous waste and hazardous constituents* listed in 40 CFR 261, Appendix VIII, 40 CFR Part 264, Appendix IX, and/or other constituents of concern from any solid waste management unit (SWMU) and/ or Areas of Concern (AOCs) at a facility, regardless of the time at which waste was placed in such unit[3]. Current EPA interpretation of this requirement has resulted in a Corrective Action process that begins with a RCRA Facility Assessment (RFA) to determine if corrective action is necessary.

The first step in the RFA is the development of a Preliminary Review (PR) from all available documentation for a facility (including but not limited to all facility documents, Part A, and Part B of the permit application, TCEQ correspondence files and inspection reports, etc.). The PR compiles available information on every SWMU and/or AOC that has ever existed at the facility. A unit checklist is completed for each SWMU and/ or AOC. On a unit-by-unit basis, the PR may recommend no further action for:

- well-designed and well-managed units;
- units that have not managed hazardous wastes or wastes containing hazardous constituents;
- units already under corrective action by enforcement order; or
- units scheduled to be addressed in a compliance plan.

In addition, the unit checklists are summarized in a *Facility Checklist*. If there is a known release or potential for a release of hazardous waste or hazardous constituents from a unit/area, the PR may recommend a *RCRA Facility Investigation* (RFI), or an *Affected Property Assessment* (APA), if 30 TAC Chapter 350, Texas Risk Reduction Program (TRRP) applies, to determine the extent of the release for future corrective action, or stabilization as an appropriate and immediate corrective action.

The second step is a *Visual Site Inspection* (VSI) of the entire facility. The RFA is the combination of the PR and VSI documentation and any sample results. The RFA process should be scheduled so as to be completed during the latter stages of the Technical Review process or no later than one month in advance of the preparation of an initial draft permit for the facility. The RFA includes recommendations for whether further investigation or corrective action is warranted.

The requirements for an RFI or any other corrective action will be included in the permit, in the associated compliance plan which is mandatory for facilities with known groundwater contamination, or pursuant to 40 CFR 270.14(d)(3), the applicant may be required to start the RFI or other corrective action before the permit is issued. The RFI shall comply with all the applicable items contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994, unless an alternate investigation approach is approved by the Executive Director. An RFI workplan may typically include a soil

---

3For the purposes of HSWA Corrective Action, a SWMU may include, but is not limited to, any landfill, surface impoundment, land treatment unit, waste pile, underground injection well, incinerator, boiler, industrial furnace, tank, container storage area, drip pad, containment building, miscellaneous unit; any units exempt from hazardous waste permitting requirements, such as wastewater treatment units, elementary neutralization units, totally enclosed treatment units, waste recycle/reuse units, and 90-day accumulation time units; or process units or areas which may have routine and/or systematic releases to the environment (e.g., process drainage ditches or product storage tanks).

boring program, installation of monitoring wells, and sampling and analysis for 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX hazardous constituents for surface soils, subsurface strata, surface water, groundwater, and/or air.

The permittee shall perform the RFI or APA and report the results. Corrective Action under 30 TAC Chapter 350 consists of an APA, determination of protective concentration levels, selection of a remedy standard (if necessary), development and implementation of a response action (if necessary), and submittal of required report according to 30 TAC Chapter 350.

If the RFI report indicates releases of hazardous waste or hazardous constituents for SWMUs and/or AOCs that have been grandfathered under 30 TAC Chapter 335 Subchapters A and S, Corrective Action shall consists of, if necessary, Interim Corrective Measures, *Baseline Risk Assessment* (BLRA)/*Corrective Measures Study* (CMS) Report, and *Corrective Measures Implementation* (CMI).

For grandfathered SWMUs and/or AOCs, the permittee may continue to complete the Corrective Action requirements under 30 TAC Chapter 335, Subchapter A and S, provided the permittee complies with the notification and schedule requirements pursuant to 30 TAC 335.8 and 350.(2)(m).

This report shall evaluate the risk, identify and evaluate corrective measure alternatives, and recommend appropriate corrective measure(s) to protect human health and the environment. The BLRA/CMS Report shall address all of the applicable items in 30 TAC 350, 30 TAC 335 Subchapter S, and the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994.

Upon approval of the BLRA/CMS Report by the TCEQ, the permittee shall submit a CMI Workplan to address all of the items for CMI Workplan contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994. For projects conducted under TRRP, the risk assessment process shall be addressed in the *Affected Property Assessment Report* (APAR), and the evaluation of corrective measures shall be conducted as part of the remedy standard selection process provided in the *Response Action Plan* (RAP). If the CMI or RAP does not propose a permanent remedy, then a CMI Workplan or RAP shall be submitted as part of a new compliance plan application or as a modification/amendment application to an existing compliance plan. The workplan or RAP shall contain detailed final engineering design, monitoring plans, and schedules necessary to implement the selected remedy. Implementation of the corrective measures shall be addressed through a new and/or a modified/amended compliance plan. Upon installation of a corrective action system based upon the approved CMI Workplan or RAP, the permittee shall submit a CMI Report or RAP which includes as-built drawings of the corrective action system. To report the progress of the corrective measures, the permittee shall submit periodic CMI Progress Reports or Response Action Effectiveness Reports to the TCEQ in accordance with the schedule specified in the compliance plan. Upon completion of the corrective action requirements, the permittee shall submit CMI Report or Response Action Completion Reports for review and approval.

Please note that the applicant/permittee may perform voluntary corrective action, stabilization, or "interim measures" at any time prior to or during the RFA/RFI/CMS/CMI or the APAR/RAP process without prior TCEQ approval. The TCEQ strongly supports these actions when undertaken to mitigate releases or reduce or minimize exposure and releases to human health and the environment.

Attachment O – Preliminary Review Checklists and Preliminary Review Unit Checklists

Attachment P – RCRA Facility Assessment

A. Preliminary Review Checklists

For Applications for a New Hazardous Waste Permit:

- For all facility Solid Waste Management Units (SWMUs) and/or Areas of Concern (AOCs), complete the accompanying forms entitled "Preliminary Review Facility Checklist" and "Preliminary Review Unit Checklist". Make additional copies as necessary.

For Applications for a Renewal/Amendment/Modification of an Existing Hazardous Waste Permit:

- Update the Preliminary Review Facility Checklist to include any newly identified SWMUs and/or AOCs that were not incorporated into the previous permit issuance (new, amendment, modification, or renewal), and to update the status of all previously identified SWMUs or AOCs which are incorporated into the existing permit under either Section IX – Corrective Action for Solid Waste Management Units, or Section XI – Compliance Plan. Status updates should include notes regarding whether the SWMU or AOC has been incorporated into a compliance plan, has received approval of no further action (NFA), has had changes in its corrective action status, or has had other determinations issued by the TCEQ. Include the date of the status change in the updated checklist;
- Complete the Preliminary Review Unit Checklists for any newly identified SWMUs or AOCs that were not incorporated into the previous permit issuance (new, amendment, modification, or renewal);
- Update the status on the Preliminary Review Unit Checklists for all previously identified SWMUs or AOCs that had not yet received TCEQ approval of NFA at the time of the previous permit issuance;
- Provide copies of the letters from the TCEQ approving NFA or other determinations that were issued since the previous permit issuance;
- For previously identified SWMUs and/or AOCs which are incorporated into the existing permit and are included in Section XI – Compliance Plan of this application, you may forego filling out the Preliminary Review Unit Checklists for these units. Briefly note on the Preliminary Review Facility Checklist that the SWMUs or AOCs are addressed in Section XI. Provide the location where the SWMU's and addressed in Section XI. Or
- If all previously identified SWMUs and/or AOCs reached NFA status at or before the last permit issuance you may forego filling out the Preliminary Review Unit Checklists, indicate Not Applicable, and provide a brief explanation of the facts.

Instructions for Preliminary Review Facility Checklist

Fill out the information block at the top of the page (the reviewer space should remain blank for the TCEQ authorized agent).

Facility:_____ City:_____

ISW Reg. No:_____ Date:_____

Permit No:_____ Reviewer:_____

EPA ID No:_____

Waste Management Units:

RCRA Regulated Units: List all units that received hazardous wastes after July 26, 1982 or for which closure was certified after January 26, 1983 with the appropriate information under the three provided column headings as explained in the Unit Checklist instructions. [40 CFR 264.90(a)(2)]

Solid Waste Management Units, and/or Areas of Concern (AOC):

List all remaining SWMUs and/or AOCs.

Reviewed Documents:

Enter the appropriate information for sub-items 1-6, including document dates (item 6 should include pertinent company files).

Summary:

Provide an overall summary of the results of this Preliminary Review noting units and areas of concern.

Recommended Actions:

Summarize the Unit Checklist Recommended Actions and list those units recommended for further investigation including appropriate Unit No.

Provide the following information for EACH unit or area of concern:

A. Waste Management Unit: Enter SWMU and/or AOC name and facility designated number (e.g., Tank 101)

B. N.O.R. No.: enter TCEQ Notice of Registration (N.O.R.) Number or, if unassigned, a letter designation (i.e., A-Z)

C. Description: enter type of unit (e.g., above-grade processing tank) and Process Code as listed below:

Instructions for Preliminary Review Unit Checklist (Continued)

Process Types Table

Process Code	Unit Type	Process Code	Unit Type
Disposal		Miscellaneous (Subpart X)	
D79	Injection Well	X01	Open Burning/Open Detonation
D80	Landfill	X02	Mechanical Processing
D81	Land Application	X03	Thermal Unit
D83	Surface Impoundment - Disposal	X04	Geologic Repository
D99	Other Disposal	X99	Other Subpart X
Storage			
S01	Container	S05	Drip Pad
S02	Tank - Storage	S06	Containment Building – Storage
S03	Waste Pile	S99	Other Storage
S04	Surface Impoundment - Storage		
Treatment			
T01	Tank - Treatment	T86	Blast Furnace
T02	Surface Impoundment - Treatment	T87	Smelting, Melting, or Refining Furnace
T03	Incinerator	T88	Titanium Dioxide Chloride Process Oxidation Reactor
T04	Other Treatment	T89	Methane Reforming Furnace
T80	Boiler	T90	Pulping Liquor Recovery Furnace
T81	Cement Kiln	T91	Combustion Device Used in Recovery of Sulfur Values from Spent Sulfuric Acid
T82	Lime Kiln	T92	Halogen Acid Furnace
T83	Aggregate Kiln	T93	Other Industrial Furnaces Listed in 40 CFR 260.10
T84	Phosphate Kiln	T94	Containment Building – Treatment
T85	Coke Oven		

D. Dates of Operation:

Enter the date the unit was placed into service and any other dates the unit changed status (active, inactive, closed, post-closure) with the appropriate status designation.

E. Wastes Managed:

List all solid wastes ever managed in the unit and include the TCEQ NoR waste #, EPA Hazard Codes, and EPA waste codes. For each waste, list any hazardous constituent listed in 40 CFR 261 Appendix VIII and 264 Appendix IX, as appropriate.

F. Evidence of Release:

Completely describe the release, including time frame, waste amount, to what media, and any corrective measures taken.

G. Pollutant Dispersal Pathways:

Completely describe the possible and actual run-off pathways (i.e., to which tributary, creek, river, and bay or through subsoil to which aquifer with groundwater flow gradient, speed, and direction and any discharge point).

H. Summary:

Provide complete unit description including unit type, elements of construction, location, age, condition, dimensions, size, capacity (i.e., gallons, square feet, cubic yards, etc.), and potential for release.

I. Recommended Action:

Recommend No Further Action, Stabilization (interim measures), or Further Investigation and justify. Note, corrective action under another authority is justification for No Further Action.

Preliminary Review Facility Checklist

Facility:_____City:____

ISW Reg No:_____Date: ____

Permit No: _____Reviewer:

EPA ID No:_____

A. Waste Management Units:

1. RCRA Regulated Units:

NoR No.	Description	Status

2. Solid Waste Management Units:

NoR No.	Description	Status

B. Reviewed Documents:

3. RCRA: Part A _____
   Part B _____
   Permit _____
4. CERCLA: None
5. Inspection Reports:
6. Exposure Information:
7. Other Information:

C. Summary:

D. Recommended Action:

Preliminary Review Unit Checklist

Facility:_____City:____

ISW Reg No:_____Date: ____

Permit No: _____Reviewer:

EPA ID No:_____

A. Waste Management Unit:
B. NoR No:
C. Description:
D. Dates of Operation:
E. Wastes Managed:
F. Evidence of Release:
G. Pollutant Dispersal Pathways:
H. Summary:
I. Recommended Action:

Appendices to Preliminary Review (PR)

The PR should also include Appendices I-IV to correspond to the Roman numerals in the Unit Checklist:

Appendix I. FACILITY and SWMU LOCATION MAPS

- Regional Location Map
- Site Location Map
- Facility SWMU Map - Use the Notice of Registration (NOR) number to show the location of each unit on a replicate of the topographic map required in Section V.A.1 of this application. Also, please note that the term "facility" includes the entire contiguous property under the control of the owner or operator, which in most cases is the area shown as the legal description of the site in the facility's Part A permit application.

Appendix II. WASTES MANAGED

- List all wastes managed and 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX hazardous constituents. Provide pertinent health, safety, and risk data on each.

Appendix III. EVIDENCE of RELEASE

- Provide any applicable documentation on a release. Provide a map of release locations, SWMU identification, and paths traveled.

Appendix IV. POLLUTANT DISPERSAL PATHWAYS

- Provide a facility, local, and regional map identifying all possible and eventual pathways in which a release from any unit could or did travel. Provide a facility general cross-section to illustrate vertical pathways and lateral movements in groundwater, including discharges (i.e., seeps, creeks, etc.).

Preliminary Review Submittal Format

The PR should be bound with a cover page and contain a Table of Contents with the Facility Checklist entered first followed by all the Unit Checklists in unit NOR numerical order and alphabetical order.

X. Air Emission Standards

Section X.D. applies to Permittees with "one- stop" permits applying for an amendment, modification, or renewal of the Air Permits Division portions of their combined "one-stop" permit.

Not Applicable

A. Process Vents

Does the facility have process vents and equipment subject to the requirements of 40 CFR Part 264, Subpart AA?

☐ Yes ☐ No

If Yes: please provide a report that includes all of the information required by 40 CFR §270.24. Indicate on a facility plot plan the approximate location of process vents.

1. For incorporation into the permit, complete Table X.A - Process Vents for all vents on waste management units that manage hazardous waste with an annual average total organics concentration of 10 ppmw or greater ("process vents"). Specifically include:
   a. process vents on distillation, fractionation, thin-film evaporation, solvent extraction, air or steam stripping operations, and vents on condensers serving these operations; and
   b. process vents on tanks (e.g., distillate receivers, bottom receivers, surge control tanks, separator tanks, and hot wells) associated with distillation, fractionation, thin-film evaporation, solvent extraction, and air or steam stripping processes if emissions from these process operations are vented through the tanks.

      Emissions caused by natural means such as daily temperature changes or by tank loading and unloading are not subject to control.
2. For process vents, include the following certification as part of the air emissions report:

   I,____ *[owner or operator]* __, certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur.

   I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.

   OR

   I further certify that the total organic emission limits of 40 CFR §264.1032(a) for affected process vents at the facility can be attained by a control device involving vapor recovery at an efficiency less than 95 weight percent.

   [Signature] _____ *[Date]* _____.

B. Equipment Leaks

Does the facility have equipment subject to the requirements of 40 CFR Part 264, Subpart BB?

☐ Yes ☐ No o Not Applicable (facility contains no regulated ancillary equipment types associated with permitted units)

If No: please provide the regulatory exclusion/exemption(s):

If Yes: please provide a report that includes all of the information required by 40 CFR §270.25.

1. For incorporation into the permit, complete Table X.B. – Equipment Leaks for all valves, pumps, compressors, pressure relief devices, sampling connection systems, and open-ended valves or lines that contain or contacts hazardous waste streams with organic concentrations of 10% by weight or greater. Equipment in vacuum service is not subject to control if identified in the facility operating record.

2. For equipment, include the following statement as part of the air emissions report:

   I,_____ *[owner or operator]* _____, certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur.

   I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.

   [Signature] _____ *[Date]* _____.

C. Tanks, Surface Impoundments, and Containers

Does the facility have tanks subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted tanks)

If No: provide the regulatory exception/exemption(s) for each tank subject to regulation under 40 CFR Part 264, Subpart J:

Does the facility have surface impoundments subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No o Not Applicable (no permitted surface impoundments)

If No: provide the regulatory exception/exemption(s) for each permitted surface impoundment subject to regulation under 40 CFR Part 264, Subpart K:

Does the facility have containers subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted container storage areas)

If No: provide the regulatory exception/exemption(s) applicable to the authorized containers subject to regulation under 40 CFR Part 264, Subpart I:

If the facility contains tanks, surface impoundments, and containers subject to the requirements of 40 CFR Part 264 Subpart CC, please provide a report that includes all of the information required by 40 CFR §270.27.

1. For incorporation into the permit, complete Table X.C.

2. As applicable, include the following floating roof cover certification as part of the air emissions report for tanks:

   I,_____*[owner or operator]*_____, certify that the floating roof cover meets the applicable design specifications as listed in 40 CFR §264.1084(e)(1) or 40 CFR §264.1084(f)(1).

   [Signature] _____ *[Date]* _____.

3. As applicable, include the following floating membrane cover certification as part of the air emissions report for surface impoundments:

   I,_____*[owner or operator]*_____, certify that the floating membrane cover meets the applicable design specifications listed in 40 CFR §264.1085(c)(1).

   [Signature] _____ *[Date]* _____.

4. As applicable, include the following container certification as part of the air emissions report for containers:

   I,_____*[owner or operator]*_____, certify that the requirements of 40 CFR Part §264, Subpart CC, are met for all containers subject to control.

   [Signature] _____ *[Date]* _____.

5. As applicable, include the following control device certification as part of the air emissions report:

   I,_____*[owner or operator]*_____, certify that the control device is designed to operate at the performance level documented by a design analysis as specified in 40 CFR 264.1089 (e)(1)(ii) or by performance tests as specified in 40 CFR §264.1089(e)(1)(iii) when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

   [Signature] _____ *[Date]* _____.

D. "One-Stop" Permits:

Does the facility have a "one-stop" permit?

☐ Yes ☐ No

If yes: does this permit application propose to delete the "one-stop" portion of the permit?

☐ Yes ☐ No

Does the facility want the application processed in accordance with 30 TAC Chapter 33 – Consolidated Permit Applications?

☐ Yes ☐ No

If yes: please provide a copy of the notification of intent required by 30 TAC 33.43.

Permittees having "one-stop" permits may elect to combine the air and waste management amendment, modification, or renewal of permitted waste management units. The combined amendment, modification, or renewal application will follow the application processing procedures for an industrial solid waste permit. "One-Stop" permit applications shall include the following air quality information, as applicable.

1. Area map (to scale) showing the location of the plant and land use in the vicinity

of the facility including buildings, schools, residences, etc. within 3000 feet.

2. Plot plan (to scale) with latitude and longitude showing the plant layout, property boundary and location of all emission points of air contaminants. Emission points are to be numbered.

3. Specific chemical name of each air contaminant and emission rate in maximum pounds per hour, maximum tons per year and calculations used to determine emission rates. Fugitive emissions are to be included. Complete Table 1(a) entitled "Emission Sources."

4. Process description, operating schedule, and flow chart in sufficient detail that will explain the process and operation and a material balance for processes where applicable. The description should include a discussion of disposal methods for any generated residues and associated air emissions.

5. Design specifications about each emission control device using the appropriate OAQ table.

6. Volatile organic compound (VOC) concentrations in water or sludges or soil and volumes or weights of water, sludges or soils to be processed.

7. Exhaust stack or emission point parameters for each emission point including height, diameter, temperature, velocity and flow rate, except ground level fugitive emissions.

8. Best available control technology (BACT) documentation for all new and modified facilities.

9. Documentation of compliance with any applicable Federal New Source Performance Standard (NSPS) and Federal National Emission Standard for Hazardous Air Pollutants (NESHAPS).

10. Documentation as to whether a permit is required under new source review requirements of part C or D or Title I of the Federal Clean Air Act, 42 U.S.C. 7401 et seq., for a major source or major modification.

11. Information that demonstrates reliability of emission control systems including process instrumentation, equipment redundancy and operating procedures.

12. Results of atmospheric dispersion modeling certified to have been conducted in accordance with applicable TCEQ Office of Air Quality (OAQ) procedures. Model results must show maximum off-property 30-minute and annual ground level concentrations of each air contaminant. Dispersion modeling results must indicate compliance with all OAQ Rules and Regulations. Dimensions of buildings/structures that may influence dispersion modeling are to be furnished. Please consult with OAQ before beginning any modeling study.

13. Storage tank data including capacity in gallons, diameter, height, paint color, composition, density, vapor pressure and molecular weight of liquid stored, maximum hourly and annual throughput and number of turnovers per year. Complete Table 7 entitled "Storage Tank Summary" for each tank.

14. A statement addressing the applicability of each OAQ regulation.

15. All methods of calculating emissions must be properly referenced with justification for selecting and assuming the values used in any equation.

Table X.A. – Process Vents

List all process vents covered by this application.

I.D. No. (if any)	Process Vent	Annual Throughput	Operating Hours	Total Vent Facility Emissions
Not Applicable				

Table X.B. - Equipment Leaks

List all equipment covered by this application

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
Not Applicable						

Table X.C. – Tanks, Surface Impoundments, and Containers Subject to Air Emission Controls

List all units covered by this application

Permit Unit No.	Tanks	Design Capacity (Cubic Meters)	Hazardous Waste Maximum Organic Vapor Pressure[1] (Kilopascals)	Tank Used in Waste Stabilization Process (Y, N)	Tank Level Control (1, 2)[2]	Identify Tank Level 2 Control Tank Type and Control Device Type[3]
Not Applicable						

Permit Unit No.	Surface Impoundments	Control Type (Floating Membrane /Cover Vented through Closed Vent System to Control Device)[3]

Permit Unit No.	Container Storage Areas	Container Design Capacity (Cubic Meters)	In Light Material Service? (Y/N)	Container Level Standard2 (1, 2, 3)	Container Level Standard 3 Control Types (Closed-Vent System/ Enclosure, Control Device Type)[3]

1 Applicable to Tank Level 1 controls determined using procedures in 40 CFR 264.1083(c). If the tank is heated, see 40 CFR 264.1084(b)(ii).
2 See 40 CFR 264.1084(c) and (d) for tanks and 40 CFR 264.1086(b) for containers.
3 See 40 CFR 264.1084(d)(1)-(5) for tanks, 40 CFR 264.1087(c)(1) for control devices, 40 CFR 264.1085(b) for surface impoundments, and 40 CFR 264.1086(c), (d), and (e) for containers.

Table X.D.1(a) – Emission Point Parameters

Table 1(a) _____ Page _____ of _____

Emission Sources _____ Date _____

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

Air Contaminant Data									Emission Point Discharge Parameters						
Emission Point[1]		Chemical Composition of Total Stream		Air Contaminant Emission Rate		UTM Coordinates of Emission Pt. [6]			Stack Sources (7)					Area Sources [8]	
											Exit Data				
Number	Name	Component or Air Contaminant Name [2]	Conc. (%v)	Lb/hr [4]	Tons/ Yr [5]	Zone	East [meters] (Lat.)	North [meters] (Long.)	Height Above Ground [ft.]	Height Above Structures [ft.]	Dia. [ft.]	Vel. [fps]	Temp. [°F]	Length [ft.]	Width [ft.]
Not Applicable															

Ground Elevation of Facility Above Mean Sea Level _____ feet.

TACB Standard Conditions Are 68°F and 14.7 psia [RULE 131.01.00.001(55)]

General Instructions for Table X.D.1(a):

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and Emissions Inventory Questionnaire. Limit emission point number to 8 character spaces. For each emission point, use as many lines as necessary to list air contaminant data. Typical emission point names are : heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Typical component names are: air, H2O, nitrogen, oxygen, CO2, CO, Nox, SO2, hexane, particulate matter (PM), etc. Abbreviations are OK.
3. Concentration data is required for all gaseous components. Show concentration in volume percent of total gas stream.
4. Pounds per hour (lb/hr) - maximum emission rate expected by applicant.
5. Tons per year (tons/year, t/yr.) is annual maximum emission rate expected by applicant which takes into account process operating schedule.
6. As a minimum, applicant must furnish a facility plot plan drawn to scale showing a plant benchmark, latitude and longitude correct to the nearest second for the benchmark, and all emission points dimensioned with respect to the benchmark as required by General Application, Form PI-1. This information is essential for calculation of emission point UTM coordinates. Please show emission point UTM coordinates if known.
7. Supply additional information as follows if appropriate:
   a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate if horizontal discharge with a note.
   b. Stack's height above supporting or adjacent structures if structure is within three (3) "stack heights above ground" of stack.
   c. If emission point is a flare, show flare data on Table 8.
8. Normally used for fugitive sources. Show dimensions of a minimum size rectangle which will "enclose" all fugitive sources included in this emission point number.

Table X.D.7 – For Fugitive Sources

Not Applicable

Table 74-82 Storage Tank Summary

I. Applicant's Name:_____

II. Tank Parameters (one form for each tank).

1. Location (indicate on plot plan or provide coordinates):

   _____

2. Tank No. _____

3. Emission Point No. _____

4. Nominal Capacity : _____ barrels or

   _____ gallons

5. Dimensions: Diameter _____ft.

   Height or Length _____ ft.

6. Color: Chalking white ☐ Aluminum ☐ Light grey or blue ☐

   Dark color or not paint ☐ Other ☐ (Describe _____)

7. Status: New tank ☐ Altered tank ☐ Relocation ☐ Change of Service ☐

8. Previous permit or exemption number

   _____

9. Type: Fixed roof ☐ Pressure ☐ Insulated ☐ External floating roof o

10. Open top ☐ Underground ☐ Internal floating roof ☐ Horizontal ☐

11. Heated/Cooled ☐ (Temp. _____°F)

12. For floating roof tanks, please supply the following information:

    a. Type of roof: Double deck ☐ Pontoon ☐
       Other ☐ (Describe_____)

    b. Roof color: Chalking white ☐ Aluminum ☐
       Other ☐ (Describe _____)

    c. Shell construction: Riveted ☐ Welded ☐
       Other ☐ (Describe_____)

    d. Seals:

       Primary:

       Mechanical Shoe ☐ Liquid-Mounted ☐ Vapor-Mounted ☐

       Other ☐ (Describe _____)

       Secondary:

       Shoe-Mounted ☐ Rim-Mounted ☐ Weather Shield ☐None ☐

Other ☐ (Describe_____)

Vent Valve Data	Number	Pressure Setting	Vacuum Setting *[Specify "atmosphere" or Discharging To: (name of abatement device)]*
Combination vent valve			
Pressure vent valve			
Vacuum vent valve			
Open vent			

III. Properties of Stored Material (If tank is to hold several different materials or mixtures, attach appropriate information)

1. Material to be stored in this tank:

   _____

2. Liquid density at average annual bulk storage temperature: _____lbs/gal or _____°API
3. Average vapor molecular weight _____
4. Vapor pressure @ average annual bulk storage temperature: _____psia @ _____°F. (or _____lbs. Reid).
5. Vapor pressure @ maximum bulk storage temperature: _____psia @ _____°F.
6. Initial boiling point: _____°F.
7. If material stored is a solution, please supply the following information:
   a. Name of solvent: _____
   b. Partial pressure of solvent: _____ psia
   c. Name of solute: _____
   d. Partial pressure of solute: _____ psia
   e. Concentration of solute: _____ wt% or _____ vol% or _____lbs/gal.

IV. Operating Data:

1. Maximum filling rate: _____ bbls/hr or _____ gal/hr.
2. Average outage (average distance from top of tank shell to liquid surface): _____ft.
3. Tank turnovers per year: _____ (Use zero (0) for constant-level tanks).

XI. Compliance Plan

Groundwater Monitoring and Corrective Action Requirements for Regulated Units

Owners or operators of facilities that process, store, or dispose of hazardous waste may be required to establish groundwater monitoring and response programs in accordance with the provisions of 30 TAC 335.157. There are three types of groundwater monitoring programs which may be addressed in a Compliance Plan Application for Regulated Units: i) detection monitoring, ii) compliance monitoring, and iii) corrective action monitoring. The applicability of these various monitoring programs and the associated application requirements are illustrated in Figure 2 of the Compliance Plan Application instructions and further outlined below. A Compliance Plan Application will be required to be submitted when establishing a new compliance plan or incorporating changes in an existing compliance plan.

Detection Monitoring: An owner/operator required to conduct detection monitoring per the requirements of 30 TAC 335.164 must monitor for indicator parameters, such as specific conductance, total organic carbon, and total organic halogen, as well as chemical parameters and hazardous constituents specified in the facility permit. If a statistically significant increase in any parameter or hazardous constituent specified in the facility permit is detected in any monitoring well down gradient of the compliance point, the owner/operator must sample the groundwater in all monitoring wells and analyze the samples for the presence of 40 CFR Part 264 Appendix IX hazardous constituents. As shown in the accompanying Flow Diagram (see Figure 2), if the analytical results confirm the presence of Appendix IX constituents down gradient of the compliance point, the owner/operator must submit a Compliance Plan Application to establish a compliance monitoring program or corrective action program.

Compliance Monitoring: The requirements for compliance monitoring programs are detailed in 30 TAC 335.165. Owners/operators required to establish a compliance monitoring program must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) specified in the compliance plan (see 30 TAC 335.158 .160). If a statistically significant increase above the GWPS in any chemical parameter or hazardous constituent specified in the compliance plan is confirmed, the owner/operator must submit a application to modify the compliance plan to establish a corrective action program in accordance with 30 TAC 335.166 (see Figure 2). If no such exceedance of the GWPS is detected for three consecutive years and the applicable compliance period has expired, the owner/operator must apply for modification of the compliance plan to re-establish a detection monitoring program for the unit. No further monitoring may be needed if the applicable post-closure care period for the unit is complete.

Regulated Unit Corrective Action Program: Owners/operators required to implement a corrective action program in accordance with the provisions of 30 TAC 335.166 must remove the hazardous waste constituents found in the groundwater or treat the groundwater in-place to levels equal to or less than the GWPS down gradient of the compliance point. The owner/operator must also establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Corrective action measures may be terminated once the concentrations of hazardous constituents are reduced to levels equal to or below their respective concentration limits. After termination of the corrective action measures, the owner/operator must submit an application for modification of the compliance plan to re-establish a compliance monitoring program for the duration of the compliance period (see Figure 2).

Groundwater Corrective Action Requirements for Solid Waste Management Units (SWMUs)

HSWA Solid Waste Management Unit (SWMU) Corrective Action Program: An owner/operator

of a Permitted facility or an applicant applying for a hazardous waste permit is required to submit a Compliance Plan Application if hazardous constituents have been released from a SWMU and/or Area of Concern (AOC) to the groundwater and exceeds background or Practical Quantitation Limit (PQL) values, if under Risk Reduction Rules 30 TAC 335 and/or appropriate Protective Concentration Limits (PCLs), if under Texas Risk Reduction Program Rules 30 TAC 350. The Permitted facility must implement a corrective action program for SWMUs and/or AOCs in accordance with provisions 30 TAC 335.167 (see Figure 3, page 122 of the instructions for example of process-alternate, but equivalent process may be authorized by the Executive Director).

Compliance Plan Application Form Structure:

The Compliance Plan Application consists of Sections XI.A. through E.

Application Information Form:

This section contains detailed information necessary for the application and regulatory requirements needed to put in the final compliance plan.

The application form contains the following subsections:

A. Site Specific Information

B. Groundwater Protection Standard (GWPS)

C. Compliance Monitoring Program

D. Corrective Action Program

E. Cost Estimates for Financial Assurance

CP Attachments:

A. Alternate Concentration Limits

B. Well Design and Construction Specifications

C. Sampling and Analysis Plan

Compliance Plan Site Specific Tables:

This section includes the following tables which are to be completed by the applicant, as applicable, and shall be incorporated as part of the final draft Compliance Plan. [Note: include a CD disk with the application providing an electronic copy of the files supporting the compliance plan tables, as applicable, in MS Word format]:

CP Table I – Waste Management Units and/or Areas Subject to Groundwater Corrective Action and Compliance Monitoring

CP Table II – Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167.

CP Table III – CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard

CP Table IIIA – CORRECTIVE ACTION PROGRAM Table of Indicator Parameters and the Groundwater Protection Standard

CP Table IV – COMPLIANCE MONITORING PROGRAM Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring

CP Table IVA – COMPLIANCE MONITORING PROGRAM Table of Detected Hazardous

Constituents and the Groundwater Protection Standard for Compliance Monitoring

CP Table V – Designation of Wells by Function

CP Table VI – Compliance Period for RCRA-Regulated Units

Note to the Permittee: All responses to each item in Section XI of the application form should be entered immediately below the original text associated with the form. Do not delete any areas of the application form that are not applicable, retain these areas with a response of either 'Reserved' or 'Not Applicable' below the original text of the form. In addition, if material supporting a response is located elsewhere in the application, the response should provide details as to the specific location within the referenced material.

One of the primary goals of the performance based Compliance Plan is the wells listed in, CP Table V – Designation of Wells by Function (to be included in the final Compliance Plan) are the wells in which the GWPS must be met to verify compliance with Compliance Monitoring program or corrective action objectives, and to change the table would require a modification. On the other hand, the following types of wells Corrective Action Observation Wells, Corrective Action System well, etc., that are included in "Attachment A" maps of the final draft Compliance Plan, should be flexible. The purpose is to provide the permittee with the authority to alter the groundwater monitoring system and Corrective Action System designs, as necessary, to proactively address changing environmental conditions without modifying or amending the Compliance Plan. An application to modify/amend the compliance plan is only required if wells listed in CP Table V are changed; consequently, Corrective Action Observation and Corrective Action System Wells are not listed in CP Table V of the compliance plan so they may be added or removed without modifying/amending the compliance plan. Notification of proposed changes to the groundwater monitoring system and Corrective Action System designs can be included in the semiannual or annual report required by CP Table VIII – Compliance Schedule (to be included in the final Compliance Plan).

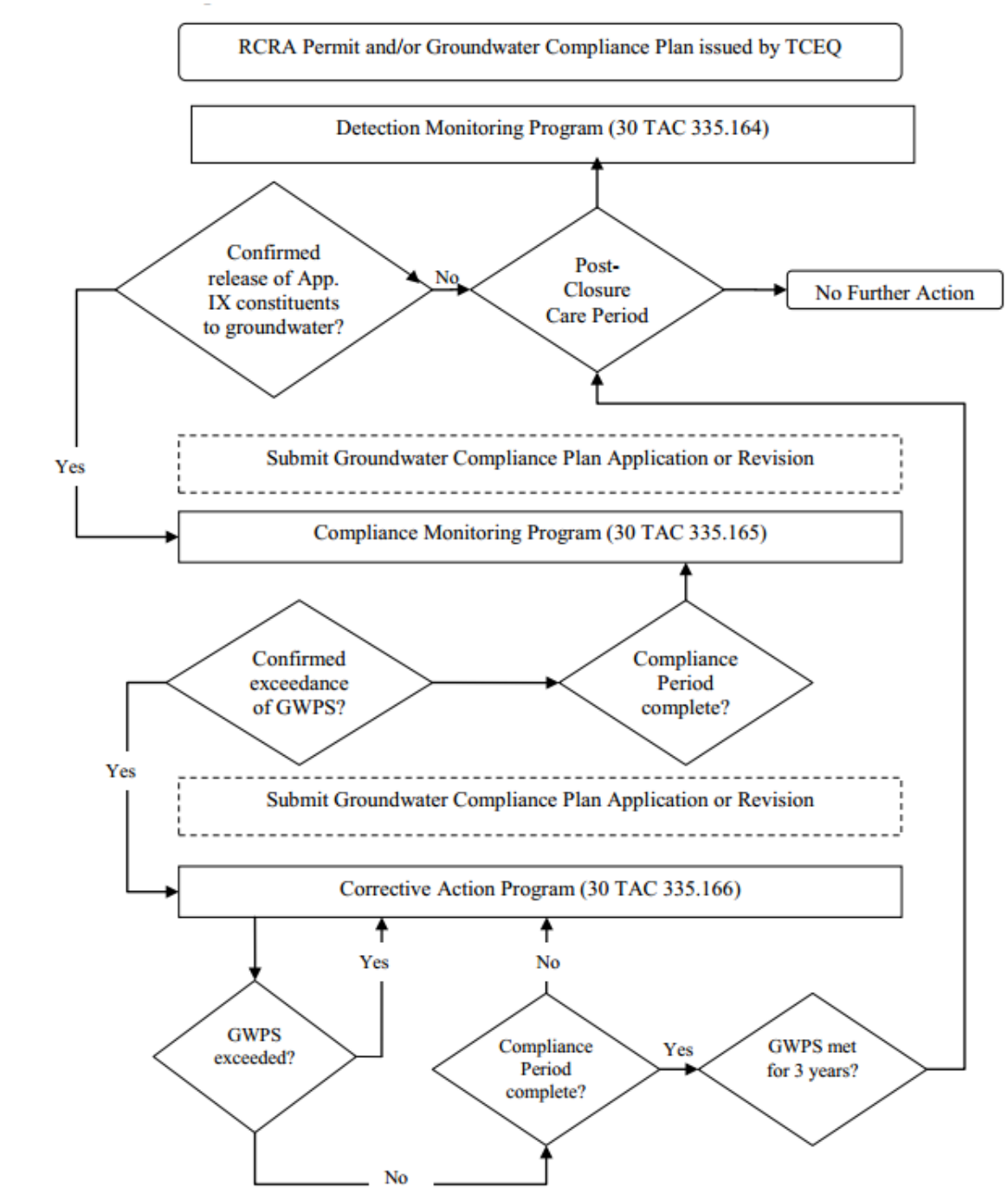
Figure 1 – Overview of Required Submittals And Revisions Associated with TCEQ Groundwater Compliance Plan Application

Type of Compliance Plan Application or Revision	Minimum Required Submittals				Additional Application Submittals Or Revisions					
				Part B, Section I	Section XI.A.	Section XI.B.	Section XI.C.	Section XI.D.	Section XI.E.	Attachment A
	Description of Modification	Public Notification Evidence	Fee Payment Evidence	General Information	Site-Specific Information	Groundwater Protection Standard	Compliance Monitoring Program	Corrective Action Program	Financial Assurance Cost Estimates	Alternate Concentration Limits
RCRA Permitted Units										
Compliance Monitoring Program, commencement or modification per 30 TAC 335.165.	●	●	●	●	●	●	●	○	●	⊙
Corrective Action Program, commencement or modification per 30 TAC 335.166.	●	●	●	●	●	●	○	●	●	⊙
Compliance Period, termination or extension per 30 TAC 335.162.	●	●	●	●	⊙	○	●	○	⊙	○
Solid Waste Management Units										
Corrective Measure Implementation (CMI), per 30 TAC 335.167.	●	●	●	●	●	●	⊙	●	●	○
Corrective Action Program termination.	●	●	●	●	⊙	○	●	○	○	○

Note:

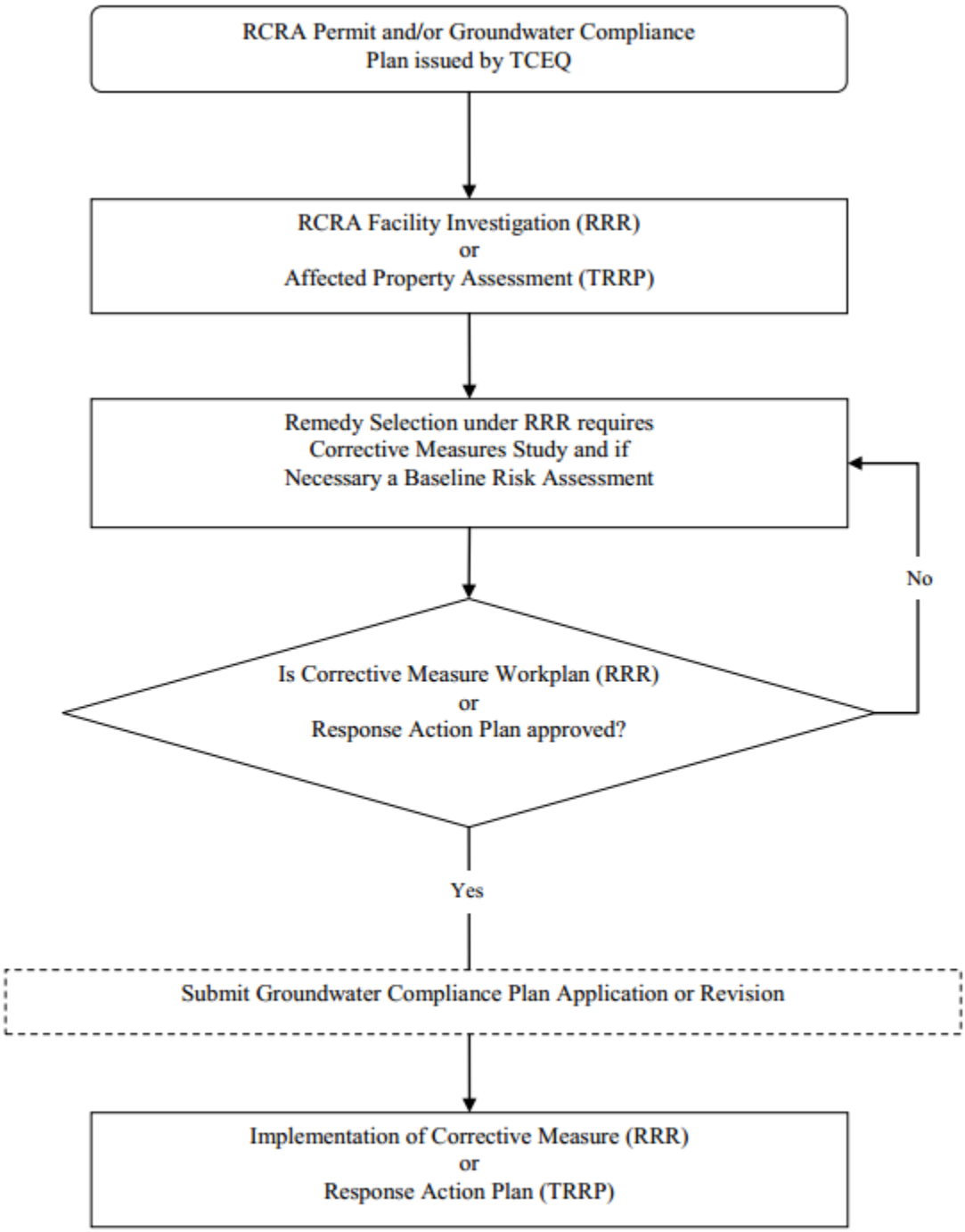
● Submittal of additional or revised information required.
○ No submittal of additional or revised information required.
⊙ Possible submittal of additional or revised information required.

Figure 2 - Summary of Groundwater Monitoring and Compliance Plan Application Requirements for Regulated Waste Management Units (30 TAC 335 Subchapter F)



Note:
- GWPS = Groundwater Protection Standard (See Section XI.B. of this document, and 30 TAC 335.158 – 160)
- App. IX = Groundwater Monitoring List, 40 CFR 264 Appendix IX.
- Compliance Period = See Section XI.E. of this application, and 30 TAC 335.162.

Figure 3 – Summary of Compliance Plan Applications Requirements for Solid Waste Management Units (SMMUS) (30 TAC 335.167)



Note:
(RRR) – Risk Reduction Rules, 30 TAC 335
(TRRP) – Texas Risk Reduction Program, 30 TAC 350

A. Site Specific Information

1. General Site Information (provide the following information):

   a. An overall plan view map of the entire facility delineating the facility's property boundary, Facility Operations Area (FOA) boundaries, as applicable, and the plume management zone (PMZ) boundaries as applicable;

      Included in Attachment U

   b. A 7.5 minute U.S.G.S. quadrangle topographic map showing the entire facility;

      Included in Attachment U

   c. All oversized (larger than 8.5" by 11") drawings submitted in accordance with a and b, above, should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper which shall be used as "CP Attachment A" maps in the final draft Permit/Compliance Plan. The applicant should title the map(s) accordingly as "CP Attachment A, Sheet 1 of xx – Facility Site Map"; "CP Attachment A, Sheet xx of xx, FOA Lateral Boundary Map"; "CP Attachment A, Sheet xx of xx, PMZ Boundary Location Map"; and

      Included in Attachment U

   d. Aerial photographs through time depicting changes in the land use, if available.

      Not available

2. Waste Management

   Provide a complete list and a plan view drawing(s) locating and identifying the following waste management units at the scale of 2.5 centimeters (1 inch) equal to not more than 61.0 meters (200 feet). All oversized (larger than 8.5" by 11") drawings should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper. Please provide information for each waste management unit listed below on Table XI.A.1. – Facility History for Waste Management Units.

   a. All hazardous waste management units regulated under the Industrial Solid Waste and Municipal Hazardous Waste Rules (Chapter 335) required to be monitored in accordance with 30 TAC 335.164 (Detection Monitoring), 335.165 (Compliance Monitoring Program) and 335.166 (Corrective Action Program);

      Included in Attachment U

   b. All solid waste management units (SWMUs) and Areas of Concern (AOCs) regulated under 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA) shall include those identified in accordance with the permit requirements subsequent to the initial RFA.

      Included in Attachment U

c. All on site wastewater treatment units.

No onsite wastewater treatment units are present

3. Facility History

Based on the information provided in Table XI.A.1., complete CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring accordingly in the format provided.

For the SWMUs or AOCs listed in Table XI.A.1. regulated under 30 TAC 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA), including those identified in accordance with permit requirements subsequent to the initial RFA, complete CP Table II – Solid Waste Management Units and Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167. CP Table II will become part of the Compliance Plan.

Updated CP Table I and CP Table II are provided below. TCEQ closure approval letters are included in Attachment V.

4. Site Geology, Hydrogeologic Conditions, and Relationship to Surface Water

For New, modified/amended Compliance Plan, please provide a Geology Report as required by Section VI.B of this application containing updated site geologic information including the following descriptions, maps and tables with appropriate supporting documentation [All maps should be at the scale of 1 inch equal to not more than 200 feet and legible when reduced to 8.5" by 11" letter size paper]:

a. A description of the site geology for the facility. The geologic description should include a site geology map and sufficient cross sections (see Item h. below) to describe the uppermost aquifer and any confining stratigraphic unit(s) beneath the site.
b. A description of the site soils and subsurface lithologies using the Unified Soil Classification System. For those soil units which do not extend beneath the entire site area, the soil description should include a plan view map designating the soil's areal extent;
c. Where a soil remedy is required in a corrective action program of Section XI.D.1. of this application for a Regulated Unit, SWMU and/or AOC, the applicant shall submit a description of contamination in soils of the vadose zone (unsaturated zone above the uppermost aquifer). The soil description should include maps indicating lateral and vertical extent of contamination;
d. A description and designation of the uppermost saturated zone or uppermost aquifer including the name, the type of unit (e.g. perched, confined, etc.,), and groundwater characteristics (flow rates, directions, hydraulic conductivity, etc.). As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formation, or part of a formation, capable of yielding significant amount of groundwater to wells or springs. Persons using Texas Risk Reduction Program (TRRP) should also consider the definition of a groundwater bearing

unit as a saturated geologic formation, group of formations, or part of a formation with a hydraulic conductivity of equal to or greater than 1 x 10 -5 centimeters/second (30 TAC 350.4(a)40).

e. Present the geologic, stratigraphic and hydrogeological information; and

f. Maps indicating the lateral and vertical extent of the contamination for each stratigraphic unit affected, with supporting documentation.

g. Current Contaminant Plume Map(s) Locating and identifying the extent of contamination as determined from previous monitoring on a separate facility base map(s). Locate and identify all monitor wells and waste management units/areas.

h. Cross section Cross section transect lines should be indicated on the Contaminant Plume Map. The applicant, at a minimum, must submit two (2) stratigraphic cross sections for each waste management unit/area. One cross section should be drawn through all the point of compliance wells and the second cross section should be drawn along the direction of the movement of the contaminant plume released from the unit/area. Cross sections should follow the requirements outlined in the Geologic and Hydrogeologic Report of Parts IV and V of this application. At a minimum, the cross sections should include the following information:

    (1) the stratigraphic interpretation (e.g., surface grade, uppermost aquifer, aquiclude);
    (2) lithology/geologic description of the uppermost aquifer and aquiclude;
    (3) the potentiometric surface;
    (4) detected non-aqueous phase liquids (NAPLs) and hazardous constituents; and
    (5) screen length and screen depth for each well in the cross section.

i. Well Construction diagram The report should include a well construction diagram for all wells used in the cross section. The well construction diagram should include the information in "Attachment B" of this (Compliance Plan) application. The well construction diagram information may be included on the geologic cross-section(s).

j. Describe the potential for any surface water bodies to be hydraulically connected to groundwater containing hazardous constituents. Apply the guidance provided in Determining PCLs for Surface Water and Sediment, RG-366/TRRP-24 Revised, December 2002, in order to determine the water body type and applicable surface water criteria for human health, aquatic life and wildlife, as applicable.

See Attachment M for the Geology and Hydrogeology Report for Regulated Units. The APARs (not included in this application) can be referenced for SWMUs and AOCs. Application Sections XI.A.4.a through XI.A.4.j are addressed by the Geology and Hydrogeology Report and Table II.2a, Table II.2b, Table II.3a, Table II.3b, Table II.4a, and Table II.4b also included in Attachment M.

B. Hazardous Constituents In Groundwater And Groundwater Protection Standards (GWPSs)

Hazardous Constituents in Groundwater

For each contaminated hydrogeologic unit beneath a waste management unit/area (40 CFR 264.95), provide a list of all 40 CFR Part 264 Appendix IX hazardous constituents that have been detected in groundwater samples above background values, Practical Quantitation Limits (PQLs), or Method Quantitation Limits (MQLs). Please submit for each unit/area the most recent Appendix IX laboratory analysis results showing the constituents, constituent concentrations, methods used for analysis and associated laboratory QA/QC.

Recent data related to hazardous constituents in groundwater are included in the updated geologic information included in Attachment M for the RCRA permitted units. The RAPs and/or RAP Addendums are included in Attachment V for the SWMU/AOC corrective action areas, which include Central Plant PMZ, SWMU Group W3 (West Plant PMZ)/West Chemical AOC, Texmark and North Plant AOC. Additionally, the Annual Corrective Action Program Report, dated February 28, 2024, with the most recent laboratory results is included in Attachment W.

The groundwater samples (collected for the purpose of determining whether constituents listed in Appendix IX are present) shall be from each waste management unit/area monitoring well system as required by 30 Texas Administrative Code (TAC) 335.164 (detection monitoring program).

If the waste management unit/area is subject to Corrective Action Program required by 30 TAC 335.166 or 335.167 and/or Compliance Monitoring required by 30 TAC 335.165, then list the unit/area and include the list of hazardous constituents and their principal degradation constituents in:

CP Table III – Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard; and

An updated CP Table III is provided below

CP Table IV – Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring.

1. Groundwater Protection Standards (GWPSs)

   The GWPS (30 TAC 335.158) is designed to ensure that hazardous constituents (30 TAC 335.159) identified in groundwater and their principal degradational constituents do not exceed concentrations that pose a present or potential hazard to human health and the environment. Compliance monitoring and corrective action programs for a Regulated Unit (30 TAC 335.165 and 335.166) and a corrective action program for a solid waste management unit (SWMU) (30 TAC 335.167) require human health and the environment to be protected from all releases of hazardous wastes and constituents. These corrective action and monitoring programs are evaluated using the GWPS. The GWPS is based on the following criteria.

   a. Background Levels Background levels authorized under 30 TAC 335.160(a)(1) are defined as constituent concentration values that are naturally occurring or are not influenced by contamination coming from the waste management unit. These values are established by statistical analysis

of upgradient well sampling data. Analytical results from a sufficient number of independent samples are required to be utilized with an approved and appropriate statistical method. For guidance on the statistical methods consult, Statistical Analysis of Groundwater Data at RCRA Facilities-Unified Guidance, U.S. EPA, March 2009, and any subsequent updates to this document.

Practical Quantitation Limits (PQLs) or Method Quantitation Limits (MQLs) are utilized in lieu of background values unless a background demonstration establishes concentrations for naturally occurring constituents. The PQL or MQL is defined in the footnote of CP Tables III and IV.

b. Primary and Secondary Maximum Contaminant Levels (MCLs) Maximum permissible level of a contaminant in water which is delivered to any user of a public water system (40 CFR Part 141 and 143, Federal Safe Drinking Water Act).

c. Alternate Concentration Limits (ACLs) determined in accordance with 30 TAC 335.160(b) and are defined in footnote of CP Tables III and IV.

ACLs were determined based on the Texas Risk Reduction Program (TRRP). The Tier 1 residential groundwater protective concentration levels (PCLS) for Class 1/Class 2 groundwater and surface water to groundwater exposure were selected.

2. Establishing the Groundwater Protection Standard (GWPS)

a. If background, PQL or MQLs are proposed for the GWPS, the applicant must list all constituents (i.e., detected and degradational constituents) for which a GWPS is being applied for and the appropriate concentration limits. This information shall be submitted in the format of CP Tables III, and IV.

b. Alternate Concentration Limits (ACLs) ACLs are established at the point of compliance (POC) for a regulated or solid waste management unit (SWMU). All concentration values or limits listed in Section XI.B.1.c. are considered ACLs. ACLs are evaluated in accordance with the provisions of 30 TAC 335.160(b) and other regulations acceptable to the executive director. If an ACL is requested on the basis of Section XI.B.1.c. (MCLs), then no ACL demonstration is necessary. The ACL demonstration must establish constituent concentrations in groundwater in accordance with regulations acceptable to the executive director. This information shall be submitted in the format of CP Tables III and IV. Note that depending upon the rule employed [i.e., 30 TAC 335 Subchapter S – Risk Reduction Rules (RRR) or 30 TAC 350 – Texas Risk Reduction Program (TRRP)], the applicant should determine the GWPS for the point of compliance and point of exposure, as applicable, in accordance with the remedy standard being utilized.

The Groundwater Protection Standards (GWPS) for the areas within or being incorporated into the Corrective Action Program are based on TRRP PCLs and/or on Alternate Concentration Limits developed under the TRRP. The ACL demonstrations for each of the areas within in the Corrective Action Program are detailed in the respective RAPs included in Attachment V to this Part B application.

Proposed modifications to the GWPS since the Class 3 Permit Modification was issued on November 18, 2019 include the following:

- **Changing the GWPS from $^{GW}GW_{ING}$ to ^{SW}GW at SEHB. SEHB is within SWMU Group C2 of the Central Plant. The groundwater to surface water evaluation was presented in the 2007 Central Plant RAP and incorporated in the Class 3 Permit Modification for the Central Plant PMZ in CP Table III and CP Table IIIA. As SEHB is within SWMU Group C2 within the Central Plant, these calculations were utilized for the COCs applicable COCs in both the Central Plant PMZ and SEHB. For COCs only within the SEHB, new groundwater to surface water calculations were completed and are included in Attachment Z.**
- **Addition of North Plant AOC based on 2024 RAP Addendum. The POE wells are based on TRRP Class 1/2 PCLs and the AMP wells are based on calculated AALs presented in the RAP Addendum, included as Attachment V.**

c. If the contaminant plume discharges or has a potential to discharge into surface water, then the facility must also comply with 30 TAC Chapter 307 (Texas Surface Water Quality Standards) unless other regulatory requirements acceptable to the executive director are requested.

d. "Attachment A" of this Compliance Plan Application provides a summary of regulatory requirements for an ACL demonstration in accordance with 30 TAC 335.160(b).

C. Compliance Monitoring Program
RESERVED

As required by 30 TAC 335.165, an owner or operator must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) under 30 TAC 335.158. The applicant must provide the following information when proposing a compliance monitoring program.

A Compliance Monitoring Program is currently not being proposed. The Regulated Units are currently in corrective action.

1. Groundwater Monitoring Program Description

   a. Describe the proposed groundwater monitoring system to be used to monitor compliance with the GWPS which includes the following information.

      (1) Changes, if applicable, from the current detection monitoring system or compliance monitoring system groundwater monitoring program at the waste management unit that will be required to comply with the compliance monitoring program described in 30 TAC 335.165. This description should address changes concerning:

         (a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit an updated Geologic and Hydrogeologic Report required by Section XI.A.4];

         (b) Waste management areas/units;

(c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
(d) The number and locations of additional monitor wells [also see Section XI.C.1.b.(2)];
(e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
(f) Frequency of monitoring;
(g) Monitoring parameters;
(h) Evaluation of compliance with GWPS (Statistical Methods);
(i) Other Sampling and Analysis Plan information to be compliant with "Attachment C";
(j) Compliance period as defined in Section XI.E.1.c. of the application;
(k) Financial assurance (see Section XI.E.); and
(l) An ACL variance under 30 TAC 335.160(b), if applicable (also see "Attachment A").

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Observation Wells, Piezometers, etc.). Complete CP Table V – Designation of Wells by Function and make changes as applicable to plans referenced in Section XI.C.1.b.

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in Table CP IV accordingly to develop the constituent list for the Compliance Monitoring Program. Also, list the PQL, MQL, or background concentration for each constituent in CP Table IV. CP Table IV shall become part of the final Compliance Plan to be analyzed at least annually as required by 30 TAC 335.165(7).

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IV., complete CP Table IVA – Compliance Monitoring Program, Table of Detected Hazardous Constituents and the Groundwater Protection Standard for Compliance Monitoring, accordingly. CP Table IVA shall become part of the final Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.165(6).

(5) Monitoring frequency.

(6) Provisions for reporting of groundwater data at least on an annual basis.

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI – Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan.

b. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and

335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Monitoring System Plan If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The Monitoring System Plan must include:

(a) Monitoring System Design and Specifications Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(b) Well Drilling and Well Casing Specifications Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report Provide a report per Section X.I.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based.

2. Waste Management Units Monitored

a. Delineate and identify the following for each waste management unit in the proposed groundwater monitoring program.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units subject to compliance monitoring should be listed in CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring which shall become part of the final Compliance Plan.

(2) The proposed point of compliance (30 TAC 335.161) and point of exposure wells.

(3) Any other proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells be designated to monitor the downgradient extent of the plume.

(4) Features which may serve as conduits for subsurface contamination.

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged

and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance and/or point of exposure wells should be indicated in CP Table V – Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for compliance monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Compliance Plan.

3. Implementation Schedule

Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application, or are not completed at the time of issuance of the final draft Permit/Compliance Plan, then the items should be added to the CP Table VIII - Compliance Schedule of the application.

D. Corrective Action Program

As required by 30 TAC 335.166, the owner or operator must take corrective action to ensure that Regulated Units are in compliance with the Groundwater Protection Standards (GWPS) under 30 TAC 335.158. As required under 30 TAC 335.167, all releases of hazardous constituents from any solid waste management unit at the facility must also be addressed. For existing corrective action programs which have been approved by the TCEQ, the applicant shall provide a copy of the TCEQ corrective action system approval letter, design system specifications and any updates as requested in Section XI.D.3.a.(1) of this section. The applicant must provide the information requested below when proposing a corrective action program which has not been previously approved by the TCEQ including a detailed description of a corrective action or a combination of corrective actions that will remedy the groundwater contamination at the waste management unit and a proposed plan for a monitoring program that will demonstrate the effectiveness of the corrective action.

The owner or operator may also apply for a Facility Operations Area (FOA) pursuant to the requirements of 30 TAC 350.131 - 350.135 of the Texas Risk Reduction Program (TRRP) rules, provided the applicant meets the FOA pre-approval process steps 1 through 3 approved by the Commission.

Also, the owner or operator may apply for alternative groundwater Corrective Action Program pursuant 30 TAC 335.151, 335.156 and 30 TAC 350, where there are commingled releases from RCRA-regulated unit from one or more SWMUs, PCO, and/or AOC.

The Corrective Action Program, last updated with the Class 3 Permit Modification issued on November 18, 2019, includes the Regulated Units and SWMUs and AOCs listed in CP Table I. Annual reports of the ongoing Corrective Action Program have been provided to the TCEQ and acknowledgment has been received for the TCEQ that the reports fulfill the requirements of CP Section VII.B.

See Attachment R, S, and T for the locations and description of the Groundwater Monitoring, Corrective Action Program, and current recovery systems for the description of the Groundwater Monitoring and Corrective Action Programs for Regulated Units (SEHB and NHB). See Attachment V (RAPs) for SWMUs and AOCs.

Detailed descriptions of each of the response actions, including the information requested in Sections D.1 through D.4 and Section D.6 below, as applicable, is included in Attachments R, S, and T for Regulated Units (SEHB and NHB) and Attachment V (RAPs) for SWMUs and AOCs. In accordance with Section D.3.c. a Sampling and Analysis is included at Attachment Y to this Part B application.

Plan view maps in accordance with Section XI.D.4.b are included in Attachment U.

Proposed modifications to the Corrective Action Program since the Class 3 Permit Modification was issued on November 18, 2019, include the following:

- **No Further Action for Old Pump House No. 5. The RACR is included in Attachment X.**
- **Incorporating North Plant PMZ AOC into the permit. The 2024 RAP Addendum is included in Attachment V.**
- **Reducing the COC list for Central Plant WMA PMZ (East, Southeast and South Migration Pathway) as presented in the 2014 Central Plant RAP Addendum is included in Attachment V.**
- **Removing one upgradient well in the Central Plant WMA PMZ that was destroyed and a slight modification of northern PMZ boundary. This is presented in the 2024 Central Plant RAP Addendum included in Attachment V.**
- **Removing AMP and CAO wells in West Plant PMZ based on last 4 years of groundwater monitoring data. This is presented in the 2024 West Plant RAP Addendum included in Attachment V.**
- **Removing one CAO well (MW-10) from the well network at NHB. This well is upgradient to the NHB and the COC has not been detected above the reporting limit in this well over the last 5 groundwater sampling events. Revised plan view map included in Attachment U.**

1. Type of Corrective Action Proposed

   From the list below, indicate the type of groundwater corrective action proposed for each hazardous waste unit/area. Discuss in detail if more than one corrective action is to be used in a waste management area. Submit the discussion and descriptions as an attachment to the application.

   a. Groundwater well recovery with surface treatment
   b. Groundwater well recovery/surface treatment/re injection
   c. **Groundwater well recovery and disposal at SEHB, NHB, TCI Group and West Plant WMA PMZ**
   d. Vapor extraction system

e. **Interceptor trench recovery and disposal Proposed for SEHB**

f. Interceptor trench recovery and surface treatment

g. In-situ treatment – bioreclamation

h. In-situ treatment – chemical reaction

i. Barrier walls/encapsulation

j. Permeable treatment beds

k. Other, please describe

2. Program Description

Attach a technical report providing a detailed description of a complete corrective action system including above and below ground equipment/facilities. Include discussions on the following concerns for each type of corrective action as applicable.

See Attachment R, S, and T for the locations and description of the Groundwater Monitoring, Corrective Action Program, and current recovery systems for the description of the Groundwater Monitoring and Corrective Action Programs for Regulated Units (SEHB and NHB). See Attachment V (RAPs) for SWMUs and AOCs.

a. Recovery Wells

(1) Indicate on a plan view of the waste management area the anticipated location of Recovery Well(s) which would optimize the extraction of the groundwater contaminants.

(2) Indicate on a plan view the estimated radius of influence of each Recovery Well.

(3) Indicate the optimum pumping rate of each Recovery Well determined from the aquifer pump test.

(4) Describe the design of the Recovery Wells and pump system including diameter, construction material, gravel packing, screen slot sizes and patterns, type of pumps and maintenance requirements.

(5) Describe the collection and storage of the contaminated groundwater which is classified hazardous waste (on site storage of hazardous waste shall require compliance with the applicable regulations):

(a) Less than 90 day tanks (see 40 CFR 262.34/40 CFR 265 Subpart J);

(b) Permitted Tanks (see 40 CFR 264 Subpart J);

(c) (Less than 90 day Container Storage Area (see 40 CFR 262.34/40 CFR 265 Subpart I);

(d) Permitted Container Storage Area (see 40 CFR 264 Subpart I); and

(e) Temporary Units (see CFR 264.553).

(6) Describe the treatment and/or final disposition of the hazardous and nonhazardous contaminated groundwater.

b. Vapor Extraction System

(1) Indicate on a plan view of the waste management area the anticipated location of the vapor extraction system which would optimize the extraction of hazardous constituents from the vadose zone.
(2) Describe the construction design of the vapor extraction system in detail, including all diagrams and drawings.
(3) Describe the emission control equipment used to comply with air quality regulations.
(4) Provide the anticipated volatile contaminants to be remediated along with information on the expected effectiveness of the vapor extraction system at the waste management unit.
(5) Provide established treatability data for the proposed design.
(6) Specify the hazardous constituents affected by this type of treatment.

c. Interceptor Trenches

(1) Indicate on a plan view of the waste management area the anticipated location of the interceptor trench.
(2) Provide the construction design.
(3) Describe the procedure for construction.
(4) Describe the liquid removal and collection system.
(5) Describe the surface storage and/or treatment of the contaminated groundwater.
(6) Describe the final disposition of the contaminated groundwater.

d. In-situ Treatment – Chemical Reaction

(1) Characterize the chemical agents to treat the contaminated groundwater and/or soils in the vadose zone.
(2) Provide laboratory treatability data.
(3) Specify the hazardous constituents affected by this type of treatment.
(4) Specify the reaction by products produced during the chemical reactions.
(5) Indicate degradation time for each treated hazardous constituent and any resulting chemical reaction by products.
(6) Describe the potential health risks caused by human exposure to the reaction by products.
(7) Describe potential damage to wildlife, crops, vegetation and physical structures caused by exposure to reaction by products.
(8) Describe the persistence and permanence of the potential effects of the reaction by products.
(9) Describe the method of chemical reactant injection and other important aspects of the system design.

e. In-situ Treatment Bioreclamation

(1) Describe the type of bacteria most appropriate for the degradation of the hazardous constituents present in the groundwater and/or soil in the vadose zone.
(2) Describe the nutrients necessary and application frequency to encourage effective bioreclamation.
(3) Provide laboratory data from treatability studies utilizing the contaminated groundwater and describe any potential hazardous by products.

(4) Indicate the degradation time for each hazardous constituent affected by this treatment.
(5) Describe the method of injecting the bacteria and nutrients and describe the delivery system design.

f. Barrier Walls
(1) Provide laboratory permeability data using the actual contaminated groundwater.
(2) Describe the barrier wall materials.
(3) Summarize construction design and installation procedures.

g. Permeable Treatment Beds
(1) Provide laboratory data of treatability simulations using actual contaminated groundwater in combination with the material proposed to be used in treatment beds.
(2) Discuss the properties of the treatment material which would make it effective for use at this site.
(3) Indicate which hazardous constituents will be affected by this treatment. Indicate the reactions which will take place and the resulting reactant by products. Discuss the anticipated lifetime of the permeable treatment beds.
(4) Provide the construction design and installation procedures.

h. Other

Discuss in detail, any other corrective action (soils and groundwater) not included above which is proposed for use at the affected waste management area(s).

3. Groundwater Monitoring and Corrective Action Program Description

a. Describe the proposed groundwater monitoring system to be used to monitor corrective action and compliance with the GWPS which includes the following information.

See Attachment R for the description of the Groundwater Monitoring and Corrective Action Programs for Regulated Units (SEHB and NHB). See Attachment V (RAPs) for SWMUs and AOCs.

(1) Changes, if applicable, from the current groundwater monitoring program at the waste management unit that will be required to comply with the corrective action monitoring program described in 30 TAC 335.166. This description should address changes concerning:
(a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit a Geologic and Hydrogeologic Report in accordance with Section XI.A.4;
(b) Waste management areas/units;
(c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
(d) The number and locations of additional monitor wells [must submit the Monitoring System Plan/Report required

by Section XI.D.3.c.(2);

(e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
(f) Frequency of monitoring;
(g) Monitoring parameters;
(h) Evaluation of compliance with GWPS (statistical methods);
(i) Other Sampling and Analysis Plan information to be incompliant with "Attachment C";
(j) Compliance period as defined in Section XI.E.1.c. of the application;
(k) Financial assurance; and
(l) An ACL variance under 30 TAC 335.160(b), if applicable (also see "Attachment A").

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Corrective Action Observation Wells, Supplemental Wells, piezometers, etc.) and all Recovery Wells and complete CP Table V – Designation of Wells by Function. Also, make revisions as applicable to plans referenced in Section XI.D.3.c.

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in CP Table III accordingly to develop the constituent list for the Corrective Action Monitoring Program. CP Table III shall become part of the final Compliance Plan.

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table III complete CP Table IIIA – Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard, accordingly. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7).

(5) Monitoring frequency.

(6) Provisions for semiannual reporting of groundwater data.

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI – Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan.

b. Proposed methods of evaluating the effectiveness of the corrective action in the saturated and vadose zone.

c. Submit the following plans and reports.

See Attachment Y for the current Sampling and Analysis Plan (SAP)

(1) Current Sampling and Analysis Plan The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Groundwater Recovery and Monitoring System Plan At a minimum, the plan must include:

(a) Recovery System Plan The applicant should propose a recovery system design that will achieve the performance requirement to protect human health and the environment. The plan should provide detailed plans, information and specifications on the recovery system's design and well installation specifications. All new recovery wells must be installed in accordance with applicable specifications outlined in "Attachment B", unless an alternative well design is approved by the agency prior to installation of the well. The Recovery System Plan must include Recovery System Design and Specifications Certified by a Texas Registered Professional Engineer. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.;

(b) Monitoring System Plan If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The Monitoring System Plan must include:

(i.) Monitoring System Design and Specifications Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(ii.) Well Drilling and Well Casing Specifications Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report - Provide a report per Section XI.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based.

4. Waste Management Units/Areas Monitored Under Corrective Action Programs

   a. Delineate and identify the following for each waste management unit/area in the proposed groundwater monitoring and corrective action programs.

      (1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units/areas subject to corrective action pursuant to 30 TAC 335.166 and 335.167 should be listed in CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring. CP Table I shall become part of the final Compliance Plan.

      (2) The proposed point of compliance (30 TAC 335.161), point of exposure wells, or alternate point of exposure wells.

      (3) Any proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells to monitor the downgradient extent of the plume.

      (4) Features which may serve as conduits for subsurface contamination.

      (5) Corrective action system.

   b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance, point of exposure wells and/or alternate point of exposure wells should be indicated in CP Table V – Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for corrective action monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Permit/Compliance Plan.

   See Attachment U for plan view maps show monitoring wells for corrective action monitoring at the permitted units (SEHB and CAMU/Former NHB), SWMUs and AOCs.

5. Waste Management Units/Areas Addressed Under Other Corrective Action Programs -Facility Operations Area (FOA), specific to the requirements of 30 TAC 350.131 - 350.135. The Permittee should also complete Sections XI.D.4. for other units not addressed by the FOA that may require corrective action outside the FOA boundary. For other units not addressed by the FOA, either within the FOA or outside the FOA which may require compliance monitoring, the Permittee should complete Section XI.C. of this application accordingly.

   NOT APPLICABLE

   a. Provide an approved version of the FOA Qualifying Criteria Checklist and

evidence that Steps 1 through 3 of the FOA pre-approval process has been approved by the Commission.

b. Provide a discussion on exceptions to the TRRP rule requested.

c. Provide a summary of the SWMUs/AOCs that will be addressed within the FOA boundary and a discussion of the multiple sources of COCs present and how FOA will better address these sources.

d. Provide maps of appropriate scale depicting the following (maps may be combined where appropriate):

    (1) The number, location and type of monitoring points in each stratigraphic unit to be monitored individual monitoring wells should be identified by respective well number on a plan view drawing, to include the background, Point of Compliance (POC), Point of Exposure (POE), FOA Boundary of Compliance wells, FOA piezometers or supplemental wells, Corrective Action Observation ((CAO), Corrective Action System (CAS) wells that are applicable for FOA monitoring program should be labeled as "CP Attachment A, sheet no xx of xx" in the title box. The title box should also include reference to the facility name, Permit/Compliance Plan Number (00000), TCEQ Solid Waste Registration Number and Unit Description or Name. The "CP Attachment A" map(s) shall become part of the final Permit/Compliance Plan.
    (2) HWMUs/SWMUs/AOCs addressed
    (3) Surrounding land use
    (4) FOA lateral boundaries
    (5) Potential source areas
    (6) Potentiometric surface of all relevant transmissive units
    (7) Surrounding water wells
    (8) Extent of known contamination in each transmissive unit
    (9) Areas of potential ecological impact
    (10) Known occurrences of NAPL or DNAPL in each transmissive units
    (11) FOA access control components

e. Provide cross-sections in accordance with Section XI.A.4. depicting the following (maps may be combined where appropriate);

    (1) The vertical boundaries of the FOA;
    (2) The vertical extent of contamination;
    (3) Groundwater level elevations for each transmissive unit.

f. Provide tabulated information for;

    (1) Results of Appendix IX GW sampling.
    (2) Proposed PCLs for each hazardous constituent and principal degradational constituent for each monitoring point with supporting documentation (including a discussion of exposure pathways) should be listed in CP Table III – CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard. CP Table III shall become part of the final Compliance Plan.
    (3) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IIIA. CP Table IIIA shall become part of the Compliance Plan to be analyzed at

least semiannually as required by 30 TAC 335.166(7).

(4) Only the background, POC, POE, FOA Boundary of Compliance wells should be listed in CP Table V which shall become part of the final Permit/Compliance Plan.

g. Provide a discussion of the types of corrective action that will be employed to address contaminated media.

h. Provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.

i. Provide a detailed description of the ground water monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.

j. Provide a Sampling and Analysis plan for the proposed FOA that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures for evaluating analytical results (Appendix C).

k. Propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.

l. Propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.

m. Provide Financial Assurance in accordance with Section XI.E.

n. Provide draft language intended to comply with the deed notification requirements of 30 TAC 350.111 and 350.135(a)(11).

o. Provide a summary of the approved workers protection plan.

p. Provide a discussion of areas of ecological impact, if any, and development of associated Protective Concentration Limits (PCLs).

q. Provide a discussion of how NAPL occurrences, if any, will be addressed inside and outside the FOA.

r. Provide a schedule of implementation for items not completed at the time of application See also Section XI.D.8.

6. Waste Management Units/Areas Monitored Under Corrective Action Programs - Plume Management Zone (PMZ)

a. Please provide a summary of the HWMUs and SWMUs/AOCs that will be addressed within the PMZ boundary.

b. Please provide a discussion of the multiple sources of COCs present and how PMZ will better address these sources.

c. Please provide maps of appropriate scale depicting the following (maps may be combined where appropriate);

(1) HWMUs/SWMUs/AOCs addressed
(2) surrounding land use
(3) PMZ lateral boundaries
(4) potential source areas
(5) Potentiometric surface of all relevant transmissive units
(6) Surrounding water wells
(7) extent of known contamination in each transmissive unit

(8) number, location and type of monitoring points in each stratigraphic unit to be monitored
(9) Areas of potential ecological impact
(10) known occurrences of LNAPL or DNAPL in each transmissive unit

d. Please provide sufficient cross-sections depicting the following (maps may be combined where appropriate);
   (1) The vertical boundaries of the PMZ;
   (2) The vertical extent of contamination;
   (3) potentiometric surfaces for each transmissive unit.

e. Please provide tabulated information for;
   (1) history of all relevant units or AOCs;
   (2) summary of hydrogeologic data for each affected transmissive unit;
   (3) results of Appendix IX GW sampling;
   (4) proposed PCLs for each constituent for each monitoring point (Point of Exposure wells, alternate point of exposure wells, etc) with supporting documentation (including a discussion of exposure pathways). This should also include the designation/establishment of sufficient number of Attenuation Monitoring Points (AMPs) beginning at an appropriate hydraulically upgradient location within the groundwater protective concentration level exceedence (PLCE) zone and continuing down the approximate central flow path of the constituent of concern (COC) in the downgradient extent of the Plume Management Zone(s) in accordance with 30 TAC 350.33(f)(4)(D).
   (5) Establish/Calculate Attenuation Action Levels (AALs) (critical PCLs) for each attenuation monitoring point in accordance with 30 TAC 350.33(f)(4)(D)(ii). The established AALs (critical PCLs) for each AMP well should be graphically presented in table format on the plan view map depicting the location of individual monitoring wells (including AMP wells) for corrective action monitoring labeled "CP Attachment A, Sheet xx of xx", referenced in XI.D.4.b.

f. Please provide a discussion of the types of corrective action that will be employed to address contaminated media.

g. Please provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.

h. Please provide a detailed description of the groundwater monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.

i. Please provide a Sampling and Analysis plan for the proposed PMZ that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures for evaluating analytical results.

j. Please propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.

k. Please propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.

l. Please provide a thorough detailed description of an estimate of all costs that will be incurred by implementing, operating, and maintaining the corrective action and monitoring systems addressed by the compliance plan.

m. Please provide draft language intended to comply with the deed notification requirements of 350.111, and schedule to verify compliance with institutional control requirements in accordance with 30 TAC 350.31(g) which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time as constituents of concern may be reduced to below the GWPS.

n. Schedule for notification requirements if an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property pursuant to 30 TAC 350.33(k).

o. Please provide a summary of the approved soil response action plan.

p. Please provide a discussion of areas of ecological impact, if any, and development of associated PCLs.

q. Please provide a discussion of how NAPL occurrences, if any, will be addressed inside the PMZ.

r. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

Refer to RAPs in Attachment V for West Plant, Central Plant, North Plant and TCI.

7. Waste Management Units/Areas Monitored Under Alternative Corrective Action Program for Co-mingled plumes Alternative groundwater Corrective Action Program apply, pursuant 30 TAC 335.151, 335.156 and 350, for commingled release from RCRA-regulated unit and from one or more SWMUs and/or AOC.

NOT APPLICABLE - RESERVED

a. Complete Sections XI.D.1. through 4.;

b. In addition to the CP Attachment A maps in Section XI.D.4.b., CP Attachment A maps should clearly depict those waste management unit or areas of the facility which have commingled plumes and the alternative corrective action applies.

c. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

8. Implementation Schedule

Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application, or are not completed at the time of issuance of the final draft Compliance Plan, then the items should be added to the CP Table VIII - (Compliance Schedule) of the application.

CP Table VIII was not updated since the Class 3 Permit Modification issued on November 18, 2019

E. Cost Estimates For Financial Assurance

As required by 30 TAC 335.156 and 335.167, the applicant must provide cost estimates for groundwater monitoring and corrective action to determine the amount of financial assurance. Please complete the applicable parts of this form. Cost estimates should be filled out for each proposed corrective action/monitoring system at the site; or any additional corrective action system not covered in this Part. Please note, the Executive Director may request from the applicant documentary evidence for cost estimates.

If an item is not applicable, please mark it NA.

General Information:

1. For each Waste Management Area (WMA) list the following:
   a. A description of the waste management unit(s) in the WMA (e.g., landfill, surface impoundment, land treatment);

      RCRA-Regulated Units

      1. **CAMU/Former North Holding Basin (NHB) (NOR004) – RCRA permitted, operating Corrective Action Management Unit (CAMU) within a closed surface impoundment**
      2. **Southeast Holding Basin (SEHB) (NOR017) – RCRA permitted, closed surface impoundment.**
      3. **The description of other SWMUs are included in Attachment Q.**

   b. The NoR unit number(s) in the WMA; and the compliance period for the WMA listed above.

      NOR004 (CAMU/NHB) and NOR017 (SEHB)

      Year(s) = ___**11**_____

   c. (The compliance period is the number of years equal to the active life of the waste management area as defined in 30 TAC 335.162).
   d. In instances where the compliance period is equal to or exceeds 30 years, the maximum amount of financial assurance required will be based on 30 years because the required post-closure care period to perform corrective action and groundwater monitoring is 30 years. In instances where the compliance period is less than 30 years, the financial assurance for corrective action or compliance monitoring will be based on the longest time frame established by one of the following criteria:
      (1) the duration of your compliance plan;
      (2) the time frame for clean-up based on model projections and historical data as approved by the Executive Director; or
      (3) the compliance period for the unit/area.
      Total Years Used To Calculate the Financial Assurance for the Corrective Action and/or Compliance Monitoring Program

Year(s) = **11**

2. Please complete Table XI.E.1. – Corrective Action Program Cost Estimate.
3. Please complete Table XI.E.2. – Groundwater Monitoring Cost Estimate.
4. Please complete Table XI.E.3. – Financial Assurance Summary.

Table XI.A.1. - Facility History for Waste Management Units

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was *Last* Placed in Unit[2]	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
1. CAMU/Former North Holding Basin	Surface Impoundment	004	1975	D001,D002,D003, D004,D005,D006, D007,D008,D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020,D021, D022, D023,D024	88,000 CY	35,000 CY	NA	Active	NA	Yes
2. Southeast Holding Basin (SEHB)	Surface Impoundment	017	1974	Same as Unit No. 1	3,110 CY	3,110 CY	1985	1985	NA	Yes

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was *Last* Placed in Unit[2]	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
3. Drum Storage Building	Drum Storage Building	001	1989	D001,D002,D003, D004,D005,D006, D007,D008,D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020,D021, D022,D023,D024, D025,D026,D028, D035,D039,U002, U003,U009,U012, U019,U031,U043, U051,U052,U055, U056,U111,U112, U120,U125,U140, U154,U159,U161, U165,U210,U220, U239,U240	NA	NA	NA	Active	NA	No
4. Tank 29	Tank	002	1974	Same as Unit No. 1	1,095,730 Gals	0	1988	1993	NA	No
5. Tank 10-12	Tank	003	Unknown	Same as Unit No. 1	420,000 Gals	0	1993	1993	NA	No

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was *Last* Placed in Unit[2]	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
6. Tank 100-5	Tank	005	1988	D001,D002,D003, D004,D005,D006, D007,D008,D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020,D021, D022,D023,D024, D025,D026,D028, D035,D039,D043, U002,U003,U009, U012,U019,U031, U043,U051,U052 U055,U056,U112, U120,U125,U140, U154,U159,U161, U165,U177,U188, U191,U210,U220, U226,U227,U239, U240	4,200,000 Gals	0	1998	1998	NA	No
7. Tank 100-6	Tank	006	1988	Same as Unit No. 6	4,200,00 Gals	0	1998	1998	NA	No
8. Tank 50	Tank	007	1980	Same as Unit No.1	30,080 Gals	0	1988	1989	NA	No

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was *Last* Placed in Unit[2]	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
9. Tank 51	Tank	006	1980	Same as Unit No.1	26,560 Gals	0	1988	1989	NA	No
10. Tank 116	Tank	009	1980	Same as Unit No.1	15,227 Gals	0	1988	1989	NA	No
11. Tank 117	Tank	010	1980	Same as Unit No.1	15,250 Gals	0	1988	1989	NA	No
12. Tank 25-1	Tank	011	1980	Same as Unit No.1	1,076,982 Gals	0	1989	1989	NA	No
13. Tank 32	Tank	012	1989	Same as Unit No.6	1,050,000 Gals	NA	NA	(Active)	NA	No
14. Tank 3-9	Tank	013	1989	Same as Unit No. 6	126,000 Gals	NA	NA	(Active)	NA	No
15. Aboveground Oil/Water Separator	Tank	014	Unknown	D001,D002,D003, D004,D005,D006, D007,D008,D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020,D021, D022,D023,D024, U037,U220,U228	Unknown	Unknown	1994	Unknown	NA	No
16. Belowground Oil/Water Separator	Tank	015	1980	Same as Unit No.1	Unknown	Unknown	0	1988	1989	No

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was *Last* Placed in Unit[2]	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
17. Tract A	Landfill	016	1950's	Unknown	6,350 cy	6,350 cy	1970's	1991	NA	Yes
18. Tank 5-20	Tank	018	Unknown	Same as Unit No.6	210,000 Gals	NA	NA	(Active)	NA	No
19. DAF Tank	Tank	019	1975	D001,D002,D003, D004,D005,D006, D007,D008,D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020,D021, D022,D023,D024,	25,000 Gals	0	1988	1993	NA	No
20. Equalization Basin	Tank	020	1975	Same as Unit No.19	25,000 Gals	0	1988	1993	NA	No
21. SEHB	Sump	None	1974	Same as Unit No.1	NA	0	1985	1985	NA	Yes
22. Storm water Drainage System	NA	None	1974	Unknown	NA	0	1985	1985	NA	Yes
23. Lift Station	Sump	None	1974	Same as Unit No. 1	NA	0	1985	1985	NA	Yes
24. Tank 26	Tank	None	NA	NA	1,050,000 Gals	0	NA	Prior to 1990	NA	Yes

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was *Last* Placed in Unit[2]	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
25. Tank 82	Tank	None	NA	NA	1,050,000 Gals	0	NA	Prior to 1990	NA	Yes
26. Impoundment No.1	Surface Impoundment	None	Prior to 1920	NA	NA	NA	NA	NA	NA	Yes
27. East Plant Tank Car Rack	Unknown	None	NA	NA	NA	NA	NA	NA	2002	No
28. Texaco Landfill No.3	Landfill	None	NA	NA	NA	NA	NA	1980	2000	No
29. Impoundment No.3	Surface Impoundment	None	Prior to 1920	NA	NA	NA	NA	1981	2000	No
30. East Plant Waste Management Area	Unknown	None	NA	NA	NA	NA	NA	2013	NA	Yes

1 Indicate by asterisk (*) those waste management units that have received any hazardous waste constituent listed in Appendix VIII of 40 CFR Part 261.
2 For the purposes of this Compliance Plan Application, a waste management unit receiving hazardous waste after July 26, 1982 shall be considered a Regulated Unit. A waste management unit that ceased receiving hazardous waste on or before that date shall be considered a Solid Waste Management Unit (SWMU).
3 Date the applicant submitted certification of closure to the Commission.
4 Hazardous constituents are those hazardous constituents listed in Appendix IX of 40 CFR Part 264.

Table XI.E.1. Corrective Action Program Cost Estimate

1. Pumping Capacity Per Year:			
Daily average system pumping rate	63,000	•	gal/day
Annual groundwater volume recovered	23MM	•	gal/yr
2. Off-Site Liquid Treatment / Disposal Cost:		•	
A. Volume of treated contaminated water to be disposed of off-site yearly	23MM	•	gal/yr
Transportation of liquid waste disposed of off-site yearly		•	
(1) Transportation cost per gallon	NA	•	$/gal
(2) Gallons of contaminated water shipped per year	NA	•	gal/yr
(3) Annual cost of transportation (1 x 2)	NA	•	$/yr
On-site yearly storage cost prior to off-site disposal	NA	•	$/yr
Off-site yearly treatment cost of liquid waste		•	
(1) Treatment charge per gallon	NA	•	$/gal
(2) Total volume to be treated per year	NA	•	gal/yr
(3) Annual treatment cost (1 x 2)	NA	•	$/yr
Off-site disposal cost of liquid waste per year		•	
(1) Disposal charge per gallon	0.02	•	$/gal
(2) Total volume to be disposed per year	23MM	•	gal/yr
(3) Annual disposal cost (1 x 2)	460,000	•	$/yr
***Annual Off-Site Liquid Treatment / Disposal Cost (2B3 + 2C +2D3 + 2E3)**	460,000	**$**	
3. On-site Waste Water Treatment System Cost and On-site Treatment / Disposal Cost:			
Submit a cost estimate for a treatment system specifically designed and used exclusively for the groundwater corrective action program and operational after some start up maintenance. Estimates to clean out the system should also be included in the following cost.			
A. Initial capital expenditure for treatment system including start up maintenance	0	$	
***On-Site Waste Water Treatment System Capital Cost (3A)**	0	**$**	

B. Gallons of contaminated water to be treated on-site per year	0	•	gal/yr
C. Cost of on-site treatment per gallon	NA	•	$/gal
D. Cost of sludge, or solids disposal per year	12,500	•	$/yr
E. Cost per year of maintenance on treatment system and recovery system, along with any additional equipment and repairs needed for the systems	15,000	•	$/yr
F. Cost of on-site disposal per year	NA	•	$/yr
***Annual On-Site Treatment / Disposal Cost [(3B x 3C) + 3D + 3E + 3F]**	27,500	**$**	
4. Inspections, Maintenance and Operation Cost for the Corrective Action Program:		•	
A. Operator's time on-site for inspections and maintenance per year	1,410	•	hour/yr
B. Charge of salary per hour	80	•	$/hr
C. Annual cost of labor (4A x 4B)	112,800	•	$/yr
D. Replacement of parts and equipment per year	15,000	•	$/yr
E. Electricity cost per year	0	•	$/yr
***Annual Inspections / Maintenance / Operation Cost for the Corrective Action Program (4C + 4D + 4E)**	127,800	**$**	

Table XI.E.2 Groundwater Monitoring Cost Estimate

	Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)		**West Plant WMA PMZ (SWMU Group W3/ West Chemical AOC)**		**Texmark Chemical Inc. (TCI) Group**		**North Plant PMZ AOC**		**CAMU/North Holding Basin**		**Southeast Holding Basin**	
1. Annual Sampling and Analysis Cost:												
A. Background Wells												
(1) Number of wells	0		0		0		2		2		0	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year		/yr		/yr		/yr	2	/yr	2	/yr		/yr
(4) Sampling cost (1 x 2 x 3)	0	$	0	$	0	$	760	$	340	$	0	$
B. Point of Compliance Wells												
(1) Number of wells	0		0		4		0		4		3	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year		/yr		/yr	1	/yr		/yr	2	/yr	2	/yr
(4) Sampling cost (1 x 2 x 3)	0	$	0	$	540	$	0	$	680	$	2,100	$
C. Recovery Wells												
(1) Number of wells	0		0		0		0		0		9	

	Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)		**West Plant WMA PMZ (SWMU Group W3/ West Chemical AOC)**		**Texmark Chemical Inc. (TCI) Group**		**North Plant PMZ AOC**		**CAMU/North Holding Basin**		**Southeast Holding Basin**	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year		/yr		/yr		/yr		/yr		/yr	2	/yr
(4) Sampling cost (1 x 2 x 3)	0	$	0	$	0	$	0	$	0	$	6,300	$
D. Corrective Action Observation Wells												
(1) Number of wells	5		2		4		2		8		20	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year	2	/yr	2	/yr	1	/yr	2	/yr	2	/yr	2	/yr
(4) Sampling cost (1 x 2 x 3)	3,500	$	900	$	540	$	760	$	1,360	$	14,000	$
E. Point of Exposure Wells												
(1) Number of wells	7		5		0		3		0		3	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year	2	/yr	2	/yr		/yr	2	/yr		/yr	2	/yr
(4) Sampling cost (1 x 2 x 3)	4,900	$	2,250	$	0	$	1,140	$	0	$	2,100	$

	Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)		**West Plant WMA PMZ (SWMU Group W3/ West Chemical AOC)**		**Texmark Chemical Inc. (TCI) Group**		**North Plant PMZ AOC**		**CAMU/North Holding Basin**		**Southeast Holding Basin**	
F. Supplemental Wells												
(1) Number of wells	3		5		0		3		0		1	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year	2	/yr	2	/yr		/yr	2	/yr		/yr	2	/yr
(4) Sampling cost (1 x 2 x 3)	2,100	$	2,250	$	0	$	1,140	$	0	$	700	$
G. Field Quality Control Sampling												
(1) Number of wells	4		4		4		4		4		4	
(2) Sample analysis cost per well	350	$/well	225	$/well	135	$/well	190	$/well	85	$/well	350	$/well
(3) Number of sampling events per year	2	/yr	2	/yr	1	/yr	2	/yr	2	/yr	2	/yr
(4) Sampling cost (1 x 2 x 3)	2,800	$	1,800	$	540	$	1,520	$	680	$	2,800	$
2. Sampling Labor Cost:												
A. Hours of sampling per well	1.5	hrs/ well	1.5	hrs/ well	1.5	hrs/ well	1.5	hrs/ well	1.5	hrs/ well	1.5	hrs/ well
B. Number of sampling technicians	2		2		2		2		2		2	

	Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)		**West Plant WMA PMZ (SWMU Group W3/ West Chemical AOC)**		**Texmark Chemical Inc. (TCI) Group**		**North Plant PMZ AOC**		**CAMU/North Holding Basin**		**Southeast Holding Basin**	
per well												
C. Charge per hour	75	$/hr	75	$/hr	75	$/hr	75	$/hr	75	$/hr	75	$/hr
D. Total number of wells to be sampled annually		Wells		Wells	8	Wells		Wells		Wells		Wells
E. Total number of wells sampled semi-annually	15	Wells	12	Wells		Wells	10	Wells	14	Wells	36	Wells
F. Total number of wells sampled quarterly		Wells		Wells		Wells		Wells		Wells		Wells
G. Total number of wells sampled monthly		Wells		Wells		Wells		Wells		Wells		Wells
H. Total number of wells sampled per year (2D)+(2E x 2)+(2Fx4)+(2Gx12)	30	total wells sampled / year	24	total wells sampled / year	8	total wells sampled / year	20	total wells sampled / year	28	total wells sampled / year	72	total wells sampled / year
I. Sampling Labor Cost (2A x 2B x 2C x 2H)	6,750		5,400		1,800		4,500		6,300		16,200	
*** Annual Groundwater Monitoring Cost**	**20,040**	**$**	**12,600**	**$**	**3,420**	**$**	**9,820**	**$**	**9,360**	**$**	**44,000**	**$**
3. Well Installation (typical cost):												
A. Monitor well installation cost per well	0	$/well	0	$/well	0	$/well	0	$/well	0	$/well	0	$/well
B. Number of monitor wells to be	0	Wells	0	Wells	0	Wells	0	Wells	0	Wells	0	Wells

	Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)		**West Plant WMA PMZ (SWMU Group W3/ West Chemical AOC)**		**Texmark Chemical Inc. (TCI) Group**		**North Plant PMZ AOC**		**CAMU/North Holding Basin**		**Southeast Holding Basin**	
installed												
C. Cost of monitor well system (A x B)	0	$	0	$	0	$	0	$	0	$	0	$
D. Recovery well installation cost per well	0	$/well	0	$/well	0	$/well	0	$/well	0	$/well	0	$/well
E. Number of Recovery Wells to be installed	0	Wells	0	Wells	0	Wells	0	Wells	0	Wells	0	Wells
F. Cost of Recovery well system (D x E)	0	$	0	0	0	$	0	$	0	$	0	$
***Total Well Installation Cost (3C + 3F)**	**0**	$	**0**	$	**0**	$	**0**	$	**0**	$	**0**	$
4. Administrative Cost:												
A. Annual cost for record-keeping and report preparation	5,500	$	5,500	$	5,500	$	5,500	$	9,000	$	9,000	$
* **Annual Administrative Cost (4A)**	**5,500**	**$**	**5,500**	**$**	**5,500**	**$**	**5,500**	**$**	**9,000**	**$**	**9,000**	$
5. Inspection and Maintenance Cost for the Monitoring Program:												
A. Operator's time (hours) on-site for inspections and maintenance per year	0	hour/yr	0	hour/yr	0	hour/yr	0	hour/yr	0	hour/yr	0	hour/yr
B. Charge or salary per hour	0	$/hr	0	$/hr	0	$/hr	0	$/hr	0	$/hr	0	$/hr

	Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)		**West Plant WMA PMZ (SWMU Group W3/ West Chemical AOC)**		**Texmark Chemical Inc. (TCI) Group**		**North Plant PMZ AOC**		**CAMU/North Holding Basin**		**Southeast Holding Basin**	
C. Charge per hour	0	$/yr	0	$/yr	0	$/yr	0	$/yr	0	$/yr	0	$/yr
D. Replacement of parts and equipment per year	0	$/yr	0	$/yr	0	$/yr	0	$/yr	0	$/yr	0	$/yr
*** Annual Inspections / Maintenance Cost for the Groundwater Monitoring Program (5C + 5D)**	**0**	**$**	**0**	**$**	**0**	**$**	**0**	**$**	**0**	**$**	**0**	**$**

Table XI.E.3. – Financial Assurance Summary

Annual Off-Site Liquid Treatment / Disposal Cost	$	460,000
Annual On-Site Treatment / Disposal Cost	$	27,500
Annual Inspection / Maintenance / Operation Cost For The Corrective Action Program	$	127,800
Annual Groundwater Monitoring Cost	$	99,450
Annual Administrative Cost	$	40,000
Annual Inspection And Maintenance Cost For The Groundwater Monitoring Program (**Included in Annual Inspection/Maintenance for Corrective Action Program**)	$	0
Annual Sub Total	**$**	**754,750**
Total Years Used For Calculating Financial Assurance		11 Yrs
Remediation Cost (Annual Sub Total x Total Years Used)	$	8,302,250
On-Site Waste Water Treatment System Capital Cost	$	0
Total Well Cost	$	0
10% Contingency	$	830,225
Grand Total Cost (nearest $1000)	**$**	**9,132,475**

CP Table I: Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring

A. Corrective Action[1] (30 TAC §335.166)

Unit Type[5]	Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[5]
Surface Impoundment	1.CAMU/North Holding Basin	004	Ongoing Monitoring
Subsurface Impoundment	2.Southeast Holding Basin	017	Ongoing Monitoring

B. Compliance Monitoring[1] (30 TAC §335.165)

Unit Type[5]	Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[5]
Reserved			

C. Corrective Action[2] (30 TAC §335.167)

Unit Type[5]	Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[5]
SWMU	1. Texmark Chemical Inc. (TCI) Group	N/A	Ongoing Monitoring
SWMU	2. Central Plant WMA PMZ (West Migration Pathway/East, Southeast and South Migration Pathway)	N/A	Ongoing Monitoring
SWMU	3. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)	N/A	Ongoing Monitoring
AOC	4. North Plant	N/A	Ongoing Monitoring

	PMZ AOC		

D. Alternative Corrective Actions[3] (30 TAC §335.151)

Unit Type[5]	Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[5]
Reserved			

E. Facility Operations Area (FOA)[4] (30 TAC §335.156 and Chapter 350)

Unit Type[5]	Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[5]
Reserved			

[Note: Enter "Reserved" if a specific program (referenced in CP Table I.A., I.B., I.C., I.D., and/or I.E.) is not applicable. More than one program may apply to a facility. Also, include a CD disk with the application that provides an electronic copy of the applicable files supporting CP TABLES I-VI in MS Word format.]

Foot Notes:

1 Program applies to RCRA-regulated units only.

2 Program applies to releases from solid waste management units (SWMUs) and/or areas of concern (AOCs).

3 Program applies to commingled releases from RCRA-regulated unit and from one or more SWMUs and/or AOCs.

4 List SWMUs, additional units/areas of Investigation, AOCs, RCRA-regulated units within the FOA that are subject to corrective action. For RCRA units, SWMUs and/ or AOC outside the FOA boundary for which compliance monitoring and/ or corrective action applies should be listed separately in Items A, B or C as appropriate.

5 Specify the date of Commissions No Further Action approval letter for program requirement and remedy standard completed for all media of concern. [Note: for the purpose of maintaining a historical record, the permittee shall update CP Table I to reflect the new status of the unit / area to include the remedy standard achieved for all media of concern and the date of the Commissions No Further Action approval letter. The units/area shall not be deleted from this table even though the program objectives have been completed and no further action has been approved. Put "N/A" in this column if not applicable.]

CP Table II: Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167

Unit Number[1]	Unit Name	Notice of Registration (NOR) Number, if applicable	SWMU or AOC	Media Affected[2]	Date Program Requirement and Remedy Standard Completed[3]
1.	<u>Central Plant WMA PMZ:</u> SWMU Group C1: Belowground OWS Tank 117 Tank 50 Tank 51 Tank 116 Tank 29 SWMU Group C2: Southeast Holding Basin SEHB Sump Tank 26 Tank 82 Lift Station #4 T/TR Storm Water Drainage SWMU Group C3: Tank 3-9 Tank 32 Aboveground OWS SWMU Group C4: Drum Storage Area Impoundment #1 Tank 25-1	 015 010 007 008 009 002 017 None None None None None 013 012 014 001 None 011	SWMU	Soil and GW	Ongoing remedy for affected soil and groundwater
2.	<u>East Plant Waste Management Area:</u> Texaco Landfill #3 Impoundment #3	 None None	SWMU	Soil and GW (except Texaco Landfill #3)	Texaco Landfill #3 - Approved No Release 12/8/00 Impoundment #3 – Approved NFA 4/11/2013

	East Plant Tank Car Rack EPWMA Benzene Release	None None			East Plant Tank Car Rack – Approved NFA 1/5/2005 EPWMA Benzene Release – Approved NFA 4/11/2013
3.	<u>North Plant Waste Management Area:</u> Tract A Tract B Tract C	 016 None None	SWMU		Ongoing remedy for affected soil and groundwater Approved NFA 4/1/2005 Approved NFA 1/5/2005
4.	<u>West Plant Waste Management Area (WMA):</u> SWMU Group W1: CAMU/North Holding Pond/ DAF Tank EQ Basin SWMU Group W2: Tank 100-5 Tank 100-6 SWMU Group W3: WPWMA GW Plume Tank 10-12 Others: Tank 5-20	 004 019 020 005 006 None 003 018	SWMU	Soil and GW	Ongoing remedy for affected soil and groundwater Approved NFA 5/11/2004
5.	<u>Texmark Chemical Inc. (TCI) Group:</u> Impoundment #2 Tank 28	 None None	SWMU	Soil and GW	Ongoing remedy for affected soil and groundwater
6.	Additional RFI Unit Texaco Landfill #4 North Spoils Area	 None None	SWMU	Soil	Approved No Release 6/14/1999 Approved No Release 6/14/1999
7.	West Chemical AOC	None	AOC	Soil and GW	Ongoing remedy for affected soil and groundwater

8.	Old Pump House No. 5 AOC	None	AOC	Soil and GW	Remedy Standard B. Response Action Completion Report (RACR) that requested removal of the unit from the permit approved on January 30, 2025
9.	Gate 6 AOC	None	AOC	Soil and GW	Approved NFA 12/16/2022
10.	North Plant PMZ AOC	None	AOC	Soil and GW	Ongoing remedy for affected soil and groundwater

Foot Notes:
SWMU ' Solid Waste Management Unit
AOC ' Area of Concern
1 For sites with FOA Authorization, list SWMUs and/or AOCs that were not included in the FOA, and are subject to corrective action.
2 Specify affected media groundwater, soils, etc.
3 Specify the date of Commissions No Further Action approval letter for program requirement and remedy standard completed for all media of concern.

CP Table III: Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
1. CAMU/North Holding Basin (Zones III and IV)	1,2 Dichloroethane	0.005 $^{GW}GW_{Ing}$	NA
	Barium	2.000 $^{GW}GW_{Ing}$	NA
	Lead	0.015 $^{GW}GW_{Ing}$	NA
	Mercury	0.002 $^{GW}GW_{Ing}$	NA
2. Southeast Holding Basin (Sandy Channel Fill and Uppermost Natural Transmissive Unit)	1,1 Dichloroethene	0.007 $^{GW}GW_{Ing}$	0.007 $^{GW}GW_{Ing}$
	1,2,3 Trichloropropane	0.00003 $^{GW}GW_{Ing}$	0.00003 $^{GW}GW_{Ing}$
	1,2 Dichloroethane	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	1,2 Dichloropropane	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	2,4,6 Trichlorophenol	0.024 $^{GW}GW_{Ing}$	0.024 $^{GW}GW_{Ing}$
	2,4-D (Dichlorophenoxyacetic Acid)	0.070 $^{GW}GW_{Ing}$	0.070 $^{GW}GW_{Ing}$
	2,4 Dichlorophenol	0.073 $^{GW}GW_{Ing}$	0.073 $^{GW}GW_{Ing}$
	2,4 Dimethylphenol	0.490 $^{GW}GW_{Ing}$	0.490 $^{GW}GW_{Ing}$
	2 – Hexane	1.500 $^{GW}GW_{Ing}$	1.500 $^{GW}GW_{Ing}$
	2 – Methylnapthalene	0.098 $^{GW}GW_{Ing}$	0.098 $^{GW}GW_{Ing}$
	2 – Methylphenol (o-Cresol)	1.200 $^{GW}GW_{Ing}$	1.200 $^{GW}GW_{Ing}$
	4 – Bromophenyl Phenyl Ether	0.000061 $^{GW}GW_{Ing}$	0.000061 $^{GW}GW_{Ing}$
	4 – MethylPhenol (p-Cresol)	0.120 $^{GW}GW_{Ing}$	0.120 $^{GW}GW_{Ing}$
	Acenaphthene	1.500 $^{GW}GW_{Ing}$	1.500 $^{GW}GW_{Ing}$
	Acenaphthylene	1.500 $^{GW}GW_{Ing}$	1.500 $^{GW}GW_{Ing}$
	Acetone	22.0 $^{GW}GW_{Ing}$	22.0 $^{GW}GW_{Ing}$
	Aniline (Phenylamine, Aminobenzene)	0.160 $^{GW}GW_{Ing}$	0.160 $^{GW}GW_{Ing}$
	Anthracene	7.300 $^{GW}GW_{Ing}$	7.300 $^{GW}GW_{Ing}$
	Benzene	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	Benzo (a) Antracene	0.0013 $^{GW}GW_{Ing}$	0.0013 $^{GW}GW_{Ing}$
	Benzo (a) Pyrene	0.0002 $^{GW}GW_{Ing}$	0.0002 $^{GW}GW_{Ing}$
	Benzo (b) Fluoranthene	0.0013 $^{GW}GW_{Ing}$	0.0013 $^{GW}GW_{Ing}$
	Benzo (g,h,i) Perylene	0.730 $^{GW}GW_{Ing}$	0.730 $^{GW}GW_{Ing}$

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Benzo (k) Fluoranthene	0.013 $^{GW}GW_{Ing}$	0.013 $^{GW}GW_{Ing}$
	Benzyl Alcohol	2.400 $^{GW}GW_{Ing}$	2.400 $^{GW}GW_{Ing}$
	Benzyl Butyl Phthalate	0.480 $^{GW}GW_{Ing}$	0.480 $^{GW}GW_{Ing}$
	bis (2-Chloroethyl) Ether	0.00083 $^{GW}GW_{Ing}$	0.00083 $^{GW}GW_{Ing}$
	bis (2-ethylhexyl) phthalate	0.006 $^{GW}GW_{Ing}$	0.006 $^{GW}GW_{Ing}$
	Carbon Disulfide	2.400 $^{GW}GW_{Ing}$	2.400 $^{GW}GW_{Ing}$
	Chlorobenzene	0.100 $^{GW}GW_{Ing}$	0.100 $^{GW}GW_{Ing}$
	Chloroform	0.240 $^{GW}GW_{Ing}$	0.240 $^{GW}GW_{Ing}$
	Chrysene	0.130 $^{GW}GW_{Ing}$	0.130 $^{GW}GW_{Ing}$
	Dibenz (a,h) Anthracene	0.0002 $^{GW}GW_{Ing}$	0.0002 $^{GW}GW_{Ing}$
	Dibenzofuran	0.098 $^{GW}GW_{Ing}$	0.098 $^{GW}GW_{Ing}$
	Di-n-Butyl Phthalate	2.400 $^{GW}GW_{Ing}$	2.400 $^{GW}GW_{Ing}$
	Di-n-Octyl Phthalate	0.980 $^{GW}GW_{Ing}$	0.980 $^{GW}GW_{Ing}$
	Ethylbenzene	0.700 $^{GW}GW_{Ing}$	0.700 $^{GW}GW_{Ing}$
	Fluoranthene	0.980 $^{GW}GW_{Ing}$	0.980 $^{GW}GW_{Ing}$
	Fluorene	0.980 $^{GW}GW_{Ing}$	0.980 $^{GW}GW_{Ing}$
	Indeno (1,2,3 – c,d) Pyrene	0.0013 $^{GW}GW_{Ing}$	0.0013 $^{GW}GW_{Ing}$
	Lead	0.015 $^{GW}GW_{Ing}$	0.015 $^{GW}GW_{Ing}$
	Methyl Ethyl Ketone (2-butanone)	15.00 $^{GW}GW_{Ing}$	15.00 $^{GW}GW_{Ing}$
	Methyl Iso-Butyl Ketone	2.00 $^{GW}GW_{Ing}$	2.00 $^{GW}GW_{Ing}$
	Methylene Chloride	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	Naphthalene	0.490 $^{GW}GW_{Ing}$	0.490 $^{GW}GW_{Ing}$
	Phenanthrene	0.730 ^{SW}GWIng	0.730 ^{SW}GWIng
	Phenol	7.30 ^{GW}GWIng	7.30 ^{GW}GWIng
	Pyrene	0.730 ^{GW}GWIng	0.730 ^{GW}GWIng
	Pyridine	0.024 ^{GW}GWIng	0.024 ^{GW}GWIng
	Styrene	0.10 ^{GW}GWIng	0.10 ^{GW}GWIng
	Tetrachloroethylene (PCE)	0.005 ^{GW}GWIng	0.005 ^{GW}GWIng
	Toluene	1.00 ^{GW}GWIng	1.00 ^{GW}GWIng
	Trans -1,2 –Dichloroethylene	0.100 ^{GW}GWIng	0.100 ^{GW}GWIng
	Trichloroethylene	0.005 ^{GW}GWIng	0.005 ^{GW}GWIng
	Vinyl Acetate	24.00 ^{GW}GWIng	24.00 ^{GW}GWIng
	Vinyl Chloride	0.002 ^{GW}GWIng	0.002 ^{GW}GWIng

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Xylenes (total)	10.00 $^{GW}GW_{Ing}$	10.00 $^{GW}GW_{Ing}$
3. Texmark Chemical Inc. (TCI) Group	Arsenic	0.010 $^{GW}GW_{Ing}$	NA
	Benzene	0.005 $^{GW}GW_{Ing}$	NA
	Ethylbenzene	1.00 $^{GW}GW_{Ing}$	NA
	Styrene	0.10 $^{GW}GW_{Ing}$	NA
	Toluene	0.10 $^{GW}GW_{Ing}$	NA
	Xylenes (total)	10.00 $^{GW}GW_{Ing}$	NA
4a. Central Plant WMA PMZ (East, Southeast, and South Migration Pathway)	Acenaphthene	3,380 ^{SW}GW	3,380 ^{SW}GW
	Benzene	5,920 ^{SW}GW	5,920 ^{SW}GW
	Dibenzofuran	5,440 ^{SW}GW	5,440 ^{SW}GW
	cis-1,2-Dichloroethene	56,900 ^{SW}GW	56,900 ^{SW}GW
	Fluoranthene	248 ^{SW}GW	248 ^{SW}GW
	Fluorene	4,1380 ^{SW}GW	4,180 ^{SW}GW
	Naphthalene	10,500 ^{SW}GW	10,500 ^{SW}GW
	Phenanthrene	385 ^{SW}GW	385 ^{SW}GW
	Pyrene	20.1 ^{SW}GW	20.1 ^{SW}GW
	Tetrachloroethylene (PCE)	18,000 ^{SW}GW	18,000 ^{SW}GW
	Trichloroethylene	34,100 ^{SW}GW	34,100 ^{SW}GW
	Trans -1,2 –Dichloroethylene	93,700 ^{SW}GW	93,700 ^{SW}GW
	1,2,3-Trichloropropane	125 ^{SW}GW	125 ^{SW}GW
	Vinyl Chloride	435 $^{Air}GW_{Inh\text{-}V}$	434 $^{Air}GW_{Inh\text{-}V}$
4b. Central Plant WMA PMZ (West Migration Pathway)	Benzene	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
5. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)	Benzene	1,470 ^{SW}GW	1,470 ^{SW}GW
	bis (2-Chloroethyl) Ether	110 ^{SW}GW	110 ^{SW}GW
	Chlorobenzene	2,190 ^{SW}GW	2,190 ^{SW}GW
	cis-1,2-Dichloroethene	14,200 ^{SW}GW	14,200 ^{SW}GW
	1,2-Dichloroethane	1,030 ^{SW}GW	1,030 ^{SW}GW
	Ethylbenzene	5,180 ^{SW}GW	5,180 ^{SW}GW
	Tetrachloroethylene (PCE)	4,470 ^{SW}GW	4,470 ^{SW}GW
	Trichloroethylene	8,490 ^{SW}GW	8,490 ^{SW}GW

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Trans -1,2 –Dichloroethylene	93,700 ^{SW}GW	93,700 ^{SW}GW
	Vinyl Chloride	435 $^{Air}GW_{Inh-V}$	435 $^{Air}GW_{Inh-V}$
	Xylenes (total)	17,700 ^{SW}GW	17,700 ^{SW}GW
6. North Plant PMZ AOC	MTBE	0.24 $^{GW}GW_{Ing}$	0.24 $^{GW}GW_{Ing}$

Note: WMA=Waste Management Unit, PMZ=Plume Management Zone

Foot Note:

GWGWIng ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.. In accordance with §350.72(b), GWGWIng, PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 non-carcinogenic chemicals of concern within a source medium.

AirGWInh-V ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 Groundwater inhalation PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

SWGW ACL pursuant to 30 TAC §335.160(b) based upon the Protective PCL determined under RSA or RSB for Groundwater- to-surface water PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

AAL ACL derived pursuant to 30 TAC §335.160(b) based upon the Protective Concentration level (PCL) established as an Attenuation Action Level as defined in 30 TAC §350(a)(4).

CP Table IIIA: Corrective Action Program Table of Indicator Parameters and Groundwater Protection Standard

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
1. CAMU/North Holding Basin (Zones III and IV)	1,2 Dichloroethane	0.005 $^{GW}GW_{Ing}$	NA
2. Southeast Holding Basin (Sandy Channel Fill and Uppermost Natural Transmissive Unit)	1,1 Dichloroethene	0.007 $^{GW}GW_{Ing}$	0.007 $^{GW}GW_{Ing}$
	1,2,3 Trichloropropane	0.00003 $^{GW}GW_{Ing}$	0.00003 $^{GW}GW_{Ing}$
	1,2 Dichloroethane	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	1,2 Dichloropropane	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	2,4,6 Trichlorophenol	0.024 $^{GW}GW_{Ing}$	0.024 $^{GW}GW_{Ing}$
	2,4-D (Dichlorophenoxyacetic Acid)	0.070 $^{GW}GW_{Ing}$	0.070 $^{GW}GW_{Ing}$
	2,4 Dichlorophenol	0.073 $^{GW}GW_{Ing}$	0.073 $^{GW}GW_{Ing}$
	2,4 Dimethylphenol	0.490 $^{GW}GW_{Ing}$	0.490 $^{GW}GW_{Ing}$
	2 – Hexane	1.500 $^{GW}GW_{Ing}$	1.500 $^{GW}GW_{Ing}$
	2 – Methylnapthalene	0.098 $^{GW}GW_{Ing}$	0.098 $^{GW}GW_{Ing}$
	2 – Methylphenol (o-Cresol)	1.200 $^{GW}GW_{Ing}$	1.200 $^{GW}GW_{Ing}$
	4 – Bromophenyl Phenyl Ether	0.000061 $^{GW}GW_{Ing}$	0.000061 $^{GW}GW_{Ing}$
	4 – MethylPhenol (p-Cresol)	0.120 $^{GW}GW_{Ing}$	0.120 $^{GW}GW_{Ing}$
	Acenaphthene	1.500 $^{GW}GW_{Ing}$	1.500 $^{GW}GW_{Ing}$

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Acenaphthylene	1.500 $^{GW}GW_{Ing}$	1.500 $^{GW}GW_{Ing}$
	Acetone	22.0 $^{GW}GW_{Ing}$	22.0 $^{GW}GW_{Ing}$
	Aniline (Phenylamine, Aminobenzene)	0.160 $^{GW}GW_{Ing}$	0.160 $^{GW}GW_{Ing}$
	Anthracene	7.300 $^{GW}GW_{Ing}$	7.300 $^{GW}GW_{Ing}$
	Benzene	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	Benzo (a) Antracene	0.0013 $^{GW}GW_{Ing}$	0.0013 $^{GW}GW_{Ing}$
	Benzo (a) Pyrene	0.0002 $^{GW}GW_{Ing}$	0.0002 $^{GW}GW_{Ing}$
	Benzo (b) Fluoranthene	0.0013 $^{GW}GW_{Ing}$	0.0013 $^{GW}GW_{Ing}$
	Benzo (g,h,i) Perylene	0.730 $^{GW}GW_{Ing}$	0.730 $^{GW}GW_{Ing}$
	Benzo (k) Fluoranthene	0.013 $^{GW}GW_{Ing}$	0.013 $^{GW}GW_{Ing}$
	Benzyl Alcohol	2.400 $^{GW}GW_{Ing}$	2.400 $^{GW}GW_{Ing}$
	Benzyl Butyl Phthalate	0.480 $^{GW}GW_{Ing}$	0.480 $^{GW}GW_{Ing}$
	bis (2-Chloroethyl) Ether	0.00083 $^{GW}GW_{Ing}$	0.00083 $^{GW}GW_{Ing}$
	bis (2-ethylhexyl) phthalate	0.006 $^{GW}GW_{Ing}$	0.006 $^{GW}GW_{Ing}$
	Carbon Disulfide	2.400 $^{GW}GW_{Ing}$	2.400 $^{GW}GW_{Ing}$
	Chlorobenzene	0.100 $^{GW}GW_{Ing}$	0.100 $^{GW}GW_{Ing}$
	Chloroform	0.240 $^{GW}GW_{Ing}$	0.240 $^{GW}GW_{Ing}$

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Chrysene	0.130 $^{GW}GW_{Ing}$	0.130 $^{GW}GW_{Ing}$
	Dibenz (a,h) Anthracene	0.0002 $^{GW}GW_{Ing}$	0.0002 $^{GW}GW_{Ing}$
	Dibenzofuran	0.098 $^{GW}GW_{Ing}$	0.098 $^{GW}GW_{Ing}$
	Di-n-Butyl Phthalate	2.400 $^{GW}GW_{Ing}$	2.400 $^{GW}GW_{Ing}$
	Di-n-Octyl Phthalate	0.980 $^{GW}GW_{Ing}$	0.980 $^{GW}GW_{Ing}$
	Ethylbenzene	0.700 $^{GW}GW_{Ing}$	0.700 $^{GW}GW_{Ing}$
	Fluoranthene	0.980 $^{GW}GW_{Ing}$	0.980 $^{GW}GW_{Ing}$
	Fluorene	0.980 $^{GW}GW_{Ing}$	0.980 $^{GW}GW_{Ing}$
	Indeno (1,2,3 – c,d) Pyrene	0.0013 $^{GW}GW_{Ing}$	0.0013 $^{GW}GW_{Ing}$
	Lead	0.015 $^{GW}GW_{Ing}$	0.015 $^{GW}GW_{Ing}$
	Methyl Ethyl Ketone (2-butanone)	15.00 $^{GW}GW_{Ing}$	15.00 $^{GW}GW_{Ing}$
	Methyl Iso-Butyl Ketone	2.00 $^{GW}GW_{Ing}$	2.00 $^{GW}GW_{Ing}$
	Methylene Chloride	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
	Naphthalene	0.490 $^{GW}GW_{Ing}$	0.490 $^{GW}GW_{Ing}$
	Phenanthrene	0.730 $^{SW}GWIng$	0.730 $^{SW}GWIng$
	Phenol	7.30 $^{GW}GWIng$	7.30 $^{GW}GWIng$
	Pyrene	0.730 $^{GW}GWIng$	0.730 $^{GW}GWIng$
	Pyridine	0.024 $^{GW}GWIng$	0.024 $^{GW}GWIng$

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Styrene	0.10 ^{GW}GWIng	0.10 ^{GW}GWIng
	Tetrachloroethylene (PCE)	0.005 ^{GW}GWIng	0.005 ^{GW}GWIng
	Toluene	1.00 ^{GW}GWIng	1.00 ^{GW}GWIng
	Trans -1,2 –Dichloroethylene	0.100 ^{GW}GWIng	0.100 ^{GW}GWIng
	Trichloroethylene	0.005 ^{GW}GWIng	0.005 ^{GW}GWIng
	Vinyl Acetate	24.00 ^{GW}GWIng	24.00 ^{GW}GWIng
	Vinyl Chloride	0.002 ^{GW}GWIng	0.002 ^{GW}GWIng
	Xylenes (total)	10.00 ^{GW}GWIng	10.00 ^{GW}GWIng
3. Texmark Chemical Inc. (TCI) Group	Arsenic	0.010 $^{GW}GW_{Ing}$	NA
	Benzene	0.005 $^{GW}GW_{Ing}$	NA
	Ethylbenzene	1.00 $^{GW}GW_{Ing}$	NA
	Styrene	0.10 $^{GW}GW_{Ing}$	NA
	Toluene	0.10 $^{GW}GW_{Ing}$	NA
	Xylenes (total)	10.00 $^{GW}GW_{Ing}$	NA
4a. Central Plant WMA PMZ (East, Southeast, and South Migration Pathway)	Acenaphthene	3,380 ^{SW}GW	3,380 ^{SW}GW
	Benzene	5,920 ^{SW}GW	5,920 ^{SW}GW
	Dibenzofuran	5,440 ^{SW}GW	5,440 ^{SW}GW
	cis-1,2-Dichloroethene	56,900 ^{SW}GW	56,900 ^{SW}GW

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Fluoranthene	248 ^{SW}GW	248 ^{SW}GW
	Fluorene	4,1380 ^{SW}GW	4,180 ^{SW}GW
	Naphthalene	10,500 ^{SW}GW	10,500 ^{SW}GW
	Phenanthrene	385 ^{SW}GW	385 ^{SW}GW
	Pyrene	20.1 ^{SW}GW	20.1 ^{SW}GW
	Tetrachloroethylene (PCE)	18,000 ^{SW}GW	18,000 ^{SW}GW
	Trichloroethylene	34,100 ^{SW}GW	34,100 ^{SW}GW
	Trans -1,2 –Dichloroethylene	93,700 ^{SW}GW	93,700 ^{SW}GW
	1,2,3-Trichloropropane	125 ^{SW}GW	125 ^{SW}GW
	Vinyl Chloride	435 $^{Air}GW_{Inh\text{-}V}$	434 $^{Air}GW_{Inh\text{-}V}$
4b. Central Plant WMA PMZ (West Migration Pathway)	Benzene	0.005 $^{GW}GW_{Ing}$	0.005 $^{GW}GW_{Ing}$
5. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)	Benzene	1,470 ^{SW}GW	1,470 ^{SW}GW
	bis (2-Chloroethyl) Ether	110 ^{SW}GW	110 ^{SW}GW
	Chlorobenzene	2,190 ^{SW}GW	2,190 ^{SW}GW
	cis-1,2-Dichloroethene	14,200 ^{SW}GW	14,200 ^{SW}GW
	1,2-Dichloroethane	1,030 ^{SW}GW	1,030 ^{SW}GW
	Ethylbenzene	5,180 ^{SW}GW	5,180 ^{SW}GW

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standards (mg/l)	COLUMN C Groundwater Protection Standards at the POE (mg/l)
	Tetrachloroethylene (PCE)	4,470 ^{SW}GW	4,470 ^{SW}GW
	Trichloroethylene	8,490 ^{SW}GW	8,490 ^{SW}GW
	Trans -1,2 –Dichloroethylene	93,700 ^{SW}GW	93,700 ^{SW}GW
	Vinyl Chloride	435 $^{Air}GW_{Inh-V}$	435 $^{Air}GW_{Inh-V}$
	Xylenes (total)	17,700 ^{SW}GW	17,700 ^{SW}GW
6. North Plant PMZ AOC	MTBE	0.24 $^{GW}GW_{Ing}$	0.24 $^{GW}GW_{Ing}$

Note: WMA=Waste Management Unit, PMZ=Plume Management Zone

Foot Note:

GWGWIng ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.. In accordance with §350.72(b), GWGWIng, PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 non-carcinogenic chemicals of concern within a source medium.

AirGWInh-V ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 Groundwater inhalation PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

SWGW ACL pursuant to 30 TAC §335.160(b) based upon the Protective PCL determined under RSA or RSB for Groundwater- to-surface water PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

AAL ACL derived pursuant to 30 TAC §335.160(b) based upon the Protective Concentration level (PCL) established as an Attenuation Action Level as defined in 30 TAC §350(a)(4).

CP Table IV: Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Quantitation Limits

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Concentration Limits (mg/l)
Reserved		

[**Note:** This Table should provide the long list of hazardous constituents that are reasonably expected to be in or derived from waste placed in the units, and may not necessarily be detected and that are to be monitored annually to determine if any new constituents need to be added to CP Table IVA. Also, instead of listing individual constituents of concern (COCs), Appendix IX can be referenced in this table. If Appendix IX list and associated Practical Quantitation Limit (PQL) or Method Quantitation Limit (MQLs) are being required instead of listing individual COCs, add this sentence: The Permittee may petition the Executive Director for deletion of specific parameters from Appendix IX analysis if the Permittee can demonstrate that the constituents were never used in the facility's operation or were never disposed in the waste management area.]

Foot Note:

In the Footnote use one of the following Quantitation Limit designations as the concentration limit if RRR or TRRP apply

*** For RRR use the following designation, or***

ND Non-detectable at PQL as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987 edition of the Federal Register and later editions. PQL is indicated in parentheses. PQL is the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating condition.

BKG Background as determined in accordance with 30 TAC 350.4(a)(6).

*** Use the following designation if TRRP applies:***

ND Non-detectable at MQL as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987 edition of the Federal Register and later editions. MQL is indicated in parentheses. MQL is defined in 30 TAC §350.4 (54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

BKG Background as determined in accordance with 30 TAC 350.4(a)(6).

CP Table IVA: Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard

Unit Name	COLUMN A Hazardous Constituents	COLUMN B Groundwater Protection Standard (mg/l)
Reserved		

* [Note: This Table should provide a list of all hazardous constituents detected above the Quantitation Limits specified in CP Table IV – Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring. CP Table IVA constituents are to be monitored semiannually to verify achievement of the GWPS.]

Foot Note:

Use the following GWPS footnote designations if Risk Reduction Rules (RRR) or Texas Risk Reduction Program (TRRP) apply:

*** For RRR use the following designation, or***

MSC ACL pursuant to 30 TAC §335.160(b) based upon the Groundwater Medium-Specific Concentration, Residential {...or Industrial...) Risk Reduction Standard No. 2 {...or No. 3} specified in 30 TAC §335 Subchapter S.

MCL ACL pursuant to 30 TAC §335.160(b) based upon the Groundwater Maximum Contaminant Level specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.

SMCL ACL pursuant to 30 TAC §335.160(b) based upon the Groundwater Secondary Maximum Contaminant Level specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.

AL ACL pursuant to 30 TAC §335.160(b) based upon the Action Level specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.

BKG Background as determined in accordance with Provision XI.F.1.

ND Non-detectable at PQL as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987 edition of the Federal Register and later editions. PQL is indicated in parentheses. PQL is the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating condition.

*** Use the following designation if TRRP applies:***

GWGWIng ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with §350.72(b), GWGWIng, PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 non-carcinogenic chemicals of concern within a source medium.

GWGWClass3 ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) Tier I for Class 3 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

AirGWInh-V ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 Groundwater inhalation PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

SWGW ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB for Groundwater-to-surface water PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

SEDGW ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB for Groundwater-to-sediment PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

ECOGW ACL pursuant to 30 TAC §335.160(b) based upon the PCL determined under RSA or RSB for Groundwater- based on ecological receptor(s) PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

BKG Background as determined in accordance with Provision XI.F.1.

ND Non-detectable at MQL as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987 edition of the Federal Register and later editions. MQL is indicated in parentheses. MQL is defined in 30 TAC §350.4 (54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

CP Table V: Designation of Wells

Point of Compliance Wells:

1. CAMU/North Holding Basin

   Zone III – MW-7 and RW-16

   Zone IV – MW-6 and RW-17

2. Southeast Holding Basin

   Sandy Channel Fill (SCF) and Uppermost Natural Transmissive Unit (UNTU) – MW-2R, MW-3R

   Uppermost Natural Transmissive Unit (UNTU) – MW-4R

3. Texmark Chemical Inc. (TCI) Group

   MW-18TCI, MW-19TCI, RW-3, and RW-5

4a. Central Plant WMA PMZ (East, Southeast, and South Migration Pathway)

   None

4b. Central Plant WMA PMZ (West Migration Pathway)

   None

5. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)

   None

6. North Plant PMZ AOC

   None

Point of Exposure Wells:

1. CAMU/North Holding Basin

   None

2. Southeast Holding Basin

   Sandy Channel Fill (SCR) and Uppermost Natural Transmissive Unit (UNTU) – MW-5, MW-13, and MW-33

3. Texmark Chemical Inc. (TCI) Group

   None

4a. Central Plant WMA PMZ (East, Southeast, and South Migration Pathway)

   RI-1-17 and RI-1-18

4b. Central Plant WMA PMZ (West Migration Pathway)

   POE-1, POE-2, RI-1-14, RI-3-02, and RI-3-03

5. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)

   P-2, MW-18, MW-25, MW-26, and MW-28

6. North Plant PMZ AOC
   MW-15, MW-16, and MW-18

Alternate Point of Exposure Wells:

1. CAMU/Former North Holding Basin
   None
2. Southeast Holding Basin
   None
3. Texmark Chemical Inc. (TCI) Group
   None
4a. Central Plant WMA PMZ (East, Southeast, and South Migration Pathway)
   None
4b. Central Plant WMA PMZ (West Migration Pathway)
   None
5. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)
   None
6. North Plant PMZ AOC
   None

Background Wells:

1. CAMU/Former North Holding Basin
   Zone III – MW-1, MW-8
2. Southeast Holding Basin
   None
3. Texmark Chemical Inc. (TCI) Group
   None
4a. Central Plant WMA PMZ (East, Southeast, and South Migration Pathway)
   None
4b. Central Plant WMA PMZ (West Migration Pathway)
   None
5. West Plant WMA PMZ (SWMU Group W3)/West Chemical AOC)
   None
6. North Plant PMZ AOC
   MW-11, MW-13A

Note: Wells that are not listed in this table are subject to change, upon approval by the Executive Director, without modification to the Compliance Plan.

CP Table VI: Compliance Period for RCRA-Regulated Units

CAMU/North Holding Basin	Year or Number of Years
Year Waste Management Activities Initiated	1975
Year Closed	Active CAMU
Compliance Period	NA*
Compliance Period Began	1992

*Compliance Period will be evaluated upon closure of the Corrective Action Management Unit (CAMU).

Southeast Holding Basin	Year or Number of Years
Year Waste Management Activities Initiated	1974
Year Closed	1985
Compliance Period	11 Years
Compliance Period Began	1994

CP Table VII: Reporting Requirements

Item	Program	Reporting Frequency	Requirements
1.	All programs	Annual by March 1	Each report shall be certified by a qualified engineer and/or geoscientist.
2.	Corrective Action	Annual by March 1	A table of all modifications and amendments made to this Compliance Plan with their corresponding approval dates by the Executive Director or the Commission and a brief description of each action;
3.	Corrective Action	Annual by March 1	A summary of any activity within an area subject to institutional control.
4.	Corrective Action	Annual by March 1	Tabulation of well casing elevations in accordance with CP Attachment C;
5.	Corrective Action	Annual by March 1	Certification and well installation diagram for any new well installation or replacement and certification for any well plugging and abandonment;
6.	Corrective Action	Annual by March 1	Recommendation for any changes to the program;
7.	Corrective Action	Annual by March 1	Any other items requested by the Executive Director;
8.	Corrective Action	Annual by March 1	Water table maps shall be prepared from the groundwater data collected pursuant to Permit Provision XI.G. and shall be evaluated by the permittee with regard to the following parameters: a. Development and maintenance of a cone of depression during operation of the system; b. Direction and gradient of groundwater flow; c. Effectiveness of hydrodynamic control of the contaminated zone during operation; and d. Estimation of the rate and direction of groundwater contamination migration.

Item	Program	Reporting Frequency	Requirements
9.	Corrective Action	Annual by March 1	The permittee shall submit a report to each recipient listed in Provision XI.J.3., which includes the all applicable information listed in this table (CP Table VII: Reporting Requirements), determined since the previously submitted report, if those items are applicable. If both Corrective Action and Compliance Monitoring Programs are authorized, then the Groundwater Monitoring Report required by CP Table VII shall contain information required for both programs.
10.	Corrective Action	Annual by March 1	The Corrective Action System(s) authorized under Provision XI.B.3. in operation during the reporting period and a narrative summary of the evaluations made in accordance with Permit Sections XI.E., XI.F., and XI.G. for the preceding reporting period. The reporting periods shall be January 1 through June 30 and July 1 through December 31 for Corrective Action Monitoring, unless an alternative semiannual schedule is approved by the Commission. The period for Compliance Monitoring shall be based on the calendar year.
11.	Corrective Action	Annual by March 1	The method(s) utilized for management of recovered/purged groundwater shall be identified in accordance with Provision XI.B.8. The permittee shall maintain this list as part of the facility operating record and make it available for inspection upon request.

Item	Program	Reporting Frequency	Requirements
12.	Corrective Action	Annual by March 1	An updated table and map of all monitoring and corrective action system wells. The wells to be sampled shall be those wells proposed in the Compliance Plan Application referenced in Provision I.B. and any changes subsequently approved by the Executive Director pursuant to Provision XI.B.3. Provide in chronological order, a list of those wells which have been added to, or deleted from, the groundwater monitoring and remediation systems since original issuance of the Compliance Plan. Include the date of the Commission's approval for each entry;
13.	Corrective Action	Annual by March 1	The results of the chemical analyses, submitted in a tabulated format acceptable to the Executive Director which clearly indicates each parameter that exceeds the Groundwater Protection Standard (GWPS). Copies of the original laboratory report for chemical analyses showing detection limits and quality control and quality assurance data shall be provided if requested by the Executive Director;
14.	Corrective Action	Annual by March 1	Tabulation of all water level elevations required in Provision XI.F.3.d.(1), depth to water measurements, and total depth of well measurements collected since the data that was submitted in the previous monitoring report;
15.	Corrective Action	Annual by March 1	Potentiometric surface maps showing the elevation of the water table at the time of sampling, delineation of the radius of influence of the Corrective Action System, and the direction of groundwater flow gradients outside any radius of influence;
16.	Corrective Action	Annual by March 1	Tabulation of all data evaluation results pursuant to Provision XI.F.4. and status of each well with regard to compliance with the Corrective Action objectives and compliance with the GWPS;
17.	Corrective Action	Annual by March 1	An updated summary as required by CP Table VIII;

Item	Program	Reporting Frequency	Requirements
18.	Corrective Action	Annual by March 1	Summary of any changes made to the monitoring/ corrective action program and a summary of well inspections, repairs, and any operational difficulties;
19.	Corrective Action	Annual by March 1	A notation of the presence or absence of non-aqueous phase liquids (NAPLs), both light and dense phases, in each well during each sampling event since the last event covered in the previous monitoring report and tabulation of depth and thickness of NAPLs, if detected;
20.	Corrective Action	Annual by March 1	Quarterly tabulations of quantities of recovered groundwater and NAPLs, and graphs of monthly recorded flow rates versus time for the Recovery Wells during each reporting period. A narrative summary describing and evaluating the NAPL recovery program shall also be submitted;
21.	Corrective Action	Annual by March 1	Tabulation of the total contaminant mass recovered from each recovery system for each reporting period;
22.	Corrective Action	Annual by March 1	Maps of the contaminated area where GWPSs are exceeded depicting concentrations of CP Table IIIA constituents and any newly detected CP Table III constituents as isopleth contours or discrete concentrations if isopleth contours cannot be inferred. Areas where concentrations of constituents exceed the GWPS should be clearly delineated. Depict the boundary of the plume management zone (PMZ), if applicable;
23.	Corrective Action	Annual by March 1	Maps and tables indicating the extent and thickness of the NAPLs both light and dense phases, if detected;

Item	Program	Reporting Frequency	Requirements
24.	Corrective Action	Annual by March 1	Corrective Measures Implementation (CMI) Progress Report or Response Action Effectiveness Report or Response Action Completion Report to be submitted as a section of the Compliance Plan report in accordance with Provision XI.H.6., if necessary. The permittee will include a narrative summary of the status of the approved final corrective measures conducted in accordance with the approved CMI Workplan or RAP, and that the requirements of Provision XI.H.7. are being met.
25.	Corrective Action	Annual by March 1	The permittee will include a narrative summary of the status of each Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) subject to the requirements of Permit Provision XI.H. and ICM Program for a SWMU and/or AOC which documents that the objectives of Provision XI.H.8.b. are being achieved. This summary shall be included as a section of the Compliance Plan groundwater monitoring report.
26.	PMZ	Annual by March 1	A summary evaluating the effectiveness of the corrective action system in controlling migration beyond the downgradient boundary and vertical limit of the PMZ to achieve the GWPS. The summary shall include an evaluation of whether the attenuation action levels are not exceeded at their respective attenuation monitoring points pursuant to 30 TAC Sections 350.33(f)(4)(A) and 350.33(f)(4)(D)(ii), if applicable;
27.	PMZ	Annual by March 1	An estimate of the percentage of the response action which has been completed within the PMZ, if applicable;
28.	PMZ	Annual by March 1	An estimate in years of the additional time necessary to complete the response actions for the PMZ, if applicable;
29.	PMZ	Annual by March 1	A determination whether sufficient progress is being made to achieve the selected remedy standard within a reasonable time frame given the circumstance of the affected property in the PMZ, if applicable.

Item	Program	Reporting Frequency	Requirements
30.	Facility Operations Area (FOA)	Not Applicable	The following additional reporting requirements to fulfill requirements of 30 TAC Section 350.134 and 30 TAC Section 350.135. These include but are not limited to: a. Provide an average of both lost workday injury case rates and injury incidence rates for the most recent three (3) year period compared to the most recent specific industry national average published by the Bureau of Labor Statistics. (continued on next page)

Item	Program	Reporting Frequency	Requirements
30. (contd.)	Facility Operations Area (FOA)	Not Applicable	b. Document that the worker health and safety program meets the requirements of the Occupational Safety and Health Administration (OSHA) by providing records of the OSHA compliance history or the results of the most recent audit of the health and safety programs by the OSHA or a third party certified professional industrial hygienist and safety specialist. An audit is required anytime there is a significant change to the health and safety program, or at a minimum every three (3) years, the results of which indicate the program is satisfactory c. Document a compliance history ranking of average or better for the TCEQ. d. Document the pollution prevention program that has a goal of prevention of releases of COCs to environmental media within the FOA. e. Provide a statement that the program required in 30 TAC Section 350.134(a)(7) to protect workers within the FOA from environmental media having concentrations of COCs greater than PCLs or action levels based on the health and safety program is still in effect. In addition, the permittee shall provide, for the preceding year, an updated map delineating areas where the Soil Response Action Plan has been implemented pursuant to 30 TAC Section 350.135(a)(5). f. Document there have not been any significant outstanding non_compliance issues resulting from inspections for compliance with the RCRA permit or order, if any.

Item	Program	Reporting Frequency	Requirements
30. (contd.)	Facility Operations Area (FOA)	Not Applicable	g. Document areas of ecological impact identified within the FOA and procedures for responding to these identified ecologically impacted areas on a continual basis. Review any ecologically impacted areas annually and report any new ecological impacts within thirty (30) days of verification of impact. h. Document activity associated with tracking and responding to releases to soil and groundwater above reportable quantities, which occur within the FOA after the issuance of the Compliance Plan, in accordance with 30 TAC Section 350.135(a)(7). i. Document any NAPL occurrences and any procedure(s) used to address known NAPLs and any NAPLs identified during the operational life of the FOA. This should include any previously discovered NAPL occurrences. j. Provide documentation that access is restricted to the FOA.

CP Table VIII: Compliance Schedule

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
A.	60 days	Compliance Plan	Submit to the Executive Director a schedule summarizing all activities required by the Compliance Plan. The schedule shall list the starting dates of all routine activities. The permittee shall include an updated schedule in the groundwater monitoring report required by Provision XI.G.3. and CP Table VII. The schedule shall list the activity or report, the Compliance Plan Section which requires the activity or report, and the calendar date the activity or report is to be completed or submitted (if this date can be determined.)
B.	Requirement completed on September 2018 and included in August 2024 permit application	30 TAC §335.163(4) and Provision XI.F.2.	Submit to the Executive Director for review and approval a Sampling & Analysis Plan (SAP) unless the SAP has been submitted with the application and referenced in Provision I.B.
C.	During the first thirty (30) days of each first and third quarter	30 TAC §335.166	Corrective Action monitoring shall be conducted on a semiannual basis for the RCRA-regulated units listed in CP Table I.A. which are subject to the Corrective Action Program.
D.	Not Applicable	30 TAC §335.165	Compliance Monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units listed in CP Table I.B. which are subject to the Compliance Monitoring Program.
E.	During the first thirty (30) days of each first and third quarter	30 TAC §335.167	Corrective Action monitoring shall be conducted on a semiannual basis for the solid waste management units (SWMUs) and/or areas of concern (AOCs) listed in CP Table I.C. which are subject to the Corrective Action Program.

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
F.	Not Applicable	30 TAC §335.151	Alternative Corrective Action monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units, SWMUs, and/or AOCs listed in CP Table I.D. which are subject to the Corrective Action Program.
G.	Not Applicable	30 TAC Section 335.156 and Chapter 350	FOA Corrective Action monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units, SWMUs, and/or AOCs listed in CP Table I.E., which are located within the FOA Boundary and are subject to the Corrective Action Program.
H.	Requirement completed on Central Plant WMA PMZ: 7/30/14; West Plant WMA PMZ: 5/7/18 120 days: North Plant PMZ AOC	30 TAC §350.31(g) and §350.33(f) (4)(C)(i)	If a plume management zone (PMZ) has been authorized, submit to the Executive Director proof of compliance with the institutional control requirements which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time when the concentrations of the chemicals of concern are less than the groundwater protection standards (GWPS) listed on CP Table III.
I.	Notify within 30 days	30 TAC §350.33(k)	If a PMZ has been authorized, after an unexpected event occurs which indicates that additional response actions will be required at an affected property.

Notes:

1. Please note that Corrective Action monitoring is conducted on semiannual basis unless a less frequent monitoring schedule is approved based on plume stability and achievement of Corrective Action objectives.

CP Table IX: Description of Uppermost Aquifer

Groundwater is typically encountered approximately ten feet below grade (approximately five feet above Mean Sea Level) in the uppermost aquifer. The uppermost aquifer is part of the Beaumont Formation and consists of recent alluvium. The alluvial material consists of clay, silt, and sand. The Beaumont Formation in this area is characterized by clay, silt, and occasional sand layers ranging in thickness from 30 to 100 feet. The Beaumont Formation is generally a poorly bedded, calcareous clay of various colors, containing thin, discontinuous stringers and lenses of silt and fine sand. Concretions of calcium carbonate, iron oxide and iron-manganes·eoxides are found in zones of weathering. The unit contains mainly stream channel point bar, natural levee and backswamp deposits. Well logs in the Galena Park area indicate that alternating clays, silts, and infrequent sands of the Beaumont, Montgomery, Bentley and Willis formations extend to depths of approximately 700 feet. All these formations ate thought to have formed by the discharge of sediments from stream gaps. These deposits are deltaic and fluvial in origin and difficult to distinguish between because of their similarities. Each formation dips gently gulfward, with groundwater flow generally toward the south (Houston Ship Channel).

Attachment A

Alternate Concentration Limits

Alternate Concentration Limits (ACLs) must be submitted by hazardous waste facility owners or operators who seek ACLs for any hazardous constituent as provided by 30 TAC 335.160(b) as a part of a compliance monitoring or corrective action program. An ACL demonstration should follow the guidance provided in this attachment. Compliance Plan Application, Section XI.B.2.b. outlines when an ACL demonstration must be conducted. Where possible in "Attachment A", the applicant may copy information previously submitted to the Commission and reference the information submitted in other Sections (Sections I and XI.B. through E.) of this Compliance Plan Application.

Alternate Concentration Limit Demonstration

An ACL petition is based on a demonstration that hazardous constituents detected in the groundwater will not pose a substantial present or future threat to human health or the environment at the ACL levels. Potential adverse effects on both groundwater quality and hydraulically connected surface water quality must be addressed. Using Environmental Protection Agency published lists of 40 CFR Part 264 Appendix IX hazardous constituents, the applicant must submit a list of all contaminants in the groundwater. For all the petitioned ACL constituents, the applicant must address all known synergistic and additive effects on human health and the environment to develop appropriate ACL levels.

Required Information for Alternate Concentration Limits

In addition to rule specific requirements (i.e., 30 TAC Chapter 335 Subchapter S RRR, or 30 TAC Chapter 350 TRRP), the following items must be addressed for each hazardous constituent for which an alternate concentration is sought (CP Tables III and IV, XII.B.). If the information required in this part has been furnished in other parts of Compliance Plan Application, please provide an adequate reference.

1. Potential adverse effects on groundwater quality, considering:
    a. The physical and chemical characteristics of the waste in the Regulated Unit, Solid Waste Management Unit(SWMU) or Area of Concern (AOC), including its potential for migration;
    b. The hydrogeological characteristics of the facility and surrounding land;
    c. The quantity of groundwater r and the direction of groundwater flow;
    d. The proximity and withdrawal rates of groundwater users;
    e. The current and future uses of groundwater in the area;
    f. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
    g. The potential for health risks caused by human exposure to waste constituents;
    h. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and,
    i. The persistence and permanence of the potentially adverse effects.
2. Potentially adverse effects on hydraulically connected surface water quality, considering:

a. The volume and physical and chemical characteristics of the waste in the Regulated Unit, Solid Waste Management Unit (SWMU) or Area of Concern (AOC);
b. The hydrogeological characteristics of the facility and surrounding land;
c. The quantity and quality of groundwater, and the direction of groundwater flow;
d. The patterns of rainfall in the region;
e. The proximity of the Regulated Unit to surface waters;
f. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
g. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;
h. The potential for health risks caused by human exposure to waste constituents;
i. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and,
j. The persistence and permanence of the potentially adverse effects.

Attachment B

Well Design And Construction Specifications

The following well design and construction specifications should be used as guidance when designing a groundwater Compliance Monitoring Program (Section XI.C.) or a Corrective Action Program (Section XI.D.). This guidance is provided to establish minimum well design and construction specifications for the Compliance Plan.

1. Well drilling methods that minimize potential adverse effects on the quality of water samples withdrawn from the well and that minimize or eliminate the introduction of foreign fluids into the borehole must be utilized.

2. All wells shall be constructed such that the wells can be routinely sampled with a pump, bailer, or alternate sampling device. Piping associated with recovery wells should be fitted with sample ports or an acceptable alternative sampling method to facilitate sampling of the recovered groundwater on a well by well basis.

3. Above the saturated zone the well casing may be two (2) inch diameter or larger schedule 40 or 80 polyvinyl chloride (PVC) rigid pipe or stainless steel or polytetrafluoroethylene (PTFE or "teflon") or an approved alternate material. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF pw). Solvent cementing compounds shall not be used to bond joints and all connections shall be flush threaded. In and below the saturated zone, the well casing shall be stainless steel or PTFE.

   PVC or fiberglass reinforced resin may be used as an alternate well casing material in and below the saturated zone provided that it yields samples for groundwater quality analysis that are unaffected by the well casing material.

4. Any well that has deteriorated due to incompatibility of the casing material with the groundwater contaminants or due to any other factors must be replaced.

5. Well casings and screens shall be steam cleaned prior to installation to remove all oils, greases, and waxes. Well casings and screens made of fluorocarbon resins shall be cleaned by detergent washing.

6. Screen length shall not exceed ten (10) feet within a given transmissive zone unless otherwise approved by the executive director. Screen lengths exceeding ten (10) feet may be installed in groundwater recovery or injection wells to optimize the groundwater remediation process in accordance with standard engineering practice.

7. The intake portion of a well shall be designed and constructed so as to allow sufficient water flow into the well for sampling purposes and minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially manufactured stainless steel or PTFE screen or approved alternate material. The annular space between the screen and the borehole shall be filled with clean siliceous granular material (i.e., filter pack) that has a proper size gradation to provide mechanical retention of the formation sand and silt. The well screen slot size shall be compatible with the filter pack size as determined by sieve analysis data. The filter pack should extend no more than three (3) feet above the well screen. A silt trap, no greater than one (1) foot in length, may be added to the bottom of the well screen to collect any silt that may enter the well. The bottom of the well casing shall be capped with PTFE or stainless steel or approved alternate material.

Groundwater recovery and injection wells shall be designed in accordance with standard engineering practice to ensure adequate well production and accommodate ancillary equipment. Silt traps exceeding one (1) foot may be utilized to accommodate ancillary equipment. Well heads shall be fitted with mechanical well seals, or equivalent, to prevent entry of surface water or debris.

8. A minimum of two (2) feet of pellet or granular bentonite shall immediately overlie the filter pack in the annular space between the well casing and borehole. Where the saturated zone extends above the filter pack, pellet or granular bentonite shall be used to seal the annulus. The bentonite shall be allowed to settle and hydrate for a sufficient amount of time prior to placement of grout in the annular space. Above the minimum two (2) foot thick bentonite seal, the annular space shall be sealed with a cement/bentonite grout mixture. The grout shall be placed in the annular space by means of a tremie pipe or pressure grouting methods equivalent to tremie grouting standards.

   The cement/bentonite grout mixture or TCEQ approved alternative grout mixture shall fill the annular space to within two (2) feet of the surface. A suitable amount of time shall be allowed for settling to occur. The annular space shall be sealed with concrete, blending into a cement apron at the surface that extends at least two (2) feet from the outer edge of the monitor well for above ground completions. Alternative annular space seal material may be proposed with justification and must be approved by the executive director prior to installation.

   In cases where flush to ground completions are unavoidable, a protective structure such as a utility vault or meter box should be installed around the well casing and the concrete pad design should prevent infiltration of water into the vault. In addition, the following requirements must also be met 1) the well/cap juncture is watertight; 2) the bond between the cement surface seal and the protective structure is watertight; and 3) the protective structure with a steel lid or manhole cover has a rubber seal or gasket.

9. Water added as a drilling fluid to a well shall contain no bacteriological or chemical constituents that could interfere with the formation or with the chemical constituents being monitored. For groundwater recovery and injection wells, drilling fluids containing freshwater and treatment agents may be utilized in accordance with standard engineering practice to facilitate proper well installation. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

10. Upon completion of installation of a well, the well must be developed to remove any fluids used during well drilling and to remove fines from the formation to provide a particulate free discharge to the extent achievable by accepted completion methods and by commercially available well screens. Development shall be accomplished by reversing flow direction, surging the well or by air lift procedures. No fluids other than formation water shall be added during development of a well unless the aquifer to be screened is a low yielding water bearing aquifer. In these cases, the water to be added should be chemically analyzed to evaluate its potential impact on in-situ water quality, and to assess the potential for formation damage.

For recovery and injection wells, well development methods may be utilized in accordance with standard engineering practice to remove fines and maximize well efficiency and specific capacity. Addition of freshwater and treatment agents may be utilized during well development or re development to remove drilling fluids, inorganic scale or bacterial slime. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

11. Each well shall be secured and/or designed to maintain the integrity of the well borehole and groundwater.

12. The above ground portion of the well must be protected by bumper guards and/or metal outer casing protection when wells are located in traffic areas or outside the secured plant area.

13. The attached Table of Well Construction Details is to be completed or updated for each well installed and kept on site. Items in the table that require a yes or no answer indicate diagrams plans, or procedures that shall be kept on site and made available to inspection. The completed table and other records shall include all of the following information:

    - name/number of well (well designation);
    - intended use of the well(sampling, recovery, etc.);
    - date/time of construction;
    - drilling method and drilling fluid used;
    - well location (+ 0.5 ft.);
    - bore hole diameter and well casing diameter;
    - well depth (+ 0.1 ft.);
    - drilling and lithologic logs;
    - depth to first saturated zone;
    - casing materials;
    - screen materials and design;
    - casing and screen joint type;
    - screen slot size/length;
    - filter pack material/size;
    - filter pack volume (how many bags, buckets, etc.);
    - filter pack placement method;
    - sealant materials;
    - sealant volume (how many bags, buckets, etc.);
    - sealant placement method;
    - surface seal design/construction;
    - well development procedure;
    - type of protective well cap;
    - ground surface elevation (+ 0.01 ft. MSL);
    - top of casing elevation (+ 0.01 ft. MSL); and,
    - detailed drawing of well (include dimensions).

14. Construction or plugging and abandonment of each well shall be completed in accordance with the requirements of 16 TAC Chapter 76 and must be reported/certified to the TCEQ that such proper construction or plugging and abandonment has occurred following installation or plugging and abandonment.

Well completion logs for each newly installed or replaced well shall be included with the report. The certification shall be prepared by a qualified geologist or geotechnical engineer. Each well certification shall be accompanied by a certification report, including an accurate log of the soil boring, which thoroughly describes and depicts the location, elevations, material specifications, construction details, and soil conditions encountered in the boring for the well. A copy of the certification and certification report shall be kept on site, and a second copy shall be submitted to the executive director.

15. The well number must be clearly marked and maintained on each well at the site.

16. The elevation of the top of each well casing must be measured in feet above mean sea level to the nearest 0.01 foot.

17. Wells must be replaced at any time the well integrity or materials of construction or well placement no longer enable the well to yield samples representative of groundwater quality.

18. Soil test borings shall be plugged and wells removed from service with a cement/bentonite grout mixture so as to prevent the preferential migration of fluids in the area of the borehole. Certification of each plugging shall be reported in accordance with Provision 14. The plugging of wells shall be in accordance with 16 TAC Chapter 76 dealing with Well Drilling, Completion, Capping and Plugging.

19. A well's screened interval shall be appropriately designed and installed to meet the well's specific objective (i.e., either DNAPL, LNAPL, both, or other objective of the well). All wells designed to detect, monitor, or recover DNAPL must be drilled to intercept the bottom confining layer of the aquifer. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screened interval for all wells designed to detect, monitor, or recover LNAPL must extend high enough into the vadose zone to provide for fluctuations in the seasonal water table. In addition, the sandpacks for the recovery or monitoring well's screened interval shall be coarser than surrounding media to ensure the movement of NAPL to the well.

Table of Well Construction Details (Item 13)

Well number					
Hole diameter (in)					
Well diameter (in)					
Total borehole depth (ft)					
Constructed well depth (ft)					
Well location available (Y/N)					
Intended Use of Well (sampling, recovery, etc.)					
Drilling & lithologic logs available (Y/N)					
Drill method					
Date drilled					
Casing I.D.(in)					
Casing type/materials					
How joined					
Stick-up length					
Top of casing (+0.01 MSL)					
Ground surface elevation (+0.01 MSL)					
Capped/lockable					
Surface pad size(ft)					
Detailed drawing of well (include dimensions) Y/N					
Depth to surface seal(ft)					
Surface seal design & construction available (Y/N)					
Well development procedure available (Y/N)					
Annulus fill					
Depth to annulus seal(ft)					

Depth to gravel pack(ft)					
Depth to 1st saturated zone					
Length of gravel pack(ft)					
Size-gravel pack					
Filter pack volume (how many bags, buckets, etc.)					
Filter pack placement method					
Depth to screen(ft)					
Sealant materials					
Sealant volume (how many bags, buckets, etc.)					
Sealant placement method					
Screen slot size/length(in)					
Screen type					
Screen length(ft)					
Blank length(ft)					
Dev. method					
Well coordinates (lat & long)					

Attachment C - Sampling And Analysis Plan

Introduction and Purpose

This Attachment was prepared for the purpose of providing guidance for the preparation of a Groundwater Sampling and Analysis Plan (SAP) to meet the requirements of 30 Texas Administrative Code (TAC) 335.163(4) and (5) and also 40 CFR 270.30(j). This guidance is based on the publication, RCRA Groundwater Monitoring: Draft Technical Guidance (TEGD Update) (November 1992, USEPA), and its updates, and is not intended to be rule or policy, or include all acceptable practices.

When preparing the SAP, the applicant may insert copies of areas of the Compliance Plan Application already completed which provides any necessary information for completion of the SAP. The SAP should include the information described in the following sections. When certain sections are not applicable, please provide justification for omission from the SAP.

1. Pre Field Activity
    a. A. The log book format should be outlined in the SAP and should contain at a minimum:

    - the names of those conducting the sampling event;
    - the purpose and provision(s) of the compliance plan requiring the sampling event;
    - weather conditions at time of sampling;
    - date and time of collection;
    - well identification;
    - integrity of well;
    - monitoring well measurements, including: total well depth; static water level depth; measurement techniques; height of water column; well volume; and, notation of the presence or absence of accumulated silt (including thickness and measurement procedures);
    - notation of the presence or absence of NAPLs (including thickness and detection method);
    - well purging procedures, including equipment, purge volume, pumping rate, and well purge time;
    - sampling methods, including well sampling sequence, sampling equipment and withdrawal procedures;
    - visual and measured water quality parameters required for analysis, such as appearance, pH, conductivity, temperature and turbidity; and,
    - sample preservation and handling procedures, including types of sample bottles, sample identification numbers, preservatives used, and internal temperature of field and shipping containers.

    b. B. The SAP should reference the Provisions or Tables within the Compliance Plan regarding monitor well designations, parameters to be monitored, and sampling frequency, rather than utilizing detailed lists.

    c. C. The SAP should include examples of the log book format, chain of custody, and information to be included on the container labels and seals.

    d. D. The SAP should reference both the Health and Safety Plan, and Field Emergency Contingency Plan. These Plans should be checked to determine if they adequately address health and safety issues that may occur during a sampling event.

2. Prior to Purging Well

a. A. Procedures for evaluating the physical condition and integrity of the well should include:

- inspecting the casing and cap for cracks, signs of deterioration or tampering;
- determination if the cap and monitoring well are secure;
- inspecting the well pad for cracks, or signs of deterioration, erosion, settling, and/or animal and insect burrowing; and,
- where appropriate, inspect any dedicated equipment for signs of cleanliness, structural integrity and deterioration.

b. B. Procedures and equipment used for measuring groundwater elevations, well depths, silt accumulation, and Non Aqueous Phase Liquids (NAPLs) should be included in the SAP. Water levels should be measured from the surveyed datum on the top of the well casing, with a precision of ±0.01 foot. If present, accumulated silt and light/dense NAPLs should be measured for thickness.

c. C. Procedures for monitoring site specific weather conditions at the time of sampling should be incorporated into the SAP, including precipitation (when applicable), temperature, and approximate wind speed and direction.

3. Sampling Preparation Activity

a. A. Well purging methods:

(1) 1) A sampling contingency plan should be developed for wells which are purged to dryness or purged such that full recovery exceeds two hours. In such instances, samples should be taken as soon as a sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

(2) 2) In all instances of purging, the SAP should describe in detail the equipment used (dedicated or non dedicated), purging rate, and the method for determining volume purged.

(3) 3) Although purging and sampling by bailers is acceptable, the EPA recommends the use of dedicated pumping equipment designed for low flow rates.

(4) 4) When utilizing micropurging methods, the purge rate may range between 0.1 to 0.5 liter/minute. During micropurging, drawdown should not exceed 0.1 meter. The applicant should provide justification for any alternate sampling procedure. The SAP should also specify the well screen interval at which the pump intake is placed and a copy of the boring log for each well utilizing micropurging. In line measurements of redox, dissolved O2 and turbidity during purging of groundwater should stabilize within 10% over at least two measurements prior to sampling.

b. B. Field filtering of groundwater samples should not be conducted unless the applicant has provided a justification and field filtration is approved by the TCEQ. If samples are field filtered, a 10 micron filter should be used while still fulfilling the data quality objectives for the groundwater monitoring program.

c. C. The container type, size, and labeling method for each procedure performed should be referenced and/or tabulated in the SAP.

d. D. Sample blanks, field blanks, trip blanks and split sampling procedures, including frequency and preservation should be specified in the SAP as quality control checks for each sampling event. The preparation, analysis, and evaluation of replicates, duplicates and spikes should also be included.

4. Well Sampling

a. A. Well sampling equipment, collection procedures, and sampling sequence of wells, should be specified in the SAP. The SAP should include sampling equipment that is constructed of inert material, which should not alter analyte concentration due to loss of analyte via absorption, or gain via desorption, degradation or corrosion.

b. B. Field QA/QC and sample preservation methods used to control pH, chemical addition and refrigeration of samples should be described in the SAP and follow the methods described in the current editions of EPA Report SW 846, "Test Methods for Evaluating Solid Waste" and American Society for Testing and Materials (ASTM) Standard Test Methods or other methods accepted by the TCEQ. The SAP should indicate that chemical preservatives are to be added to samples in the field and not in the laboratory. The SAP should indicate that coolants used for refrigerating samples need to be contained (e.g. blue ice).

c. C. Procedures for sampling inorganics and volatile/semi volatile organics should be described in the SAP and follow the methods of SW 846 and ASTM or other methods accepted by the TCEQ.

5. Post Sampling Activity

a. A. Decontamination procedures should be included in the SAP when dedicated equipment is not used for purging and sampling, or when dedicated equipment is stored outside the well. The procedures should include disassembly, cleaning of equipment, packaging and storage of equipment when not in use.

b. B. Analytical methods and holding times should be tabulated in the SAP in accordance with SW 846 and ASTM or other methods accepted by the TCEQ.

c. C. Chain of custody and shipping procedures should be described and intended to prevent misidentification of samples, to identify and prevent tampering of the samples during shipping and storage, and allow easy tracking of the shipment from the field to final analyses. A Chain of Custody Form should accompany each sample shipment and include the following information:

- sample identification number;
- signature of collector;
- date and time of collection;
- sample type (e.g. groundwater);
- identification of sampling point (well);
- number of containers;
- parameters requested for analysis;
- preservatives used;
- signature(s) of person(s) involved in the chain of possession;
- inclusive dates and time of possession;
- internal temperature of shipping container when samples were sealed into the container for shipping; and,

- internal temperature of container upon opening in the laboratory.

Samples should be shipped in coolers or similar containers designed to keep samples at a constant 4°C and prevent breakage. Containers used for sample shipment should be sealed with the seal signed and dated by the sampler.

d. D. Disposal methods of contaminated equipment, wash water and purged groundwater should be described.

e. E. Laboratory QA/QC procedures should include control samples as defined in Chapter I of SW 846. An appropriate statistical method/procedure should be used to monitor and document performance and to implement an effective program to resolve testing problems (instrument maintenance). Data from the control samples (i.e. spiked samples, duplicates and blanks) should be used as a measure of performance or as an indicator of potential source of cross contamination (i.e. from instrumentation). QA/QC documentation for reporting values should be tabulated on laboratory data sheet and include: target analyte; unit of measure (e.g. ppm); method analyses; and, time/dates of sample collection and analyses.

XII. Hazardous Waste Permit Application Fee

In accordance with 30 TAC 305.53, complete Tables XII.A. - Hazardous Waste Units (For Application Fee Calculations) and XII.B. - Hazardous Waste Permit Application Fee Worksheet. Use the following information in calculating your fee. The application fee will be non-refundable once an initial review of the application has been completed. The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessary.

A. The minimum permit application fee for a permit or a permit renewal for each hazardous waste facility to be used for Storage, Processing, Disposal, or Closure/Post-Closure Care (disposal has already occurred) of hazardous waste shall be $2,000, plus notice fee, and the maximum shall be $50,000, calculated according to these instructions:

   1. Process Analysis - $1,000.00.
   2. Management/Facility Analysis - $500.00.
   3. A facility unit(s) analysis of $500 per unit is charged for the following:
      a. each cell of a landfill (note that multiple cells that are identical in type and use are subject to a single $500 fee);
      b. tanks and container storage areas (note that multiple tanks and container storage areas that are identical in type and use are subject to a single $500 fee)
      c. identical in type and use means the following:
         (1) made of the same material and same design;
         (2) the same size/capacity within + 10%;
         (3) store the same waste (as identified by USEPA hazardous waste number - 40 CFR 261 Subparts C & D); and
         (4) have the same management characteristics (e.g., storage only).
      d. Each incinerator, boiler/industrial furnace unit, surface impoundment, waste pile, land treatment unit, drip pad, miscellaneous unit, or containment building.
   4. Site Evaluation - $100 per acre of surface used for hazardous waste management up to 300 acres. No additional fee thereafter. This shall be calculated as any acreage which will be permitted to manage hazardous waste. This shall include, for example, the entire area within the secondary containment of a tank farm, the area within a fence that surrounds individual units (other than the facility fence), or the area defined by the toe of the dike surrounding a landfill or impoundment, etc.
   5. An applicant shall also include with each initial application a fee of $50 to be applied toward the cost of providing the required notice. An additional notice fee of $15 is required with each application for renewal.

B. The application fee for a major amendment or a Class 2 or 3 modification to a hazardous waste permit for operation, closure, or post-closure care is subject to the fees listed below:

   1. A management/facility analysis fee of $500.

2. The notice fee is $50.
3. If a unit is added or a unit area is expanded for any purpose, $100 per additional acre is assessed, until the total additional acreage reaches 300 acres.
4. If one or more of the following reports are added or are significantly revised, the process analysis fee of $1000 is assessed:
    a. waste analysis plan;
    b. site-specific or regional geology report;
    c. site-specific or regional geohydrology report;
    d. groundwater and/or unsaturated zone monitoring;
    e. closure and/or post-closure care plan; or
    f. RCRA Facility Assessments (RFAs), or corrective action reports;
    g. Alternate Concentration Limit (ACL) demonstration or Development of Protective Concentration Limits (PCLs);
    h. Regulated Unit Facility Assessment, Corrective Action (CA) work plans or reports for Regulated Units; and/or
    i. RCRA Facility Investigation (RFI)/Affected Property Assessment (APA), Remedy Selection, Corrective Measure Implementation (CMI)/Remedial Action Plan for solid waste management units, and/or areas of concern;
    j. Facility Operations Area (FOA).
5. A unit analysis fee of $500 per unit is assessed if any of the following occur:
    a. if a unit is added (even if identical to units already in place, using the criteria discussed in A.3 above);
    b. if there are design changes in an existing unit; or
    c. if a unit status changes from closure to post-closure care;
    d. Changes in the number, location, depth, or design of wells approved in compliance plan or a permit (unless it is a replacement well);
    e. Changes in point of compliance and compliance monitoring program;
    f. Changes in Groundwater Protection Standards, indicator parameters, Alternate Concentration Limits or Protective Concentration Limits; and/or
    g. Changes in corrective action program.

C. The application fee for a minor amendment, a Class 1, or a Class 1[1] modification of a hazardous waste permit is $100 plus the notice fee of $50.

Table XII.A. – Hazardous Waste Units (For Application Fee Calculations)

Verbal Description of Unit	Rated Capacity	Surface Acreage[1]	# of Unit Types[2]	Identical Unit Justification[3]
CAMU/Former NHB (NOR 004)	Original 88,000 cy	3.03	1	Not Applicable
Southeast Holding Basin (SEHB) (NOR 017)	Original 3,111 cy	0.16	1	Not Applicable
		Total[4] 3.19	Total[4] 2	

1 Number of calculated acres.
2 Enter number of units except for units identical in type and use which only count toward a single $500.00 fee.
3 Explain justification for any units claimed as identical in type and use.
4 Enter these totals on the worksheet.

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Name of Facility: KM Liquids Terminals LLC – Galena Park Terminal

Solid Waste Registration Number: 30573

1. Process Analysis - $1,000..... $1,000
2. Facility Management Analysis - $500..... $500
3. Unit Analysis - __2___ units @ $500 per unit..... $1,000
4. Site Evaluation - _3.19_ acres @ $100 per acre..... $319

   (Maximum of 300 acres)
5. Minor amendment, Class 1, or Class 1[1] modification - $100..... $
6. Cost of Providing Notice - $50 (+ $15 for a renewal)..... $65

Pay This Amount ☒ **Total** $2,884

Make Checks Payable To:

Texas Commission on Environmental Quality - Fund 549
(your canceled check will be your receipt)

Complete And Return With Payment To:

Texas Commission on Environmental Quality
Financial Administration Division - MC 214
P.O. BOX 13088
Austin, Texas 78711-3088

The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessitated.

Please do not submit a photocopy of the check (or equivalent transaction submittal) with your application packet but provide only the following account information:

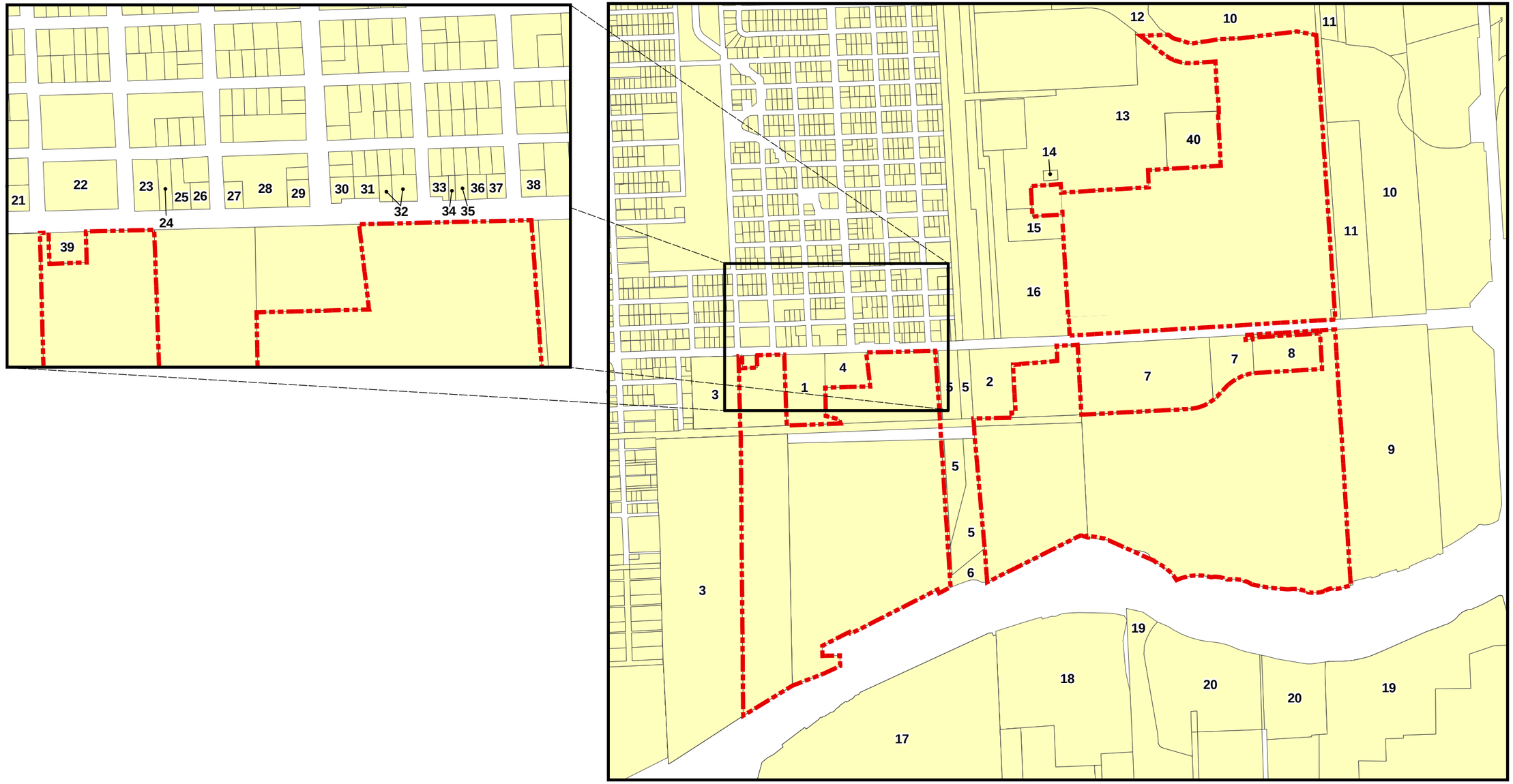
Check No.	Date of Check	Check Amount
2269	7/3/2024	$2,884.00

XIII. Confidential Material

Any information requested in the previous Sections I. through XI. of this application which is deemed confidential shall be provided in this Section as a separate collective document and clearly labeled **CONFIDENTIAL**.

ATTACHMENT A

Adjacent Landowners List



Approximate Terminal Boundary

N
W E
S
NOT TO SCALE

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-00213

PART B, ATTACHMENT A
ADJACENT LANDOWNER MAP

ADJACENT LANDOWNER LIST – KM Liquids Terminals LLC, Galena Park Terminal (HW Permit No. 50054)

1. CLINTON DRIVE LLC
1021 GAYFEATHER LN
VERO BEACH FL 32963-2050

2. TEXMARK PROPERTIES INC
PO BOX 67
GALENA PARK TX 77547-0067

3. PORT OF HOUSTON AUTHORITY
111 EAST LOOP N
HOUSTON TX 77029-4326

4. WATCO MECHANICAL SERVICES LLC
315 W 3RD ST
PITTSBURGH KS 66762-4706

5. CENTERPOINT ENERGY HOU ELE
PROPERTY TAX DEPT 38TH FLR
PO BOX 1475
HOUSTON TX 77251-1475

6. EASTON ENERGY PIPELINES LLC
2424 RIDGE RD
ROCKWALL TX 75087-5116

7. EQUILON ENTERPRISES LLC
ATTN: TAX DEPT
PO BOX 4369
HOUSTON TX 77210-4369

8. PENZOIL QUAKER STATE COMPANY
ATTN: DAVID HENNEL
PO BOX 4369
HOUSTON TX 77210-4369

9. HOUSTON CEMENT CO LP
11011 CODY ST
OVERLAND PARK KS 66210-1313

10. CITY OF HOUSTON
PO BOX 1562
HOUSTON TX 77251-1562

11. CITY OF HOUSTON
HOUSTON WATER SYSTEM
PO BOX 1562
HOUSTON TX 77251-1562

12. CITY OF HOUSTON
PARCEL JY13-001
PO BOX 1562
HOUSTON TX 77251-1562

13. SEAWAY INTRASTATE LLC
ATTN: LEGAL
PO BOX 4018
HOUSTON TX 77210-4018

14. PHILLIPS 66 CARRIER LLC
% PROPERTY TAX
2331 CITYWEST BLVD
HOUSTON TX 77042-2852

15. TEPPCO CRUDE PIPELINE LP
ATTN AD VALOREM TAX
PO BOX 4018
HOUSTON TX 77210-4018

16. MAGELLAN PIPELINE COMPANY
PROPERTY TAX
1 ONE WILLIAMS CTR STE 2800
TULSA OK 74172-0140

17. HOUSTON REFINING
% TAX DEPT
PO BOX 3646
HOUSTON TX 77253-3646

18. K M LIQUIDS TERMINALS LLC
C/O PROPERTY TAX DEP
PO BOX 4372
HOUSTON TX 77210-4372

19. PRSI REAL PROPERTY HOLDINGS LLC
CHEVRON PROPERTY TAX
PO BOX 285
HOUSTON TX 77001-0285

20. GULF COAST WASTE DISPOSAL AUTHORITY
910 BAY AREA BLVD
HOUSTON TX 77058-2604

21. HAVARD WELD N SUPPLY CO
% RICK W HAVARD
PO BOX 502
GALENA PARK TX 77547-0502

22. COMERICA BANK
% COLLIERS INTERNATIONAL
2 CORPORATE DR STE 300
SOUTHFIELD MI 48076-37

23. 1ST BAPT CH GALENA PARK
1505 1ST ST
GALENA PARK TX 77547

24. MACIAS FRANCISCO
1409 CLINTON DR
GALENA PARK TX 77547-3335

25. GONZALEZ OLGA A
2212 BUCHANAN ST
PASADENA TX 77502-3931

26. MOYA ROBERT
2107 2ND ST
GALENA PARK TX 77547-2805

27. CURRENT OWNER
2219 4TH ST
GALENA PARK TX 77547-2703

28. LAM & SON INC
13846 OLEOKE LN
HOUSTON TX 77015-1794

29. HERRERA CRISTOBAL ALEJANDRO
12811 ABALONE WAY
HOUSTON TX 77044-1514

30. GILLIE KERRY R
1215 CLINTON DR
GALENA PARK TX 77547-3421

31. VILLARREAL RAUL
2102 8TH ST
GALENA PARK TX 77547-2830

32. WHITE DONNIE W
803 SHARON DR
HUMBLE TX 77338-8048

33. UNIVERSAL HAULIN LLC
503 FINNIGAN PARK PLACE CT
HOUSTON TX 77020-7742

34. CENTERPOINT ENERGY ENTEX
PROPERTY TAX DEPT
PO BOX 1475
HOUSTON TX 77251-1475

35. TOBIAS JUAN P
TOBIAS ALBERTO
1107 CLINTON DR
GALENA PARK TX 77547-3420

36. GILLIE NINA
2114 10TH ST
GALENA PARK TX 77547-2245

37. MARTINEZ FIDENCIO
1101 CLINTON DR
GALENA PARK TX 77547-3420

38. ALEMAN ADRIANA J
1011 CLINTON DR
GALENA PARK TX 77547-3419

39. NIAZI MOHAMMED RAZI
14825 WILLIS ST
HOUSTON TX 77039-1025

40. SEAWAY CRUDE PIPELINE CO
ATTN AD VALOREM TAX
PO BOX 4018
HOUSTON TX 77210-4018

CLINTON DRIVE LLC
1021 GAYFEATHER LN
VERO BEACH FL 32963-2050

CITY OF HOUSTON
HOUSTON WATER SYSTEM
PO BOX 1562
HOUSTON TX 77251-1562

HAVARD WELD N SUPPLY CO
% RICK W HAVARD
PO BOX 502
GALENA PARK TX 77547-0502

TEXMARK PROPERTIES INC
PO BOX 67
GALENA PARK TX 77547-0067

CITY OF HOUSTON
PARCEL JY13-001
PO BOX 1562
HOUSTON TX 77251-1562

COMERICA BANK
% COLLIERS INTERNATIONAL
2 CORPORATE DR STE 300
SOUTHFIELD MI 48076-37

PORT OF HOUSTON AUTHORITY
111 EAST LOOP N
HOUSTON TX 77029-4326

SEAWAY INTRASTATE LLC
ATTN: LEGAL
PO BOX 4018
HOUSTON TX 77210-4018

1ST BAPT CH GALENA PARK
1505 1ST ST
GALENA PARK TX 77547

WATCO MECHANICAL SERVICES LLC
315 W 3RD ST
PITTSBURGH KS 66762-4706

PHILLIPS 66 CARRIER LLC
% PROPERTY TAX
2331 CITYWEST BLVD
HOUSTON TX 77042-2852

MACIAS FRANCISCO
1409 CLINTON DR
GALENA PARK TX 77547-3335

CENTERPOINT ENERGY HOU ELE
PROPERTY TAX DEPT 38TH FLR
PO BOX 1475
HOUSTON TX 77251-1475

TEPPCO CRUDE PIPELINE LP
ATTN AD VALOREM TAX
PO BOX 4018
HOUSTON TX 77210-4018

GONZALEZ OLGA A
2212 BUCHANAN ST
PASADENA TX 77502-3931

EASTON ENERGY PIPELINES LLC
2424 RIDGE RD
ROCKWALL TX 75087-5116

MAGELLAN PIPELINE COMPANY
PROPERTY TAX
1 ONE WILLIAMS CTR STE 2800
TULSA OK 74172-0140

MOYA ROBERT
2107 2ND ST
GALENA PARK TX 77547-2805

EQUILON ENTERPRISES LLC
ATTN: TAX DEPT
PO BOX 4369
HOUSTON TX 77210-4369

HOUSTON REFINING
% TAX DEPT
PO BOX 3646
HOUSTON TX 77253-3646

CURRENT OWNER
2219 4TH ST
GALENA PARK TX 77547-2703

PENZOIL QUAKER STATE COMPANY
ATTN: DAVID HENNEL
PO BOX 4369
HOUSTON TX 77210-4369

K M LIQUIDS TERMINALS LLC
C/O PROPERTY TAX DEP
PO BOX 4372
HOUSTON TX 77210-4372

LAM & SON INC
13846 OLEOKE LN
HOUSTON TX 77015-1794

HOUSTON CEMENT CO LP
11011 CODY ST
OVERLAND PARK KS 66210-1313

PRSI REAL PROPERTY HOLDINGS LLC
CHEVRON PROPERTY TAX
PO BOX 285
HOUSTON TX 77001-0285

HERRERA BERNARDINO & SYLVIA
12811 ABALONE WAY
HOUSTON TX 77044-1514

CITY OF HOUSTON
PO BOX 1562
HOUSTON TX 77251-1562

GULF COAST WASTE DISPOSAL AUTHORITY
910 BAY AREA BLVD
HOUSTON TX 77058-2604

GILLIE KERRY R
1215 CLINTON DR
GALENA PARK TX 77547-3421

VILLARREAL RAUL
2102 8TH ST
GALENA PARK TX 77547-2830

WHITE DONNIE W
803 SHARON DR
HUMBLE TX 77338-8048

UNIVERSAL HAULIN LLC
503 FINNIGAN PARK PLACE CT
HOUSTON TX 77020-7742

CENTERPOINT ENERGY ENTEX
PROPERTY TAX DEPT
PO BOX 1475
HOUSTON TX 77251-1475

TOBIAS JUAN P
TOBIAS ALBERTO
1107 CLINTON DR
GALENA PARK TX 77547-3420

GILLIE NINA
2114 10TH ST
GALENA PARK TX 77547-2245

MARTINEZ FIDENCIO
1101 CLINTON DR
GALENA PARK TX 77547-3420

ALEMAN ADRIANA J
1011 CLINTON DR
GALENA PARK TX 77547-3419

NIAZI MOHAMMED RAZI
14825 WILLIS ST
HOUSTON TX 77039-1025

SEAWAY CRUDE PIPELINE CO
ATTN AD VALOREM TAX
PO BOX 4018
HOUSTON TX 77210-4018

ATTACHMENT B

Core Data Form

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 603254707		RN 100237452

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 9/5/2024

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

KM Liquids Terminals LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0800838036	12604497227	760561780	048101364

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

Johnny Kennedy
1500 Clinton Drive

City	State	ZIP	ZIP + 4
Galena Park	TX	77547	

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

[redacted]

18. Telephone Number | **19. Extension or Code** | **20. Fax Number** *(if applicable)*

(713) 654-6035		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Galena Park Terminal

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	906 Clinton Drive							
	City	Galena Park	**State**	TX	**ZIP**	77547	**ZIP + 4**	
24. County								

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	On Clinton Drive, approximately 0.8 miles west of the intersection of Clinton Drive and Federal Road				
26. Nearest City			**State**	**Nearest ZIP Code**	
Galena Park			TX	77547	

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	29.732350		**28. Longitude (W) In Decimal:**	-95.225690	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	56.62	-95	13	32.16

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4226		493190	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Storage Complex

34. Mailing Address:	**Johnny Kennedy**							
	1500 Clinton Drive							
	City	**Galena Park**	**State**	**TX**	**ZIP**	**77547**	**ZIP + 4**	
35. E-Mail Address:	[redacted]							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(713) 654-6035		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				30573
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Johnny Kennedy	41. Title:	Remediation Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(713) 654-6035		( ) -	[redacted]

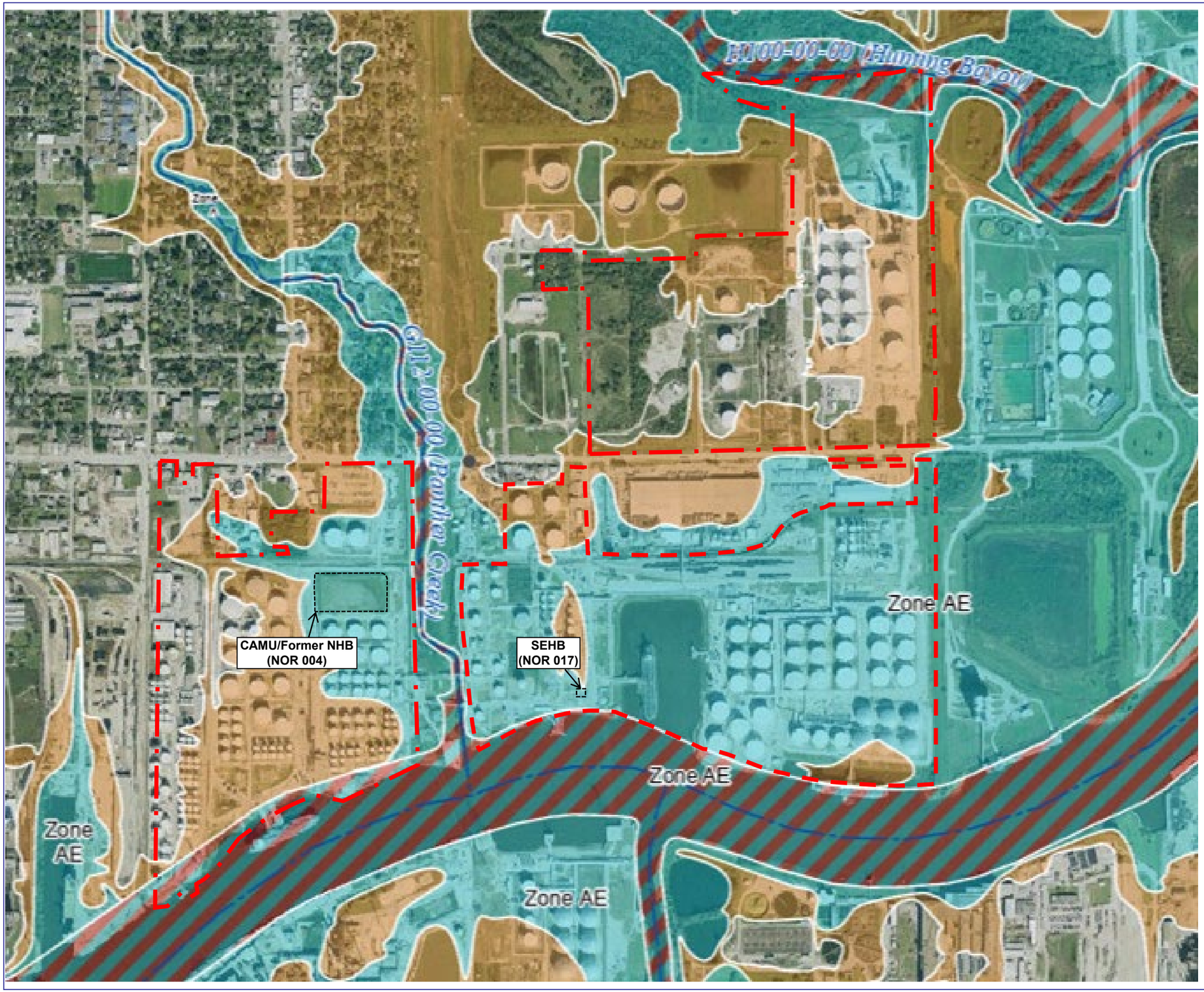
SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	KM Liquids Terminals LLC	Job Title:	Remediation Manager
Name *(In Print)*:	Johnny Kennedy	Phone:	(713) 654- 6035
Signature:	[signature]	Date:	9/6/2024

ATTACHMENT C

Flood Plain Map



LEGEND

- Approx. Kinder Morgan Facility Boundary
- Floodway
- 100-year Floodplain
- 500-year Floodplain

Sources: Harris County Flood Control District
FEMA Panel 905 of 1150, Revised May 2, 2019

TETRA TECH

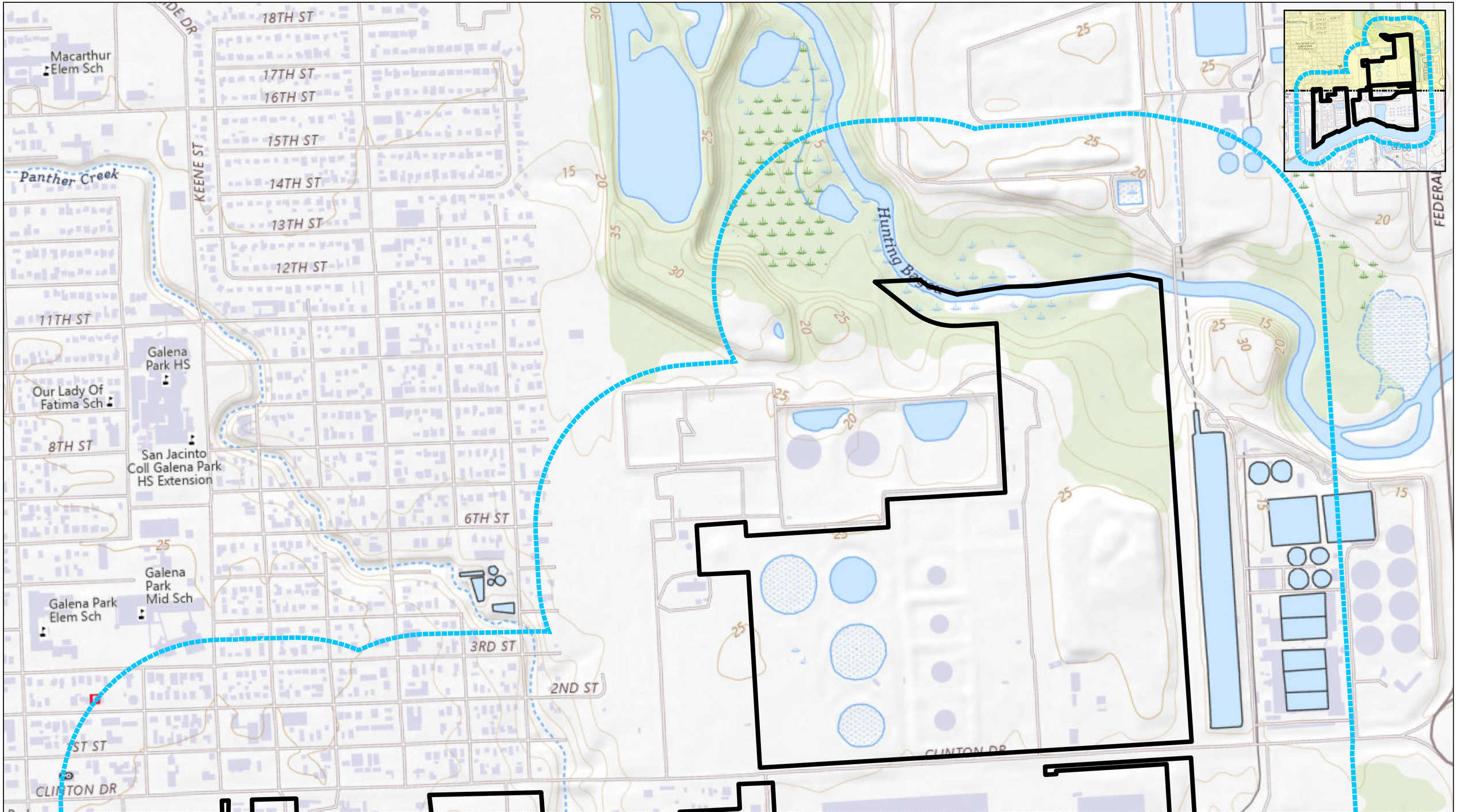
KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-00213

Part B, ATTACHMENT C
Flood Plain Map

NORTH

0 1000 APPROXIMATE SCALE IN FEET

DATE
07/02/2024



Approximate Terminal Boundary

1000-Foot Radius

Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.

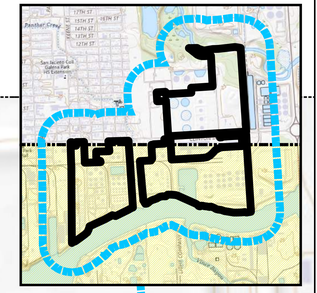
TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

FACILITY SITE MAP
CP ATTACHMENT A-102

0 100 200
Approximate Scale in Feet

MATCH LINE SEE ATTACHMENT A-102



AVE K
AVE J
H ST
G
S MAIN ST
C ST
Panther Creek
TEXAS
Buffalo Bayou
LIGHT COMPANY RD
Vince Bayou
RICHEY

Approximate Terminal Boundary

1000-Foot Radius

Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.

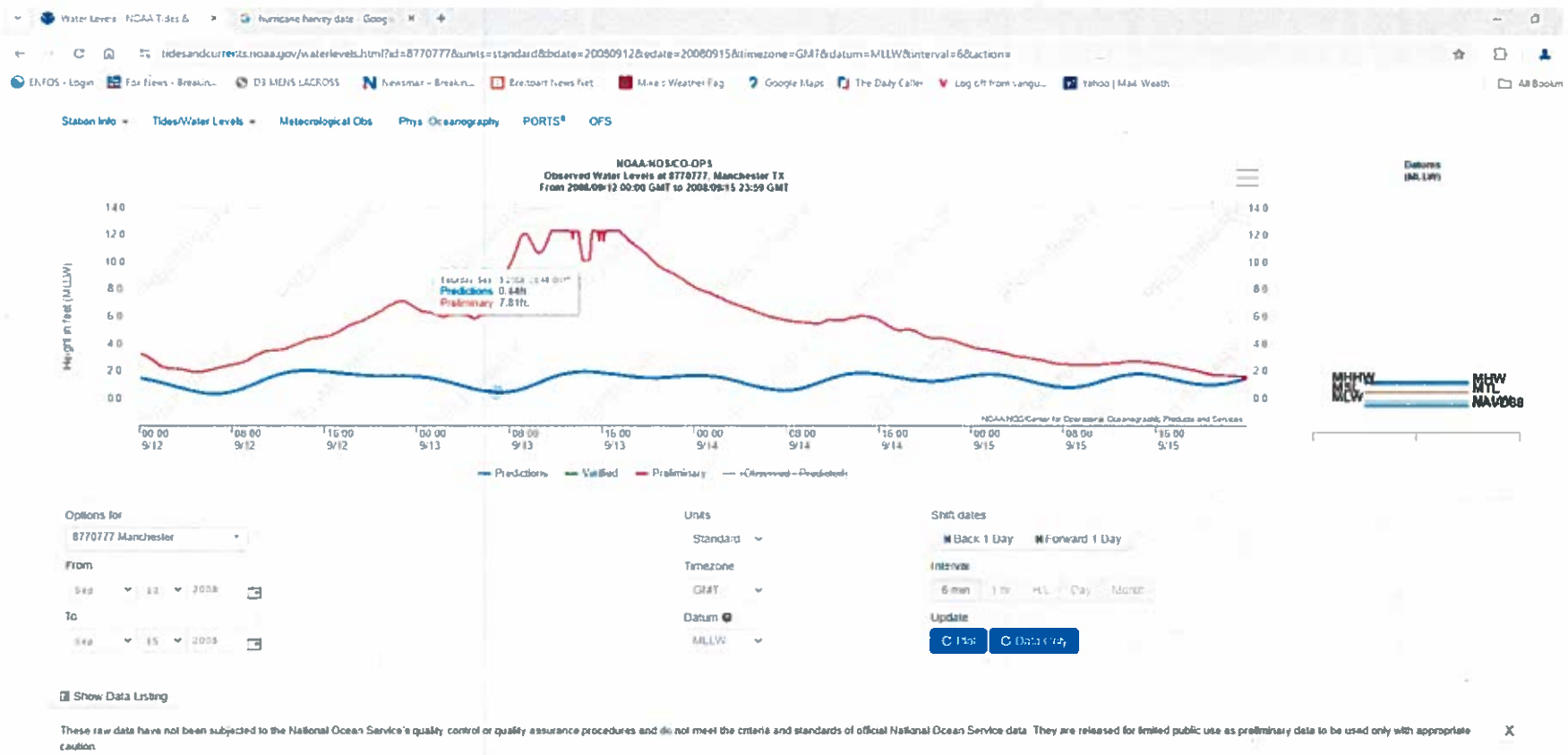
0 100 200
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

FACILITY SITE MAP
CP ATTACHMENT A-103

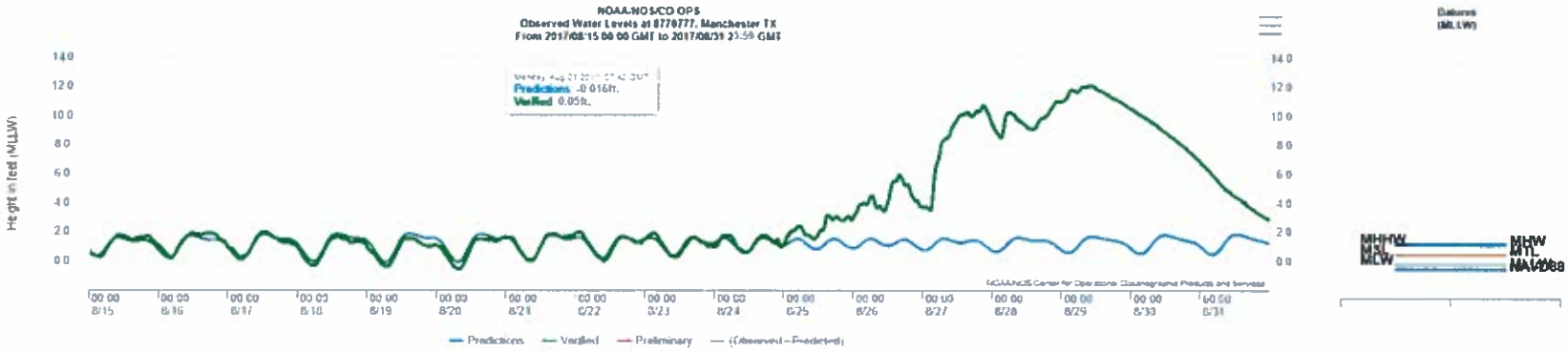
Ike - September 13, 2008: Maximum Storm Surge 12.37 feet at 17:00 GMT



Harvey Maximum - Tuesday August 29, 2017 @ 12.03 feet

Home / Products / Water Levels / 8770777 Manchester TX ☆ Favorite Stations

Station Info | Tides/Water Levels | Meteorological Obs | Phys. Oceanography | PORTS® | OFS



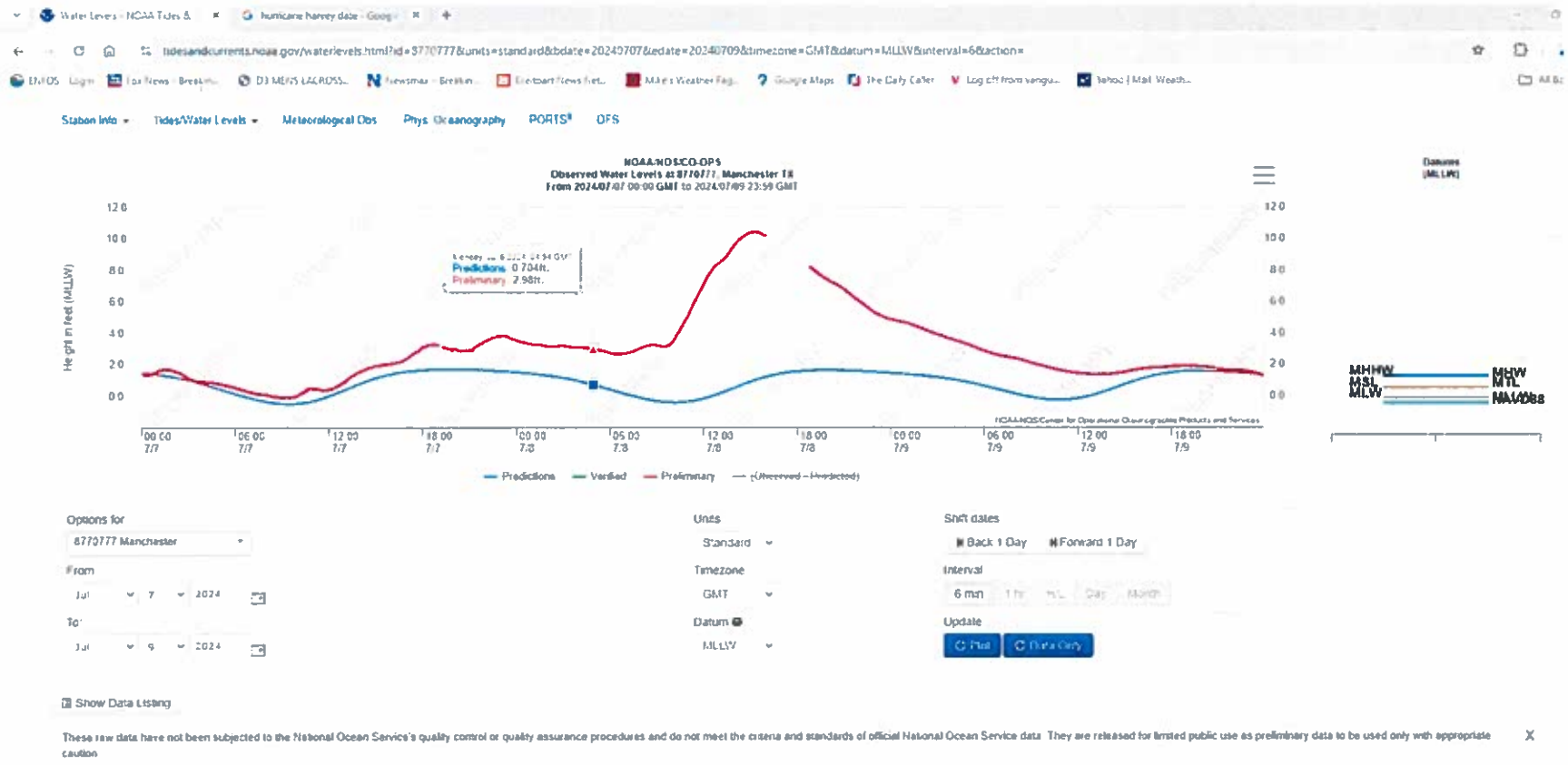
Options for
8770777 Manchester
From
Aug 15 2017
To
Aug 31 2017

Units
Standard
Timezone
GMT
Datum
MLLW

Shift dates
Back 1 Day | Forward 1 Day
Interval
6 min | 1 hr | H/L | Day | Month
Update
Plot | Data Only

Show Data Listing

Hurricane Beryl : July 8, 2024, Maximum storm surge 10 41 feet at 15 18 GMT



ATTACHMENT D

NHB/SEHB Deed Recordation

DEED RECORD FOR NORTH HOLDING BASIN

LEDERER/MILLER & ASSOCIATES REGISTERED CIVIL ENGINEERS LAND SURVEYORS

2990 Richmond Ave., Suite 105 Houston, Texas 77098 FAX (713) 529-6013 • Ph (713) 529-9124

February 27, 1991

FIELD NOTES
North Holding Basin

6.2673 Acres (or 273,001 square feet) of land out of the Ezekial Thomas Survey, A-73, in Harris County, Texas, and being more particularly described as follows, with respect to the Texas Plane Coordinate System, South Central Zone, (by surface distances):

BEGINNING at a point having coordinates: X= 3,196,352.58 and y= 708,886.60, on the south line of the 80-foot wide right-of-way of the T & NO RR at its intersection with the west line of the Arco 25-foot wide fee strip described in deed recorded in Volume 6031, Page 512, Harris County Deed Records, from which the intersection of said west line with the south right-of-way line of Clinton Drive, 100 feet wide, bears North 3° 26' 35" West 772.90 feet, and from which the City of Houston Survey Marker No. 5756-1010 bears North 68° 34' 39" East 2646.67 feet;

THENCE South 3° 26' 35" East with the west line of said fee strip 383.09 feet to a point for corner;

THENCE South 86° 45' 32" West, in part generally along a gravel roadway on top of a levee 701.40 feet to a point for corner;

THENCE North 3° 16' 53" West in part generally along the east side of an asphalt roadway 395.96 feet to a point for corner on the south line of said railroad right-of-way;

THENCE North 87° 48' 43" East with said south line 700.45 feet to the PLACE OF BEGINNING.

Chalmers R. Miller, Registered
Professional Land Surveyor No. 4222.

STATE OF TEXAS
REGISTERED
CHALMERS R. MILLER
4222
PROFESSIONAL
LAND SURVEYOR

4(gatxnhb1)

N050573

029-01-1397

03/13/91 00277986 N050573 $ 23.00

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

INDUSTRIAL SOLID WASTE
DISPOSAL SITE DEED RECORDATION

Pursuant to the Rules of the Texas Water Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Harris County, Texas in compliance with the recordation requirements of said rules:

I.

GATX Terminals Corporation has permanently deposited industrial waste on the land described herein. A copy of Notice of Registration No. 30573, including a description of wastes deposited and a description of the facility generating this waste is attached hereto and is made a part of this filing.

II.

This land has been used to manage industrial waste and its use is, therefore, restricted under 31 Tex. Admin. Code § 335.112(a)(6). Being 6.2674 Acres (or 273,001 square feet) of land out of the Ezekial Thomas Survey, A-73, in Harris County, Texas, and being more particularly described as follows, with respect to the Texas Plane Coordinate System, South Central Zone, (by surface distances):

BEGINNING at a point having coordinates: x = 3,196,352.58 and y = 708,886.60, on the south line of the 80-foot wide right-of-way of the T & NO RR at its intersection with the west line of the Arco 25-foot wide fee strip described in deed recorded in Volume 6031, Page 512, Harris County Deed Records, from which the intersection of said west line with the south right-of-

way line of Clinton Drive, 100 feet wide, bears North 3° 26' 35" West 772.90 feet, and from which the City of Houston Survey Marker No. 5756-1010 bears North 68° 34' 39" East 2646.67 feet;

THENCE South 3° 26' 35" East with the west line of said fee strip 383.09 feet to a point for corner;

THENCE South 86° 45' 32" West, in part generally along a gravel roadway on top of a levee 701.40 feet to a point for corner;

THENCE North 3° 16' 53" West in part generally along the east side of an asphalt roadway 395.96 feet to a point for corner on the south line of said railroad right-of-way;

THENCE North 87° 48' 43" East with said south line 700.45 feet to the PLACE OF BEGINNING.

This survey may be further described as being a tract of land containing 6.2673 acres out of the tract described in Volume 1163, Page 515 of the Harris County Deed Records in the Ezekial Thomas Survey-Abstract No. 73, Harris County, Texas.

Wastes present hereon have been classified by the Texas Water Commission as Class I, hazardous waste. Class I waste is defined as "[a]ny industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat, or other means, and may pose a substantial present or potential danger to human health or the environment when improperly processed, stored, transported, or disposed of or otherwise managed, including hazardous industrial waste." 31 Tex. Admin. Code § 335.1.

029-01-1399

III.

The owner of the site is GATX Terminals Corporation, a Delaware corporation, and its address is P. O. Box 486, Galena Park, Texas 77547-0486, where more specific information may be obtained from the plant manager.

EXECUTED this the 13th day of March, 1991.

GATX TERMINALS CORPORATION
A Delaware Corporation

By: _____
Name: _____
Title: _____

RET: SUE SNYDER
VINSON & ELKINS
FIRST CITY CENTER
[illegible]
[illegible]

023-01-1400

STATE OF TEXAS §

COUNTY OF HARRIS §

BEFORE ME, on this the 13th day of March, 1991, personally appeared Ralph Baker, Terminal Mgr. (title) of GATX Terminals Corporation, a Delaware corporation, known to me to be the person and agent of said corporation whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 13th day of March, 1991.

NAOMI OBAYA
Notary Public
STATE OF TEXAS
My Comm. Exp. AUG 30, 1993

Naomi OBaya
Notary Public in and for
the State of T E X A S

Naomi OBaya
Printed Name of Notary Public

My Commission Expires:
Aug. 30, 1993

029-01-1401

DW0550 TEXAS WATER COMMISSION 10-17-90
NOTICE OF REGISTRATION
SOLID WASTE MANAGEMENT

THIS IS NOT A PERMIT AND DOES NOT CONSTITUTE AUTHORIZATION OF ANY WASTE MANAGEMENT ACTIVITIES OR FACILITIES LISTED BELOW. REQUIREMENTS FOR SOLID WASTE MANAGEMENT ARE PROVIDED BY TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TEXAS WATER COMMISSION (TWC). CHANGES OR ADDITIONS TO WASTE MANAGEMENT METHODS REFERRED TO IN THIS NOTICE REQUIRE WRITTEN NOTIFICATION TO THE TWC.

DATE OF NOTICE: 09-21-90 REGISTRATION DATE: 05-18-76

REGISTRATION NUMBER: 30573 EPA I.D. NUMBER: TXD026481523

THE REGISTRATION NUMBER PROVIDES ACCESS TO STORED INFORMATION PERTAINING TO YOUR OPERATION. PLEASE REFER TO THAT NUMBER IN ANY CORRESPONDENCE.

COMPANY NAME: GATX TERMINALS CORPORATION
P.O. BOX 486
GALENA PARK, TEXAS 77547

GENERATING SITE LOCATION:
906 CLINTON DR, GALENA PARK, TX
CONTACT PERSON: LYNN JONES
PHONE: (713) 455-1231
NUMBER OF EMPLOYEES: LESS THAN 100
TWC DISTRICT: 07

GATX Terminals Corp
Galena Park, Texas

OCT 22 1990

RB ___ ___ CMD ___ AA ___
MAT ___ PM ___ SET ___ CS ___
TCP ___ OCP ___ EJ ___ ___
CSC ___ LB ___ MCB ___ FILE ___

REGISTRATION STATUS: ACTIVE
REGISTRATION TYPE: GENERATOR
HAZARDOUS WASTE STATUS:
GENERATOR

978930

I. WASTE GENERATED:

WASTE NUMBER	DESCRIPTION	CLASS	CODE	DISPOSITION
001	WASTEWATER TREATMENT SLUDGE	II	249000	ON-SITE/OFF-SITE
002	OIL TRAPPINGS/OIL SKIMMINGS	II	210690	ON-SITE/OFF-SITE
003	TANK BOTTOMS	I	152180	ON-SITE/OFF-SITE
004	TANK BOTTOMS	IH	952180	ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018,

029-01-1402

005 PIPELINE FLUSHINGS IH 906110 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024

006 PIPELINE FLUSHINGS I 106110 ON-SITE/OFF-SITE

007 ABSORBANT, HYDROCARBON CONTAMINATED IH 981510 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024

008 TANK WASHINGS IH 906330 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024

009 STORMWATER, CONTAMINATED IH 906870 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024

010 ORGANIC LIQUID, MIXED WASTESTREAM IH 913370 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024

011 TANK BOTTOMS, FUEL OIL I 152920 OFF-SITE

012 PLANT REFUSE, GENERAL MISC. II 279760 OFF-SITE

013 SOIL, CREOSOTE CONTAMINATED IH 978980 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): U051

014 WATER CONTAINING MISC ORGANICS IH 906990 OFF-SITE

029-01-1403

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): U037, U220, U228, D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021

015	STYRENE MONOMER	IH	919470	OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001

016	CRESOLS	IH	983710	OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): U052

017	D001 CHARACTERISTIC OF IGNITABILITY	IH	990001	OFF-SITE/SOLD FOR RECOVERY

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001

018	STILL BOTTOMS	I	151950	OFF-SITE
019	LAB WASTE	IH	950950	OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024

020	LAB WASTE	I	150950	OFF-SITE
021	SOIL, CONTAMINATED	IH	980490	OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):

022	SOIL, CONTAMINATED	I	180490	OFF-SITE

II. Shipping/Reporting: Pursuant to Section 335 of the Texas Administrative Code of the rules of the TWC pertaining to Hazardous Waste management, issuance of manifests and annual reporting are required for Off-site Storage/Processing/Disposal of the following wastes listed in Part I. All manifested wastes should be reported on the annual waste summary report and submitted to the TWC by the 25th of each January for the prior calendar year.

In addition for any of the following waste(s) manifested and shipped to Storage/Processing/Disposal facilities in any other state a waste shipment summary is required. All such shipments should be reported on the waste shipment summary report and submitted to the TWC no later than the 25th day of the month immediately succeeding the month in which the shipment was made. No waste shipment summary report is required for months when out of state shipments are not made.

003	152180	TANK BOTTOMS
004	952180	TANK BOTTOMS
005	906110	PIPELINE FLUSHINGS
006	106110	PIPELINE FLUSHINGS
007	981510	ABSORBANT, HYDROCARBON CONTAMINATED
008	906330	TANK WASHINGS
009	906870	STORMWATER, CONTAMINATED
010	913370	ORGANIC LIQUID, MIXED WASTESTREAM
011	152920	TANK BOTTOMS, FUEL OIL
013	978980	SOIL, CREOSOTE CONTAMINATED
014	906990	WATER CONTAINING MISC ORGANICS
015	919470	STYRENE MONOMER
016	983710	CRESOLS
,017	990001	D001 CHARACTERISTIC OF IGNITABILITY
018	151950	STILL BOTTOMS
019	950950	LAB WASTE
020	150950	LAB WASTE
021	980490	SOIL, CONTAMINATED
022	180490	SOIL, CONTAMINATED

III. ON-SITE WASTE MANAGEMENT FACILITIES:

FAC NO.	FACILITY	STATUS

029-01-1405

01 CONTAINER STORAGE AREA — ACTIVE
STORAGE FOR LESS THAN 90 DAYS
OF WASTE NUMBER(S) 001, 002, 003, 004, 005, 006, 007, 013, 015

02 TANK (SURFACE) — ACTIVE
STORAGE
OF WASTE NUMBER(S) 001, 005, 006, 008, 009, 010
TANK 29
WASTEWATER TANK (RCRA EXEMPT)

03 TANK (SURFACE) — ACTIVE
STORAGE
OF WASTE NUMBER(S) 001, 005, 006, 008, 009, 010
TANK 10-12
WASTEWATER TREATMENT TANK (RCRA EXEMPT)

04 SURFACE IMPOUNDMENT — INACTIVE
STORAGE
OF WASTE NUMBER(S) 001, 005, 006, 008, 009, 010
NORTH HOLDING BASIN

05 TANK (SURFACE) — ACTIVE
STORAGE
OF WASTE NUMBER(S) 001, 005, 006, 008, 009, 010
TANK 100-5
WASTEWATER TANK (RCRA EXEMPT)

06 TANK (SURFACE) — ACTIVE
STORAGE
OF WASTE NUMBER(S) 001, 005, 006, 008, 009, 010
TANK 100-6
WASTEWATER TANK (RCRA EXEMPT)

07 TANK (SURFACE) — INACTIVE
STORAGE/PROCESSING
OF WASTE NUMBER(S) 005, 006, 008, 009, 010
TANK 50
WW TREATMENT TANK (RCRA EXEMPT)

08 TANK (SURFACE) — INACTIVE
STORAGE/PROCESSING
OF WASTE NUMBER(S) 005, 006, 008, 009, 010
TANK 51
WW TREATMENT TANK (RCRA EXEMPT)

09 TANK (SURFACE) — INACTIVE
STORAGE/PROCESSING
OF WASTE NUMBER(S) 005, 006, 008, 009, 010
TANK 116
WW TREATMENT TANK (RCRA EXEMPT)

10 TANK (SURFACE) — INACTIVE
STORAGE/PROCESSING
OF WASTE NUMBER(S) 005, 006, 008, 009, 010

029-01-1406

11	TANK (SURFACE) STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010 TANK 25-1/WW TREATMENT TANK (RCRA EXEMPT)	INACTIVE
12	TANK (SURFACE) STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010, 014 TANK 32/WW TREATMENT TANK (RCRA EXEMPT)	ACTIVE
13	TANK (SURFACE) STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010, 014 TANK 3-9/WW TREATMENT TANK (RCRA EXEMPT)	ACTIVE
14	TANK (SURFACE) STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010, 014 ABOVE-GROUND OIL/WATER SEPARATOR WW TREATMENT TANK (RCRA EXEMPT)	ACTIVE
15	TANK STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010 IN-GROUND OIL/WATER SEPARATOR WW TREATMENT TANK (RCRA EXEMPT)	INACTIVE
16	LANDFILL DISPOSAL NORTH PIT	CLOSED
17	SURFACE IMPOUNDMENT (CLOSED AS A LANDFILL) PROCESSING/DISPOSAL OF WASTE NUMBER(S) 005, 006, 008, 009, 010 SOUTHEAST HOLDING BASIN	CLOSED
18	TANK STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010, 014 TANK 5-20/WW TREATMENT TANK (RCRA EXEMPT)	ACTIVE
19	TANK STORAGE/PROCESSING OF WASTE NUMBER(S) 005, 006, 008, 009, 010 DAF TANK/WW TREATMENT TANK (RCRA EXEMPT)	ACTIVE
20	TANK STORAGE/PROCESSING DAF TANK/WW TREATMENT TANK (RCRA EXEMPT)	ACTIVE

UNLESS OTHERWISE STATED ABOVE, FACILITIES ARE LOCATED
AT 906 CLINTON DR, GALENA PARK, TX
COUNTY OF HARRIS

029-01-1407

IV. RECORDS.

A. FOR PURPOSES OF FILING ANNUAL REPORTS PURSUANT TO TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TWC PERTAINING TO INDUSTRIAL SOLID WASTE MANAGEMENT, RECORDS SHOULD BE MAINTAINED FOR STORAGE, PROCESSING AND/OR DISPOSAL OF THE FOLLOWING WASTE(S) LISTED IN PART I:

003 152180 TANK BOTTOMS

004 952180 TANK BOTTOMS

005 906110 PIPELINE FLUSHINGS

006 106110 PIPELINE FLUSHINGS

007 981510 ABSORBANT, HYDROCARBON CONTAMINATED

009 906870 STORMWATER, CONTAMINATED

010 913370 ORGANIC LIQUID, MIXED WASTESTREAM

FILED
91 MAR 13 PM 4:18
COUNTY CLERK
HARRIS COUNTY, TEXAS

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW
THE STATE OF TEXAS }
COUNTY OF HARRIS }
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

MAR 13 1991

COUNTY CLERK,
HARRIS COUNTY, TEXAS

RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

DEED RECORD FOR SOUTHEAST HOLDING BASIN

187-74-1821

M813335

M813335

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

FIRST AMENDED INDUSTRIAL SOLID
WASTE DISPOSAL SITE DEED RECORDATION

Pursuant to the Rules of the Texas Water Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Harris County, Texas in compliance with the recordation requirements of said rules:

I.

GATX Terminals Corporation has permanently deposited industrial waste on the land described herein. A copy of Notice of Registration No. 30573, including a description of wastes deposited and a description of the facility generating this waste is attached hereto and is made a part of this filing.

II.

This land has been used to manage industrial waste and its use is, therefore, restricted under 31 Tex. Admin. Code § 335.112(a)(6). Being a 6997 sq. ft. tract (0.16063 acres), more or less, out of a 31.96 acre tract in the Ezekial Thomas Survey-Abstract No. 73, recorded in Volume 1163, Page 515 of the Deed Records of Harris County, Texas, said 6997 sq. ft. tract (0.16063 acres), being more particularly described as follows:

BEGINNING at a point, a concrete Texas monument, the Northwest corner of the Texas Company property as described in Volume 1163, Page 515 of the Harris County Deed Records, said point also being the Northeast corner of a tract of land described in Volume 6324, Page 409 of the Harris County Deed Records and located in the South

line of Clinton Drive, based on a right-of-way width of 100';

THENCE S01°49'38"E at a distance of 690.22' pass a 3/4" iron pipe located in the North Line of the T & N.O. Railway Company, based on a right-of-way width of 80' and continuing S01°49'38"E for a total length of 1858.62' along the West line of the aforementioned Texas Company property to a point;

THENCE N87°46'32"W a distance of 152.41' to a 60d nail, set for corner, THE PLACE OF BEGINNING OF THIS SURVEY;

THENCE N87°46'32"W a distance of 87.10' to a 60d nail set for corner;

THENCE N02°18'07"W a distance of 62.51' to a 60d nail set for corner;

THENCE N82°01'17"E a distance of 4.23' to a 60d nail set for corner;

THENCE N02°27'45"E a distance of 12.65' to a 60d nail set for corner;

THENCE N84°42'49"E a distance of 82.31' to a 60d nail set for corner;

THENCE S01°52'59"E a distance of 86.70' to THE PLACE OF BEGINNING.

This survey may be further described as being a tract of land containing 6997 sq. ft. (0.16063 acres) out of a 31.96 acre tract as described in Volume 1163, Page 515 of the Harris County Deed Records in the Ezekial Thomas Survey-Abstract No. 73, Harris County, Texas.

Wastes present hereon have been classified by the Texas Water Commission as Class I, hazardous waste. Class I waste is defined as "Any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong

187-74-1823

sensitizer or irritant, a generator of sudden pressure by decomposition, heat, or other means, and may pose a substantial present or potential danger to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed, including hazardous industrial waste."

III.

The owner of the site is GATX Terminals Corporation, a Delaware corporation, and its address is P. O. Box 486, Galena Park, Texas 77547-0486, where more specific information may be obtained from the plant manager.

EXECUTED this the 10TH day of September, 1990.

GATX TERMINALS CORPORATION
A Delaware Corporation

By: Roger C Swift
Name: Roger C. Swift
Title: Vice President
Southern Region

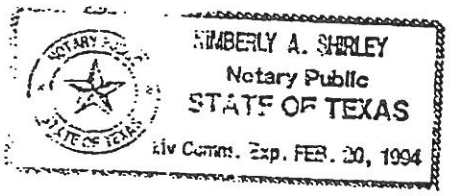
187-74-1824

STATE OF TEXAS §

COUNTY OF HARRIS §

BEFORE ME, on this the 10th day of September, 1990, personally appeared Roger C. Swift, Vice President ~~Plant Manager~~ of GATX Terminals Corporation, a Delaware corporation, known to me to be the person and agent of said corporation whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 10th day of September, 1990.



Kimberly A. Shirley
Notary Public in and for
the State of T E X A S

Kimberly A. Shirley
Printed Name of Notary Public

My Commission Expires:

February 20, 1994

187-74-1825

DW0550

TEXAS WATER COMMISSION
NOTICE OF REGISTRATION
SOLID WASTE MANAGEMENT

07-13-90

THIS IS NOT A PERMIT AND DOES NOT CONSTITUTE AUTHORIZATION OF ANY WASTE MANAGEMENT ACTIVITIES OR FACILITIES LISTED BELOW. REQUIREMENTS FOR SOLID WASTE MANAGEMENT ARE PROVIDED BY TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TEXAS WATER COMMISSION (TWC). CHANGES OR ADDITIONS TO WASTE MANAGEMENT METHODS REFERRED TO IN THIS NOTICE REQUIRE WRITTEN NOTIFICATION TO THE TWC.

DATE OF NOTICE: 06-22-90 REGISTRATION DATE: 05-18-76

REGISTRATION NUMBER: 30573 EPA I.D. NUMBER: TXD026481523

THE REGISTRATION NUMBER PROVIDES ACCESS TO STORED INFORMATION PERTAINING TO YOUR OPERATION. PLEASE REFER TO THAT NUMBER IN ANY CORRESPONDENCE.

COMPANY NAME: GATX TERMINALS CORPORATION
P.O. BOX 486
GALENA PARK, TEXAS 77547

GENERATING SITE LOCATION:
906 CLINTON DR, GALENA PARK, TX

CONTACT PERSON: LYNN R JONES
PHONE: (713) 455-1231
NUMBER OF EMPLOYEES: LESS THAN 100
TWC DISTRICT: 07

GATX Terminals Corp
Galena Park, Texas

JUL 18 1990

RB ___ RCL ___ SET ___ GS ___
WS ___ LJ ___ EJ ___ PM ___
CMB ___ DLP ___ MCB ___ ___
CEM ___ BJB ___ AA ___ FILE ___

REGISTRATION STATUS: ACTIVE
REGISTRATION TYPE: GENERATOR
HAZARDOUS WASTE STATUS:
GENERATOR

I. WASTE GENERATED:

WASTE NUMBER	DESCRIPTION	CLASS	CODE	DISPOSITION
001	WASTEWATER TREATMENT SLUDGE	II	249000	ON-SITE/OFF-SITE
002	OIL TRAPPINGS/OIL SKIMMINGS	II	210690	ON-SITE/OFF-SITE
003	TANK BOTTOMS	I	152180	ON-SITE/OFF-SITE
004	TANK BOTTOMS	IH	952180	ON-SITE/OFF-SITE
	EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):			
005	PIPELINE FLUSHINGS	IH	906110	ON-SITE/OFF-SITE

187-74-1826

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):

006 PIPELINE FLUSHINGS I 106110 ON-SITE/OFF-SITE

007 ABSORBANT, HYDROCARBON CONTAMINATED IH 981510 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001

008 TANK WASHINGS IH 906330 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):

009 STORMWATER, CONTAMINATED IH 906870 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):

010 ORGANIC LIQUID, MIXED WASTESTREAM IH 913370 ON-SITE/OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):

011 TANK BOTTOMS, FUEL OIL I 152920 OFF-SITE

012 PLANT REFUSE, GENERAL MISC. II 279760 OFF-SITE

013 SOIL, CREOSOTE CONTAMINATED IH 978980 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): U051

014 WATER CONTAINING MISC ORGANICS IH 906990 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): U037, U220, U228

015 STYRENE MONOMER IH 919470 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001

---

016 CRESOLS IH 983710 OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): U052

017 D001 CHARACTERISTIC OF IGNITABILITY IH 990001 OFF-SITE/SOLD FOR RECOVERY

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001

187-74-1827

018	STILL BOTTOMS	I	151950	OFF-SITE
019	LAB WASTE	IH	950950	OFF-SITE

EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS):

020	LAB WASTE	I	150950	OFF-SITE

II. Shipping/Reporting: Pursuant to Section 335 of the Texas Administrative Code of the rules of the TWC pertaining to Hazardous Waste management, issuance of manifests and annual reporting are required for Off-site Storage/Processing/Disposal of the following wastes listed in Part I. All manifested wastes should be reported on the annual waste summary report and submitted to the TWC by the 25th of each January for the prior calendar year.

In addition for any of the following waste(s) manifested and shipped to Storage/Processing/Disposal facilities in any other state a waste shipment summary is required. All such shipments should be reported on the waste shipment summary report and submitted to the TWC no later than the 25th day of the month immediately succeeding the month in which the shipment was made. No waste shipment summary report is required for months when out of state shipments are not made.

003	152180	TANK BOTTOMS
004	952180	TANK BOTTOMS
005	906110	PIPELINE FLUSHINGS
006	106110	PIPELINE FLUSHINGS
007	981510	ABSORBANT, HYDROCARBON CONTAMINATED
008	906330	TANK WASHINGS
009	906870	STORMWATER, CONTAMINATED
010	913370	ORGANIC LIQUID, MIXED WASTESTREAM
011	152920	TANK BOTTOMS, FUEL OIL
013	978980	SOIL, CREOSOTE CONTAMINATED
014	906990	WATER CONTAINING MISC ORGANICS
015	919470	STYRENE MONOMER
016	983710	CRESOLS
017	990001	D001 CHARACTERISTIC OF IGNITA

187-74-1828

BILITY

018	151950	STILL BOTTOMS
019	950950	LAB WASTE
020	150950	LAB WASTE

III. ON-SITE WASTE MANAGEMENT FACILITIES:

FAC NO.	FACILITY	STATUS
01	CONTAINER STORAGE AREA STORAGE FOR LESS THAN 90 DAYS OF WASTE NUMBER(S) 001, 002, 003, 004, 005, 006, 007	ACTIVE
02	TANK (SURFACE) STORAGE OF WASTE NUMBER(S) 001, 009, 010 TANK 29	ACTIVE
03	TANK (SURFACE) STORAGE OF WASTE NUMBER(S) 001, 010 TANK 10-12	ACTIVE
04	SURFACE IMPOUNDMENT STORAGE OF WASTE NUMBER(S) 001 RETENTION BASIN	INACTIVE
05	TANK (SURFACE) STORAGE TANK 100-5	ACTIVE
06	TANK (SURFACE) STORAGE TANK 100-6	ACTIVE

UNLESS OTHERWISE STATED ABOVE, FACILITIES ARE LOCATED
AT 906 CLINTON DR, GALENA PARK, TX
COUNTY OF HARRIS

IV. RECORDS.

A. FOR PURPOSES OF FILING ANNUAL REPORTS PURSUANT TO TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TWC PERTAINING TO INDUSTRIAL SOLID WASTE MANAGEMENT, RECORDS SHOULD BE MAINTAINED FOR STORAGE, PROCESSING AND/OR DISPOSAL OF THE FOLLOWING WASTE(S) LISTED IN PART I:

187-74-1829

003 152180 TANK BOTTOMS

004 952180 TANK BOTTOMS

005 906110 PIPELINE FLUSHINGS

006 106110 PIPELINE FLUSHINGS

007 981510 ABSORBANT, HYDROCARBON CONTAMI
NATED

009 906870 STORMWATER, CONTAMINATED

010 913370 ORGANIC LIQUID, MIXED WASTESTR
EAM

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.

THE STATE OF TEXAS }
COUNTY OF HARRIS }

I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

SEP 10 1990

COUNTY CLERK,
HARRIS COUNTY, TEXAS

FILED
SEP 10 4 32 PM '90
COUNTY CLERK
HARRIS COUNTY, TEXAS

RECORDER'S MEMORANDUM
ALL BLACKOUTS, ADDITIONS AND CHANGES WERE PRESENT AT THE TIME THE INSTRUMENT WAS FILED AND RECORDED

ATTACHMENT E

Exposure Information

ATTACHMENT E

Operating Permit for Corrective Action Management Unit / Former North Holding Basin (NOR 004)
KM Liquids Terminals LLC – Galena Park Terminal

EXPOSURE Information
Per 30 TAC 305.50 (8) and 40 CFR 270.10 (j)

The following is a summary of the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the operation of the Corrective Action Management Unit (CAMU)/ Former North Holding Basin (NHB) (NOR 004) at the KM Liquids Terminals LLC, Galena Park Terminal. This document is designed to fulfill the requirements of Section *II.G.7 Exposure Information* of the RCRA Part B Permit Application.

Introduction

A CAMU has previously been permitted and constructed at an earlier wastewater holding basin (Former NHB within the Kinder Morgan Galena Terminal. The resulting unit is referred to as the CAMU/Former NHB (NOR 004). The surrounding area is primarily industrial or undeveloped. The purpose of the exposure assessment is to consider potential foreseeable releases, pathways of exposure, and the magnitude and nature of potential exposures to hazardous releases from the unit.

Exposure from Foreseable Normal Operations and Potential Accidental Releases

Exposure from foreseeable normal operations would be limited to onsite personnel involved with excavation, transportation, treatment, and disposal of waste destined for the CAMU. During excavation and handling of soils, workers involved with operations have the potential to be exposed to chemicals released from the soil. Transportation of soil to the CAMU will not occur on public roadways and will be limited to the non-public roadways at the Galena Park Terminal. Under foreseeable normal operations and potential accidental realeases, it appears that exposure to general public would be minimum, if any. Exposure from accidental releases would be similar in nature and magnitude to potential exposures from the Fromer NHB and existing terminal operations.

Potential Pathways of Human Exposure

The purpose of assessing potential pathways is to evaluate which pathways might have the potential to expose the public.

Potential releases from the site to the following media were considered:

- Air

- Surface water
- Groundwater
- Soil

Potential pathways of human exposure to hazardous wastes or constituents would be limited to inhalation, particale ingestion, and dermal contact. Potential receptors are classified into three groups:

- Onsite workers involved with CAMU operations
- Other onsite employees
- Offsite population

Potential exposure will be limited to onsite workers involved with management of CAMU wastes.

A pathway for exposure from soils may occur during excavation, transportation, treatment and/or disposal of soil from corrective action areas, resulting in onsite workers involved with CAMU operations being exposed to contaminants. In order to monitor the concentrations of exposure, real time air monitoring will be performed while operations are conducted within the limits of the CAMU. No measurable concentrations of organic vapors are expected during CAMU activities. Releases or exposure may be in the form of volatile chemicals to the atmosphere and/or fugitive emissions generated from earth-moving activities.

In order to prevent exposure to individuals not directly involved with CAMU operations, access to the areas where CAMU operations occur will be restricted. All workers involved in handling, transportation, or treatment of soil will wear appropriate personal protective equipment, limiting potential exposure.

Shallow groundwater in the vicinity of the site is not a useable water supply, hence, groundwater is not a pathway. Shallow groundwater is presently not used and not expected to be used as a water supply due to low groundwater yields from the shallow water-bearing zone, poor water quality in this zone, and the continued availability of a municipal water supply. In addition, shallow groundwater is too deep to be encountered during normal construction activities. It is not likely that surface water will be affected by a potential release at the CAMU.

The CAMU has been construced in the footprint of the Former NHB. The Former NHB is in corrective action for groundwater due to releases of hazardous constituents from the former unit. The groundwater corrective action consists of a series of groundwater extraction wells that pump the affected groundwater

to an offsite treatment plant. The goal of the extraction system is create hydraulic contaiment of the affected groundwater and to attain the Groundwater Protection Standards (GWPSs) as established by the Compliance Plan. Containment of the plume will break the potentially complete groundwater to surface water transport pathway (Panther Creek). Potentiometric surface maps in the Geology Report (Attachment K) show that groundwater containment has been achieved. Therefore, future potential releases from the CAMU cannot reach Panther Creek, as long as the extraction system is operating.

Magnitude and Nature of Human Exposure Resulting From a Release

The potential magnitude and nature of human exposure from a release would be based on concentrations of contaminants contained within the soils being managed within the CAMU. The expected contaminants of primary concern are petroleum hydrocarbons. The exposure of CAMU workers is expected to be of short duration. Adequate monitoring and use of appropriate personal protective equipment during operation of the CAMU will mitigate potential health effects. Additionally, access to the CAMU is restricted with barricades and signs in order to eliminate exposure to individuals not involved in CAMU operations.

ATTACHMENT F

Personnel Training Plan

ATTACHMENT F

Personnel Training Plan Summary
KM Liquids Terminals LLC – Galena Park Terminal

Overview

The following pages describe the Personnel Training Plan designed to provide KM Liquids Terminals LLC (Kinder Morgan) employees with sufficient instruction so that they may perform their duties in a safe manner. This outline was prepared to demonstrate compliance with 40 Code of Federal Regulations (CFR) Part 264.16 on Personnel Training. The Personnel Training Plan consists of a combination of classroom and field training that ensures Kinder Morgan employees know the appropriate and safe management procedures to follow when dealing with hazardous waste in order to protect themselves from injuries and illnesses.

Personnel Training Instruction

The training program is directed by the Training Manager. The Compliance Manager, who is knowledgeable of RCRA regulations and understands the hazards and risks associated with hazardous waste, is responsible for the content of the hazardous waste training elements. Kinder Morgan supervisiors are responsible for providing employees with on-the-job training and supervision. The instruction is job-specific and directly related to the job description of the employee. Additionally, new employees and contractors are not allowed to work unsupervised until they have successfully completed all initial training requirements.

Recordkeeping

Kinder Morgan employees are required to receive their training within six months after the date of employeement and an annual refresher is administered thereafter. All training records on current employees are kept until closure of the facility and all training records on former employees are kept for at least three years from the date the employee last worked at the facility in accordance with the Kinder Morgan document retention policies set forth by the Procurement Department. The training consists of hazardous waste and emergency response elements, which Kinder Morgan employees must successfully complete prior to working in unsupervised positions within the Galena Park Terminal. The following table illustrates the hazardous waste and emergency response training elements that are required for each job title.

RCRA Training Matrix for KM Liquids Terminals (Galena Park)

APPLICABILITY: Employees involved in hazardous waste operations.

FREQUENCY: Successfully complete the initial training within six months after the date of employment or assignment to a facility, or to a new position at a facility, whichever is later. New employees and contractors must not work in unsupervised positions until they have completed the initial training. Facility personnel must take part in an 8-hr annual review of the initial training.

Training element		Job Titles						
	Compl Mgr	Sr EHS Spc - W / WW	Designated EHS Tech - Contractor	EHS Spc - Fire & Safety	Operations Manager ERT	Operations ERT	Lab Tech	I&E Tech
Initial HazwoperTraining	24HR Initial	40HR Initial	40HR Initial	24HR Initial	24HR Initial	24HR Initial	24HR Initial	24HR Initial
Hazardous waste training elements								
Container management	✓	✓	✓	✓	✓	✓	✓	✓
Hazardous waste regulations	✓	✓	✓	✓	✓	✓	✓	✓
Inspections	✓	✓	✓	✓	✓	✓	✓	✓
Making waste determinations	✓	✓	✓	✓	✓	✓	✓	✓
Pretransportation (manifests/labels)	✓	✓	✓	✓	✓	✓	✓	✓
Properties of facility wastes	✓	✓	✓	✓	✓	✓	✓	✓
Reporting and recordkeeping	✓	✓	✓	✓	✓	✓	✓	✓
Waste minimization	✓	✓	✓	✓	✓	✓	✓	✓
Waste packaging	✓	✓	✓	✓	✓	✓	✓	✓
Universal waste handling	✓	✓	✓	✓	✓	✓	✓	✓
Emergency response training elements								
Communications, alarms and evacuation routes	✓	✓	✓	✓	✓	✓	✓	✓
Contingency plan implementation, emer. Response procedures	✓	✓	✓	✓	✓	✓	✓	✓
Emergency equip use, inspection and repair	✓	✓	✓	✓	✓	✓	✓	✓
Response to fire, explosion. ERT members only	✓	✓	✓	✓	✓	✓	✓	✓

Job Functions and Titles

The following table on page 3 shows job positions and personnel at the Kinder Morgan Galena Park Terminal, which are directly or indirectly involved in hazardous waste management. The function of each job position and associated training requirements for each position are also presented.

Job Titles and Functions

Job Title / Employee	Job Description - RCRA Specific	Qualifications
Compliance Manager - Scott Eady	Responsible for overseeing all hazardous waste management and emergency response training and procedures are properly completed to remain in compliance.	BS/BA in Environmental Science, Engineering or other related field. Knowledgeable of RCRA regs.Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection.
Remediation Manager -Johnny Kennedy	Supports the Compliance Manager and Waste/Wastewater Environmental Health and Safety Specialist with hazardous waste management acitivities.	BS/BA in Environmental Science, Engineering or other related field. Knowledgeable of RCRA regs.Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection.
Waste / Wastewater (W/WW) Environmental Health and Safety Specialist (EHS) - Johnny Salinas	Responsible for all hazardous waste mamagement funtions at the facilities including paperwork, inspections and physical activities (e.g., moving and labeling containers, collecting samples).	High School Education. Knowledgeable of RCRA regs.Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection. Familiar With RCRA regulations.
W/WW EHS Specialist - Johnny Salinas or designated EHS Technician - Contractor	Supports the W/WW EHS Specialist with all hazardous waste acitivities including packing and labeling.	High School Education. Knowledgeable of RCRA regs.Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection. Familiar With RCRA regulations.
EHS Specialist (Fire & Safety) - Zachary Ward	Responsible for all emergency response activity and has few hazardous waste funtions.The position is also delegated as the safety officer and is responsible for all personnel safety in the event of an emergency.	High School Education. Awareness of RCRA regs and response procedures. Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection.
Operations Manager - Brandon Rogers	Responsible for production activities and has limited hazardous waste management functions, supervises staff that performs physical hazardous waste activities such as filling satellite containers. The position is also designated as the emergency coordinator and is responsible for directing facility personnel in the event of an emergency.	High School Education. Awareness of RCRA regs and response procedures. Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection.
Operations ERT Members / refer to LMS profile for current list of members	Respond in an emergency event. Responsible for few hazardous waste management functions; performs physical waste activities (i.e. moving and labeling containers, they will place material in satellite drums. Will also respond in the event of an emergency.	High School Education. Awareness of RCRA regs and response procedures. Understand the hazards and risks associated with haz waste. Understand proper PPE selection.
Lab Technician - refer to LMS profile for current list of dept members	Handle Universal Waste generated at lab building.	High School Education. Awareness of RCRA regs and response procedures. Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection.
I & E Technician - refer to LMS profile for current list of dept members	Handle Universal Waste generated at lab building.	High School Education. Awareness of RCRA regs and response procedures. Understand the hazards and risks associated with hazardous waste. Understand proper PPE selection.

Hazardous Waste Units

A description of the hazardous waste units that are present at the Galena Park Terminal is provided to Kinder Morgan employees during the annual hazardous waste training presentations. The presentation provides Kinder Morgan employess a description of each hazardous waste unit at the terminal and where the units are located. A test on the presented material is administered to the Kinder Morgan employees upon completion of the presentation.

ATTACHMENT G

Security System

ATTACHMENT G

Security System

KM Liquids Terminals LLC – Galena Park Terminal

Overview

KM Liquids Terminals LLC (Kinder Morgan) – Galena Park Terminal has a security system designed to prevent unknowing entry and to minimize the possibility for the unauthorized entry of person or livestock onto the active portion of the Terminal where the Southeast Holding Basin (SEHB) in the Central Plant and the Former North Holding Basin (NHB) in the West Plant are located.

This security system consists of 24-hour surveillance of the active part of the Terminal and a combination of natural and artificial barriers around the facility; controlled access to the Terminal; and easily visible warning signs posted around the Terminal. The following pages discuss the safety system components.

Surveillance System and Barrier

Surveillance System

40 CFR 264.14 requires that owners or operators of hazardous waste facilities have a 24-hour surveillance system which continuously monitors and controls entry onto the active portion of the facility; or an artificial or natural barrier which completely surrounds the active portion of the facility.

Kinder Morgan meets both of these requirements. The Terminal is operated on a two-shift, 24-hour basis. At all times, the active portion of the Terminal is populated with trained Kinder Morgan personnel who not only monitor operational activities, but also control access to the facility. In addition, Kinder Morgan also has a security guard on duty at all times who ensures positive controls on facility entry and performs perimeter patrols.

Barrier

The Kinder Morgan Terminal is completely surrounded by a combination of natural and man-made barriers, which control access to active portions of the facility.

The site is surrounded on the north, east, and west sides by a 6 foot high chain-link fence topped with 3 strands of razor wire and controlled access points. The south side of the facility is bordered by similar chain-link fencing and the Houston Ship Channel, a natural barrier.

Controlled Areas

As mentioned above in this section on safety systems, the Kinder Morgan Terminal is protected by fences and a natural barrier.

Entry into the facility is controlled 24-hours a day by railroad arms monitored by the Customer Service Center (CSC). Remote door openers are issued to authorized Kinder Morgan personnel. Additionally, the Terminal is a TWIC-compliant facility which means all all personnel entering the Terminal must possess a current TWIC card in order to gain entry.

Warning Signs

40 CFR 264.14 requires that signed with the legend, “Danger-Unauthorized Personnel Keep Out” be posted at each entrance to the active portion of a facility, and at other locations, in sufficient number to be seen from any approach to the active portions of the facility. Warning signs are posted at each entrance to the facility, in addition to multiple locations on the fence line surrounding the facility. Warning signs are also located at the entrance to the CAMU since it is currently active and the signs are legible from a distance of 50 feet and are in English and Spanish.

ATTACHMENT H

Inspection Schedule

ATTACHMENT H

Inspection Schedule
KM Liquids Terminals LLC – Galena Park Terminal

Inspection Schedule

The KM Liquid Terminals LLC (Kinder Morgan) Galena Park Terminal has a comprehensive inspection program designed to detect malfunctions, deterioration, or operator errors which may cause or lead to the release of hazardous waste constituents to the environment or which may pose a threat to human health. Inspections of the inactive, closed Southeast Holding Basin (SEHB – NOR 017) are performed quarterly. Inspections of the operating Corrective Action Management Unit (CAMU)/Former North Holding Basin (NHB – NOR 004) are conducted weekly.

Kinder Morgan also routinely inspects related components to the Hazardous Waste Management Units (HWMU) such as monitoring equipment, safety and emergency equipment and security devices.

Southeast Holding Basin (SEHB - NOR 017)

Kinder Morgan performs inspections to ensure the integrity of the SEHB cap. Trained personnel conduct quarterly inspections to check the integrity of the cap throughout the post-closure period. The quarterly inspection will include checking the cap for cracks, deterioration, and subsidence.

Kinder Morgan will also inspect the landfill benchmark on a quarterly basis to ensure the presence of the benchmark or note if any damage to the benchmark has occurred.

The post-closure inspection schedule for the cap, landfill benchmark and perimeter fence is as follows and is included in Table III.D:

Inspection Item(s)	Inspection Criteria	Frequency
Final Cap	*Erosion *Non-Uniform Subsidence	Quarterly
Benchmark	*Damage *Accuracy Verification	Quarterly Five Year
Perimeter Fence	*Damage	Quarterly

ATTACHMENT H

Inspection Schedule
KM Liquids Terminals LLC – Galena Park Terminal

CAMU/Former North Holding Basin (NHB – NOR 004)

The CAMU/Former NHB is inspected weekly for freeboard, vegetative cover on the dike walls and the presence of dike erosion.

The inspection schedule is as follows and is included in Table III.D:

Inspection Item(s)	Inspection Criteria	Frequency
Freeboard	*Two Feet	Weekly
Dike	*Leaks, erosion or cracks	Weekly

All items found to be non-sufficient will be repaired, replaced or removed expeditiously.

Monitoring and Recovery Wells

Kinder Morgan currently has monitoring wells in place at the SEHB and CAMU/Former NHB. The wells will be inspected on a semiannual basis (during the groundwater sampling events) to ensure the integrity of the wells. The groundwater monitoring equipment will also be inspected for missing locks, defective covers and casing by trained personnel.

The inspection schedule is as follows and is included in Table III.D:

Inspection Item(s)	Inspection Criteria	Frequency
Well Lock	*Is it present *Damaged	Semiannually – at time of sampling
Surface Seals	*Deterioration *Tampering	Semiannually – at time of sampling
Well Casing (if exposed)	*Deterioration *Tampering	Semiannually – at time of sampling
Well Caps	*Is it present *Deterioration	Semiannually – at time of sampling
Monitor Wells	*Silt Build-up	Semiannually – at time of sampling

All items found to be non-sufficient will be repaired, replaced or removed expeditiously.

ATTACHMENT H

Inspection Schedule
KM Liquids Terminals LLC – Galena Park Terminal

Recordkeeping

As required by 40 CFR 264.195, Kinder Morgan keeps written records of the inspections. The inspection records include the date and time of inspection, inspector name, description of observations, and remedial actions taken (with completion date) to correct any issues. These are kept at the facility and are available upon request.

EXAMPLE INSPECTION LOGS

KM Liquids Terminals LLC

Galena Park Facility

Inspected By: _____

Date: _____

CAMU

WEEKLY INSPECTION LOG

Unit Area	Element	Possible Error, Malfunction or Deterioration	Problem (Y/N)	Nature of Problem	Corrective Action Taken and Date Completed	Additional Comments
CAMU/Former NHB	Freeboard	Less than Two Feet?				
	Dike	Signs of Leaking?				
		Signs of Erosion?				
		Vegetation or shell cover in good condition?				

Warning Sign Present? (Y/N)	
TCEQ Permit Unit Sign Present (Y/N)	

KM Liquids Terminals LLC

Galena Park Facility

Inspected By: _____

Date: _____

SOUTHEAST HOLDING BASIN

QUARTERLY INSPECTION LOG

Unit Area	Element	Possible Error, Malfunction or Deterioration	Problem (Y/N)	Nature of Problem	Corrective Action Taken and Date Completed	Additional Comments
SEHB	Final Cap	Erosion				
		Non-Uniform Subsidence				
	Benchmark	Damage				
		Accuracy Verification				
	Perimeter Fence	Damage				
		Completeness				

Warning Sign Present? (Y/N)	
TCEQ Permit Unit Sign Present (Y/N)	

GROUNDWATER MONITORING WELL
INSPECTION FORM
KM LIQUIDS TERMINALS LLC - Galena Park Terminal

Inspection Date: _____

CORRECTIVE ACTION AREA OR PERMIT UNIT AREA: _____

Inspected By: _____

Inspected By: _____

WELLS	PROTECTIVE POSTS		CONCRETE PAD		PROTECTIVE CASING		WELL LOCK		WELL NAME		WELL CAP		TOP OF CASING		Well Silting	
	(missing, leaning, etc.)		*(cracked, damaged, etc.)*		*(rusted, damaged, holes, etc.)*		*(missing, rusted, works, etc)*		*(present, legible, faded, etc.)*		*(present, damaged, etc.)*		*(elevation point marked)*		*(see depth to water form for well total depth)*	
	Problem	Date Problem Corrected	Problem	Date Problem Corrected	Problem	Date Problem Corrected	Problem	Date Problem Corrected	Problem	Date Problem Corrected	Problem	Date Problem Corrected	Problem	Date Problem Corrected	Problem	Date Problem Corrected

ATTACHMENT I

Waste Analysis Plan

WASTE ANALYSIS PLAN
CORRECTIVE ACTION MANAGEMENT UNIT/
FORMER NORTH HOLDING BASIN

NOR Unit No. 004

Prepared for:

KM Liquids Terminals LCC
906 Clinton Drive
Galena Park, Texas 77547

Prepared by:

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.
Houston Office
13003 Southwest Freeway, Suite 190
Stafford, Texas 77477

Update August 2013

TABLE OF CONTENTS

1.0 INTRODUCTION 2

2.0 FACILITY DESCRIPTION 2

3.0 WASTE DESCRIPTION 3

4.0 WASTE CHARACTERIZATION 4

4.1 CAMU Treatment and Disposal Process 5

4.2 Sample Collection 6

4.3 Sample Preservation 6

4.4 Sample Documentation 7

4.5 Sample Analysis 7

4.6 Quality Assurance/Quality Control 7

4.7 Analytical Data Review 7

5.0 CHARACTERIZATION FREQUENCY 8

LIST OF TABLES

Table 1 Analytical Parameters and Methods for Waste Characterization

Table 2 CAMU Parameter Characterization Criteria

Table 3 Soil Standards Used in the Selection of CAMU Treatment Standards

Table 4 Analytical Parameters and Hold Times for Characterizing Waste

1.0 INTRODUCTION

This Waste Analysis Plan (WAP) has been prepared in accordance with the requirements of the in-place closure requirements presented in 40 Code of Federal Regulations (CFR) Part 265 Subpart G and 31 Texas Administrative Code (TAC) Section 335.118. This WAP outlines the methods and procedures employed to characterize the solid wastes managed within the Corrective Action Management Unit (CAMU)/ Former North Holding Basin (NHB; Notice of Registration [NOR] 004) at the Galena Park Terminal of KM Liquids Terminals LLC (Kinder Morgan). The CAMU receives facility remediation wastes for treatment and disposal.

2.0 FACILITY DESCRIPTION

Kinder Morgan operates a bulk liquid storage terminal on the Houston Ship Channel in Galena Park, Texas, east of Houston. The 373.721-acre Galena Park Terminal is located at 906 Clinton Drive in Galena Park, Texas. Galena Park is an incorporated suburban community approximately 9 miles east of downtown Houston in Harris County. The facility is on the north bank of the Houston Ship Channel and is within the jurisdiction of the Houston Port Authority District, which administers activities on the Ship Channel.

The CAMU/Former NHB is an existing permitted hazardous waste management unit used to treat and dispose of solid wastes generated during the site corrective actions at the facility. The Former NHB portion of the combined unit was initially used to collect wastewater and storm water in the western portion of the plant. The unit was constructed in 1975 and operated up to 1988. Effluent from the wastewater/storm water collection system passed through an oil/water separator before being discharged to the Former NHB. The Former NHB is a 480-foot by 276-foot rectangular unit. The average depth of the basin is 18.3 feet from the top of the berm. The total capacity of the basin is approximately 88,000 cubic yards. The floor of the basin is sloped slightly to the east to provide drainage. In 1988, the NHB was retired from service.

In 1994 the Former NHB was proposed as a CAMU in compliance with 40 CFR 264 Subpart S to treat and dispose of remediation wastes generated by corrective actions and closure of the Former NHB at the facility. The engineering design of the CAMU was proposed in May 1995. In 1995 an engineering report for the CAMU was prepared and submitted to the Texas Natural Resource Conservation Commission (now known as the Texas Commission on Environmental Quality [TCEQ]) as part of a permit for closure of the Former NHB and construction and operation of the CAMU.

The permit was subsequently granted in 1995 and the facility's NOR identifies the CAMU/Former NHB as Unit #004. An Engineering Certification Report, providing the construction details for the CAMU/Former NHB was prepared by Fugro Environmental, Inc. in 1996. Malcolm Pirnie, Inc. prepared a CAMU Management Plan for the unit in 1998 that presented details pertaining to the operation of lead stabilization and biotreament activities conducted within the CAMU. CH2M Hill, Inc. (CH2M Hill) and ARCADIS each prepared addendums to the CAMU engineering reports in 2003.

The document presented under this cover has also been prepared using information previously presented within the engineering reports described above. CH2M Hill also prepared an addendum WAP in 2003. This WAP includes information presented within the CH2M Hill addendum.

3.0 WASTE DESCRIPTION

The CAMU is used to dispose of remediation waste generated during Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) and other site related investigation activities. Analytical results collected during previous investigations are used to evaluate soil concentrations detected in soil. **Table 1** presents a general listing of analytical parameters potentially associated with areas of investigation at the Galena Park Terminal. Wastes disposed of in the CAMU are derived from five primary sources that include:

- Soil impacted during historical lead and total petroleum hydrocarbons (TPH) management in Tracts B and C of the Galena Park facility;
- Waste accumulated as a result of the RFI;
- Impacted soil excavated during the remediation of Solid Waste Management Units (SWMUs);
- Affected soils within identified SWMUs/Areas of Concern (AOCs) impacted by releases; and
- Tank 100-5 bottom sediments, which accumulated during the time period that the tank was used to contain storm water. The tank has since been converted to service as a product storage vessel.

No free liquids are placed within the CAMU. Storm water accumulation within the CAMU is directed to the Gulf Coast Waste Authority for disposal.

- All remediation wastes placed within the CAMU are evaluated as described within this Plan and must meet the following criteria:
- Compatibility with wastes already placed in the CAMU;
- Ability to be biotreated or meet disposal standards; and
- Absence of contaminants or concentrations that is toxic to the biotreatment/treatment process (applicable to wastes in the treatment area, only).

Remediation wastes that are not compatible or containing concentrations of compounds that cannot be biotreated will not be placed in the CAMU. Incompatible wastes will be placed in containers in the Container Storage Area until proper treatment and/or disposal arrangements can be made. Remediation wastes that meet the disposal standard for CAMU disposal will not require additional treatment. Remediation wastes awaiting treatment are stockpiled separately in an interim storage portion of the CAMU. Analytical data for remediation waste will be collected prior to placement in the CAMU. **Table 2** includes a listing of constituents associated within soils disposed within the CAMU with corresponding quantification and proposed treatment and disposal levels. Descriptions of Treatment Standards developed for the CAMU are presented in Section 4.0 (Waste Characterization).

Excavated soils are treated and disposed in the CAMU based on concentrations of contaminants present in the material. Potential chemicals of interest primarily include TPH, benzene, toluene, ethylbenzene, xylenes (BTEX), and lead. Additional potential contaminants include various volatile and semivolatile organic compounds and herbicides managed at the site. Appendix VIII constituents previously identified as potentially present in the waste are listed in **Table 2**. These constituents are

included in the waste characterizations utilized to determine applicability of the excavated material for treatment and disposal within the CAMU.

Soils requiring stabilization are treated prior to disposal in the CAMU. Lead stabilization will consist of mixing fly ash (or other material, as appropriate) and water in soil. Soils requiring biological treatment are placed in the designated biological treatment section of the CAMU until the constituent concentrations reach levels appropriate for disposal. As part of biotreatment, nutrients and moisture are added to enhance bioremediation, if necessary. Samples will be collected and analyzed for TPH and BTEX to track the progress of remediation. Confirmation sampling for volatile organic constituents (VOCs), semivolatile organic constituents (SVOCs), and leachable BTEX will occur upon completion of the treatment activities.

4.0 WASTE CHARACTERIZATION

Characterization of the waste material is performed to ensure that applied material does not exceed the concentration limits established for management in the CAMU. Available data indicate that the soil has not historically been classified as ignitable, reactive, or corrosive. Liquid wastes are not disposed of or treated in the CAMU. Any water observed in a container of soils being transferred to the CAMU is pumped to the wastewater treatment system. The CAMU is operated in accordance with CAMU regulations and as specified within the CAMU Engineering Report.

Analytical data for soil samples representative of material placed within the CAMU will be collected prior to placement in the unit. The data will be collected during the RFI or related site investigations for general parameters listed on **Table 2**. Resulting data will be compared to proposed treatment standards shown on **Table 2**. The proposed treatment standards shown on **Table 2** include the constituents most likely associated with the waste soils. These treatment standards are selected from among the highest level within the following published criteria:

- Texas Risk Reduction Plan (TRRP) Tier 1 Commercial/Industrial Soil Protective Contaminant Levels (PCLs) for Direct Contact Exposure Pathway ($^{Tot}Soil_{Comb}$); and
- TRRP Tier 1 Commercial/Industrial PCLs for soil-to-groundwater leaching of constituents of concern (COCs) to Class 1 and 2 Groundwater ($^{GW}Soil_{Ing}$).

Criteria for TPH, total leachable BTEX, and leachable lead include the following:

- Soil concentrations for TPH must be at or less than 2,100 milligrams per kilogram (mg/kg), based on the lowest carbon range for the aliphatic/aromatic fractionation of TPH;
- Total leachable BTEX in soil must be at or less than 100 milligrams per liter (mg/L); and
- Total leachable lead in soil must be less than 5 mg/L.

Table 3 provides a listing of soil standards used in selection of CAMU Treatment Standards.

Prior to placement in the CAMU for treatment, soil samples representative of each of the primary source areas will initially be collected for analysis every 100 cubic yards. If more than 100 cubic

yards of material is removed from the same source, samples will be collected every 500 cubic yards to confirm homogeneity.

4.1 CAMU Treatment and Disposal Process

CAMU operations depend on the concentrations of hazardous constituents (organic chemicals) or lead in the soil and proceed sequentially. The CAMU will be utilized to stabilize and store lead and TPH-affected soil. Treatment of lead contaminated soil will be conducted as described below:

- Soils requiring stabilization for lead, or other reasons, will be spread out in 10-inch lifts over approximately one half of the CAMU, allowing for treatment of up to 2,800 cubic yards per batch. The first batch of soil to be treated will be placed directly in Area 1 as specified within the 2003 CAMU Engineering Report. The subsequent batch of soils will be stockpiled in Area 2 to await treatment as specified within the 2003 CAMU Engineering Report;
- Stabilization will be achieved by mixing the optimal volume of fly ash (or other material, as appropriate), as determined by a pilot test, into the soil by means of the Caterpillar SS2250B and adding the proper quantity of water. Treated soil will then be allowed to cure for 3 days prior to placing additional layers of wastes, as necessary; and
- Once soils have been demonstrated to meet disposal criteria, they will be graded to drain to a sump at the northeastern end of the CAMU.

Soils affected by organic compounds and TPH will be placed in the CAMU for disposal. Soils with constituent concentrations above the treatment standards established in **Tables 2** and **3** will be subject to bioremediation or other treatment, prior to final disposal. Soils that meet treatment standards will be placed directly in the final disposal locations. Management of organics-affected soils include the following:

- Soils that meet the disposal criteria will be disposed in Area 3 of the CAMU, as specified within the 2003 CAMU Engineering Report, without further treatment. Area 3 will be gradually and evenly filled with 10-inch lifts during the life of the CAMU;
- Soils requiring bioremediation will be spread out in 10-inch lifts on the treatment pad. A Caterpillar SS250B will be used to mix the soil, nutrients, as necessary, the optimal volume of water, and microbial inoculum (if required). The soil will then be aerated with the Caterpillar SS250B up to three times weekly until remediation concentrations are achieved. Once treatment goals have been reached, additional soils will be placed over the treated soils, resulting in a vertical fill over the entire biotreatment area; and
- Disposal areas will alternate between both sides of the CAMU to balance accumulation of soil. Untreated wastes will not be placed on soils undergoing bioremediation until biotreatment operations are completed for that specific batch of soil. Conversely, biotreatment operations can begin over disposed, untreated wastes that meet CAMU operational goals. The entire surface area of the CAMU can also be utilized for either purpose, if waste volumes so indicate (if necessary).

Throughout CAMU operations, the working surface elevation of the CAMU will be graded to maintain drainage of storm water to a sump in the northeastern corner. Storm water will be routed by existing piping to a publicly owned treatment works. If the entire capacity of the CAMU is required to manage

affected soils, the sump will be retrofitted with vertically oriented large diameter perforated pipe with surrounding gravel filter pack. The pipe will allow the final cell of the CAMU to be filled while maintaining storm water control for minimal engineering and construction costs.

4.2 Sample Collection

Sample collection of soil is performed to obtain a representative aliquot of the stockpiled 100-cubic-yard segment. The following procedure is employed to collect soil samples from containers or stockpiles. The procedure is also utilized to evaluate residual constituent concentrations following either biological treatment or stabilization prior to disposal in the CAMU.

1. Remove covering from the container or stockpile, as applicable;
2. Construct a composite sample by collecting a five-point composite sample from the appropriate soil volume (minimum of 100 cubic yards from initial source and every 500 cubic yards to confirm homogeneity);
3. Utilize appropriately decontaminated stainless steel augers or other hand sampling equipment to collect equal volumes of soil from each of the five sample locations;
4. Place the composite sample in a clean, decontaminated stainless steel mixing bowl and mix with a stainless steel spoon to form a homogenous and representative sample (agitation will be minimized to reduce aeration of volatiles);
5. A subsample will be place in appropriate sample containers provided by the laboratory, sealed, place in a cooler at 4 degrees Celsius ("C), and picked up by the analytical laboratory for analyses;
6. Sample containers are then placed in a cooler with wet ice or held in a refrigerator at 4°C until transfer to the laboratory;
7. A chain-of-custody form is completed for all samples immediately following sample collection. The chain-of-custody form will include the sample ID, date and time of collection, methods of analysis for each sample, number of containers included in the shipment, project information, sample collection personnel , and signatures of collecting personnel and personnel transferring samples to the laboratory, as well as the laboratory sample custodian; and
8. All sampling equipment is decontaminated following each sampling event. The decontamination procedure includes:
    a. Liquinox (or equivalent) wash with brushes;
    b. Rinse with tap water;
    c. Triple rinse with deionized water; and
    d. Air dry.

4.3 Sample Preservation

All samples are soil samples and therefore preservation includes only refrigeration of samples to maintain 2±4°C. Sample containers are placed in a cooler with wet ice or in a refrigerator prior to release to the laboratory. Samples are transferred to the laboratories in coolers with wet ice.

4.4 Sample Documentation

Field records are maintained regarding location of sample, sample collection techniques, date and time of collection, personnel, and other pertinent information relative to sample condition and type.

Samples are shipped under strict chain-of-custody with all signatures applied during transfer of the samples from Kinder Morgan to the laboratory.

4.5 Sample Analysis

The general test methods utilized are presented on Table 1. The methods listed are current USEPA-approved methods, as presented and authorized in SW-846 *Test Methods for Evaluating Solid Wastes*. Kinder Morgan reserves the right to utilize the most current approved version of each method as adopted by USEPA in SW-846.

Determination of free liquids content is based on visual observations of the soil prior to placement in the CAMU. Free liquids are pumped directly to the wastewater treatment system prior to introduction of the waste material into the CAMU.

An independent environmental analytical laboratory is contracted to perform the required analyese and submit a written report of the analytical results and supporting quality assurance information. The laboratory must be appropriately accredited as required by TCEQ.

4.6 Quality Assurance/Quality Control

An independent environmental analytical laboratory will be contracted by Kinder Morgan to perform the characterization analyses. The laboratory will include method appropriate quality control samples. These measures will include method blanks and laboratory control samples, as well as system monitoring compounds (surrogates), as specified in the USEPA method and the laboratory Standard Operating Procedures and Quality Assurance Plan (QAP). A current copy of the laboratory QAP will be retained by Kinder Morgan. Quality control samples will also include matrix spikes and matrix spike duplicates specific to the Kinder Morgan waste matrix. Kinder Morgan personnel will collect additional sample volumes at a 5 percent **(I** per 20 field samples) frequency for a specific corrective action site to generate site-specific matrix impact evaluation data.

Additionally, trip blanks are prepared by the laboratory and included in the shipment of sample containers to the site. The trip blanks are returned to the laboratory with samples requiring volatile constituent determination to evaluate potential cross contamination of samples during transport.

The laboratory is instructed to notify Kinder Morgan personnel immediately in the event that samples are received in a compromised condition including improper cooler temperature or sample preservation, broken containers, COC discrepancies, or other anomaly that could potentially impact data quality and/or data usability.

4.7 Analytical Data Review

Analytical data reports are reviewed upon receipt from the laboratory to ensure holding time compliance and report completeness including fully executed chain-of-custody form. Reporting limits

are evaluated to ensure that the appropriate limit of detection was attained. Method blanks are checked for potential contamination impacting data quality. Laboratory control samples and matrix spike recoveries are evaluated relative to method performance and potential impact to data usability.

5.0 CHARACTERIZATION FREQUENCY

Prior to placement of waste into the CAMU, waste soil from a single corrective action site is characterized based upon the initial 100 cubic yards removed. Five samples are collected from representative sections of the stockpile and composited to one sample for analysis. Soil (maximum 500 cubic yards) from the characterized zone is then managed, as appropriate, based upon the initial analytical results. This procedure is based on historical data, which indicate that a designated remediation area is typically homogenous relative to constituents and concentrations. If volume from the "single corrective action site" exceeds 500 cubic yards, addi6onal characterization samples are collected, analyzed, and managed in accordance with the additional analytical results. Waste material is, therefore, managed in 500-cubic-yard volumes.

Waste from other corrective action sites is sampled independently and managed as indicated by analytical data relative to the decision process for contaminant concentrations and available treatment and disposal protocols set forth in the 2003 CAMU Engineering Plan. Additional sampling will follow if treatment activities are conducted. In the event that stabilization is necessary to treat soil with elevated lead concentrations, subsequent sampling will be conducted to confirm that soil mixture does not leach lead concentration above proposed lead treatment standards. Verification sampling following lead stabilization will occur every 500 cubic yards and the samples will be analyzed for lead using the Toxicity Characteristic Leachate Procedure. Analytical results will be compared to the corresponding toxicity characteristic (5 mg/L) for lead to determine if the stabiliza6on activities have been successful.

In the event that biotreatment is necessary to treat elevated TPH or other organic COCs, subsequent sampling will be conducted to verify that biotreatment has successfully treated soil to the proposed treatment standards. Verification sampling following biotreatment will also occur every 500 cubic yards and samples will be analyzed for TPH and BTEX for screening. Sample collection protocols for screening biotreated soils will be conducted as follows:

- Collect first set of samples immediately following the initial treatment;
- Collect second set of samples consisting of three samples at the anticipated mid-point of biotreatment; and
- Collect the third set of samples consisting of three samples at the anticipated end of biotreatment.

Once screening data from TPH and BTEX analyses indicate that treatment goals have been reached, confirmatory analyses consisting of collection of one sample per 500 cubic yards for analyses of VOCs, SVOCs, and leachable BTEX will be conducted.

TABLES

Table 1

ANALYTICAL PARAMETERS AND METHODS FOR WASTE CHARACTERIZATION

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, Texas

Parameter	SW-846 Method	Purpose
Total Petroleum Hydrocarbons	TX 1005 & 1006	To determine if non-hazardous waste meets disposal standards
BTEX	1311/5030B/ 8021 or 8260	To determine if non-hazardous waste meets disposal standards
TCLP Volatiles	1311/8260B	To determine if waste is hazardous
TCLP Semivolatiles	1311/8270C	To determine if waste is hazardous
Appendix VIII Volatiles	8260B	Data needed to determine treatability in CAMU
Appendix VIII Semivolatiles	8270C	Data needed to determine treatability in CAMU
Total Lead	6010/7421	To determine lead concentration
TCLP Lead	1311/6010/7421	To determine if waste is hazardous

Notes

BTEX	Benzene, Toluene, Ethylbenzene and total Xylenes
TCLP	Toxicity Characteristic Leachate Procedure

Table 2

CAMU PARAMETER CHARACTERIZATION CRITERIA

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, Texas

Parameter	Test Method	Reporting Limit (mg/kg)	Proposed Treatment Standards (mg/kg)
Methanol	GC/FID	50	8,400
Isobutyl Alcohol		50	5,200
n-Butyl Alcohol		50	3,100
Benzene	SW-846/8260B	0.005	37
Methyl Ethyl Ketone		0.05	16,000
Methyl Isobutyl Ketone		0.05	2,800
Methyl tert-Butyl Ether		0.005	4,800
Toluene		0.005	4,300
o-Xylene		0.005	4,800
m+p-Xylene		0.005	4,800
Ethyl Acetate		0.05	16,000
Acetone		0.005	7,600
Acetonitrile		0.05	940
Acrylonitrile		0.05	4.2
Chloroform		0.005	13
1,2-Dichloroethane		0.005	11
Cumene		0.005	6,300
Cyclohexane		0.01	8,800
Ethylbenzene		0.005	10,000
Naphthalene		0.005	190
Ethyl Ether		0.05	13,000
Tetrachloroethylene		0.005	270
1,1,1-Trichloroethane		0.005	10,000
1,1,2-Trichloroethane		0.005	19
o-Cresol	SW-846/8270C	2	1,900
m-Cresol		2	2,000
p-Cresol		2	1,300
Aniline		2	94
Creosote		NA	NA
Phenol		2	2,400
Picoline		2	12
Furfural		4	380
2,4-Dichlorophenoxyacetic acid (2,4-D)	SW-846/8151A	2	920
TPH	TX 1005/1006	50/10	2,100
Lead	SW-846 6010/7421	150	1,600

Notes

Sample locations include roll-off boxes or soil stockpiles in the CAMU

See Section 4.1 of the Waste Analysis Plan for sampling methodology in the CAMU

Sampling frequency is for the initial 100 cubic yards per 500 yards of similar corrective action area

Method Reference: SW-846 *Test Methods for Evaluating Solid Wastes*

Table 3

SOIL STANDARDS USED IN THE SELECTION OF CAMU TREATMENT STANDARDS

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, Texas

Analytes	TRRP PCL[1] $^{Tot}Soil_{Comb}$ (mg/kg)	TRRP PCL[1] $^{GW}Soil_{Ing}$ (mg/kg)	Proposed Standard (mg/kg)
Organics			
Acetone	290,000	64	290,000
Acetonitrile	910	2.3	910
Acrylonitrile	4.2	0.0037	4.2
Aniline	93	0.41	93
Benzene	130	0.013	37***
n-Butanol	100,000	7.9	100,000
Chloroform	130	1.5	130
Cresol, m- (3-methylphenol)	34,000	110	34,000
Cresol, o- (2-methylphenol)	3,400	0.94	3,400
Cresol, p- (4-methylphenol)	3,400	0.94	3,400
Cumene (isopropylbenzene)	6,300	520	6,300
Cyclohexane	65,000	8,800	65,000
Dichloroethane, 1,2-	11	0.0069	11
Ethyl acetate	920,000	70	920,000
Ethyl benzene	17,000	3.8	17,000
Ethyl ether	200,000	17	200,000
Furfural	3,100	0.22	3,100
Isobutyl alcohol	310,000	23	310,000
Methanol	510,000	35	510,000
Methyl ethyl ketone (2-butanone)	120,000	44	120,000
Methyl isobutyl ketone (4-methyl-2-pentanone)	28,000	7.4	28,000
MTBE (methyl tert-butyl ether)	1,100	0.93	1,100
Naphthalene	190	47	190
Creosote	NA	NA	NA
Phenol	200,000	29	200,000
Picoline, 2- (2-methylpyridine)	9,200	0.84	9,200
Tetrachloroethylene	770	0.025	770
TPH*	2,100	97	2,100
Trichloroethane, 1,1,1-	55,000	0.81	55,000
Trichloroethane, 1,1,2-	19	0.01	19
Xylenes	6,500	61	6,500
Herbicides			
Dichlorophenoxyacetic acid, 2,4- (2,4-D)	8,200	1.3	8,200
Metals			
Lead**	1,600	1.5	5**

Notes

1	TRRP Tier I Commercial/Industrial Soil Protective Concentration Levels based on 30-acre source area
$^{Tot}Soil_{Comb}$	TRRP Tier I Commercial/Industrial Soil PCLs for Direct Exposure Pathway
$^{GW}Soil_{Ing}$	TRRP Tier I Commercial/Industrial Soil PCLs for Soil-to-GW leaching of COCs to Class 1 & 2 GW
TCLP	Toxicity Characteristic Leachate Procedure
*	TX1005 C6-C12 = most conservative range in aliphatic/aromatic ranges
**	Proposed treatment standard for lead is based on the Tier I PCLs for soil and USEPA TCLP for leachate
***	Established as part of Kinder Morgan's Benzene Emissions Reduction Program
NA	Not Applicable

Table 4

ANALYTICAL PARAMETERS AND HOLD TIMES FOR CHARACTERIZING WASTE

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, Texas

Analyte	SW-846 Method	Container Type	Preservative	Holding Time
Total Petroleum Hydrocarbons	TX 1005 & 1006	1 x 4 oz glass jar	4°C	14 days
TCLP BTEX	1311/5030B/ 8021 or 8260	5 x 2 oz glass jar	4°C	6 months
TCLP Volatiles	1311/8260B	1 x 4 oz glass jar	4°C	14 days to analyze preserved leachate
TCLP Semivolatiles	1311/8270C	1 x 8 oz glass jar	4°C	14 days to extract leachate 40 days to analyze
Total Lead	6010/7421	1 x 4 oz plastic jar	None	6 months
TCLP Lead	1311/6010/ 7421	1 x 4 oz plastic jar	None	6 months
Volatiles	8260B	5 x 2 oz glass jar	4°C	14 days
Semivolatiles	8270C	1 x 4 oz glass jar	4°C	14 days to extract 40 days to analyze

Notes

See Table 2 for complete list of volatile compounds associated with the CAMU

See Table 3 for complete list of semivolatile compounds associated with the CAMU

ATTACHMENT J

Engineering Report

KINDER MORGAN LIQUIDS TERMINALS, LLC

KINDER MORGAN

ENGINEERING REPORT

FORMER NORTH HOLDING BASIN/CORRECTIVE ACTION MANAGEMENT UNIT

ARCADIS

Infrastructure, buildings, environment, communications

ARCADIS

Peter Berveiler, P.E.
Senior Engineer/Civil

Timothy D. Ratchford, P.G.
Senior Scientist

Rudy J. Guichard
Vice President/Area Manager

Engineering Report

Former North Holding Basin/Corrective Action Management Unit

Prepared for:
Kinder Morgan Liquids Terminals, LLC

Prepared by:
ARCADIS G&M, Inc.
2900 West Fork Drive
Suite 540
Baton Rouge
Louisiana 70827
Tel 225 292 1004
Fax 225 292 5210

Our Ref.:
HT000463.0015.LA006

Date:
23 April 2003

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. Any dissemination, distribution, or copying of this document is strictly prohibited.

1.0 Introduction 1

2.0 Facility Description 2

3.0 CAMU Treatment Standards 4

4.0 CAMU Treatment and Disposal Process 5

4.1 Process Overview 5

4.2 CAMU Equipment, Manpower, and Material List 6

4.3 CAMU Treatment and Disposal Process 6

5.0 Monitoring 8

5.1 Groundwater 8

5.2 Air Emissions 8

5.3 Waste Analyses 9

6.0 CAMU Closure 11

7.0 Certification Statement 12

Tables

1 Partial Listing of Biotreated Compounds/Wastes that are Known to have been Biotreated

2 List of Constituents of Concern and Proposed Treatment Standards

3 Listing of Soil Standards Used in Selection of CAMU Treatment Standards

4 Analytical Parameters and Methods for Waste Characterization

Figures

1 Site Location Map

2 Site Layout Map

3 CAMU Operations During Lead Stabilization

4 CAMU Operations During Biotreatment

Appendix

A Engineering Certification Report

1.0 Introduction

On behalf of Kinder Morgan Liquids Terminals, LLC (KMLT), ARCADIS prepared this Engineering Report. The former North Holding Basin (NHB)/Corrective Action Management Unit (CAMU) is an existing permitted hazardous waste management unit used to treat and dispose of solid wastes generated during the site corrective actions at the facility. A topographic map of the facility is presented as Figure 1. A plan view of the facility is presented as Figure 2.

The Former NHB portion of the combined unit was initially used to collect wastewater and storm water in the western portion of the plant. The unit was constructed in 1975 and operated up to 1988. Effluent from the wastewater/storm water collection system passed through an oil/water separator before being discharged to the Former NHB. The Former NHB is a 480-foot by 276-foot rectangular unit. The average depth of the basin is 18.3 feet from the top of the berm. The total capacity of the basin is approximately 88,000 cubic yards. The floor of the basin is sloped slightly to the east to provide drainage. In 1988, the Former NHB was retired from service.

In 1994, the Former NHB was proposed as a CAMU in compliance with 40 Code of Federal Regulations (CFR) 264 Subpart S to treat and dispose of remediation wastes generated by corrective actions and closure of the Former NHB at the facility. The engineering design of the CAMU was proposed in May 1995. In 1995, an engineering report for the CAMU was prepared and submitted to the Texas Natural Resource Conservation Commission (now known as the Texas Commission on Environmental Quality [TCEQ]) as part of a permit for closure of the Former NHB and construction and operation of the CAMU. The permit was subsequently granted in 1995 and the facility's Notice of Registration identifies the Former NHB/CAMU as Unit #004.

The CAMU was constructed in August 1996 following stabilization of the sludge in the Former NHB. An engineering certification report, documenting the construction of the CAMU and closure of the Former NHB, was prepared in 1996 by Fugro Environmental, Inc. (Fugro), in accordance with the design and construction specifications and approved permit modification application.

A CAMU Management Plan was prepared in April 1998 by Malcolm Pirnie, and the document specifies waste treatment standards, operation requirements, waste analysis, environmental monitoring, CAMU maintenance, and CAMU closure and post closure plan. CH2M Hill, Inc. (CH2MHill), prepared an Engineering Report

Addendum in 2003 to combine previous and current operation conditions associated with the Former NHB/CAMU as part of the Application for Renewal and Major Amendment of Permit HW-50054 for units operated at the Galena Park facility. The document presented under this cover was prepared to combine all current information pertaining to the Former NHB/CAMU, previously presented within the documents referenced above. Details pertaining to the design specifications and certification are presented within the Fugro Engineering Certification Report for the CAMU under Appendix A.

2.0 Facility Description

The Galena Park Terminal is located at 906 Clinton Drive in Galena Park, Texas. Galena Park is an incorporated suburban community, approximately 9 miles east of downtown Houston (in Harris County), on the north bank of the Houston Ship Channel, and is within the jurisdiction of the Houston Port Authority District, which administers activities on the Ship Channel. The Former NHB/CAMU is located in the western portion of the plant.

As previously described, the Former NHB was an abovegrade surface impoundment that was used to collect wastewater and storm water. The unit was constructed in 1975 and operated up to 1988. The Former NHB consisted of a 480-foot by 276-foot rectangular unit. The average depth of the basin was 18.3 feet from the top of the berm. The total capacity of the basin was approximately 88,000 cubic yards. The floor of the basin is sloped slightly to the east to provide drainage. In 1988, the Former NHB was retired from service.

In 1994, the Former NHB was proposed as a CAMU in compliance with 40 CFR 264 Subpart S to treat and dispose of remediation wastes generated by corrective actions and closure of the Former NHB at the facility. The engineering design of the CAMU includes a clay barrier extending across the base of the Former NHB that was compacted over the stabilized sludge. The clay barrier is composed of a 6-inch thick layer of low-permeability compacted clay. The clay barrier surface is sloped to drain to a sump for leachate collection and removal. The design also includes a truck ramp for loading waste into the CAMU. Design specifications for the CAMU are presented in detail within the Fugro Engineering Report presented in Appendix A.

The CAMU is currently operated according to the procedures provided in the 1998 CAMU Management Plan and as further described within this document. These procedures disallow the placements of any free liquids in the CAMU and limit the

concentrations of contaminant constituents in the wastes that can be placed in the CAMU. These practices, in combination with the CAMU lining design and the underlying closed Former NHB, prevent contaminants from entering the groundwater.

Waste disposed of in the CAMU are derived from five primary sources that include:

- Soil affected historical lead and total petroleum hydrocarbons (TPH) in Tracts B and C of the Galena Park facility;
- Waste accumulated as a result of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI);
- Affected soil excavated during the remediation of Solid Waste Management Units (SWMUs);
- Soil within identified SWMUs affected by future releases, as allowed under the facility's Hazardous Waste Permit; and
- Tank 100-5 bottom sediments, which accumulated during the time period that the tank was used to contain storm water. The tank has since been converted to service as a product storage vessel.

Any other remediation wastes, as defined in the U.S. Environmental Protection Agency's (USEPA's) CAMU rules, may be placed in the CAMU on a case-by-case basis.

No free liquids are placed within the CAMU. Storm water accumulation within the CAMU is directed to the Gulf Coast Waste Authority for disposal. All remediation wastes placed within the CAMU are evaluated as described within the Waste Analyses Plan (WAP) for the CAMU and must meet the following criteria:

- Compatibility with wastes already placed in the CAMU;
- Ability to be biotreated, stabilized for lead, or meet disposal standards; and
- Absence of contaminants or concentrations that are toxic to the biotreatment/treatment process (applicable to wastes in the treatment area, only).

Compounds and wastes that are generally amenable to bioremediation are listed in Table 1. Remediation wastes that are not compatible or containing concentrations of compounds that cannot be biotreated and/or stabilized will not be place in the CAMU. Incompatible wastes will be placed in containers for off-site disposal to an authorized Treatment, Storage, and Disposal facility. Remediation wastes that meet the disposal standard for CAMU disposal will not require additional treatment. Remediation wastes awaiting treatment are stockpiled separately in an interim storage portion of the CAMU (also shown on Figures 3 and 4). Table 2 includes a listing of constituents associated with soils disposed within the CAMU with corresponding treatment and disposal levels.

3.0 CAMU Treatment Standards

The proposed treatment standards shown in Table 2 are for constituents most likely associated with the waste soils. These treatment standards are selected from among the highest level within the following published criteria:

- Texas Risk Reduction Plan (TRRP) Tier 1 Commercial/Industrial Soil Protective Contaminant Levels (PCLs) for Direct Contact Exposure Pathway ($^{Tot}Soil_{Comb}$); and

- TRRP Tier 1 Commercial/Industrial PCLs for soil-to-groundwater leaching of Constituents of Concern (COCs) to Class 1 and 2 Groundwater ($^{GW}Soil_{Ing}$).

Criteria for TPH, total leachable Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), and leachate lead include the following:

- Soil concentrations for TPH must be at or less than 2,100 milligrams per kilograms (mg/kg), based on the lowest carbon range for the aliphatic/aromatic fractionation of TPH;

- Total leachable BTEX in soil must be at or less than 100 milligrams per liter (mg/L); and

- Total leachable lead in soil must be less than 5 mg/L.

Table 3 provides a listing of soil standards used in the selection of CAMU Treatment Standards. Prior to placement in the CAMU, treatment soil samples representative from each of the primary source areas will initially be collected for analysis every 100 cubic yards. If more than 100 cubic yards of material is removed from the same source, samples will be collected every 500 cubic yards to confirm homogeneity. Samples will be collected and analyzed according to methodologies specified within the WAP and as described in Section 5.3 (Waste Analyses).

4.0 CAMU Treatment and Disposal Process

4.1 Process Overview

The CAMU treatment area is operated as a bioremediation unit for hazardous remediation wastes and non-hazardous remediation wastes that exceed TPH concentrations of 2,100 parts per million (ppm). The CAMU will also be utilized to stabilize lead contamination in soil. It is estimated that approximately 50,000 cubic yards of such wastes will be treated prior to final disposal in the CAMU. The treatment area is constructed as follows:

- Sloping of base of unit (Former NHB floor) to the northeast corner;
- Sump installation in the northeast corner of the Former NHB; and
- Construction of treatment cell(s), as needed.

Excess rainwater from the treatment and stockpile areas in the CAMU are directed to the sump in the northeast corner of the Former NHB/CAMU. Water is transferred to the storm water sump and lift station, located northeast of the Former NHB/CAMU, and discharged directly to the Gulf Coast Waste Disposal Authority.

Soils that are treated in the CAMU are initially placed within lifts in the treatment cells and tilled to promote aeration. As part of biotreatment, nutrients and moisture are added to enhance bioremediation, if necessary. Samples will be collected and analyzed for TPH and BTEX to track the progress of remediation. Confirmation sampling for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and leachable BTEX will be conducted. Once treatment levels have been reached, another lift of soil is added and the process is repeated.

Lead stabilization will consist of mixing fly ash (or other material, as appropriate) and water in soil. Upon completion of stabilization, samples will be collected for analysis of leachable lead.

4.2 CAMU Equipment, Manpower, and Material List

A partial listing of equipment, manpower, and materials required for CAMU operations is presented as follows:

- Backhoe or trackhoe for excavation;
- Transport trucks;
- Dozer to manage soil for the CAMU;
- Caterpillar SS250B or equivalent for bioremediation tilling and soil stabilization mixing;
- Up to four remediation contractor personnel to be on site during excavation activities. Manpower requirements to drop to two or less during ongoing bioremediation activities;
- Up to two engineering contractor personnel to be on site during excavation and sampling activities. Manpower requirements to drop to one or less during ongoing bioremediation activities; and
- Materials for lead stabilization include water and fly ash. Bioremediation materials include water, fertilizer with nitrogen and phosphorous, and, in extreme cases, microbial inoculums.

4.3 CAMU Treatment and Disposal Process

CAMU operations depend on the concentrations of hazardous constituents (organic chemicals) or lead in the soil and proceed sequentially. The CAMU can be utilized to stabilize and store lead and TPH-affected soil. Figure 3 depicts the CAMU configuration during lead stabilization activities. Figure 4 depicts the CAMU configuration during biotreatment of soil impacted with COCs other than lead. As discussed within Section 3.0 (CAMU Treatment Standards), treatment levels for soil levels are based upon published criteria established by TCEQ and USEPA.

Treatment of lead contaminated soil will be conducted as described below:

- Soils requiring stabilization for lead, or other reasons, will be spread out in 10-inch lifts over approximately one half of the CAMU, allowing for treatment of up to 2,800 cubic yards per batch. The first batch of soil to be treated will be placed directly in Area 1, as shown on Figure 3. The subsequent batch of soils will be stockpiled in Area 2 to await treatment;

- Stabilization will be achieved by mixing the optimal volume of fly ash (or other material, as appropriate), as determined by a pilot test, into the soil by means of the Caterpillar SS2250B and adding the proper quantity of water. Treated soil will then be allowed to cure for 3 days prior to placing additional layers of wastes, as necessary; and

- Once soils have been demonstrated to meet disposal criteria, they will be graded to drain to a sump at the northeastern end of the CAMU.

Following completion of the RFI, additional soils affected by organic compounds and TPH will be placed in the CAMU for disposal. Soils with constituent concentrations above the treatment standards established in Table 2 will be subject to bioremediation or other treatment, prior to final disposal. Soils that meet treatment standards will be placed directly in the final disposal locations.

Management of organics-affected soils include the following:

- Soils that meet the disposal criteria will be disposed in Area 3 of the CAMU, as shown on Figure 4, without further treatment. Area 3 will be gradually and evenly filled with 10-inch lifts during the life of the CAMU;

- Soils requiring bioremediation will be spread out in 10-inch lifts on the treatment pad (Area 4 on Figure 4). A Caterpillar SS250B will be used to mix the soil, nutrients, as necessary, the optimal volume of water, and microbial inoculum (if required). The soil will then be aerated with the Caterpillar SS250B up to three times weekly until remediation concentrations are achieved. Once treatment goals have been reached, additional soils will be placed over the treated soils, resulting in a vertical fill over the entire biotreatment area; and

- Disposal areas will alternate between both sides of the CAMU to balance accumulation of soil. Untreated wastes will not be placed on soils undergoing bioremediation until biotreatment operations are completed for that specific batch of soil. Conversely, biotreatment operations can begin over disposed, untreated waste that meet CAMU operational goals. The entire surface area of the CAMU can also be utilized for either purpose, if waste volumes so indicate (if necessary).

Throughout CAMU operations, the working surface elevation of the CAMU will be graded to maintain drainage of storm water to a sump in the northeastern corner. Storm water will be routed by existing piping to a publicly owned treatment works. If the entire capacity of the CAMU is required to manage affected soils, the sump will be retrofitted with vertically oriented large diameter perforated pipe with surrounding gravel filter pack. The pipe will allow the final cell of the CAMU to be filled while maintaining storm water control for minimal engineering and construction costs.

5.0 Monitoring

5.1 Groundwater

Groundwater monitoring will be conducted at the Former NHB/CAMU as specified within Galena Park's Compliance Plan. The Compliance Plan specifies designated wells, sample frequency, and monitor parameters. Test methodologies, data evaluation, and reporting requirements are also specified within the Compliance Plan (CP-50054). Protocols for sampling are specified within the Sampling and Analyses Plan (SAP) and prepared in accordance with the Compliance Plan. Operations and maintenance protocols for the Former NHB/CAMU groundwater monitoring system are also specified within the associated SAP.

5.2 Air Emissions

In order to minimize dust generated by CAMU activities, an adequate soil moisture level will be maintained during excavation and transport to the CAMU. This will primarily be accomplished by the application of water to soil being managed. Maintaining proper moisture content will also assist in the effectiveness of land farming and the biological treatment of soils within the CAMU. If excess dust is generated on non-public roadways and during related CAMU activities, water will be used to reduce emissions.

No measurable concentrations of organic vapors are expected during CAMU activities. During CAMU-related activities, real-time air monitoring will be performed. This will include an explosimeter, an organic vapor monitor (photoionization detector or flame ionization detector), and all necessary calibration/audit equipment and supplies. All monitoring instruments will be calibrated before use. Periodic calibration checks will be made and documented in the field over the duration of the field activities.

Air monitoring activities will commence daily prior to start up of the CAMU activities in order to establish baseline conditions. Air monitoring shall be provided during excavation, staging, loading, or tilling of potentially contaminated soils. Departures from background levels will trigger an evaluation for employee personal protection and potential air emission impacts. The responses range from shutting down CAMU operations to upgrading levels of protection or initiating emergency response/contingency plans.

5.3 Waste Analyses

If RFI characterization data are not available, soil samples will be collected for analyses prior to placement in the CAMU, during treatment to verify that soil levels meet proposed treatment standards, and upon completion of treatment activities. Soil samples of untreated soil that are representative from each of the primary source areas will initially be collected for analysis every 100 cubic yards. If more than 100 yards of material is removed from the same source, samples will be collected every 500 cubic yards to confirm homogeneity. Sampling procedures include the following:

- Remove covering from the container or stockpile, if applicable;
- Construct a composite sample by collecting a five-point composite sample from the appropriate soil volume (minimum of 100 cubic yards from initial source and every 500 cubic yards to confirm homogeneity);
- Place the composite sample in a clean, decontaminated mix with a stainless steel spoon to form a homogenous sample (agitation will be minimized to reduce aeration of volatiles); and
- A subsample will be place in appropriate sample containers provided by the laboratory, sealed, place in a cooler at 4 degrees Celsius, and picked up by the analytical laboratory for analyses.

The WAP, prepared under separate cover, provides details pertaining to sampling protocols and decontamination. Tables 2 and 3 present a listing of known constituents of concern that are also included in the WAP. Table 4 summarizes the general parameters and test methods that may be used to characterize affected soils. Actual analytical methods will vary based upon data collected during the RFI or from the primary source area regarding the potential constituents present.

In the event that stabilization is necessary to treat soil with elevated lead concentrations, subsequent sampling will be conducted to confirm that soil mixture does not leach lead concentration above proposed lead treatment standards. Verification sampling following lead stabilization will occur every 500 cubic yards and the samples will be analyzed for lead using the Toxicity Characteristic Leaching Procedure. Analytical results will be compared to the corresponding toxicity characteristic (5 mg/L) for lead to determine if stabilization activities have been successful.

In the event that biotreatment is necessary to treat elevated TPH or other organic COCs, subsequent sampling will be conducted to verify that biotreatment has successfully treated soil to the proposed treatment standards. Verification sampling following biotreatment will also occur every 500 cubic yards and samples will be screened for TPH and BTEX. Sample collection protocols for screening biotreated soils will be conducted as follows:

- Collect first set of samples immediately following the initial treatment;
- Collect second set of samples consisting of three samples at the anticipated mid point of biotreatment; and,
- Collect the third set of samples consisting of three samples at the anticipated end of biotreatment.

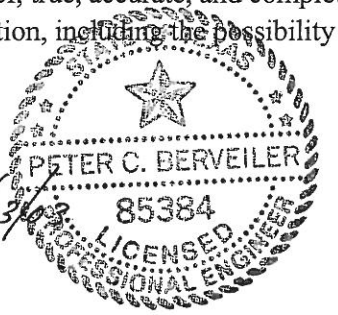
Once screening data from TPH and BTEX analyses indicate that treatment goals have been reached, confirmatory analyses consisting of collection of one sample per 500 cubic yards for analyses of VOCs, SVOCs, and leachable BTEX will be conducted.

6.0 CAMU Closure

After completion of treatment activities in the CAMU, treated and stockpiled soil will be evenly spread throughout the basin. Additional backfill, consisting of remaining portions of the dikes and clean fill, will be graded over the facility in preparation of final cover placement. Closure activities will be conducted in accordance with the Former NHB/CAMU Closure Plan. Six months prior to final closure, KMLT will provide TCEQ with a proposed final cap design. At that time, the detailed Engineering Plan Specifications and a Construction Quality Assurance Plan will be submitted for approval.

7.0 Certification Statement

This report is a conceptual engineering document is support of the permit modification to an existing permit modification to an existing Part B modification to operate a Former NHB/CAMU. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manages the system, or those persons directly responsible for gathering the information. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware of the penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



4/23/03

Peter C. Berveiler, P.E.
Senior Engineer/Civil

State of Texas Professional Engineering Registration Number 85384

Table 1. Partial Listing of Compounds/Wastes that are Known to have been Biotreated, Kinder Morgan Liquids Terminals, LLC, Galena Park Terminal, Texas.

- Acetone
- Acrylonitrile
- Anthracene
- Benzene
- Benzopyrene
- Chrysene
- 2,4-Dichlorophenoxyacetic (2,4-D)
- 1,2-Dichloroethane
- Diesel Fuel
- Ethyl Benzene
- Fluoranthene
- Hexane
- Methanol
- Methylene Chloride
- Methyl Ethyl Ketone
- Naphthalene
- Petroleum Hydrocarbons (miscellaneous)
- Phenols
- Polynuclear Aromatic Hydrocarbons (PAHs)
- Pyrene
- Toluene
- Xylene

ARCADIS

Table 2. List of Constituents of Concern and Proposed Treatment Standards, Kinder Morgan Liquids Terminals, LLC, Galena Park Terminal, Texas.

Organic Treatment Parameters	Proposed Standard (mg/kg)
Acetone	7,600
Acetonitrile	940
Acrylonitrile	4.2
Aniline	94
Benzene	37
Butanol, n-	3,100
Chloroform	13
Cresol, m- (3-methylphenol)	2,000
Cresol, o- (2-methylphenol)	1,900
Cresol, p- (4-methylphenol)	1,300
Cumene (isopropylbenzene)	6,300
Cyclohexane	8,800
Dichloroethane, 1,2-	11
Dichlorophenoxyacetic acid, 2,4- (2,4-D)	920
Ethyl acetate	16,000
Ehtyl benzene	10,000
Ethyl ether	13,000
Furfural	380
Isobutyl alcohol	5,200
Methanol	8,400
Methyl ethyl ketone (2-butanone)	16,000
Methyl isobutyl ketone (4-methyl-2-pentanone)	2,800
MTBE (methyl tert-butyl ether)	4,800
Naphthalene	190
Creosote	NA
Phenol	2,400
Picoline, 2- (2-methylpyridine)	12
Tetrachloroethylene	270
Toluene	4,300
TPH	2,100
Trichloroethane, 1,1,1-	10,000
Trichloroethane, 1,1,2-	19
Xylenes	4,800

Inorganic Treatment Parameters		TCLP (mg/L[1])
Lead	1,600	5

mg/kg Milligrams per kilogram. mg/L Milligrams per liter.

$^{Tot}Soil_{Comb}$ TRRP Tier 1 Commercial/Industrial Soil Protective Concentration Levels for Direct Contact Exposure Pathway.

$^{GW}Soil_{Ing}$ TRRP Tier 1 Commercial/Industrial PCLs for soil-to-groundwater leaching of COCs to Class 1 and 2 groundwater.

TCLP Toxicity Characteristic Leachate Procedure.

[1] Proposed treatment standard for lead is based on the Tier 1 PCLs for soil and USEPA toxicity characteristic for leachate.

Table 3. Listing of Soil Standards Used in the Selection of CAMU Treatment Standards, Kinder Morgan Liquid Terminals, LLC, Galena Park Terminal, Texas.

Organic Treatment Parameters	TRRP $^{Tot}Soil_{Comb}$ (mg/kg)	TRRP $^{GW}Soil_{Ing}$ (mg/kg)	Proposed Standard (mg/kg)
Acetone	7,600	7.1	7,600
Acetonitrile	940	NA	940
Acrylonitrile	4.2	0.0037	4.2
Aniline	94	0.41	94
Benzene	37	0.013	37
n-Butanol	3,100	7.9	3,100
Chloroform	13	0.21	13
Cresol, m- (3-methylphenol)	2,000	9.9	2,000
Cresol, o- (2-methylphenol)	1,900	11	1,900
Cresol, p- (4-methylphenol)	1,300	0.94	1,300
Cumene (isopropylbenzene)	6,300	520	6,300
Cyclohexane	3,800	8,800	8,800
Dichloroethane, 1,2-	11	0.0069	11
Dichlorophenoxyacetic acid, 2,4- (2,4-D)	920	1.3	920
Ethyl acetate	16,000	70	16,000
Ethyl benzene	10,000	3.8	10,000
Ethyl ether	13,000	17	13,000
Furfural	380	0.22	380
Isobutyl alcohol	5,200	23	5,200
Methanol	8,400	35	8,400
Methyl ethyl ketone (2-butanone)	16,000	44	16,000
Methyl isobutyl ketone (4-methyl-2-pentanone)	2,800	7.4	2,800
MTBE (methyl tert-butyl ether)	4,800	0.93	4,800
Naphthalene	190	47	190
Creosote	NA	NA	NA
Phenol	2,400	57	2,400
Picoline, 2- (2-methylpyridine)	12	0.84	12
Tetrachloroethylene	270	0.025	270
Toluene	4,300	4.1	4,300
TPH[2]	2,100	230	2,100
Trichloroethane, 1,1,1-	10,000	0.81	10,000
Trichloroethane, 1,1,2-	19	0.01	19
Xylenes	4,800	61	4,800

Inorganic Treatment Parameters				TCLP (mg/L[1])
Lead	1,600	1.5	1,600	5

$^{Tot}Soil_{Comb}$ TRRP Tier 1 Commercial/Industrial Soil Protective Concentration Levels for Direct Contact Exposure Pathway.

$^{GW}Soil_{Ing}$ TRRP Tier 1 Commercial/Industrial PCLs for soil-to-groundwater leaching of COCs to Class 1 and 2 groundwater.

TCLP Toxicity Characteristic Leachate Procedure.

1 Proposed treatment standard for lead is based on the Tier 1 PCLs for soil and USEPA TCLP for leachate.

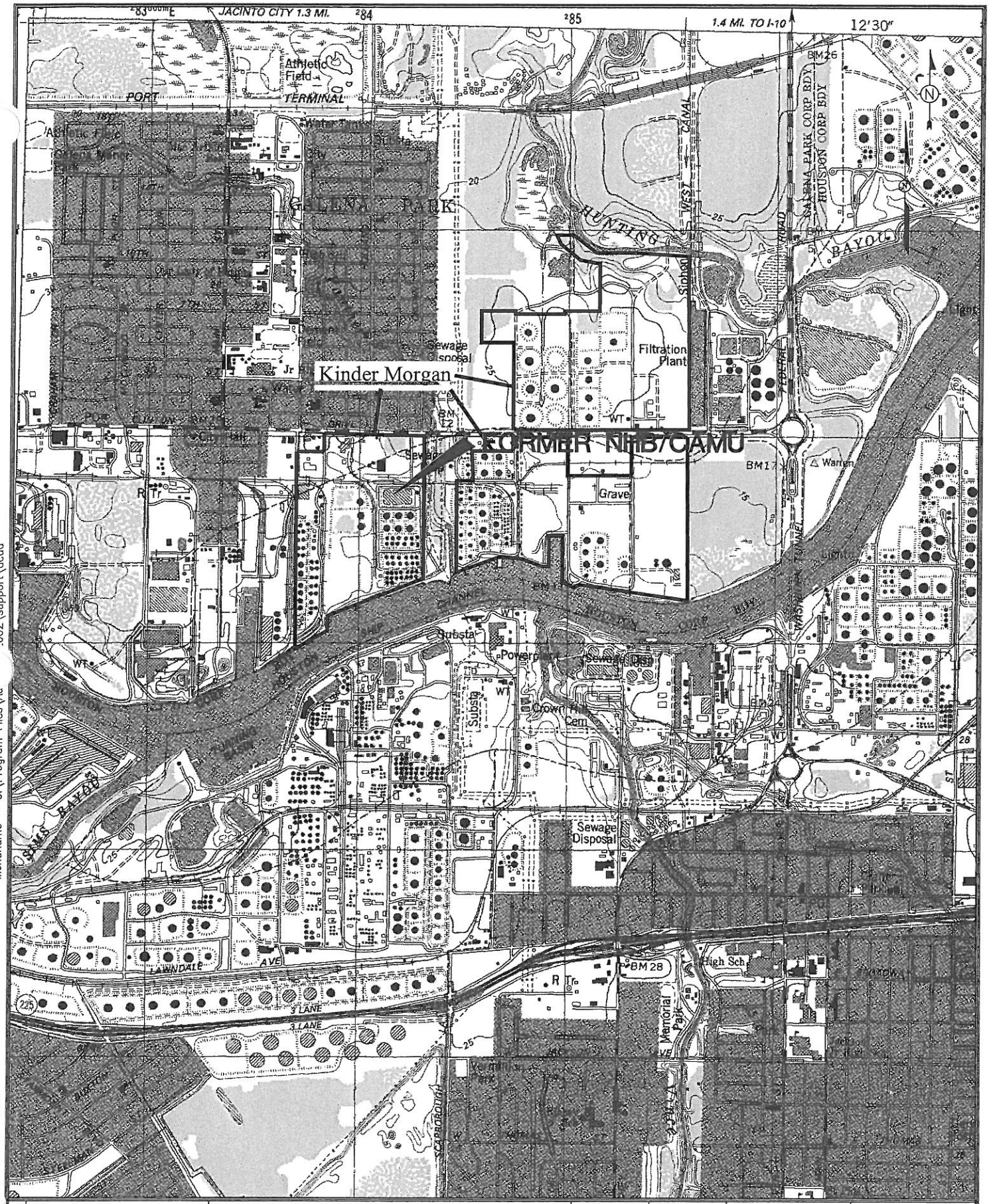
2 6C aliphatics (TPH). Most conservation range in aliphatic/aromatic ranges.

NA Not applicable.

Table 4. Analytical Parameters and Methods for Waste Characterization, Kinder Morgan Liquids Terminals, LLC, Galena Park Terminal, Texas.

Parameter	Analytical Method	Purpose
Total Petroleum Hydrocarbons	TNRCC 1005 & 1006	To determine if non-hazardous waste meets disposal standards
BTEX	1311/5030B/8021 or 8260	To determine if non-hazardous waste meets disposal standards
TCLP Volatiles	1311/8260B	To determine if waste is hazardous
TCLP Semivolatiles	1311/8270C	To determine if waste is hazardous
Appendix VIII Volatiles	8260B	Data needed to determine treatability in CAMU
Appendix VIII Semivolatiles	8270C	Data needed to determine treatability in CAMU
Total Lead	6010/7421	To determine lead concentration
TCLP Lead	1311/6010/7421	To determine if waste is hazardous

TNRCC Texas Natural Resource Conservation Commission (now known as the Texas Commission on Environmental Quality).
BTEX Benzene, Toluene, Ethylbenzene, and Xylenes.
TCLP Toxicity Characteristic Leaching Procedure.



Filename = G:\APROJECT\Kinder M HT000436.0015\Figures\CAMU Closure\436-01 slm.dwg
Menuname = C:\Program Files\Au .002\support\acad
AutoCAD Version = 15.06
Username = smen
04-24-2003
11:27:06

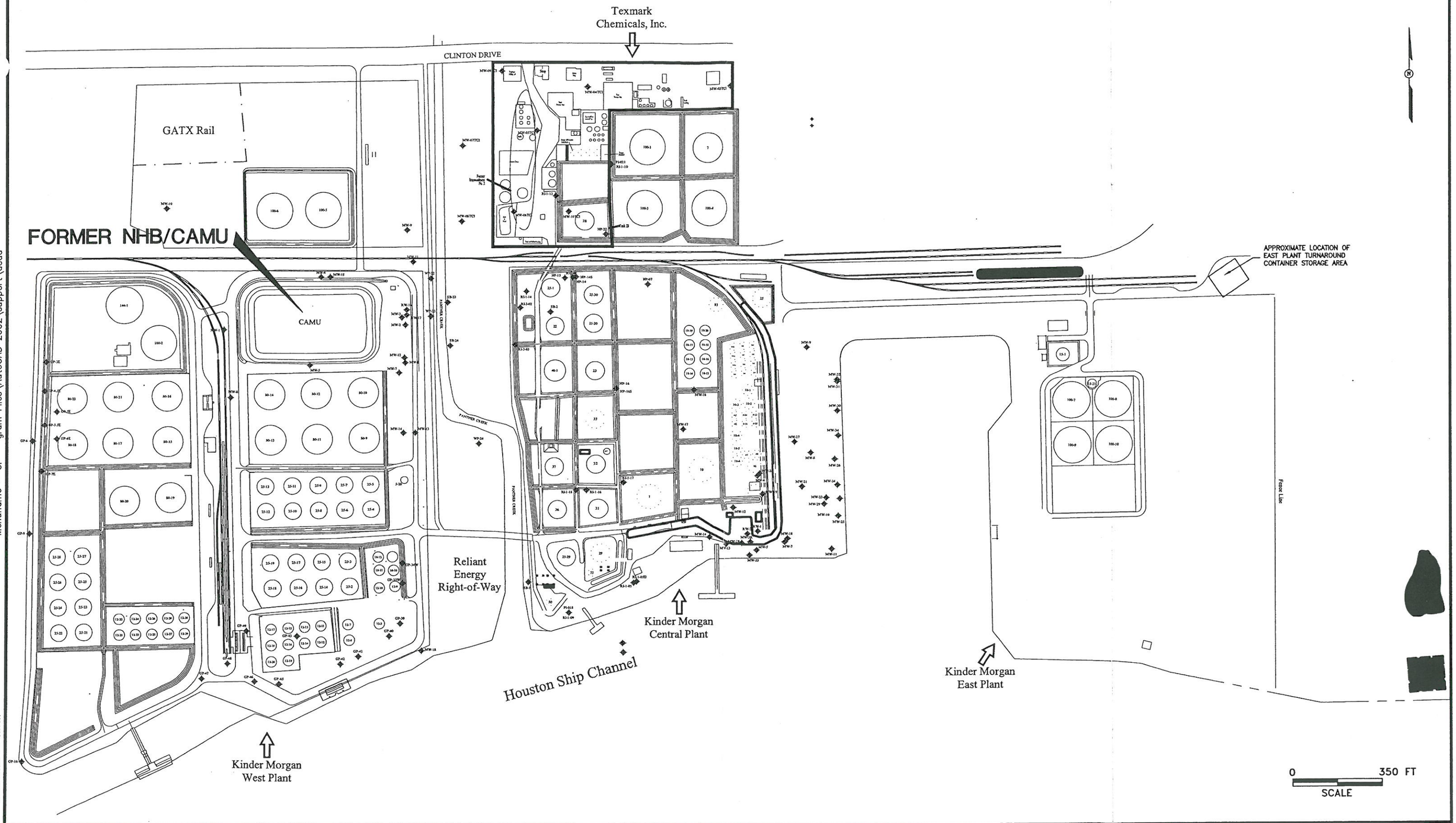
Copyright© 2003

ARCADIS
2900 WEST FORK DRIVE, SUITE 540
BATON ROUGE, LA 70827
Tel: 225-292-1004 Fax: 225-292-5210

SITE LOCATION MAP

Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

DATE:	DRAWN:	PROJECT MANAGER:	CHECKED:
4-17-03	SMEN	DAL	DAL
		DRAWING FILE: 01	CAD FILE: 01
		PROJECT NUMBER: HT000463.00015	DRAWING NUMBER: 1



Filename = G:\PROJECT\Kinder Morgan\HT000436.0015\Figures\CAMU Closure\436-02 base.dwg
Menuname = C:\Program Files\AutoCAD 2002\support\acad
AutoCAD Version = 15.06
Username = smen
04-24-2003
11:28:57
Copyright © 2003

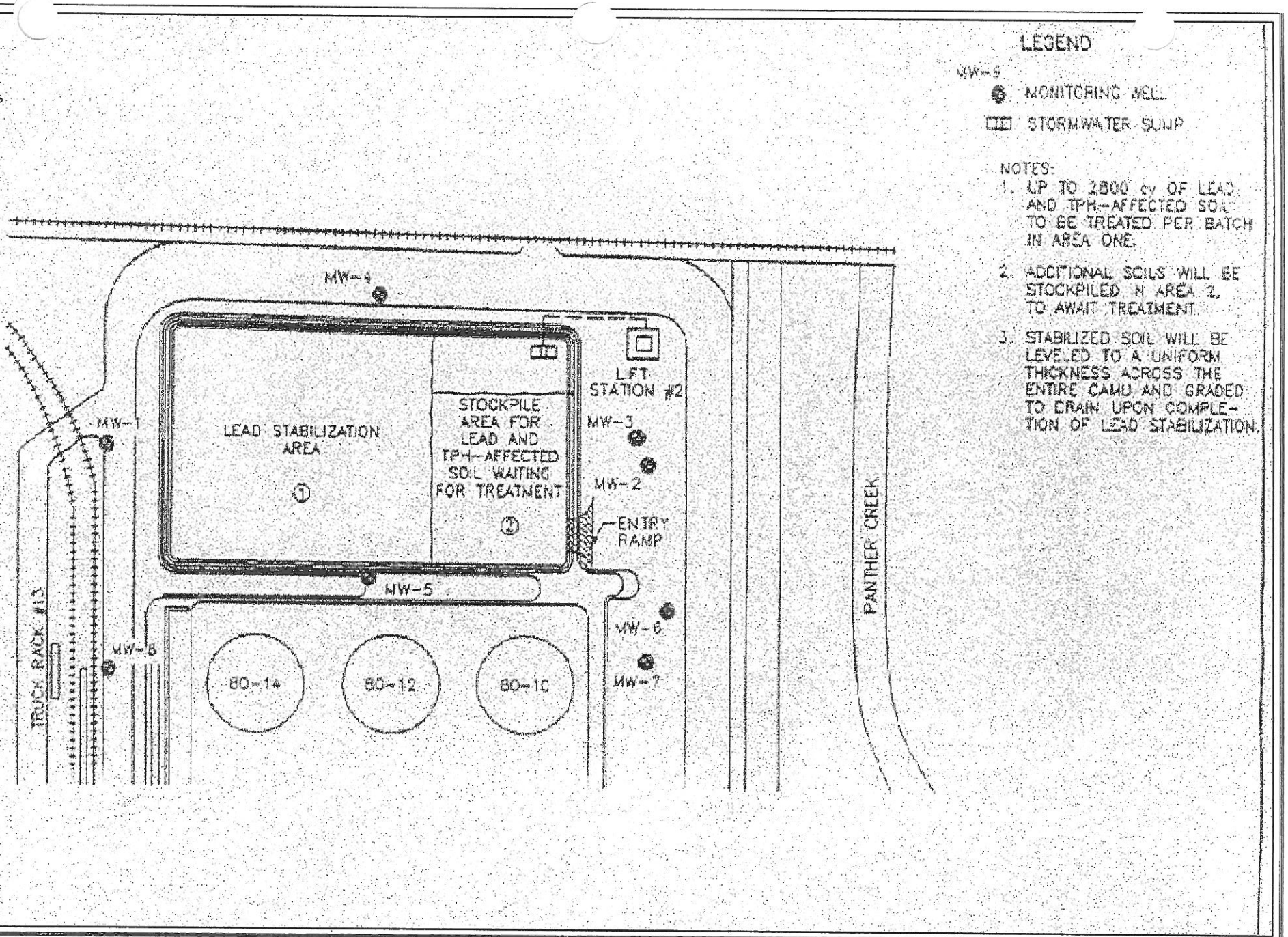
ARCADIS
2900 WEST FORK DRIVE, SUITE 540
BATON ROUGE, LA 70827
Tel: 225-292-1004 Fax: 225-292-5210

NO.	DATE	REVISION DESCRIPTION	BY CKD

SITE LAYOUT MAP

Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

DRAWN:	DATE:	PROJECT MANAGER:	CHECKED:
SMEN	4-17-2003	DAL	DAL
		DRAWING NAME: 02	CAD FILE: 02
		PROJECT NUMBER: HT000463.00015	DRAWING NUMBER: 2



Filename = G:\APROJECT\Kinder Morgan\HT000436.0015\Figures\Former NHB.CAMU\436-03.dwg
Menuname = C:\Program Files\AutoCAD 2002\support\acad
AutoCAD Version = 15.06
Username = smen
04-23-2003
13:17:23

Copyright © 2002

ARCADIS
2900 WEST FORK DRIVE, SUITE 540
BATON ROUGE, LA 70827
Tel: 225-292-1004 Fax: 225-292-5210

CAMU OPERATIONS DURING LEAD STABILIZATION

CORRECTIVE ACTION MANAGEMENT UNIT
GALENA PARK, TEXAS

DATE:	DRAWN:	PROJECT MANAGER:	REGIONAL MANAGER:
4-18-03	SMEN	TR	RG
		CHECKED: TR	DRAWING FILE: 01
KINDER MORGAN LIQUIDS TERMINALS L.L.C. Galena Park Terminal Houston, Texas		PROJECT NUMBER: HT000463.00015	DRAWING NUMBER: 3

ARCADIS

Appendix A

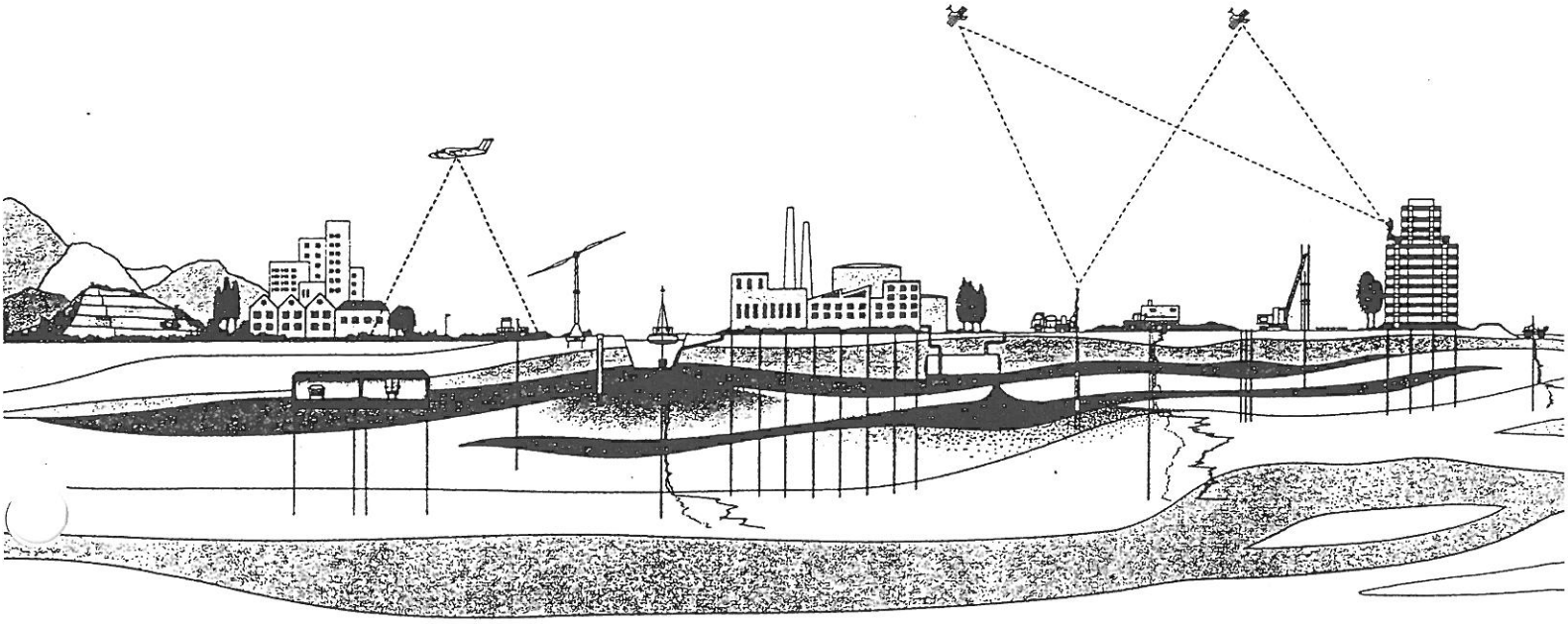
Engineering Certification Report

FUGRO

'GRO ENVIRONMENTAL, INC.

ENGINEERING CERTIFICATION REPORT
CORRECTIVE ACTION MANAGEMENT UNIT
NORTH HOLDING BASIN

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS



FUGRO ENVIRONMENTAL, INC.

6100 Hillcroft (77081)
P.O. Box 740010
Houston, Texas 77274
Tel: (713) 773-5656
Fax: (713) 773-5600

Report No. 0561-0102
October 9, 1996

GATX Terminals Corporation
405 Clinton Drive
P. O. Box 465
Galena Park, Texas 77547-0465

Attention: Mr. Nick Ozuna

Engineering Certification Report
Corrective Action Management Unit
GATX North Holding Basin
Galena Park, Texas

We are pleased to submit our Engineering Certification Report and Quality Assurance/Quality Control (QA/QC) activities summary during the construction of the Correction Action Management Unit (CAMU) at the North Holding Basin at the above referenced facility. We performed this work for GATX under Blanket Order No. MSA E004 and Purchase Order Nos. 6618-001 and 6618-002.

We appreciate the opportunity to be of service on this project, and look forward to continuing to provide engineering consultation and material testing for other projects. Please call if you have any questions, or when we may be of further service.

Sincerely,
FUGRO ENVIRONMENTAL, INC.

Mark A. Board, P.E.
Supervising Engineer

G. Rai Mehdiratta, Ph.D., P.E.
Vice President

MAB/GRM(RS/96rpt61/0102R.DOC)

CONTENTS

		Page
CERTIFICATION		i
1.0	INTRODUCTION	1-1
1.1	Background	1-1
1.2	Project Team	1-1
1.3	Report Format	1-1
2.0	CONSTRUCTION ACTIVITIES	2-1
2.1	Chronology of Construction Activities	2-1
2.2	Waste Solidification	2-1
2.3	Clay Barrier Construction	2-2
3.0	SAMPLING AND TESTING METHODOLOGY	3-1
3.1	Waste Solidification	3-1
3.2	Clay Barrier	3-1
4.0	RESULTS OF TESTS ON SOLIDIFIED WASTE	4-1
5.0	RESULTS OF FIELD AND LABORATORY TESTS ON CLAY	5-1
5.1	Borrow Source Testing	5-1
5.2	Clay Barrier In-Place Testing	5-1

TABLES

	Table
Laboratory Test Results, Solidified Waste	4-1
Laboratory Test Results, Compacted Clay	5-1
Nuclear Density/Moisture Test Results	5-2

ILLUSTRATIONS

	Figure
General Location Map	1-1
Site Plan	1-2
Approximate Location, Solidified Waste Samples	4-1
Approximate Location, Nuclear Density/Moisture Tests	5-1

APPENDICES

	Appendix
Construction As-Builts (Provided by Smith Environmental)	A
Construction Specifications (Provided by GATX)	B

CERTIFICATION

This is to certify that the following activities have been completed for the following items in conformance with good engineering practices and the design and construction specifications of the approved final closure plan dated March, 1991 and the Class 3 Permit Modification Application dated September, 1994:

Construction of a CAMU as part of the Final Closure of the North Holding Basin at the GATX Terminals Corporation Facility, Galena Park, Texas. This work was authorized under Permit No. HW-50054, EPA No. TXD026481523.



Fugro Environmental Inc.
Mark A. Board, P.E.
Certifying Engineer

1.0 INTRODUCTION

This report contains a brief description of the construction activities and results of the quality assurance/quality control testing during construction of the CAMU at the North Holding Basin at GATX's Galena Park facility. This unit is covered by Texas Natural Resource Conservation Commission (TNRCC) Permit No. HW-50054 and Environmental Protection Agency (EPA) No. TXD026481523. The unit is located as shown in Figures 1-1 and 1-2. Construction activities included solidification and testing of the existing waste, as well as building and testing of the clay barrier and ramp. The construction activities related to building the CAMU were started in June 1996, and completed in August, 1996.

1.1 Background

The North Holding Basin is an above-grade, hazardous waste impoundment. It has a total bottom surface area, of approximately 2.1 acres. The design of the CAMU includes a clay barrier compacted over the solidified waste. The clay barrier is composed of a six-inch thick layer of low-permeability compacted clay. The clay barrier surface is sloped to drain to a sump for leachate collection and removal. The design also includes a truck ramp for dumping waste into the CAMU.

1.2 Project Team

The project team consisted of professionals from various organizations, as follows:

Owner: GATX Terminals Corporation

Third Party CQA Firm: Fugro Environmental, Inc.

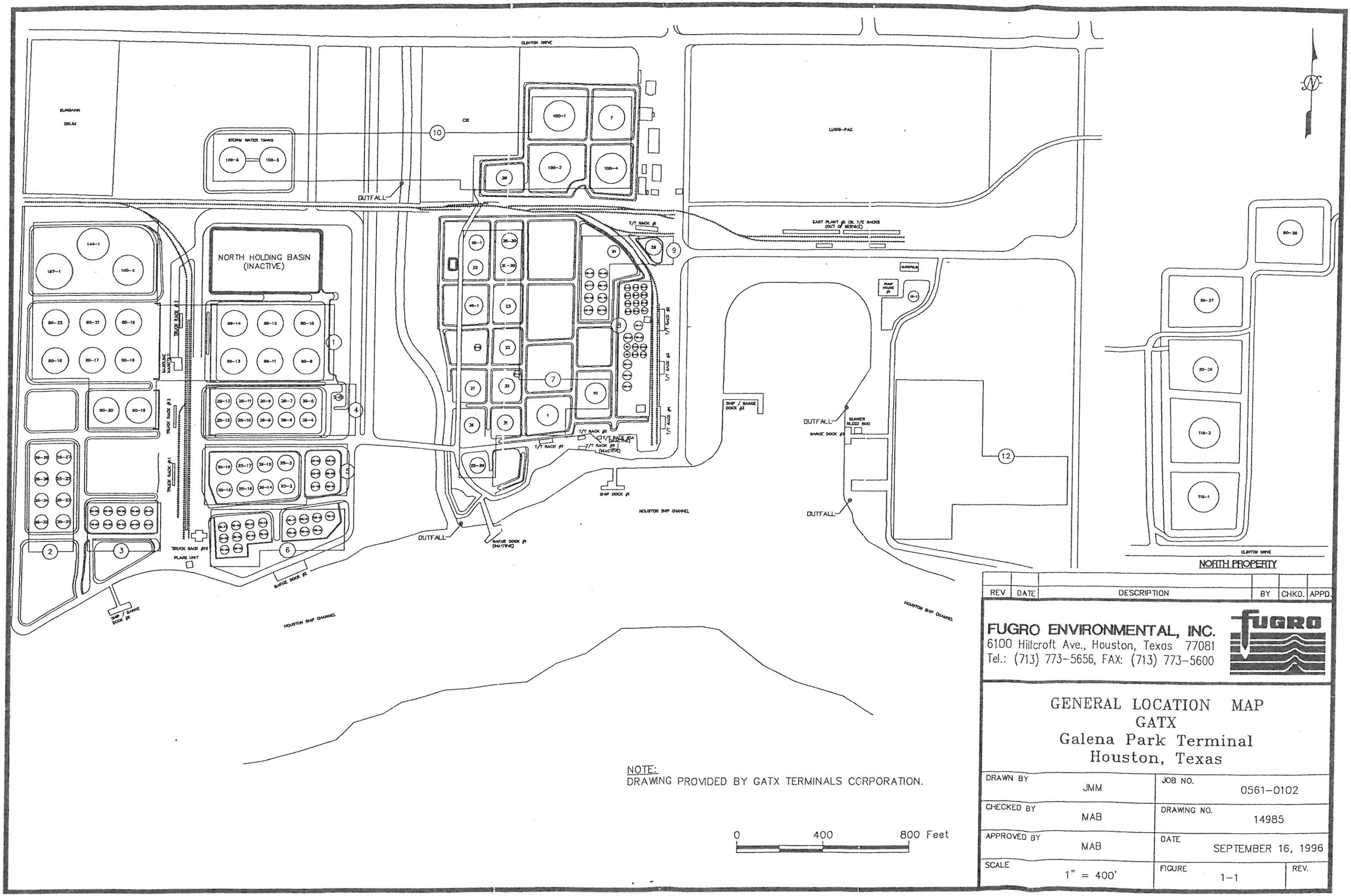
Certifying Engineer (CE): Mark Board, P.E. (Fugro Environmental)

General Contractor: Smith Environmental

Third Party Laboratory: Fugro-McClelland (Southwest)

1.3 Report Format

This report presents a brief description of the construction activities as well as the results of quality control/quality assurance testing. Section 2.0 details construction activities, which include waste solidification procedures, soil placement procedures, specifications and equipment. Section 3.0 contains solidified waste and soil material testing methodology. An assessment of field and laboratory test results for solidified waste and soil materials is given in Sections 4.0 and 5.0. Tables and figures follow each section. A copy of an as-built drawing is included in Appendix A. Construction specifications are included in Appendix B.



NOTE:
DRAWING PROVIDED BY GATX TERMINALS CORPORATION.

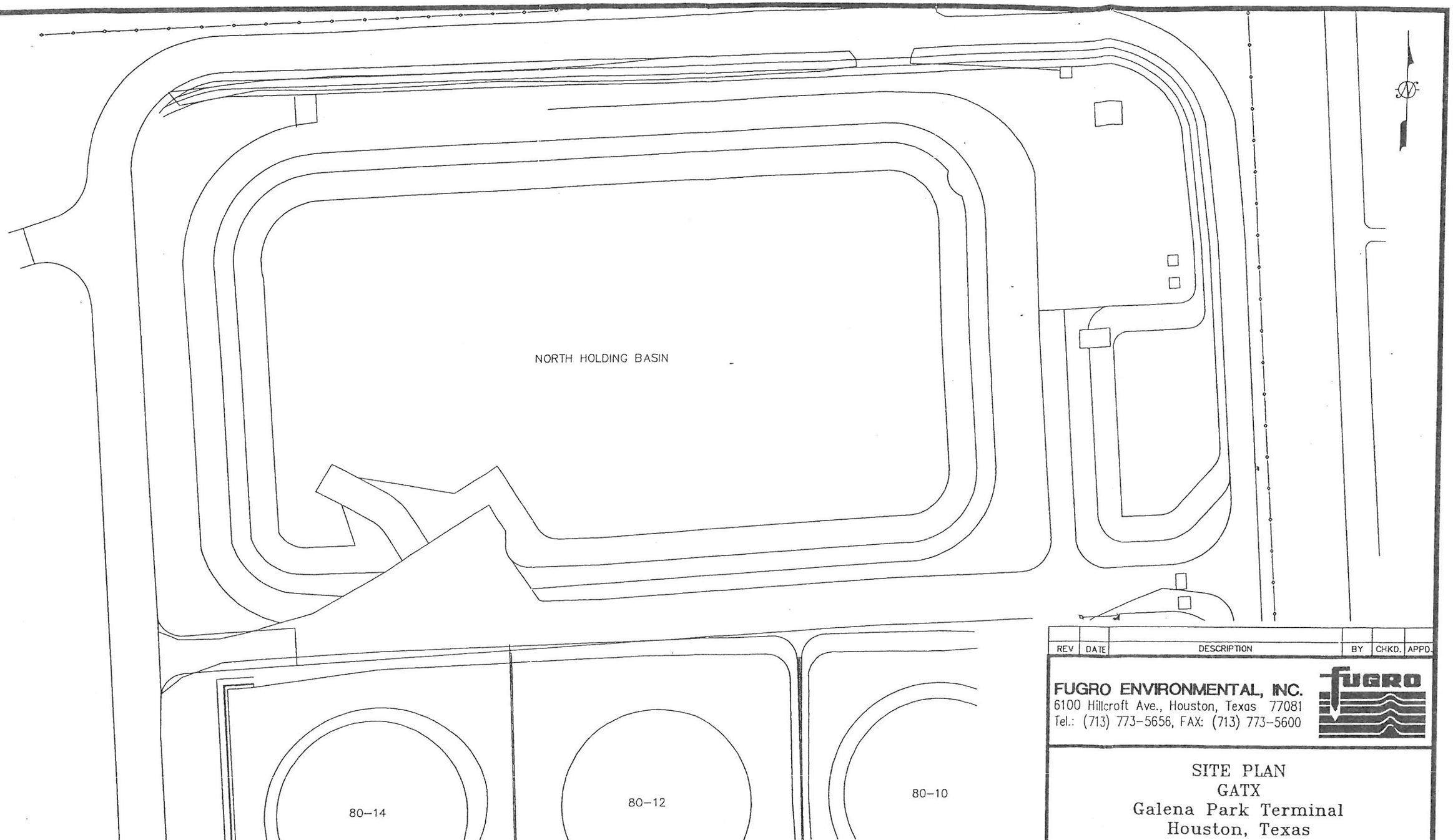
0 400 800 Feet

REV	DATE	DESCRIPTION	BY	CHKD.	APPD.

FUGRO ENVIRONMENTAL, INC.
6100 Hillcroft Ave., Houston, Texas 77081
Tel.: (713) 773-5656, FAX: (713) 773-5600

GENERAL LOCATION MAP
GATX
Galena Park Terminal
Houston, Texas

DRAWN BY	JMM	JOB NO.	0561-0102
CHECKED BY	MAB	DRAWING NO.	14985
APPROVED BY	MAB	DATE	SEPTEMBER 16, 1996
SCALE	1" = 400'	FIGURE 1-1	REV.



NOTE:
DRAWING PROVIDED BY GATX TERMINALS CORPORATION.

0 60 120 Feet

REV	DATE	DESCRIPTION	BY	CHKD.	APPD.

FUGRO ENVIRONMENTAL, INC.
6100 Hillcroft Ave., Houston, Texas 77081
Tel.: (713) 773-5656, FAX: (713) 773-5600

SITE PLAN
GATX
Galena Park Terminal
Houston, Texas

DRAWN BY	JMM	JOB NO.	0561-0102
CHECKED BY	MAB	DRAWING NO.	14986
APPROVED BY	MAB	DATE	SEPTEMBER 16, 1996
SCALE	1" = 60'	FIGURE 1-2	REV.

2.0 CONSTRUCTION ACTIVITIES

This section briefly describes the construction activities performed to build the CAMU. Construction activities included solidification of the waste, building the clay barrier and installation of a ramp. A chronology of the construction activities associated with the CAMU is also presented in this section.

Activities during construction of the CAMU included the following:

- Solidification of existing waste with cement and fly-ash,
- Installation of a six-inch-thick, low permeability (less than 1×10^{-7} cm/sec) clay barrier, and
- Installation of a truck ramp and drainage pipe

2.1 Chronology of Construction Activities

ACTIVITY	BEGINNING DATE	ENDING DATE
Mobilization	6/03/96	6/03/96
Strip Vegetation on Dike Walls	6/04/96	6/04/96
Dewater Basin	6/05/96	6/05/96
Waste Solidification	6/06/96	7/09/96
Demolition of Pump Pit	6/07/96	6/10/96
Place and Compact Six-Inch Clay Barrier	7/10/96	7/18/96
Truck Ramp Construction	7/13/96	7/18/96
Drainage Pipe Installation	7/15/96	7/19/96
Demobilization	7/29/96	7/29/96

2.2 Waste Solidification

The contractor began solidification of the waste on June 6, 1996, and completed solidification on July 9, 1996. The permit specified that the solidified waste should have a minimum compressive strength of 4400 psf. Solidification was accomplished by the addition of

fly-ash and cement. The contractor performed solidification of waste on a small (200 ft x 50 ft) test area to check the proposed addition of cement and fly-ash to the waste. Once laboratory testing confirmed that the specified compressive strength of the solidified waste was being achieved, the contractor proceeded with the solidification of the rest of the waste material. The fly-ash and cement was mixed with the waste using a trackhoe and then spread across the bottom with a bulldozer. The contractor performed the solidification in general accordance with the specifications located in Appendix B. Sampling and testing methodology is discussed in Section 3.0. Laboratory test results are located in Section 4.0.

2.3 Clay Barrier Construction

The contractor began construction of the clay barrier on July 10, 1996 and completed construction on July 18, 1996. The borrow material used for clay barrier construction was prequalified by Fugro after testing of the on-site proposed soils. A Fugro technician was assigned to be on-site during the construction of the clay barrier to observe construction techniques and perform soil testing.

The contractor placed and compacted a six-inch-thick, low-permeability clay barrier over the entire bottom of the North Holding Basin. The clay cap material was placed in approximately nine-inch thick loose lifts which were then compacted to approximately six inches. The clay was walked in by bulldozers and processed by compactors. Loose lifts were compacted with a vibrating drum, pad-foot compactor. A water hose was used for wetting lifts as necessary and as determined by the on-site soil technician.

The clay used for construction of the clay barrier was excavated from the surrounding dike material. The clay obtained from the dikes was tested for Atterberg limits (liquid limit and plasticity index), and percent passing a No. 200 Sieve. Soils were visually observed by a soils technician to check for the absence of roots, grass, refuse, and other objectionable material.

A full-time, on-site soils technician observed the compaction procedure and clod size, collected samples for laboratory testing, and performed nuclear density/moisture content tests. The parameters analyzed included Atterberg limits, percent passing a No. 200 Sieve, density, moisture content, and hydraulic conductivity on field compacted clay cap samples. Testing was done both at an off-site laboratory and in-place at the site. Field density and moisture content tests were performed at randomly selected locations. Sampling and testing methodology is discussed in Section 3.0. Results of tests performed on clay material are presented in Section 5.0 of this report.

3.0 SAMPLING AND TESTING METHODOLOGY

A Quality Assurance and Quality Control (QA/QC) testing program was performed by Fugro Environmental during the construction of the CAMU. The QA/QC program involved on-site surveillance and testing to check that the waste solidification was performed and the clay barrier was constructed in accordance with the approved final "Closure Plan for North holding Basin dated March, 1991" and the "Class Hazardous Waste 3 Permit Modification Application dated September, 1994".

From June 6 to July 19, Fugro's technician performed on-site surveillance and testing during construction of the CAMU. In general, on-site surveillance consisted of observing solidification techniques and observing placement of soil material and moisture conditioning of soils, observing the number of compactor passes, and visually characterizing material to be used as clay barrier. Daily field summary reports documenting all testing, results of testing, and general construction procedures, were maintained during sampling and testing of the solidified waste and during the placement and compaction of the clay barrier.

3.1 Waste Solidification

The waste was solidified and tested in accordance with the approved specifications and procedures outlined in the permit and the permit modification for the CAMU. Unconfined compressive strength testing (ASTM D2166) was performed on samples obtained from the solidified waste material. A minimum of one test was performed for every 10,000 square feet. As required by the permit, four paint filter liquids tests (ASTM D9095) were performed on samples of the solidified waste material. Results of testing performed on solidified waste are presented in Section 4.0.

3.2 Clay Barrier

The low-permeability clay barrier was constructed and tested in accordance with the approved specifications and procedures outlined in the permit and the permit modification for the CAMU. In-place moisture testing (ASTM D3017) and density testing (ASTM D2922) were performed by soil technicians using a nuclear density gauge. This gauge measured the amount of moisture present and the density of the soil at a given location. A minimum of one test was performed for every 10,000 square feet. Duplicate testing of 10% of all nuclear density tests was performed by ASTM D 1556, sand cone density test.

Atterberg Limit (ASTM D 4318) and percent passing the No. 200 sieve (ASTM D1140) tests were performed at least once for every 10 field nuclear density tests. Samples were taken after the soil was spread, and compacted to get samples of mixed material.

A Proctor test (ASTM D698) was conducted on the borrow soil for every 5,000 cubic yards of material to establish optimum moisture content and maximum dry densities for the

borrow soils. Soil samples were collected from soil stockpiles and brought back to the laboratory for testing.

A minimum of six laboratory hydraulic conductivity tests (ASTM D5084) were performed on compacted clay samples. The undisturbed clay samples were obtained using a three-inch diameter drive ring sampler. The samples were extruded in the laboratory and tested in general accordance with ASTM D5084. Clay barrier test results are discussed in Section 5.0.

4.0 RESULTS OF TESTS ON SOLIDIFIED WASTE

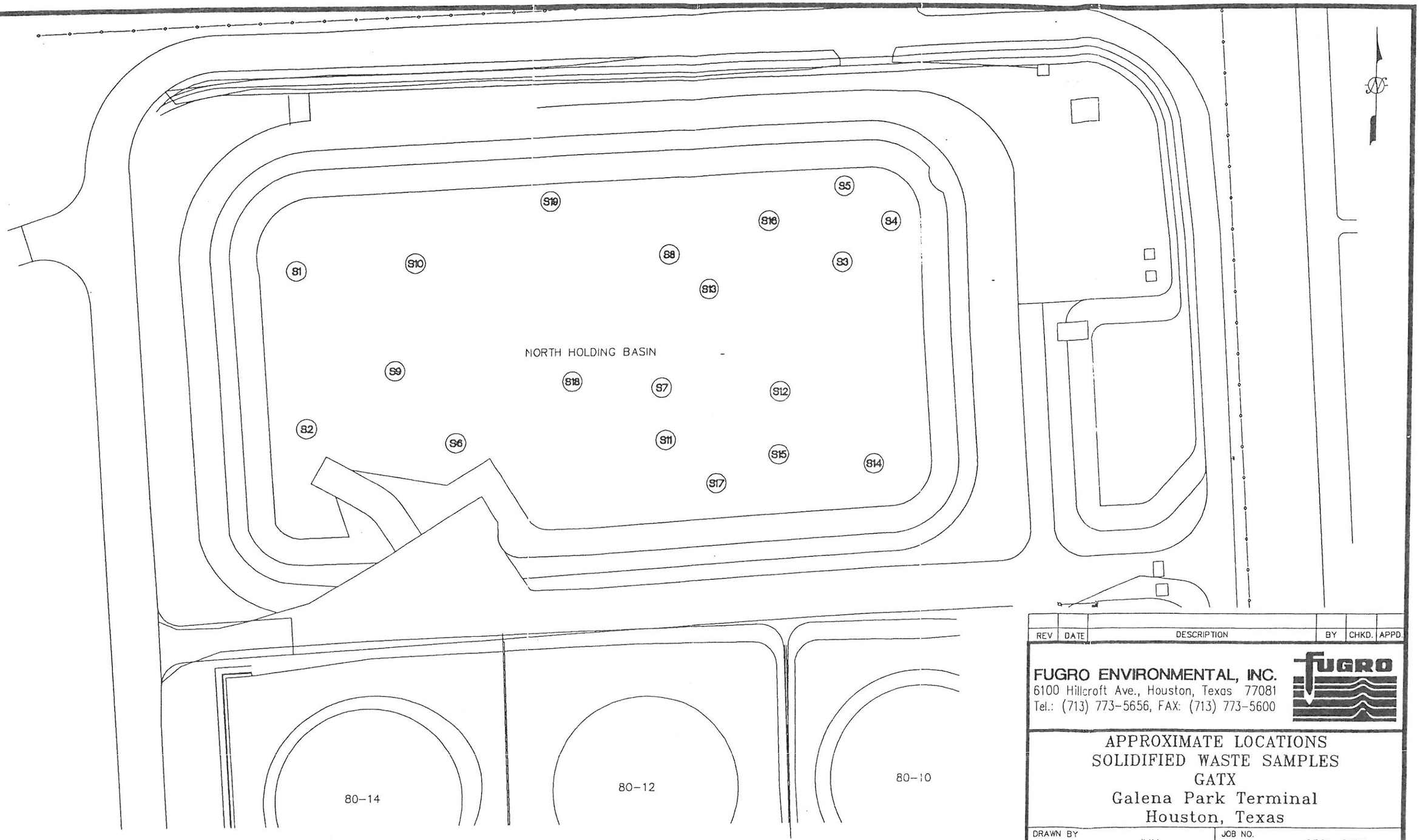
Unconfined compressive strength tests (ASTM D 2166) were performed on nineteen (19) samples of the final solidified waste in the laboratory. The compressive strength of the final solidified waste samples ranged from 5,198 psf to 130,896 psf, exceeding the project requirement of 4,440 psf. Four samples of solidified waste were tested and passed the paint filter test. The sample test results are summarized on Table 4-1. Approximate test locations are shown on Figure 4-1. The sampling and testing methodology is explained in Section 3.0 of this report.

Unconfined Compressive Strength ASTM D2166		
Sample Number	Results (PSI)	Results (PSF)
S1	47.1	6,782
S2	44.3	6,379
S3	64.9	9,346
S4	62.4	8,986
S5	60.4	8,698
S6	41.7	6,005
S7	36.1	5,198
S8	316.8	45,619
S9	909.0	130,896
S10	647.5	93,240
S11	694.7	100,037
S12	273.6	39,398
S13	256.9	36,994
S14	398.3	57,355
S15	613.0	88,272
S16	526.0	75,744
S17	601.0	86,544
S18	591.2	85,133
S19	432.0	62,208

Note: A paint filter liquids test (ASTM D9095) was performed on samples No. S15, 16, 17, & 18 with the results of no free liquids after 5 minutes.

TABLE 4-1

LABORATORY TEST RESULTS
SOLIDIFIED WASTE
CAMU (North Holding Basin)
GATX Terminals Corporation
Galena Park, Texas



LEGEND:

(S1) APPROXIMATE LOCATION OF SOLIDIFIED WASTE SAMPLE

NOTE:

DRAWING PROVIDED BY GATX TERMINALS CORPORATION.

0 60 120 Feet

REV	DATE	DESCRIPTION	BY	CHKD.	APPD.

FUGRO ENVIRONMENTAL, INC.
6100 Hillcroft Ave., Houston, Texas 77081
Tel.: (713) 773-5656, FAX: (713) 773-5600

APPROXIMATE LOCATIONS SOLIDIFIED WASTE SAMPLES GATX Galena Park Terminal Houston, Texas

DRAWN BY	JMM	JOB NO.	0561-0102
CHECKED BY	MAB	DRAWING NO.	14995
APPROVED BY	MAB	DATE	SEPTEMBER 17, 1996
SCALE	1" = 60'	FIGURE	4-1
		REV.	

5.0 RESULTS OF FIELD AND LABORATORY TESTS ON CLAY

Tests were performed both in the field and in the laboratory on clay barrier material. Moisture content and density of the compacted clay cap were measured in the field with a nuclear density gauge. Lift thickness and slope verifications were also conducted in the field through field measurement and surveying. Tests for Atterberg limits, moisture content, and particle size analysis were conducted both in the laboratory and in the on-site field laboratory. All soil testing frequencies exceeded permit requirements, providing additional quality control. Hydraulic conductivity (permeability) testing was performed in the laboratory on drive ring samples of the field-compacted clay.

5.1 Borrow Source Testing

Standard Proctor tests were performed to establish maximum dry density and optimum moisture content of the materials planned to be used for the construction of the clay barrier. The testing described in Section 3.0 was performed to check that the proposed materials met the project specifications. All soil samples tested were within the project specifications for clay barrier material. The liquid limit ranged from 32 to 51 and the plasticity index ranged from 20 to 38. The percent passing the No. 200 sieve ranged from 67.5 to 77.8. Results of Proctor tests, percent passing the No. 200 sieve (particle size), and Atterberg limits for the clay barrier are summarized in Table 5-1. These test results were used in identifying suitable areas of the dikes for use as clay material. The sampling and testing methodology is explained in Section 3.0 of this report. Appendix B contains the clay barrier specifications used during construction.

5.2 Clay Barrier In-Place Testing

The testing described in Section 3.0 was performed to check that the soil used to construct the clay barrier met the project specifications. All final soil samples tested were within the project specifications for clay barrier material. The liquid limit ranged from 41 to 45 and the plasticity index ranged from 29 to 33. The percent passing the No. 200 sieve ranged from 72.9 to 79.9. Results of Atterberg limits, and percent passing the No. 200 sieve for the clay barrier are summarized in Table 5-1. The sampling and testing methodology is explained in Section 3.0 of this report.

Hydraulic conductivity (permeability) tests were performed on samples of field compacted clay barrier material obtained using drive rings. The final test results gave hydraulic conductivity values ranging from 5.78×10^{-10} to 6.27×10^{-8} cm/sec, which is significantly less than the specified minimum value of 1×10^{-7} cm/sec. The hydraulic conductivity test results on the drive ring samples are summarized in Table 5-1. The sampling and testing methodology is explained in Section 3.0 of this report.

The field moisture content and dry density test results were evaluated against the maximum dry density and optimum moisture content results obtained from laboratory standard Proctor tests. The clay, which did not meet the greater than 95 percent compaction and moisture requirements, was reworked and retested until the density and moisture content requirements were satisfied. Field density and moisture content results are summarized in Table 5-2. Figure 5-1 shows approximate nuclear density/moisture content test locations for the clay barrier. The sampling and testing methodology is explained in Section 3.0 of this report.

A survey was performed by Smith Environmental as part of the construction activities. The purpose of the survey was to verify the elevation of the waste and the clay barrier. Survey results are presented on the as-built drawing located in Appendix A.

Sample I. D. No.	Sample Location	Atterberg Limits			Passing No. 200 Sieve [%]	Moisture Content [%]	Optimum Moisture Content [%]	Maximum Unit Dry Weight (pcf)	Hydraulic Conductivity ASTM D 5084 [cm/sec]
		Liquid Limit	Plastic Limit	Plasticity Index					
96295	Dike	41	13	28	74.7	11.6	16.0	112.5	4.53E-08
96296	Dike	51	13	38	77.8	18.4	18.0	106.0	--
*96324	Stock Pile	39	12	27	67.5	17.4	14.5	113.5	--
*96325	Stock Pile	32	12	20	69.8	21.1	14.5	114.0	--
96328	Clay Barrier	--	--	--	--	--	--	--	1.05E-08
96330	Clay Barrier	--	--	--	--	--	--	--	1.91E-08
96331	Clay Barrier	41	12	29	73.6	--	--	--	--
96332	Clay Barrier	42	13	29	79.9	--	--	--	--
96333	Clay Barrier	45	12	33	72.9	--	--	--	--
96339	Clay Barrier	--	--	--	--	--	--	--	6.27E-08
96341	Clay Barrier	--	--	--	--	--	--	--	5.78E-10
96342	Clay Barrier	--	--	--	--	--	--	--	3.27E-09
96340	Clay Barrier	--	--	--	--	--	--	--	3.09E-09

*Stock pile material escavated from ditch construction just east of CAMU.

TABLE 5-1

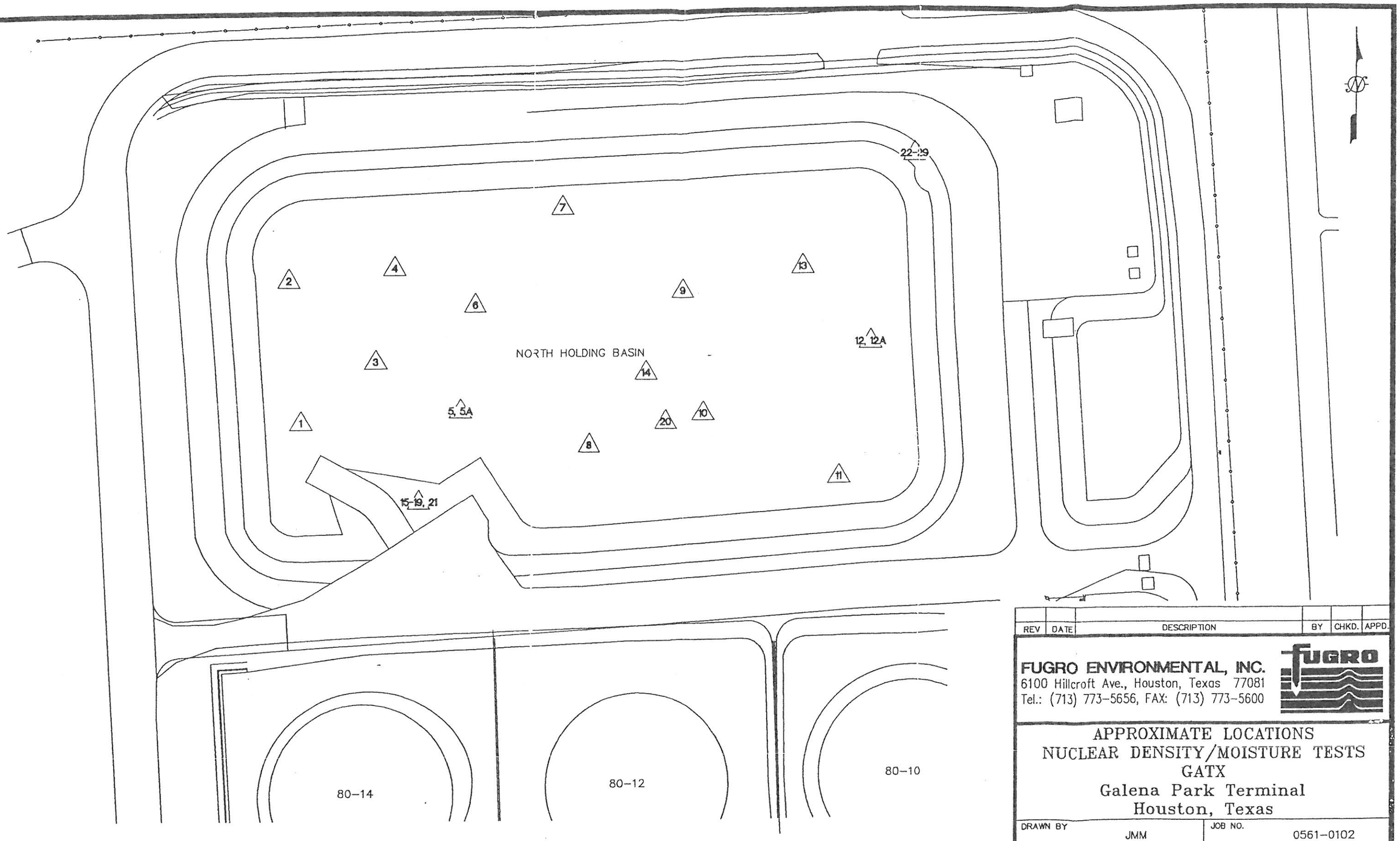
LABORATORY TEST RESULTS
COMPACTED CLAY
CAMU (North Holding Basin)
GATX Terminals Corporation
Galena Park, Texas

Test No.	Test Date	In - Place ASTM D 2922 & 3017		Laboratory Standards per ASTM D 698		Compactive Effort [%]	Remarks
		Dry Density [pcf]	Moisture Content [%]	Maximum Dry Density [pcf]	Optimum Moisture Content [%]		
1	7/11/96	108.7	17.4	112.5	16.0	97.0	
2	7/11/96	107.0	17.0	112.5	16.0	95.0	
3	7/11/96	107.8	17.6	112.5	16.0	96.0	
4	7/11/96	108.0	16.7	112.5	16.0	96.0	
5	7/11/96	103.5	16.9	112.5	16.0	92.0	Failed area was reworked and retested
5-A	7/11/96	107.0	16.7	112.5	16.0	95.0	Retest of test No. 5
6	7/11/96	107.9	18.2	112.5	16.0	96.0	
7	7/12/96	108.3	15.9	112.5	16.0	96.0	
8	7/12/96	107.9	15.1	112.5	16.0	96.0	
9	7/12/96	106.9	16.7	112.5	16.0	95.0	
10	7/12/96	108.0	17.0	112.5	16.0	96.0	
11	7/12/96	109.2	16.4	112.5	16.0	97.0	
12	7/12/96	103.8	16.2	112.5	16.0	92.0	Failed area was reworked and retested
12-A	7/12/96	109.0	16.4	112.5	16.0	97.0	Retest of test No. 12
13	7/12/96	109.3	16.0	112.5	16.0	97.0	
14	7/12/96	109.2	15.5	112.5	16.0	97.0	
15	7/13/96	111.9	14.5	113.5	14.0	99.0	Ramp
16	7/13/96	114.0	14.4	113.5	14.0	100+	Ramp
17	7/13/96	109.3	13.9	113.5	14.0	96.0	Ramp
18	7/13/96	110.2	15.1	113.5	14.0	97.0	Ramp
19	7/13/96	114.1	13.5	113.5	14.0	100.0	Ramp
20	7/18/96	109.0	16.8	112.5	16.0	97.0	
21	7/18/96	113.6	14.7	114.0	14.5	100.0	Ramp
22	7/19/96	109.1	15.5	112.5	16.0	97.0	Drainage Pipe Backfill
23	7/19/96	107.1	17.6	112.5	16.0	95.0	Drainage Pipe Backfill
24	7/19/96	107.9	17.1	112.5	16.0	96.0	Drainage Pipe Backfill
25	7/19/96	106.9	15.9	112.5	16.0	95.0	Drainage Pipe Backfill
26	7/19/96	107.0	18.9	112.5	16.0	95.0	Drainage Pipe Backfill
27	7/19/96	110.2	16.2	112.5	16.0	98.0	Drainage Pipe Backfill
28	7/19/96	106.9	16.3	112.5	16.0	95.0	Drainage Pipe Backfill
29	7/19/96	108.8	16.7	112.5	16.0	97.0	Drainage Pipe Backfill

Notes:
(1) Test Nos 1-14 and 20 were performed on the compacted clay barrier.
(2) All test locations are shown on Figure 5-1

TABLE 5-2

NUCLEAR DENSITY/MOISTURE TEST RESULTS
CAMU (North Holding Basin)
GATX Terminals Corporation
Galena Park, Texas



NOTE:
DRAWING PROVIDED BY GATX TERMINALS CORPORATION.

0 60 120 Feet

REV	DATE	DESCRIPTION	BY	CHKD.	APPD.

FUGRO ENVIRONMENTAL, INC.
6100 Hillcroft Ave., Houston, Texas 77081
Tel.: (713) 773-5656, FAX: (713) 773-5600

APPROXIMATE LOCATIONS NUCLEAR DENSITY/MOISTURE TESTS GATX Galena Park Terminal Houston, Texas

DRAWN BY	JMM	JOB NO.	0561-0102
CHECKED BY	MAB	DRAWING NO.	14994
APPROVED BY	MAB	DATE	SEPTEMBER 17, 1996
SCALE	1" = 60'	FIGURE	5-1
		REV.	

APPENDIX A
CONSTRUCTION AS-BUILTS
(Provided by Smith Environmental)

GATX terminal topo for Aware Engineering

Project: 943205

Tue Sep 3 13:17:14 1996

Point statistics:

Starting point number:	1
Max point number used:	13421
Min point number used:	1
Current point number:	908

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
511	708923.6863	3196697.1452	8.810	CP
554	708614.1590	3196556.7919	20.243	WP
555	708864.4827	3196055.5719	20.019	WP
7900	708558.5798	3196495.1857	20.944	TBM
7901	708933.2431	3196628.6389	8.923	ASPH
7902	708919.3921	3196503.1529	7.821	SP24
7903	708917.8454	3196462.3479	8.161	SP24
7904	708921.8420	3196276.8426	11.993	ASPH
7905	708914.9332	3196503.8725	10.790	SIGN
7906	708906.7494	3196534.1786	13.211	Elcrsr.
7907	708907.6276	3196535.3455	12.852	PVC 2 IN.
7908	708943.3310	3196628.3466	9.362	ASCL
7909	708924.9096	3196628.7691	7.435	FLD
7910	708914.6371	3196628.8954	8.701	HIBANK DITCH
7911	708911.1100	3196577.7685	9.813	HIBANK DITCH
7912	708930.7646	3196576.2208	9.007	ASPH
7913	708921.9299	3196576.3940	7.587	FLD
7914	708940.4164	3196576.7922	9.608	ASCL
7915	708939.0809	3196528.7998	9.623	ASCL
7916	708929.2071	3196529.4931	9.599	ASCL
7917	708920.5542	3196529.1445	8.208	FLD
7918	708916.0868	3196529.0743	8.955	Toe
7919	708936.5201	3196478.3493	9.940	ASCL
7920	708922.8333	3196478.6038	10.353	ASPH
7921	708914.0080	3196478.8784	11.285	Toe
7922	708936.3463	3196426.0350	10.320	ASCL
7923	708924.9671	3196426.1562	10.139	ASPH
7924	708920.3951	3196426.1677	10.080	HIBANK DITCH
7925	708916.2761	3196426.2127	8.845	FLD
7926	708912.4897	3196426.0790	10.109	TOD
7927	708937.0380	3196375.2228	10.710	ASCL
7928	708925.4730	3196375.2561	10.715	ASPH
7929	708920.1649	3196375.7801	10.672	HIBANK DITCH
7930	708914.6283	3196375.3840	8.991	FLD
7931	708913.0711	3196375.5123	9.201	TOD
7932	708926.7630	3196339.6038	11.884	VLT 3.3X3.3
7933	708929.4527	3196320.1738	11.899	VLT 3.3X3.3
7934	708936.9256	3196325.7607	11.358	ASCL
7935	708923.5338	3196327.4047	11.341	ASPH
7936	708917.6411	3196326.6365	11.043	HIBANK DITCH
7937	708910.7250	3196326.7597	9.489	FLD
7938	708908.7941	3196326.5889	9.895	TOD
7939	708934.9965	3196276.5206	11.997	ASCL
7940	708915.8375	3196277.2487	11,633	HIBANK DITCH
7941	708909.3260	3196277.7657	10.043	FLD
7942	708907.1995	3196278.0504	10.317	TOD
7943	708884.5287	3196277.1445	19.791	TBD1
7944	708868.0018	3196279.2701	20.081	TBD2
7945	708886.0730	3196329.5983	19.555	TBD1
7946	708869.9515	3196332.0304	19.668	TBD2
7947	708887.7571	3196376.8306	19.889	TBD1
7948	708871.9942	3196375.4205	20.018	TBD2
7949	708890.4586	3196427.3935	19.600	TBD1
7950	708873.6680	3196426.0614	19.708	TBD2

GATX terminal topo for Aware Engineering

Project: 943205 Tue Sep 3 13:17:32 1996

7951	708893.8455	3196478.7913	19.309	TBD1
7952	708874.1571	3196477.0187	19.418	TBD2
7953	708862.3205	3196506.3789	19.157	TBD2
7954	708838.3062	3196518.1757	18.939	TBD2
7955	708895.2197	3196529.3603	19.258	TBD1
7956	708892.5967	3196551.5055	19.180	TBD1
7957	708906.1671	3196573.9421	10.686	TOD
7958	708864.8685	3196580.5935	11.419	TOD
7959	708821.7835	3196582.0720	11.461	WATER VALVE
7960	708806.0049	3196586.4040	10.691	TOD
7961	708817.5610	3196635.1997	11.344	NG
7962	708857.9939	3196632.6521	10.257	NG
7963	707930.0736	3197054.6779	16.786	BM 3
7964	708558.5158	3196495.2598	20.937	TBM
7965	708864.4703	3196055.5663	20.041	WP 555
7966	708801.6032	3196556.4374	19.405	TBD1
7967	708800.9797	3196543.3320	19.923	TBD2
7968	708752.6196	3196545.3914	19.338	TBD2
7969	708753.1700	3196559.0699	19.507	TBD1
7970	708701.9017	3196562.8911	19.493	TBD1
7971	708701.6414	3196547.6678	19.081	TBD2
7972	708654.1905	3196546.4732	19.825	TBD2
7973	708625.1371	3196534.4802	18.996	TBD2
7974	708608.0777	3196511.1724	20.247	TBD2
7975	708654.6416	3196564.1660	20.143	TBD1
7976	708627.9891	3196564.6285	20.178	TBD1
7977	708612.3727	3196560.1204	20.235	TBD1
7978	708601.3893	3196543.0079	19.873	TBD1
7979	708596.5406	3196512.3872	20.336	TBD1
7980	708602.3807	3196463.1006	20.311	TBD2
7981	708598.3373	3196409.7572	20.490	TBD2
7982	708595.6390	3196359.3902	20.588	TBD2
7983	708594.4178	3196308.4975	20.838	TBD2
7984	708592.1640	3196261.7824	20.835	TBD2
7985	708755.8260	3196588.8658	10.759	FLD
7986	708709.4667	3196591.5150	11.281	FLD
7987	708662.7325	3196594.6507	10.990	FLD
7988	708615.9805	3196592.4749	12.266	FLD
7989	708591.0413	3196558.3307	16.651	FLD
7990	708587.8842	3196509.3231	18.367	FLD
7991	708586.0494	3196461.3008	19.116	FLD
7992	708550.7894	3196460.7274	19.137	FH
7993	708552.5823	3196391.0944	20.342	POWER POLE
7994	708549.2052	3196464.8986	18.454	NG
7995	708557.9535	3196495.1611	18.604	POWER POLE
7996	708564.3230	3196614.3045	14.044	POWER POLE
7997	708565.2094	3196637.2647	12.126	GUY ANC
7998	708568.3036	3196684.8710	10.205	POWER POLE
7999	708562.2967	3196625.5116	12.262	NG
8000	708615.9413	3196623.1317	11.570	NG
8001	708673.4432	3196617.0175	10.699	NG
8002	708747.5857	3196612.3623	10.220	NG
8003	708653.7739	3196631.0835	8.253	SP12
8004	708651.3369	3196596.9052	10.539	SP12
8005	708615.9071	3196589.3023	13.072	PLE4
8006	708609.2684	3196589.4995	13.014	PLE4
8007	708630.7533	3196710.2024	9.210	GR1
8008	708629.6389	3196710.2980	9.200	GR1
8009	708608.7449	3196701.8532	9.556	GR1
8010	708597.2607	3196679.9754	10.584	GR1
8011	708551.8349	3196715.4846	9.495	GR2
8012	708569.2881	3196704.8927	10.008	GR2
8013	708569.4170	3196654.3794	11.730	GR2
8014	708593.8446	3196652.9135	11.581	GR1

GATX terminal topo for Aware Engineering

Project: 943205 Tue Sep 3 13:17:41 1996

8015	708565.5701	3196613.4372	14.559	GR2
8016	708592.1113	3196628.4654	12.975	GR1
8017	708516.7573	3196616.0746	16.968	GR2
8018	708515.9006	3196605.3631	16.783	GR2
8019	708605.8067	3196616.7063	13.249	GR1
8020	708546.9221	3196598.7428	16.167	GR2
8021	708664.8024	3196613.4721	11.533	GR1
8022	708559.3868	3196580.8431	16.450	GR2
8023	708710.6363	3196610.1448	10.870	GR1
8024	708761.3576	3196606.7470	10.562	GR1
8025	708559.9224	3196531.6369	17.968	GR2
8026	708758.9705	3196592.4279	10.793	GR1
8027	708557.1804	3196479.3509	18.751	GR2
8028	708709.8265	3196595.4035	11.447	GR1
8029	708554.8407	3196455.8937	19.168	GR2
8030	708662.7767	3196597.5006	11.969	GR1
8031	708623.6879	3196599.9419	13.022	GR1
8032	708597.4941	3196585.7943	15.145	GR1
8033	708586.1418	3196558.6582	17.503	GR1
8034	708511.2383	3196438.9099	15.832	GR2
8035	708506.9646	3196433.5695	15.903	GR2
8036	708581.4191	3196509.2416	19.191	GR1
8037	708555.3927	3196424.5680	19.690	GR2
8038	708552.2682	3196373.5047	20.255	GR2
8039	708578.0147	3196461.3627	19.608	GR1
8040	708843.4846	3196524.4148	19.582	CATWALK 2.5 ME
8041	708834.2609	3196506.8139	19.517	CATWALK 2.5 ME
8042	708833.9554	3196502.9289	19.637	CC WALL 5 IN.
8043	708835.7222	3196506.1601	19.493	CC WALL 5 IN.
8044	708832.6480	3196507.5698	19.563	CC WALL 5 IN.
8045	708830.9599	3196504.6202	19.710	CC WALL 5 IN.
8046	708834.0915	3196499.8622	14.184	CC WW 5 IN.
8047	708828.3638	3196502.8603	14.316	CC WW 5 IN.
8048	708834.6145	3196507.9124	14.280	GATE VALVE
8049	708833.5676	3196505.4758	9.036	SP 18
8050	708826.9464	3196502.4925	8.656	TOE
8051	708778.3330	3196510.9793	8.913	TOE
8052	708846.2641	3196474.2886	8.662	TOE
8053	708727.1792	3196516.0587	8.541	TOE
8054	708845.7315	3196424.1391	8.755	TOE
8055	708679.4835	3196516.6890	8.596	TOE
8056	708843.9404	3196373.8788	8.712	TOE
8057	708645.3791	3196509.2387	8.848	TOE
8058	708842.5605	3196327.0909	8.543	TOE
8059	708630.8001	3196479.3785	8.446	TOE
8060	708841.1969	3196280.1041	8.593	TOE
8061	708627.6263	3196435.5072	8.602	TOE
8062	708839.7120	3196230.0372	9.186	TOE
8063	708625.6393	3196387.7276	8.523	TOE
8064	708623.3861	3196338.4101	8.591	TOE
8065	708821.7761	3196478.9087	9.603	NG
8066	708624.7511	3196291.6260	8.830	TOE
8067	708770.6166	3196478.2586	9.423	NG
8068	708719.5335	3196477.0013	9.666	NG
8069	708667.4520	3196477.5415	9.261	NG
8070	708662.3283	3196431.5788	9.249	NG
8071	708715.6015	3196430.0450	9.440	NG
8072	708639.7471	3196290.4386	8.128	GB
8073	708767.8476	3196428.5538	9.873	NG
8074	708819.1688	3196427.4541	8.681	NG
8075	708629.3738	3196338.5238	7.580	GB
8076	708817.4466	3196377.9808	8.864	NG
8077	708766.4250	3196380.8647	9.817	NG
8078	708631.9603	3196387.6987	7.690	GB

GATX terminal topo for Aware Engineering

Project: 943205 Tue Sep 3 13:17:49 1996

8079	708712.9741	3196383.3747	9.523	NG
8080	708663.9454	3196384.3181	8.700	NG
8081	708632.3508	3196435.5701	7.876	GB
8082	708664.9610	3196336.1582	8.497	NG
8083	708634.9729	3196478.8564	7.958	GB
8084	708711.3365	3196334.6401	9.296	NG
8085	708649.1047	3196505.0152	7.948	GB
8086	708764.2532	3196332.4190	9.486	NG
8087	708679.6084	3196511.6788	7.668	GB
8088	708815.5757	3196331.1784	8.829	NG
8089	708726.9957	3196511.3523	8.006	GB
8090	708813.9326	3196281.7147	8.793	NG
8091	708777.7512	3196506.4773	8.335	GB
8092	708762.4713	3196282.7954	9.579	NG
8093	708829.9549	3196499.4793	8.187	GB
8094	708711.4273	3196284.3620	9.434	NG
8095	708843.6308	3196474.5348	8.334	GB
8096	708669.3779	3196286.4221	8.579	NG
8097	708842.7931	3196424.2942	8.260	GB
8098	708839.3517	3196374.3167	8.098	GB
8099	708838.0489	3196327.8189	8.158	GB
8100	708837.2376	3196280.4507	8.077	GB
8101	708831.1656	3196500.9337	8.826	CONC
8102	708832.8884	3196230.3828	8.753	NG
8103	708815.3535	3196232.6666	8.344	NG
8104	708832.2941	3196503.4369	9.130	NG
8105	708923.6518	3196697.1296	8.709	CP 511
8106	708837.8311	3196182.6690	8.990	TOE
8107	708832.9298	3196133.4400	9.601	TOE
8108	708819.5718	3196104.4906	9.973	TOE
8109	708789.5621	3196095.1752	10.002	TOE
8110	708740.7587	3196097.7981	9.659	TOE
8111	708692.0509	3196099.3596	9.650	TOE
8112	708667.6281	3196110.9877	9.761	TOE
8113	708683.7409	3196123.4683	9.506	TOE
8114	708688.9791	3196137.7683	9.284	TOE
8115	708674.0696	3196139.7693	9.402	TOE
8116	708653.8157	3196129.2777	9.273	TOE
8117	708646.9676	3196131.3010	9.275	TOE
8118	708636.8515	3196144.7606	9.421	TOE
8119	708654.5888	3196187.0964	9.174	TOE
8120	708673.9088	3196233.7607	8.633	TOE
8121	708660.3742	3196256.3241	8.836	TOE
8122	708696.5932	3196238.7022	9.149	NG
8123	708744.5944	3196237.0283	9.541	NG
8124	708792.5046	3196233.3642	8.993	NG
8125	708791.2074	3196183.8421	9.295	NG
8126	708743.5225	3196190.1020	9.822	NG
8127	708697.1608	3196195.5231	9.109	NG
8128	708689.6376	3196151.5063	9.165	NG
8129	708736.8648	3196145.1386	9.664	NG
8130	708785.2510	3196139.6751	9.886	NG
8131	708668.6651	3196112.8485	9.497	SP18
8132	708652.6773	3196128.1695	9.001	SP18
8133	708692.5644	3196140.7001	9.374	DIRT CL 11.0
8134	708684.9754	3196135.4520	9.405	DIRT CL11.0
8135	708657.4325	3196117.8432	11.542	DIRT CL11.0
8136	708620.1700	3196103.4181	16.707	DIRT CL11.0
8137	708592.9533	3196098.8952	20.336	DIRT CL11.0
8138	708616.2724	3196228.2166	20.509	TBD2
8139	708602.1286	3196207.1355	20.864	TBD2
8140	708598.7360	3196161.5867	20.701	TBD2
8141	708595.4702	3196117.1566	20.887	TBD2
8142	708592.9222	3196085.5859	21.331	TBD2

GATX terminal topo for Aware Engineering

Project: 943205 Tue Sep 3 13:17:57 1996

8143	708640.7461	3196079.0328	20.427	TBD2
8144	708688.1648	3196074.3889	20.095	TBD2
8145	708739.9283	3196072.3908	19.376	TBD2
8146	708788.3179	3196069.7512	19.063	TBD2
8147	708815.9544	3196069.6528	19.478	TBD2
8148	708838.7260	3196080.5925	19.259	TBD2
8149	708856.5434	3196114.1967	19.575	TBD2
8150	708863.4058	3196181.7870	19.806	TBD2
8151	708866.2737	3196229.3973	19.899	TBD2
8152	708614.1792	3196556.7818	20.191	WP 554

APPENDIX B
CONSTRUCTION SPECIFICATIONS
(Provided by GATX)

Section 01050

Quality Control

Part 1: General

1.01 References

1.01.1 ASTM D-698 - Standard Proctor Compaction Test

1.01.2 ASTM D-4318 - Atterberg Limit Determination

1.01.3 Permeability determination for Fine-Grained Soils

1.01.4 ASTM D-1140 - Percent of Soil by Weight Passing No. 200 Sieve Determination

1.01.5 ASTM D-422 - Grain Size Analysis for Course Grained Materials

1.01.6 ASTM D-2922 - Field Nuclear Moisture - Density determination

1.01.7 ASTM D-1556 - Field Moisture and Density Determination Using Sand Cone

1.01.8 ASTM D-2488 - Visual/Manual Classification of Soils

1.02 Submittals

Contractor will provide services of field and laboratory testing personnel to perform all work identified in this section.

The Contractor will submit the following records to the Owner's representative:

A. Daily Construction Diaries produced each day will be submitted on the following work day.

B. The results of laboratory material testing will be submitted no later than the morning of the day when the material will be placed. Certification of the results will be provided in the Construction Certification Report. All material testing results, including those which do not meet specified standards and those from sources which are not used, will be submitted.

C. The results of field material testing will be recorded in the Daily Construction Diary each day. Certification of the results will be provided in the Construction Certification Report.

D. A map showing the locations where field density and moisture content testing was performed and permeability samples collected will be available for viewing by the Owner's representative on request.

E. Field logs of supervisory and technical personnel will be available for review by the Owner's representative on request.

F. The Construction Certification Report will be submitted within 30 days of the completion of work and prior to the acceptance of work by the Owner.

1.03 Qualifications

All Surveying for verification of grades, testing locations and as-built drawings will be performed by a registered land surveyor and the as-built drawings and Construction Certification Report will be stamped by a Professional Engineer registered in the State of Texas.

Contractor will provide Surveyors and Professional Engineer. Contractor will provide two copies of marked up as-built drawings for GATX to convert to CAD format.

Part 2: Products

This section not used.

Part 3: Execution

3.01 Materials Testing

3.01.1 Laboratory Testing

1. Maximum density and optimum moisture content of soil materials will be determined by ASTM D-698, Standard Proctor Test. Testing will be performed at a rate of at least one test for every 5,000 cubic yards of placed fill material, at every visual change in texture and at least twice for every borrow area.

2. Liquid limit and plasticity of index soil materials will be determined by ASTM D-4318, Atterberg Limits Test. Testing will be performed at a rate of one test per ten field nuclear density tests.

3. Percentage of soil passing a #200 sieve will be determined by ASTM D-1140. Testing will be performed at a rate of one test per ten field nuclear density tests.

4. Stabilized sludge strength will be determined by the Unconfined Compression Test ASTM D-2166. Two ~~Three~~ tests will be performed on each of the ~~two~~ samples from the stabilized sludge layer.

3.01.2 Field Testing

1. Field density testing will be performed by ASTM D-2922, Field Nuclear Density Test. Testing will be performed at a rate of once per every 10,000 square feet per lift placed. Duplicate testing of 10% of all density tests will be performed by ASTM D-1156, Sand Cone Density Test.

2. Field moisture content testing will be performed by ASTM D-2922, Field Nuclear Moisture Content Test. Testing will be performed at a rate of once per every 10,000 square feet per lift placed.

3. Field permeability testing will be performed by EM 1110-2-1906, Flex Wall Permeability Test. A minimum of four tests will be performed on the completed cap.

4. All field testing and sampling locations and elevations will be located relative to horizontal and vertical survey control by Contractor.

3.02 Sampling Procedure

3.02.1 Field Testing and Sampling

Locations for field testing, including density and moisture content, and sampling for laboratory permeability testing will be chosen by superimposing a grid over the section to be tested choosing grid coordinates at random. Testing locations will be chosen before the material to be tested is placed. Up to 20% of testing or sampling locations may be chosen after material placement, based on the Contractor's judgement of critical areas. The Owner's representative will specify areas to be tested or sampled. Specific details of the procedures choosing sampling and testing locations will b submitted to the Owner's representative for approval before testing begins.

Samples for permeability testing will be collected using a thin wall sample tube and will be collected from the full depth of the hydraulic barrier layer. The hole created by the removal of the sample will be repaired by filling the hole with a bentonite/soil mixture to the original grade such that the layer's permeability requirements are met.

3.03 Correction Action

3.03.1 Borrow Material

Borrow material from any source which fails to meet the standards presented in these specifications based on the testing procedures presented above will not be used in the construction of this facility. If some test from a borrow area meet the standards while others fail to meet them, no material from that borrow area will be used without written approval from the Owner's representative.

3.03.2 In Place Testing

Any test or sample from the constructed facility which fails the standards presented in these specifications may be re-performed once by the Contractor. If tests at the same location fail again, the Contractor will perform additional testing which will delineate the failed area to the satisfaction of the Owner's representative. This delineated area will be reworked and retested until

it passes the relevant test. If more than 10% of locations fail a particular test, the Owner's representative may require that the Contractor modify procedures or materials to remedy the problem.

3.04 Record Keeping

3.04.1 Field Logs

All supervisory and technical personnel will maintain field logs written in ink in bound books. These logs will contain the following information:

1. The results of field and visual testing of the constructed facility and the borrow materials,

2. Sketch maps showing the locations where samples were collected and tests performed in both the constructed facility and the borrow areas,

3. Descriptions of weather conditions, construction procedures, construction problems and important decisions and problem resolutions,

4. Other important observations.

3.04.2 Daily Construction Diaries

The person responsible for quality assurance for the construction of this facility will write daily diary reports of the progress of construction. These reports will contain a summary of daily construction activities, descriptions of important meetings and discussions.

3.04.3 Construction Certification Report

The Contractor will prepare a Construction Certification Report which will contain the following information:

1. A chronological narrative of the construction process,

2. Laboratory certificates for all analytical work performed, including field and laboratory sampling and testing,

3. Maps and tables showing sampling and testing locations and elevations and as-built drawings of the completed facility.

3.05 Surveying

Horizontal and vertical survey control will be established consisting of a surveyed base line, properly stationed, and one or more benchmarks whose absolute or relative elevation is known. All location measurements will be recorded in terms of station, offset from the base line and elevation relative to an established datum.

The final grade of the subgrade (top of fill material from dike wall and demolished fill material) will be verified by surveying elevations on a 50 foot grid over the entire surface of the facility. The final slope of the perimeter drainage swales will be verified by surveying centerline elevations 100 feet on center.

Section 01120

Hydraulic Barrier Layer

Part 1: General

1.01 Placement of Hydraulic Barrier Layer

The Contractor will furnish all labor, materials and equipment required to place and compact the hydraulic barrier layer on the cap subgrade. GATX will provide field and laboratory material testing service as specified in Section 01050 of these specifications.

Part 2: Products

2.01 Hydraulic Barrier (Clay) Soil

Clay soil used for the hydraulic barrier layer will consist of soil with the following properties:

2.01.1 Liquid Limit: 30 minimum, as determined by ASTM D 4318.

2.01.2 Plasticity Index: 15 minimum, 45 maximum as determined by ASTM D 4318.

2.01.3 Capable of attaining an in place permeability of less than or equal to 1 x 10^{-7} cm/sec as determined by a flex wall permeability test (U.S. Army Corps of Engineers, Engineering Manual EM 1110-2-1906) or other approved method when compacted as specified in this section.

2.01.4 Gradation Passing No. 200 Sieve: 30% minimum, as determined by ASTM D 1140.

2.01.5 Free from trash, vegetation, organic matter, large stones, hard lumps of earth and frozen, corrosive or perishable material.

Hydraulic barrier layer soils will be tested for Standard Proctor maximum density and optimum moisture content, Atterberg limits and percent passing a #200 sieve in accordance with the provisions of Section 01050.

The materials for the hydraulic barrier soil layer will be obtained from the borrow area on GATX property and hauled to the NHB. The location of the borrow area and haul route is shown on the contract drawings.

Locations of soil borings are shown on the contract drawings. The results of the borings are contained in Appendix "B" of the specifications. Contractor will note that some blending of materials will be required for materials to meet above criteria. Contractor will include cost for same in his proposal.

Part 3: Execution

3.01 Placement

The Contractor will place hydraulic barrier soils on the approved subgrade to the lines and grades shown on the construction drawings. Soil will be placed in approximately horizontal lifts with a minimum loose thickness of six inches and a maximum loose thickness of nine inches. If a mechanical hand compactor is to be used, the maximum lift thickness will be four inches. The lifts will be compacted in accordance with the provisions described below. After compaction and immediately prior to the placement of additional lifts of soil, the subgrade and each successive lift of the subgrade will be scarified to a depth of two to four inches to promote bonding between lifts.

It will be the Contractor's responsibility to provide adequate drainage, to protect each completed lift from drying or weather damage and to repair any damage or cracking prior to the placement of additional fill. Any cracking will be repaired by excavating the cap within 10 feet of any crack to the full depth of the crack plus three inches and replacing the clay fill in accordance with the procedures described above. Final thickness after compaction is six inches minimum.

3.02 Compaction

After the placement, each lift of hydraulic barrier soils will be compacted by at least five passes of a self-propelled sheepsfoot roller with a foot at least as deep as the loose

lift thickness to 95% of its Standard Proctor maximum density at a moisture content between 1% dry of optimum and 3% wet of optimum. In place dry density and in place moisture content will be determined for each lift and in place permeability will be determined for the completed layer as specified in Section 01050.

Report

ENGINEERING REPORT FOR CORRECTIVE ACTION MANAGEMENT UNIT

North Holding Basin
Galena Park Terminal

prepared for:

GATX TERMINALS CORPORATION
Galena Park, Texas

May 1995

Report

ENGINEERING REPORT FOR CORRECTIVE ACTION MANAGEMENT UNIT

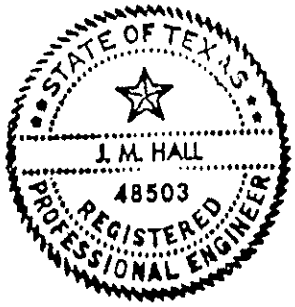
North Holding Basin
Galena Park Terminal

prepared for:

GATX TERMINALS CORPORATION
Galena Park, Texas

September 1994

This report is a conceptual engineering document in support of the permit modification to an existing Part B permit to construct and operate a Corrective Action Management Unit (CAMU). As described in the report additional design calculations will be performed during the implementation of the CAMU.



J. M. Hall
5-18-95

TABLE OF CONTENTS

LIST OF SECTIONS

1.0	Facility Description	1
2.0	Waste Characterization and Segregation	1
3.0	CAMU Process	2
3.1	Treatment Process	2
3.2	Stockpile Area	3
3.3	Treatment and/or Disposal Levels	3
3.4	Regulatory and/or Risk-Based Justification of Treatment and/or Disposal Levels	4
4.0	Run-on/Runoff Control	5
5.0	Monitoring	6
5.1	Groundwater	6
5.2	Air Emissions	6
6.0	Site Preparation for Closure	7

LIST OF TABLES

Table No.	Description	Following Page
1	Partial Listing of Compounds/Wastes That Have Been Biotreated	7
2	Commodities Stored and Proposed Treatment/Disposal Levels at Galena Park Terminal	7
3	Listing of Soil Standards Used in Selection of GATX's Proposed Treatment/Disposal Standards	7
4	GWP MSC Calculation Using Equilibrium Partition Theory	7

LIST OF FIGURES

Figure No.	Description	
1	NHB Corrective Action Management Unit	7
2	Remediation Waste Management Decision Tree	7

1.0 Facility Description

The North Holding Basin (NHB) was constructed in 1975 and operated until 1988. The NHB is rectangular with sides of 480 feet and 276 feet (Figure 1). The average depth of the basin is 18.3 feet from the top of the berm. The total capacity of the basin is approximately 18 million gallons (89,000 cubic yards). The floor of the basin slopes slightly to the east to facilitate drainage.

The NHB received wastewater and storm water during the period of 1975 to 1988 from a collection system installed throughout the western portion of the facility. Effluent from the wastewater/storm water collection system passed through an oil/water separator before being discharged to the North Holding Basin. In 1988, the NHB was retired from service.

The NHB is proposed as a Corrective Action Management Unit (CAMU) in compliance with 40 CFR 264 Subpart S to treat and dispose of remediation wastes generated by corrective actions and closure of the NHB at the GATX Galena Park facility. The remediation waste will be soil (generated from RFI and corrective action implementation) and sediment from Tank 100-5 (a stormwater tank to be used for managing wastewater from the NHB closure and CAMU operations). Upon sludge stabilization (in accordance with the procedures outlined in the 1991 Plan), the NHB will be converted to a CAMU, as described below.

A 3 to 6-inch layer of compacted, clay-rich soil will be placed over the stabilized sludge to serve as a sub-base for the treatment and disposal activities in the CAMU. The compressive strength of 4,440 psf, as specified for the stabilized sludge in the 1991 Plan, will be sufficient to support; machinery required for CAMU operations, the maximum amount of soil that can be placed in the CAMU, and the weight of the soil and final cover.

Figure 1 presents a conceptual layout for the NHB/CAMU. One portion of the facility will be used for bioremediation of remediation waste (primarily contaminated soils). The other portion of the facility will be reserved as a stockpile area for interim storage of remediation waste either awaiting treatment or final disposal.

The relative sizes of the two areas described above will be finalized after the completion of the RCRA Facility Investigation (RFI). Data collected during the RFI implementation will be used to estimate the volume of soil that will require bio-remediation relative to the amount of soil that will simply require disposal. Based on a total basin capacity of 89,000 cubic yards it is estimated that 50,000 cubic yards of capacity is available for remediation waste disposal.

2.0 Waste Characterization and Segregation

Effective utilization of the CAMU will depend on appropriate characterization and segregation of remediation waste. Following categories of wastes will be placed in the CAMU:

- Non-hazardous wastes for final disposal in the stockpile area
- Non-hazardous wastes for biotreatment in treatment cells

- Hazardous wastes for final disposal in stockpile area
- Hazardous wastes for biotreatment in treatment cells

All remediation wastes to be placed in the CAMU will be evaluated as described in the Waste Analysis Plan for the CAMU and must meet the following criteria:

- Compatibility with wastes already placed in the CAMU
- Ability to be biotreated or meet disposal standards
- Absence of contaminants or concentrations that are toxic to the biotreatment/treatment process (applicable to wastes in the treatment area only)

Compounds and wastes that are generally amenable to bioremediation are listed in Table 1. Sampling and laboratory analysis will be used to generate more detailed information about the characteristic and amounts of soil to be placed in the stockpile treatment areas.

Remediation wastes that are incompatible or contain concentrations of compounds that cannot be biotreated will not be placed in the CAMU. Incompatible wastes will be placed in containers in the Container Storage Area until proper treatment and/or disposal arrangements can be made. Remediation wastes that meet the disposal standards for CAMU disposal; hence do not require additional treatment, and remediation wastes awaiting treatment will be stockpiled separately in the interim storage portion of the CAMU.

3.0 CAMU Process

3.1 Treatment Process

NH TPH > 1000 mg/Kg

The CAMU treatment area will be operated as a bioremediation unit for hazardous remediation wastes and non-hazardous remediation wastes that exceed TPH of 1,000 ppm. It is estimated that approximately 20,000 cubic yards of such wastes will be biotreated prior to final disposal in the CAMU. The treatment area will be constructed as follows:

- Sloping of the NHB floor to the northeast corner
- Installation of a sump in the northeast corner of the NHB
- Construction of treatment cell(s), as needed

Excess rain-on water from the treatment and stockpile areas will be directed to the sump in the northeast corner of the NHB. Water will be transferred to the stormwater sump and lift station located to the northeast of the NHB and pumped to storage tank 100-5 which discharges to the Gulf Coast Waste Disposal Authority.

Soils to be treated in the CAMU will be placed in lifts in the treatment cells and tilled to promote aeration. Nutrients and moisture will be added to maintain conditions as near to optimum as practical. Micro-organisms will be added to enhance bioremediation, if necessary. Samples will be collected and analyzed for TPH to track the progress of remediation. Once treatment levels have been reached, another lift of soil will be added and the process repeated.

3.2 Stockpile Area

Hazardous remediation wastes and non-hazardous remediation wastes that meet the treatment/disposal standards described in Section 3.3, will be placed directly in the stockpile area for final disposal.

3.3 Treatment and/or Disposal Levels

Hazardous remediation wastes are expected to contain several petroleum and chemical contaminants in varying concentrations. Table 2 represents chemicals that have been stored or are presently stored at the Galena Park Terminal. The proposed treatment standards for such wastes for the constituents on Table 2 and other Appendix VIII constituents that are found (by analysis) in these wastes are selected to be the highest level among the following standards:

1. Groundwater Protection (GWP) Medium Specific Concentration (MSC) calculated considering equilibrium partitioning theory.

2. GWP MSC presented in the TNRCC's Risk Reduction Standards (or calculated using the equations presented in the Risk Reduction Standards), without considering equilibrium partitioning.

3. USEPA Universal Treatment Standard (UTS).

Table 3 presents a listing of the three soils standards described above and used in the selection of proposed treatment/disposal concentrations. The proposed treatment/disposal standards have been compared to the in-situ waste concentrations presently authorized for disposal in the NHB. The comparison revealed that for the compounds analyzed, only benzene was detected in the in-situ sludge at a concentration in excess of the proposed treatment/disposal standards. Section 3.4 describes in detail the justification for the proposed treatment/disposal standards.

Non-hazardous remediation waste treatment standard will be soil TPH $< 1{,}000$ ppm and total leachable BTEX < 100 ppm with levels of benzene below 0.5 ppm. Figure 2 provides a remediation waste management decision tree which summarizes the waste management decision process. It must be noted that any remediation waste that meets the treatment/disposal levels at generation will be stockpiled for final disposal in the CAMU.

Site-specific treatment/disposal levels may be developed for specific contaminants after the completion of the RFI and prior to the start of CAMU operations. The following process will be used to develop the treatment/disposal levels:

- Identification of contaminants of concern.
- Completion of a contaminant-specific risk assessment utilizing CAMU. design criteria and site-specific exposure factors.
- Evaluation of treatability of each contaminant.
- Submittal of proposed Treatment/Disposal levels to TNRCC for approval.

3.4 Regulatory and Risk-Based Justification of Treatment/Disposal Levels

Proposed treatment/disposal soil concentrations have been developed using one of the following three standards: 1) the GWP MSC calculated using equilibrium partition theory; 2) the GWP MSC calculated using the equations presented in the TNRCC's Risk Reduction Standards, without consideration of partitioning; and 3) the UTS presented in the RCRA Land Disposal Restrictions. All three standards present soil concentrations which are protective of groundwater quality considering different assumptions for leachate migration to groundwater. Calculation of constituent concentrations is presented only for the first standard, since the second and third standards are taken from published regulations. Development of these concentrations is described in TNRCC's Risk Reduction Rules and EPA's Land Disposal Regulations, respectively.

Development of Standard Based on Equilibrium Partition Theory. Calculation of the proposed treatment/disposal concentrations using equilibrium partition theory has been performed using the following three step process:

1) *Determination of the maximum concentration in groundwater (GW) MSC*

a) Where available, the MCL was used.

b) If an MCL was not available for a compound, a GW MSC was calculated using the health-based equations presented in the TNRCC's Risk Reduction Standards (30 TAC Chapter 335, Subchapter S, Section 335.559).

c) If no toxicity information was available for a compound in the IRIS database, in HEAST, or in the ATSDR Toxicological profiles, no MSC was calculated. EPA criteria documents are currently being checked to evaluate whether toxicological information is available in these sources.

d) The MSC in groundwater used for the calculations was based on a groundwater with potential beneficial use. 30 TAC Chapter 335, Section 335.559 (d)(3) (Adjustments for Risk Standard No. 2, Groundwater) states that if the groundwater has a naturally occurring total dissolved solids (TDS) concentration in excess of 10,000 milligrams per liter (mg/l), the groundwater MSC may be multiplied by 100. However, the shallow groundwater beneath the GATX facility has a TDS of less than 10,000 mg/l. Therefore, no adjustment was made.

2) *Multiplication of the target groundwater concentration by the dilution attenuation factor (DAF)*

As compounds migrate from the source, through the vadose zone to the water table, and into the groundwater, the chemical concentrations of these compounds decrease due to physical, chemical, and biological processes. The processes include advection, diffusion, dispersion, adsorption, and chemical and biological transformations. The end result is that the concentration in groundwater at the point of compliance is lower than the concentration in the original soil leachate. This natural attenuation process has two components:

- decrease in concentrations in the vadose zone.
- decrease in concentrations below the water table.

The natural attenuation process is accounted for in the GWP MSC by using a DAF. A DAF of 100 is assumed based on 1) regulatory precedence in TNRCC's Risk Based Corrective Action for Leaking Storage Tank Sites, January 1994 Guidance (uses a DAF factor of 100) and 2) EPA's guidance in the Technical Background Document for Soil Screening Guidance (allows for a simple site specific method in which site specific hydrogeologic parameters are used in the dilution factor model. The simple site specific method is the emphasized option in the guidance). The DAF is multiplied by the GW MSC to give the maximum theoretical concentration in the soil leachate which will not cause the GW MSC to be exceeded:

$$[C_L = C_w * 100].$$

3) *Determination of the target soil concentration for each chemical*

Equilibrium partition theory utilizes the ability of organic carbon in soils to adsorb compounds as they leach through the vadose zone. The following equation is used for calculation of this absorptive capacity:

$$C_t = [C_L(BK_d + phi_w + phi_aH')]/B$$

Table 4 describes the parameters used in this equation. The foc (soil organic carbon fraction) is a site specific parameter. Site specific data were not available. Therefore, a value of 0.1 was found in the literature for clay soils and used for the calculation.

The proposed treatment/disposal standard is the highest of the three standards identified in Table 3. The UTS, which is a disposal standard, is used only for benzene and, as stated previously, a review of in-situ sludge concentrations in the NHB after bioremediation revealed that the in-situ benzene concentration approved for disposal exceeds the UTS.

The other two standards are cleanup levels. The higher of the two levels is employed as a treatment/disposal level because the cleanup levels are for compounds that are left in the environment and the proposed treatment/disposal levels are for wastes that will remain in the CAMU, an engineered unit with a RCRA cap. Also, both of the cleanup standards presented are protective of groundwater quality. If approved by the TNRCC, constituent concentrations less than or equal to these standards would be allowed to remain in-place under Risk Reduction Standard No. 2 because these concentrations were placed at levels which would not leach to groundwater in excess of the GW MSC.

4.0 Run-on/Runoff Control

Rainfall that falls on the stockpile area and treatment cells will be collected in a sump and transferred to the stormwater sump and lift station located to the northeast of the NHB and pumped to storage tank 100-5 which discharges to the Gulf Coast Waste Disposal Authority. A 100-year storm event with a 24-hour duration in the Galena Park

area will generate approximately 12.8 inches of rainfall (phone conversation with Harris County Flood District, March 14, 1995). Assuming no infiltration of rainwater, approximately one foot of water will collect in the NHB. Therefore, using a factor of safety of two, operations in the NHB will maintain a minimum of two feet of freeboard. Sludge or sediment that accumulates in Tank 100-5 during CAMU operations will be removed periodically, treated in the CAMU, if necessary, and disposed of in the CAMU prior to closure.

5.0 Monitoring

5.1 Groundwater

The CAMU/NHB will remain subject to groundwater monitoring as described in the Hazardous Waste Permit HW-50054 and Compliance Plan CP-50054. There are currently 15 monitoring wells in the vicinity of the NHB. A downgradient groundwater recovery system is planned for the NHB and is expected to be operational prior to the commencement of CAMU operations. Groundwater samples from monitoring wells in the vicinity of the NHB are regularly analyzed for 1,2-Dichloroethane. Other indicator parameters, such as TOX, TOC, or BTEX can be added to the analytical schedule to detect potential releases from the CAMU. The appropriate indicator parameters will be selected after completion of waste characterization during the RFI.

5.2 Air Emissions

In order to minimize dust generated by CAMU activities, an adequate soil moisture level will be maintained during excavation and transport to the CAMU. This will primarily be accomplished by the application of water to soil being managed. Maintaining proper moisture content will also assist in the effectiveness of land farming and the biological treatment of soils within the CAMU. If excess dust is generated on non-public roadways and during related CAMU activities, water will be used to reduce emissions.

No measurable concentrations of organic vapors are expected during CAMU activities. During CAMU related activities, real-time air monitoring will be performed. This will include: an explosimeter, an organic vapor monitor (photoionization detector or flame ionization detector), and all necessary calibration/audit equipment and supplies. All monitoring instruments will be calibrated before use; periodic calibration checks will be made and documented in the field over the duration of the field activities.

Air monitoring activities will commence daily prior to the start up of CAMU activities in order to establish baseline conditions. Air monitoring shall be provided during excavation, staging, or loading of potentially contaminated soils and tilling. Departures from background levels will trigger an evaluation for employee personnel protection and potential air emission impacts. The response may range from shutting down CAMU operations, to upgrading levels of protection, or initiating emergency response/contingency plans.

6.0 Site Preparation for Closure

After completion of treatment activities in the NHB, treated and stockpiled soil will be evenly spread throughout the basin. Additional backfill consisting of remaining portions of the dikes and clean fill will be graded over the facility in preparation of final cover placement.

TABLE 1

Partial Listing of Compounds/Wastes That Are Known to Have Been Biotreated

- Acetone
- Acrylonitrile
- Anthracene
- Benzene
- Benzopyerene
- Chrysene
- 2,4 - D
- 1,2 - Dichloroethane
- Diesel Fuel
- Ethyl Benzene
- Fluoranthene
- Hexane
- Methanol
- Methylene Chloride
- Methyl Ethyl Ketone
- Napthalene
- Petroleum Hydrocarbons (Misc.)
- Phenols
- Polynuclear Aromatic Hydrocarbons (PAHs)
- Pyrenes
- Toluene
- Xylene

Source: Applied Biotreatment Association

TABLE 2
COMMODITIES STORED AND PROPOSED TREATMENT/DISPOSAL LEVELS AT GALENA PARK TERMINAL

Commodities Stored at Galena Park Terminal Present and Historical	Treatment/Disposal levels for Remediation mg/kg**
Benzene	10
Cresols (O,M,P)	9,160
Cresol	11.2
Furfural	31
Methanol	5,110
MEK	511
MIBK	511
MTBE	NS***
N. Butyl Alcohol	3,066
Asobutyl (Isobutyl Alchohol)	3,070
Toluene	3,009
Xylene	24,091
Ethyl Acetate	9,198
Acetone*	1,020
Acetonitrile*	61.3
Acrylonitrile*	84
Aniline*	14
Chloroform*	31.7
1,2-Dichloroethane*	6
1-Butanol* (N. Butyl Alchohol)	3,066
Creosote*	530[1]
Cumene*	409
Cyclohexane*	NS***
Ethylene Dichloride* (1,2 Dichloroethane)	6
Methyl Isobutyl Ketone*	511

TABLE 2
(Continued)

Commodities Stored at Galena Park Terminal Present and Historical	Treatment/Disposal levels for Remediation mg/kg**
Naphthalene*	409
Ethyl Ether*	2,044
Tetrachloroethylene*	18.3
Phenol*	6,130
Picoline*	NS***
Ethene Tetrachloro* (Tetrachloroethylene)	18.3
1,1,1-Trichloroethane*	370
1,1,2-Trichloroethane*	6
2,4 - D*	14.4

* - Historically stored on-site
NS - No Standard Specified
(1) - based on pentachlorophenol
** Based on health based medium specific concentrations (30 TAC Chapter 335 Subchapter S), equilibrium partitioning, and Universal Treatment Standards (40 CFR Part 268, Subpart D).
*** EPA criteria documents are being checked to evaluate whether toxicity information for this compound is available in these sources. If toxicity information is found in the criteria documents, standards will be developed and submitted.

Table 3
Listing of Soil Standards Used in Selection of GATX's Proposed Standards
1. GWP MSC Calculation Using Equilibrium Partition Theory (Rows 1)
2. Risk Reduction Standard GWP MSC (Row 2)
3. UTS (Row 3)

Chemical	GWP equil part	GWP RRS eqn	UTS (mg/kg)	Proposed Standard
Benzene	4.2	0.5	10	10
Cresols (O,M,P)	9160.2	511	5.6	9160
Cresol			11.2	11.2
Furfural [2]		31	CMBST	31
Methanol [2]		5110	CMBST	5110
MEK	92.5	511	36	511
MIBK		511	33	511
MTBE			N/A	NS
n-Butyl Alcohol [2]	1703.5	3066	2.6	3066
Isobutyl Alcohol		3070	170	3070
Toluene	3008.8	100	10	3009
Xylene	24091.4	1000	30	24091
Ethyl Acetate [2]		9198	33	9198
Acetone	100.6	1020	160	1020
Acetonitrile	6.0	61.3	INCIN	61.3
Acrylonitrile	0.0	0.053	84	84
Aniline	1.4	5.02	14	14
Chloroform	31.7	10	6	31.7
1,2-Dichloroethane	0.7	0.5	6	6
Creosote**	530.0	0.1	(1)	530
Cumene [2]		409	CMBST	409
Cyclohexane			CMBST	NS
Napthalene		409	5.6	409
Ethyl Ether [2]		2044	160	2044
Tetrachloroethylene	18.3	0.5	6	18.3
Phenol	3231.5	6130	6.2	6130
Picoline			INCIN	NS
Trichloroethane (1,1,1)	306.6	20	6	307
Trichloroethane (1,1,2)	2.8	0.5	6	6
2,4-D [3]	14.4	7	10/INCIN	14.4

NOTES:

(1) UTS is based on specific constituents contained in creosote:

-Napthalene: 5.6

-Pentachlorophenol: 7.4

-Phenanthrene: 5.6

-Pyrene: 8.2

-Toluene: 10

-Xylenes: 30

-Lead: 0.37 mg/l TCLP

(2) GW MSC not tabulated in RRSs. Value calculated based on equations in RRSs.

(3) GW MSC not tabulated in RRSs. Value is based on the MCL.
For Creosote, GW MSC based on the value published for pentachlorophenol in RRSs.

GWP MSC = Groundwater Protection Medium Specific Concentration

UTS = RCRA Land Disposal Restrictions: Universal Treatment Standard [40 CFR Part 268 Subpart D (Treatment Standards)]

GWP equil part: GWP calculated using equilibrium partition theory [USEPA Soil Screening Guidance]

GWP RRS eqn: GWP calculated using the equations in the TNRCC Risk Reduction Standards (RRSs) [30 TAC Chapter 335, Section 335.559]

CMBST: Combustion in incinerators, boilers, or industrial furnaces. Concentration not specified.

INCIN: Incineration. Concentration not specified.

TABLE 4 (Total of 6 pages)
GWP MSC Calculation Using Equilibrium Partition Theory

Row	Chemical	Benzene	Cresols (O,M,P)	Cresol	Furfural (2)	Methanol (2)	MEK	MIBK	MTBE	n-Butyl Alcohol (2)	Isobutyl Alcohol	Toluene	Xylene
1	GW MSC (mg/l)	0.005	1.83	NA	0.31	51.10	1.83	1.83	NA	30.66	11	1	10
2	Cleachate (mg/l)	0.5	183				183			3066		100	1000
3	B (kg/l)	1.8	1.8				1.8			1.8		1.8	1.8
4	Kd (kg/kg/kg/l)	8.3	50				0.45			0.5		30	24
5	Koc	83	500	NA	NA	NA	4.5	NA	NA	5	NA	300	240
6	foc	0.1	0.1				0.1			0.1		0.1	0.1
7	phia=phi-phiw	0.22075	0.22075				0.22075			0.22075		0.22075	0.22075
8	phi=1-B/Pb	0.32075	0.32075				0.32075			0.32075		0.32075	0.32075
9	H'=H*41.57	0.23238	0.000045727				0.00114			0.000355008		0.2648	0.29265
10	H(atm-m3/mole-K)	0.00559	1.10E-06	NA	3.60E-06	NA	2.74E-05	NA	NA	8.54E-06	NA	6.37E-03	7.04E-03
11	GWP equil part	4.2	9160				93			1703		3009	24091

Row	Chemical	Ethyl Acetate (2)	Acetone	Acetonitrile	Acrylonitrile	Aniline	Chloroform	1,2-Dichloroethane	Creosote**	Cumene (2)	Cyclohexane	Napthalene
1	GW MSC (mg/l)	91.98	3.65	0.219	1.58E-04	0.0149	0.1	0.005	0.001	4.09	NA	1.46
2	Cleachate (mg/l)		365	21.9	0.0158	1.49	10	0.5	0.1			
3	B (kg/l)		1.8	1.8	1.8	1.8	1.8	1.8	1.8			
4	Kd (kg/kg/kg/l)		0.22	0.22	0.085	0.186	3.1	1.4	5300			
5	Koc	NA	2.2	2.2	0.85	1.86	31	14	53000	NA	NA	NA
6	foc		0.1	0.1	0.1	0.1	0.1	0.1	0.1			
7	phia=phi-phiw		0.22075	0.22075	0.22075	0.22075	0.22075	0.22075	0.22075			
8	phi=1-B/Pb		0.32075	0.32075	0.32075	0.32075	0.32075	0.32075	0.32075			
9	H'=H*41.57		0.00086	0.0001663	0.0036748	5.65352	0.1193059	0.04065546	0.0001143			
10	H(atm-m3/mole-K)	NA	2.06E-05	4.00E-06	8.84E-05	1.36E-01	2.87E-03	9.78E-04	2.75E-06	1.46E-02	NA	4.83E-04
11	GWP equil part		101	6	0.0022	1.4	31.7	0.7	530			

Row	Chemical	Ethyl Ether (2)	Tetrachloroethylene	Phenol	Picoline	Trichloroethane (1,1,1)	Trichloroethane (1,1,2)	2,4-D (3)
1	GW MSC (mg/l)	20.44	0.005	21.9	NA	0.2	0.005	0.07
2	Cleachate (mg/l)		0.5	2190		20	0.5	7
3	B (kg/l)		1.8	1.8		1.8	1.8	1.8
4	Kd (kg/kg/kg/l)		36.4	1.42		15.2	5.6	2
5	Koc	NA	364	14.2	NA	152	56	20
6	foc		0.1	0.1		0.1	0.1	0.1
7	phia=phi-phiw		0.22075	0.22075		0.22075	0.22075	0.22075
8	phi=1-B/Pb		0.32075	0.32075		0.32075	0.32075	0.32075
9	H'=H*41.57		1.076663	1.9E-05		0.598608	0.0486369	0.0078152
10	H(atm-m3/mole-K)	NA	2.59E-02	4.54E-07	NA	1.44E-02	1.17E-03	1.88E-04
11	GWP equil part		18.3	3231		307	2.8	14.4

Notes
Equations Ct = GWP equil part = [Cl(BKd + phiw + phiaH')]/B
Ct= bulk soil conncentration (mg/kg)
Cl= leachate concentration (mg/l)
B= dry soil bulk density (kg/l) [default: 1.8]
phiw= water filled porosity (L/L) (default:10% or 0.1)
Kd= soil water partition coefficient, (kg/kg / kg/l) [Koc*foc]
Koc= organic carbon partition coefficient [chemical specific]
foc= soil organic carbon fraction (site specific) [default: 0.2% or 0.002]
phia= air filled porosity (phi-phiw)
phi= total soil porosity phi = (1-B/Pb) [Pb = particle density. Default = 2.65 kg/l]
H'= Henry's Law Constant (unitless) [H'=H/RT, H'=H*41.57]
Definitions
GWP MSC = Groundwater Protection Medium Specific Concentration
UTS = RCRA Land Disposal Restrictions: Universal Treatment Standard [40 CFR Part 268 Subpart D (Treatment Standards)]
GWP equil part: GWP calculated using equilibrium partition theory [USEPA Soil Screening Guidance]
GWP RRS eqn: GWP calculated using the equations in the TNRCC Risk Reduction Standards (RRSs) [30 TAC Chapter 335, Section 335.559]
CMBST: Combustion in incinerators, boilers, or industrial furnaces. Concentration not specified.
INCIN: Incineration. Concentration not specified.
NA: Not Available
N/A: Not Applicable
NS: No Standard Specified
Numbered Notes (1) UTS is based on specific constituents contained in creosote: -Napthalene: 5.6 -Pentachlorophenol: 7.4 -Phenanthrene: 5.6 -Pyrene: 8.2 -Toluene: 10 -Xylenes: 30 -Lead: 0.37 mg/l TCLP (2) GW MSC not tabulated in RRSs. Value calculated based on equations in RRSs. (3) GW MSC not tabulated in RRSs. Value is based on the MCL. For Creosote, GW MSC based on the value published for pentachlorophenol in RRSs.

Calculation of Medium Specific Calculations
Non-Residential Groundwater MSC (GW)
Based on 30 TAC Chapter 335 Section 335.559 (d) (2)

System Toxicant Effects.

Chemical	Constant	RfDo	GW (mg/l)
Furfural	102.2	0.003	0.3066
Methonal	102.2	0.5	51.1
1-Butanol	102.2	0.3	30.66
Ethyl Acetate	102.2	0.9	91.98
Cumene	102.2	0.04	4.088
Ethyl Ether	102.2	0.2	20.44

GW = 36.5 * RfDo * 2.8

GW based on:

$$MSC\ (1) = \frac{THI*RfDo*BW*ATs*365\ day/year}{IRw*EF*ED*A} \qquad [=36.5*RfDo]$$

The factor of 2.8 accounts for lower ingestion rates associated with worker exposure.

(1) The parameters, definitions, and values used in this equation are presented in 30 TAC Chapter 335, Subchapter S, Section 335.567. Appendix I

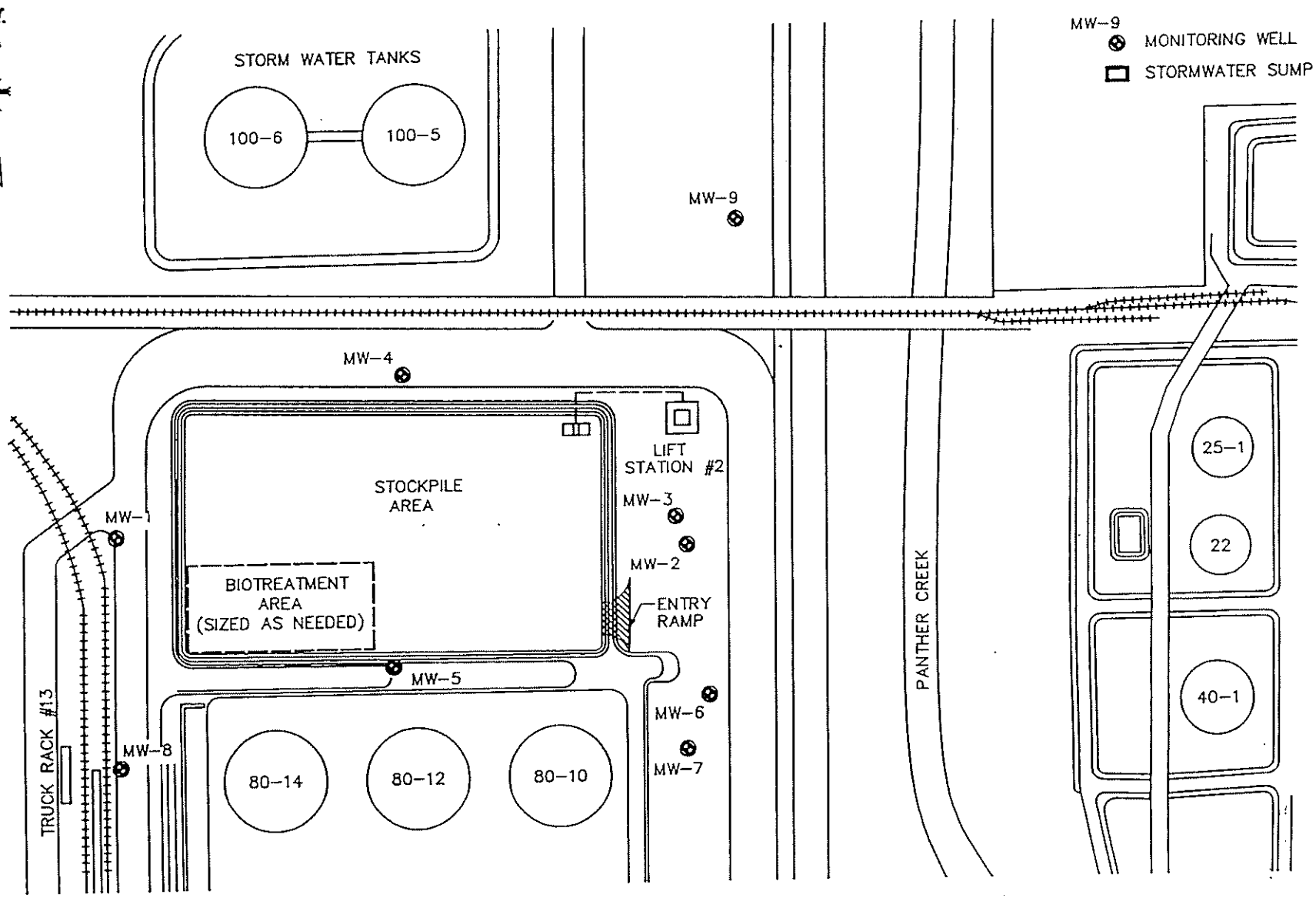
Assumptions
Calculation of GWP MSCs
Using Equilibrium Partioning Theory

Dilution Attenuation Factor & Fraction Organic Carbon

SSL Guidance Assumption	CAMU Location Properties
30 acre property	3 acre CAMU
Residential Use	Non Residential Use
Source extends to water table	Bottom of CAMU will be 10 feet above the water table
Loam soils	Silty clay soils
Well at downgradient edge of source	Public drinking water supply. No known wells. Nearest off-site receptor 2000 feet from CAMU
DAF = 10 foc = 0.002	DAF = 100* foc = 0.1**

* Because of the smaller size of the CAMU, separation between the source and the water table, and no receptor well immediately downgradient of the CAMU, the DAF was increased. A DAF of 100 is used in another regulartory program in Texas. (The TNRCC Leaking Petroleum Storage Tank Division uses a Contaminant Reduction Factor CRF of 100 for equilibrium partioning calculations.

** The soil type beneath the CAMU is silty clay, not loam. Literature values indicate that clays have much higher focs than the default value of 0.002. A paper presented at the 1995 National Ground Water Association's Outdoor Action Proceedings reported literature values of 0.01 to 0.1 for foc in clay soils.



MALCOLM PIRNIE

NORTH HOLDING BASIN
GALENA PARK, TEXAS

NHB CORRECTIVE ACTION MANAGEMENT UNIT

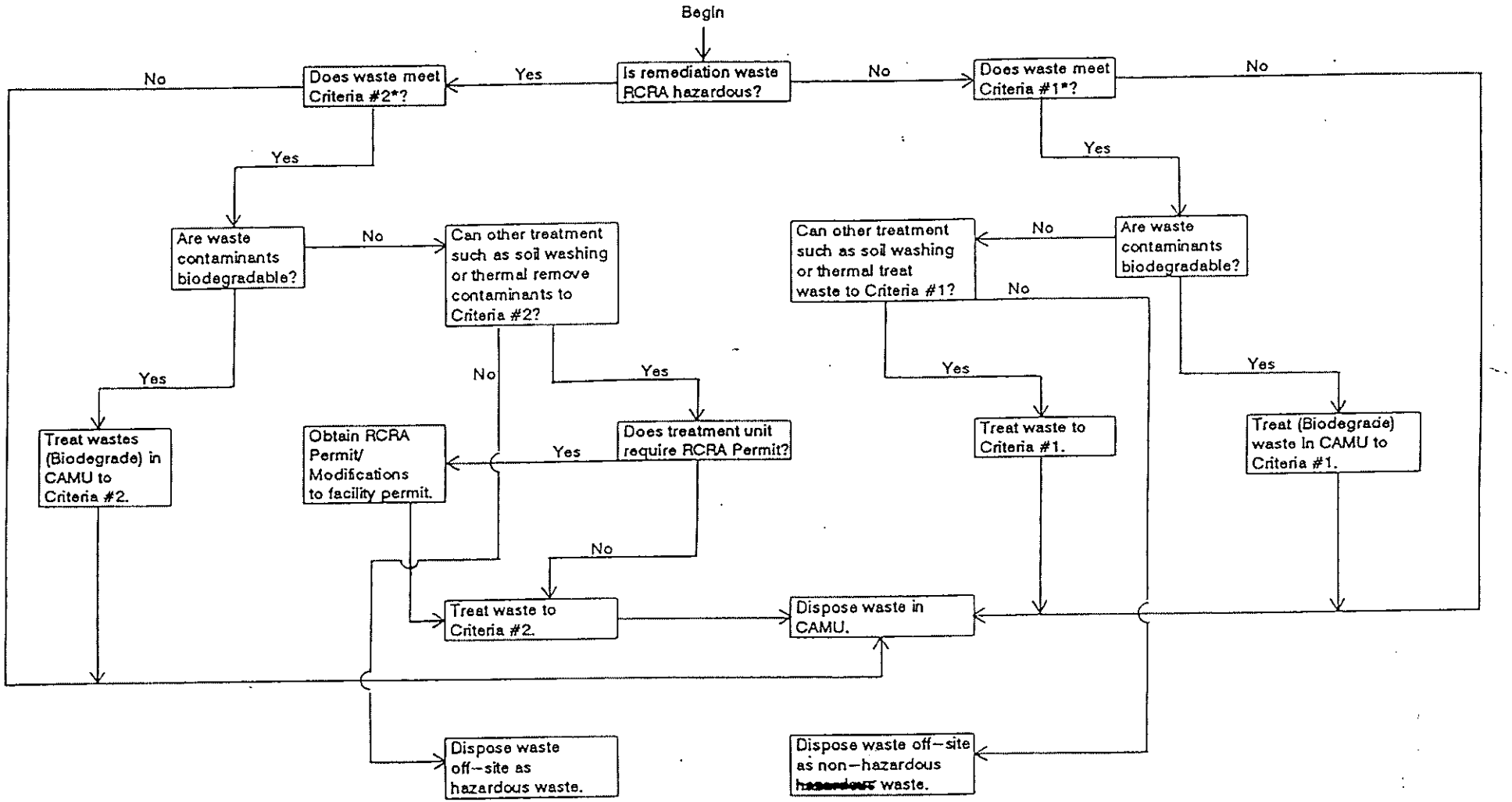
MALCOLM PIRNIE, INC.

FIGURE 1

FIGURE 2

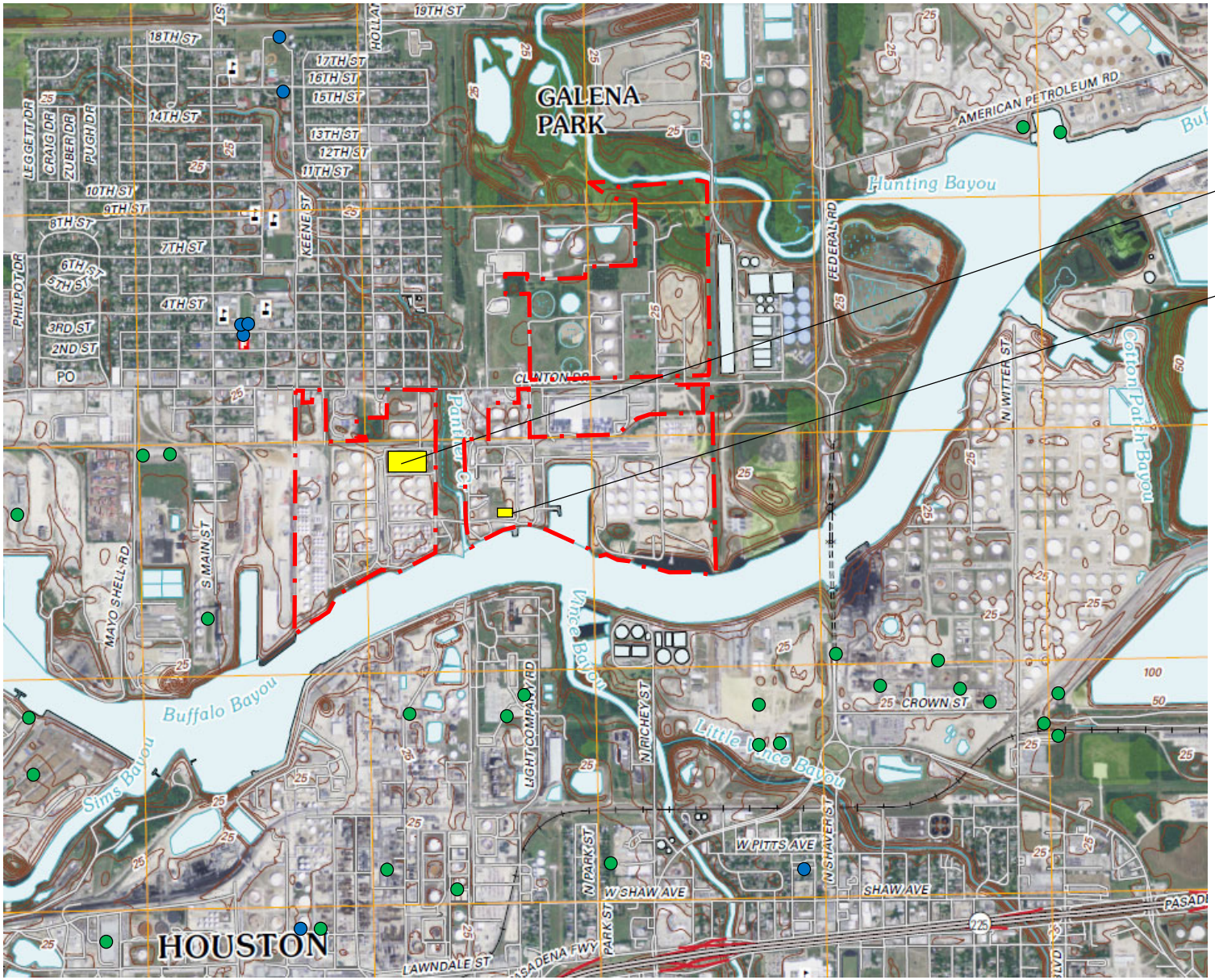
REMEDIATION WASTE MANAGEMENT DECISION TREE
GALENA PARK

May 1995



* Criteria #1
Waste contains: TPH > 1000 ppm, Leachable BTEX > 100 ppm and Leachable Benzene > 5 ppm. DOES NOT MATCH DESCRIPTION ON PAGE 3

Criteria #2
Waste is RCRA hazardous and contains contaminants at equal to or greater than levels described in Table 2 (dated May 18, 1995), Appendix D, Engineering Report for CAMU.

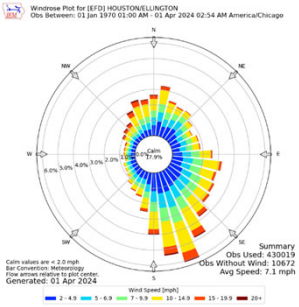


LEGEND

- Kinder Morgan Facility Boundary
- Hazardous Waste Management Unit
- Public Supply Water Well Location
- Industrial or Unused Water Well Location

CAMU/Former North Holding Basin (NOR Unit 004 – Active)

Southeast Holding Basin (NOR Unit 017 – Closed)



Wind Rose – Houston Area
Source: Iowa Environmental Mesonet
https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=EFD&network=TX_ASOS

Base Map Source:
USGS 7.5 Minute Series
Topographic Quadrangle 2013
Pasadena, Texas
Contour Interval = 5'

TETRA TECH

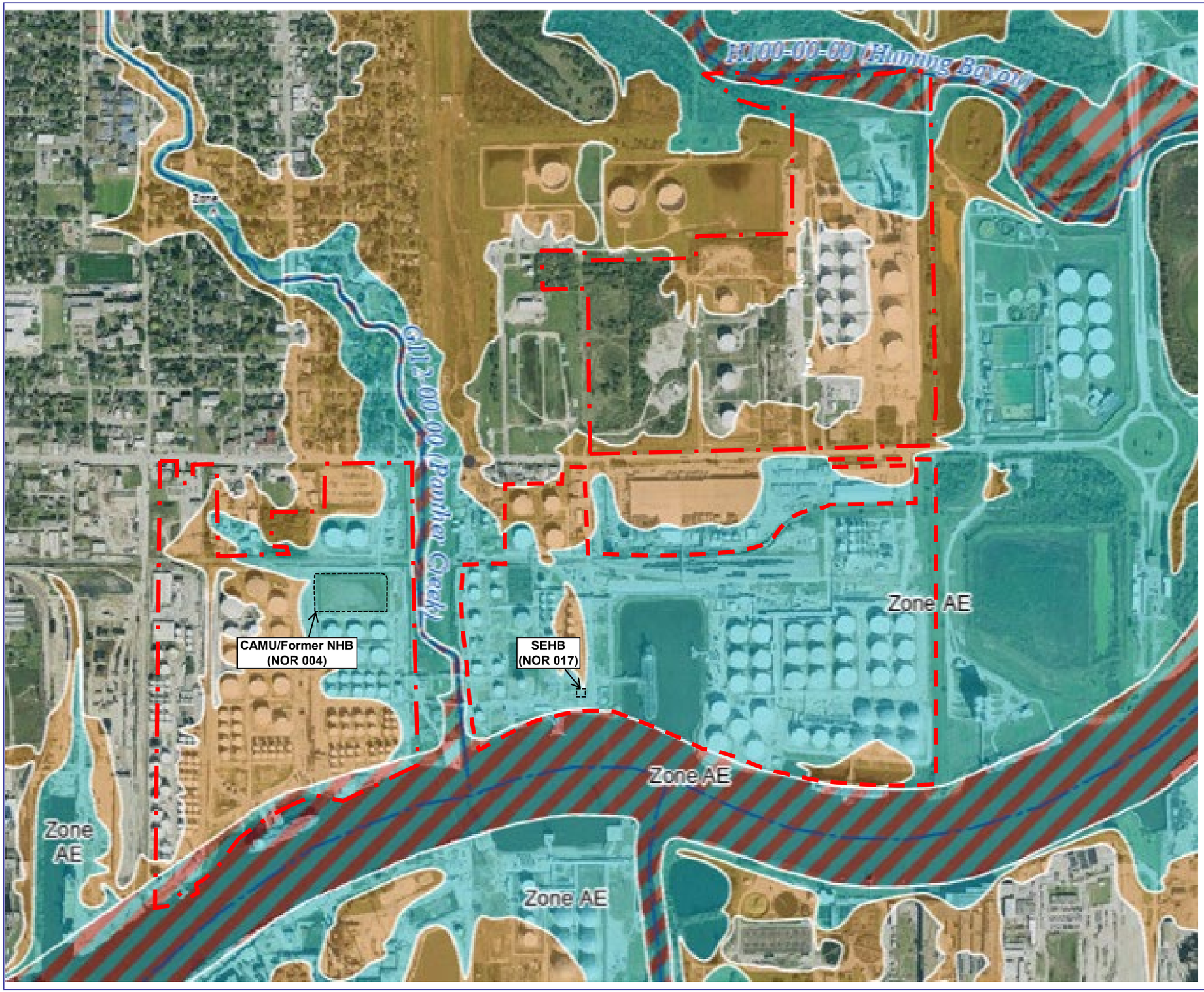
KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-00213

PART B, ATTACHMENT I-1
Topographic Map

NORTH

APPROXIMATE SCALE IN FEET
0 1500

DATE
07-05-2024



LEGEND

- Approx. Kinder Morgan Facility Boundary
- Floodway
- 100-year Floodplain
- 500-year Floodplain

Sources: Harris County Flood Control District
FEMA Panel 905 of 1150, Revised May 2, 2019

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-00213

Part B, ATTACHMENT C
Flood Plain Map

NORTH

0 1000 APPROXIMATE SCALE IN FEET

DATE
07/02/2024

ATTACHMENT K

Closure Plan

KINDER MORGAN LIQUIDS TERMINALS LLC

CLOSURE PLAN

CORRECTIVE ACTION MANAGEMENT UNIT/
FORMER NORTH HOLDING BASIN

NOR Unit No. 004

Galena Park Terminal
EPA identification No. TX0026481523

Prepared by:

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.
Houston Office
13003 Southwest Freeway, Suite 190
Stafford, Texas 77477

Updated July 2024

TABLE OF CONTENTS

1.0 INTRODUCTION 1
2.0 BACKGROUND 1
Site Description 1
Site Operations 2
Description, Identification, and TCEQ classification of Waste Managed in the Former NHB/CAMU 2
3.0 CURRENT UNDERSTANDING OF SUBSURFACE CONDITIONS 3
Regional Physiography and Topography 3
Regional Geology 3
Regional Aquifers 4
CAMU/Former NHB Specific Geology and Hydrology 4
Site Specific Geology and Hydrology 4
Groundwater Flow Conditions 5
4.0 CLOSURE PLAN 6
Summary of Closure Activities to Date 6
Maximum Inventory of Hazardous Waste Within the CAMU/Former NHB 7
Final Closure of the Former NHB/CAMU 7
Decontamination Procedures 7
Authorized TSD Facilities 8
Documentation Reporting 8
5.0 SCHEDULE 8
6.0 CLOSURE COST SUMMARY 8
7.0 POST-CLOSURE CARE 8
CAMU Maintenance 8
Post Closure Groundwater Monitoring 9
Deed Recordation 9

LIST OF FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Layout Map – NOR 004
Figure 3-1A – Former NHB/CAMU Final Cover Contours
Figure 3-1B – Former NHB/CAMU Final Cross-Section
Figure 4 – CAMU Operations during Lead Stabilization
Figure 5 – CAMU Operations during Biotreatment

LIST OF TABLES

Table 1 – Administrative Information
Table 2 – Closure Cost Estimate

LIST OF APPENDICES

Appendix A – Geologic Cross Sections

1.0 INTRODUCTION

On behalf of KM Liquids Terminals LLC (Kinder Morgan), Groundwater & Environmental Services, Inc. (GES) has updated the Closure Plan to document the procedures to be implemented at the time the Corrective Action Management Unit (CAMU)/Former North Holding Basin (NHB) no longer treats or is used for the disposal of impacted soils at the Galena Park Terminal. Kinder Morgan intends to close the CAMU/Former NHB as a Class I hazardous waste landfill. This plan has been prepared in accordance with the requirements of the in-place closure requirements presented in Title 40 Code of Federal Regulations (CFR) Part 265 Subpart G and Title 30 Texas Administrative Code (TAC) Section 335.118.

2.0 BACKGROUND

Site Description

The 421.410-acre Galena Park Terminal is located at Clinton Drive in Galena Park, Texas. Galena Park is an incorporated suburban community approximately 9 miles east of downtown Houston in Harris County. The facility is on the north bank of the Houston Ship Channel and is within the jurisdiction of the Houston Port Authority District, which administers activities on the Ship Channel. **Figure 1** presents the site location of the Galena Park Terminal. Administrative Information is presented in **Table 1**.

The Former NHB, located in the northern portion of the west plant, was constructed in 1975 and operated until 1988. The Former NHB was a 480-foot by 276-foot rectangular surface impoundment (**Figure 2**). The average depth of the basin was 18.3 feet from the top of the containment berm. The original design capacity of the basin was approximately 18 million gallons (88,000 cubic yards).

The Former NHB received wastewater and storm water during the period of 1975 to 1988 from a collection system installed throughout the western portion of the facility. Effluent from the wastewater/ storm water collection system passed through an oil/water separator before being discharged to the Former NHB. In 1988, the Former NHB was retired from service. At the time of closure, the sludges present in the Former NHB were solidified and a 6-inch compacted clay cap was constructed over the solidified material.

After the closure of the Former NHB, the CAMU was constructed within the original containment levee system in compliance with 40 CFR 264 Subpart S to treat and dispose of remediation wastes generated by corrective actions at the Kinder Morgan Galena Park Terminal. Remediation waste treated in the CAMU generally consists of soils generated during the facility's Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI) and subsequent actions, as well as sediment from tank 100-5 (a storm water tank used for managing wastewater from the Former NHB closure and CAMU operations).

As previously mentioned, a 6-inch layer of compacted, clay-rich soil was constructed over the Former NHB stabilized sludge and serves as a sub-base for the treatment and disposal activities in the CAMU. **Figures 3-1A** and **3-1B** presents the as-built conditions of the CAMU prior to receiving any additional waste. One portion of the facility is used for stabilization of lead-impacted soils and the bio treatment of remediation waste (primarily contaminated soils). The other portion of the facility is used as a stockpile area for interim storage of remediation waste either awaiting treatment or final disposal.

Site Operations

Kinder Morgan obtained permission from the Texas Water Commission (now known as the Texas Commission on Environmental Quality [TCEQ]), to biologically treat waste material in the Former NHB in May 1990 and continued the treatment through October 1990. In 1994, the unit was reclassified as the CAMU and continues to receive hazardous and non-hazardous remediation waste. The CAMU will be closed under the Texas Risk Reduction Program (TRPP), 30 TAC Chapter 350, when corrective action and related activities have been completed. The unit will be Closed under Remedy Standard B.

Description, Identification, and TCEQ classification of Waste Managed in the Former NHB/CAMU

Waste stored and/or processed in the Former NHB/CAMU was generated from the following general sources:

- Former NHB Surface Impoundment (prior to 1988):
    1. Loading/unloading facilities;
    2. Transfer manifolds;
    3. Storm water; and
    4. Lubripac
- **CAMU:**
    - Soil affected by historical lead and total petroleum hydrocarbons;
    - Waste accumulated as a result of the RFI;
    - Affected soils within identified Solid Waste Management Units (SWMUs)/Areas of Concern (AOC) impacted by releases; and
    - Tank bottoms

CAMU operations depend on the concentrations of hazardous constituents (organic Chemicals) or inorganic lead present in the soil and proceed sequentially. The CAMU can be utilized to stabilize and store lead-impacted soils as well as soils affected by total petroleum hydrocarbons. Soils impacted by lead will undergo stabilization until the inorganic lead leachability concentrations do not exceed the treatment levels previously approved by USEPA and TCEQ. Soils impacted with hydrocarbon will undergo bioremediation until concentrations do not exceed treatment standards listed in the CAMU/Former NHB Engineering Report and Waste Analysis Plan (WAP), presented under separate attachments. **Figure 4** presents the CAMU soils during lead stabilization.

The initial phase of the disposal process will include the placement of the lead-impacted soils in the lower portion of the CAMU. After the majority of the lead-impacted soils have been placed in the CAMU,

Kinder Morgan will begin the placement of biologically treated soils on top of the lead-impacted soils. Soils that do not require biological treatment will be placed directly on top of previously placed lead-impacted soils. **Figure 5** presents the CAMU operations during biotreatment.

3.0 CURRENT UNDERSTANDING OF SUBSURFACE CONDITIONS

Information presented in the following sections has been obtained from the facility's Geology Report, which is presented as Appendix M of the *Application for Renewal of Permit HW 50054 (July 2024)*.

Regional Physiography and Topography

The Kinder Morgan Galena Park Terminal is located within the Gulf Coast Plain physiographic province of North America. The Gulf Coast Plain is characterized as a nearly smooth, featureless depositional plain, which borders the Gulf of Mexico. The Gulf Coast Plain extends approximately 150 miles inland from the coast.

Figure 1 presents the boundaries of the Galena Park Terminal on a topographic map. The Houston Ship Channel forms the southern boundary of the facility. The western portion of the plant site is separated from the central portion by Panther Creek. Hunting Bayou is immediately adjacent to most of the northern facility boundary. Surface elevations across the facility range from 4 to 24 feet above mean sea level (msl). Surface water runoff in the northern portion of the facility (north of Clinton Drive) generally flows to the north and Hunting Bayou. Berms and ditches control surface water runoff in the southern portion of the site. Generally, the land in the southern portion of the plant is flat lying or gently sloping to the south toward the Houston Ship Channel.

Regional Geology

The Galena Park Terminal is underlain by a thick sequence (greater than 3,000 feet) of sedimentary deposits. These deposits crop out in belts parallel to the Gulf Coast and dip at low angles, thickening down-dip toward the Gulf of Mexico. The surface geologic units underlying the Galena Park Terminal are the Recent Alluvium and the Pleistocene age Beaumont Formation. The alluvial material consists of clay, silt, and sand, which may be up to 30 feet thick. The Beaumont Formation in this area is characterized by clay, silt, and occasional sand layers and is on the order of 100 feet thick. The Beaumont Formation is generally poorly bedded, calcareous clay of various colors, containing thin, discontinuous stringers and lenses of silt and fine sand. Concretions of calcium carbonate, iron oxide, and iron manganese oxides are found in zones of weathering. The unit contains mainly stream channel, point bar, natural levee, and back swamp deposits.

Well logs in the Galena Park area indicate that alternating clays, silts, and infrequent sands of the Beaumont, Montgomery, Bentley, and Willis Formations extend to depths of approximately 700 feet. All these formations are thought to have formed by the discharge of sediments from stream gaps. These deposits are deltaic and fluvial in origin and difficult to distinguish between because of their similarities. Each formation dips gently gulfward. The Montgomery Formation underlies the Beaumont Formation and is comprised of clay, silt, sand, and very minor amounts of gravel of granule to small pebble size. The Bentley Formation is also comprised largely of clay, silt, and sand with minor amounts of gravel. The gravel in the Bentley Formation is generally coarser than the gravel of the Montgomery Formation. The Bentley and Montgomery Formations are both somewhat greater than 100 feet in thickness. The Willis

Formation underlies the Bentley Formation and is comprised of clay, silt, sand, and minor gravel of granule to pebble size. The maximum thickness of this unit is 75 feet.

Below a depth of 700 feet, shales, sandstones, and other indurate sedimentary facies are encountered that alternate with clays, "sticky" shales, and sands to depths in excess of 3,000 feet. The Goliad Sand of Pliocene age, so called because of the relative preponderance of sand, underlies the Willis Formation. The Goliad Sand is underlain by the Miocene age Fleming Formation.

Regional Aquifers

The regional aquifers found beneath the Kinder Morgan Galena Park facility include the Chicot and Evangeline aquifers. The Chicot aquifer is composed of the Recent Alluvium, Beaumont Formation, Montgomery Formation, Bentley Formation, and Willis Sand. The Evangeline aquifer is composed of the Goliad Sand and the upper portion of the Fleming Formation. The Burkeville confining layer within the upper Fleming Formation marks the base of the Evangeline aquifer. The Chicot aquifer is approximately 700 feet thick and the Evangeline aquifer is approximately 1,700 feet thick. The aquifers are thought to be hydraulically connected on a regional scale.

The Chicot and Evangeline aquifers supply several hundred million gallons per day of fresh water in Harris County. Yields of large-capacity wells average about 1,800 gallons per minute (gpm), but some wells can produce up to 3,000 gpm. Groundwater production is generally greater in the Evangeline aquifer and it has been more heavily developed as a groundwater source. The total dissolved solids (TDS) concentration of the water produced ranges from less than 500 parts per million (ppm) to about 1,000 ppm. Transmissivities of the aquifers range from 2.7 square feet per day (ft^2/day) to 5,200 ft^2/day, the estimated porosity is 30 percent, and storage coefficients range from 6.2×10^{5} to 5×10^{-4}. Groundwater is used for drinking water and industrial supply.

Unconfined conditions occur in the shallow portions of the aquifers in outcrop areas. Confined conditions prevail elsewhere in the aquifers. Recharge to the aquifers occurs from precipitation on the outcrop and from cross-formational flow. Aquifer discharges occur to the Gulf of Mexico, or via evapotranspiration and groundwater pumping. Regional groundwater flow is toward the Gulf of Mexico in the Down-dip direction. However, extensive groundwater production in the Houston and Pasadena areas had modified groundwater flow directions. Groundwater flow directions in the Galena Park area in the 1970s and early 1980s were to the east and south toward the large pumping center in Pasadena. Water levels in the Chicot aquifer declined more than 100 feet in the Pasadena area between 1950 and the late 1970s. Water levels recovered approximately 60 feet after pumping was reduced in the late 1970s after the introduction of surface water sources for supply.

CAMU/Former NHB Specific Geology and Hydrology

Several subsurface investigations have been conducted at CAMU/Former NHB and the information is presented in detail in the Geology Report. However, portions of the report have been briefly summarized below.

Site Specific Geology and Hydrology

The maximum depth of subsurface investigation at the Former NHB was to approximately 80 feet below land surface. Sediments encountered during the investigation are the result of fluvial deposition, both during the late Pleistocene and recent Holocene epochs. Layers of sand, silt, and clay were deposited, scoured, removed, and re-deposited in lobate and linear bands that generally trend south to southeast.

Four stratigraphic units were identified during previous investigations. The surface deposits were characterized and differentiated based on texture, consistent, color, vertical and lateral extent, and hydrogeologic significance. From shallowest to deepest the units are:

- Zone I (recent fill);
- Zone II (upper silty and sandy clays with silts silty sand, and clayey sand lenses)
- Zone III (silty and clayey sands)
- Zone IV (lower silty and sandy clays)

These zones and the shallow subsurface of the Former NHB are presented on the geologic cross sections (**Figures 7** and **8** of **Appendix A**). A plan view presenting the location of the cross sections in has been included as **Figure 9** in **Appendix A**. Zone I fill materials are laterally extensive and composed of road base (limestone gravel, shell, and asphalt), below which are reworked silty clays and sandy clays. The thickness of the fill ranges from 15 feet along the road on the south margin of the Former NHB to 2 feet on the east side of the CAMU/Former NHB. A thin unit of brown silty sand, which was encountered over most of the area, is also included in this zone This unit is apparently an undisturbed, natural unit, which occurs above the bottom of the Former NHB.

Zone II is comprised of the uppermost natural silty and sandy clays that are laterally extensive in the area of the CAMU/Former NHB. The top of Zone II is generally encountered about -5 to -8 feet msl. The silty and sandy days of Zone Il are typically stiff and of low to medium plasticity. The maximum thickness of the Zone II unit is approximately 12 feet on the western edge of the Former NHB. The stratum thickness of 4 to 6 feet occurs on the northern boundary of the Former NHB. An organic soil containing black silts, silty sand, clayey silts, and silty clay of high organic content is found intermittently within Zone II. The thickness of this soil ranges from less than l foot to almost I 0 feet on the eastern side of the CAMU/Former NHB area. The deposit appears to be low energy fluvial sediments that were deposited as channel fill.

Zone III is saturated and the monitor wells at the Former NHB are screened in this zone. The top of the unit is generally-3 to -5 feet msl and its average thickness is 15 to 20 feet. Zone III is composed of silty sands with minor amounts of clayey sand.

Zone IV is defined as the silty clay to sandy clay zone immediately below Zone III. Zone IV is encountered at approxirnately-25 feet msl. The total thickness of this zone was not penetrated during the Former NHB investigation. This zone is stiff and medium to highly plastic. In its upper portion, it contains pockets and seams of fine silty sand.

Groundwater Flow Conditions

The hydraulic gradients for both vertical and horizontal migration were calculated for the CAMU/Former NHB using groundwater data collected during the first quarter of 2002. The average horizontal gradients calculated in Zones III and IV are 0.016 and 0.83 foot per foot (ft/ft). The vertical gradient calculated between Zones III and IV is 0.19 ft/ft.

Previous investigations indicate that Zones III and IV, located beneath the CAMU/Former NHB, have been previously impacted. These units are hydraulically connected with each other, but are not hydraulically connected to the underlying regional aquifer. The upper limit of Zone IV is 40 feet below ground surface (ft bgs) and the lower limit is 80 ft bgs.

4.0 CLOSURE PLAN

The following sections outline the procedures that will be implemented to complete an in place closure of the CAMU. The CAMU/Former NHB will be closed in a manner that:

- Complies with the standards for closure set forth in 40 CFR Part 264 Subpart G, 40 CFR 264 Subpart S, 30 TAC Chapter 350 (TRRP), and 30 TAC Section 335.118, and
- Minimizes the need for further maintenance.

The unit will be closed under TRRP Remedy Standard B. Pursuant to 30 TAC Section 335.118(b), Kinder Morgan will publish a notice of closure activities for the CAMU/Former NHB in a local newspaper, affording the public the opportunity to submit written comments and request modifications to the Closure Plan. Issues during this period will be clarified between TCEQ and Kinder Morgan prior to final approval of the Closure Plan. Following receipt of the approval from TCEQ, Kinder Morgan will notify TCEQ 10 days prior to implementing the Closure Plan to afford TCEQ personnel the opportunity to observe closure activities and split any samples.

Summary of Closure Activities to Date

A Closure Plan for the Former NHB was submitted to the TCEQ, formerly the Texas Water Commission, in March 1991. In September 1994, an addendum to the original Closure Plan was submitted to allow the construction and operation of the CAMU under 40 CFR 264 Subpart S and included modifications to the original final cap design.

In October 1990, the biological treatment of sludges present in the Former NHB was completed. Treated sludges were allowed to settle and the clarified water was transferred to the Gulf Coast Waste Disposal Authority for disposal. All ancillary equipment (i.e., pumps, sumps, piping, and two solid waste tanks) associated with the management of the storm water in the Former NHB were decontaminated and removed from service. In accordance with the 1991 Closure Plan, two additional units (DAF and Equalization Tanks) were closed in November 1994.

In July 1996, Kinder Morgan completed the biological treatment of sludges and contaminated soils adjacent to the interior of the Former NHB containment berm. Stabilization of the residual sludges in the Former NHB was performed in-place before construction of the cap. A 10 percent admixture by volume of Portland cement and 10 percent by volume of fly ash were used to solidify the material. The sludges were solidified in batches in an open pit and stabilized with a backhoe. After the stabilized sludges met a compressive strength of 4,200 pounds per square foot, the material was placed in even lifts across the bottom of the Former NHB. An intermediate clay cover (approximately 6 inches thick) was then constructed over the solidified material.

Maximum Inventory of Hazardous Waste Within the CAMU/Former NHB

The total maximum capacity of the CAMU/Former NHB is approximately 88,000 cubic yards. When the closure is completed, the CAMU/Former NHB will contain approximately 6,700 cubic yards of stabilized sludge (generated prior to construction of the CAMU) and an estimated 50,000 cubic yards of remediation waste.

Final Closure of the CAMU/Former NHB

Kinder Morgan will cover the CAMU/Former NHB with a final cover that is designed and constructed to provide long-term minimization of the migration of liquids through the closed impoundment; function with minimum maintenance; promote positive drainage and minimize erosion or abrasion of the cover; accommodate settling and subsidence so that the cover's integrity is maintained; and have a permeability less than or equal to the permeability of the bottom liner system separating the CAMU and Former NHB.

Three capping scenarios may be utilized at the time of closure. Kinder Morgan will select a final cap configuration based on implementability, relative cost, and materials that are available at the time of closure. The three capping scenarios are as follows:

- Scenario 1 - Installation of 3 feet of compacted clay liner covered by a 1-foot sand drainage layer and 1-foot topsoil layer capable of maintaining vegetation;

- Scenario 2 - Installation of a combination 1 foot of compacted clay and geosynthetic clay liner covered by a 6-inch sand drainage layer and 6-inch topsoil layer capable of supporting vegetation; or

- Scenario 3 - Installation of composite liner comprised of 18 inches of compacted clay liner and a high-density polyethylene (HDPE) flexible membrane covered by a 1-foot sand drainage layer and 1-foot topsoil layer capable of supporting vegetation.

A final cap configuration has not yet been determined. The final cap configuration is dependent of the final volume of waste laced in the CAMU/Former NHB. Six months (180 days) prior to beginning closure of the unit, this closure plan will be amended to include details on the final cap configuration to be implemented at the time of closure. The amendment will take the form of a Permit modification and will include detailed engineering plans, specifications, and a Construction Quality Assurance Plan.

Detailed engineering plans will provide an accurate representation of the volume of material present in the CAMU at the time of closure and specify final grades for the waste material, compacted clay, and topsoil layers. Engineering specifications will establish the performance criteria for the components of the cap and installation procedures. Additionally, the Construction Quality Assurance Plan will establish sampling frequencies to verify the cap is constructed in accordance with the approved Closure Plan.

Decontamination Procedures

Prior to leaving the unit, all equipment used in the closure of the CAMU/Former NHB will be decontaminated using a high-pressure wash, detergent wash, or another appropriate method. Fluids

produced during the decontamination procedure will be collected and placed into the on-site wastewater treatment system prior to discharge to the Gulf Coast Waste Disposal Authority for disposal or will be containerized (i.e., 55- gallon drums, vacuum trucks) and shipped off site to an authorized treatment, storage, and disposal (TSD) facility. Any equipment, including personal protective equipment that cannot be decontaminated, will be disposed of at an authorized TSD facility.

Authorized TSD Facilities

All waste generated during the closure activities (i.e., soils, wastewater, decontamination water, liner components, etc.) will be managed on site or at TCEQ authorized TSD facilities. These facilities may include, but are not limited to, incinerators, wastewater treatment tanks, container storage areas, fuels blenders, industrial furnaces, injection wells, or landfills. Waste to be temporarily managed on site will be collected in drums, rolloff boxes, vacuum trucks, or other appropriate collection devices. Contaminated soil generated during closure will be placed in the CAMU and the soil will have to meet the standards for the CAMU if it is to be left in place.

Documentation Reporting

In accordance with 40 CFR Part 264.115, a Closure Documentation Report will be submitted to TCEQ. The report will include data summaries of all the test results collected during the implementation and other documents necessary to demonstrate closure activities were completed in compliance with the approved plan. A representative of Kinder Morgan and a registered engineer in the State of Texas will sign the closure documentation report.

5.0 SCHEDULE

The closure activities will be initiated for the CAMU/Former NHB when capacity is achieved. Once capacity is reached, approximately 6 months will be required to complete the closure of the CAMU/Former NHB.

6.0 CLOSURE COST SUMMARY

A summary of the cost associated with closing the CAMU/Former NHB has been included as **Table 2**. This cost estimate is based on Scenario 1: 3-feet of compacted clay, a 1-foot sand drainage layer and 1-foot of vegetative topsoil.

7.0 POST-CLOSURE CARE

CAMU Maintenance

Once the closure activities have been completed at the CAMU, long-term maintenance of the cover will be required. A 30-year post-closure maintenance plan is proposed. CAMU maintenance is assumed to be a Kinder Morgan activity (an alternative would be to hire a third-party grounds crew contracted to Kinder Morgan that is Occupational Safety and Health Administration trained).

Initial post-closure maintenance will include:

- Routine monthly inspections of the engineered cap to identify erosion, evaluate continuity of the vegetative cover, and prevent weed infestation;
- Additional monitoring of the engineered cap and vegetative cover after severe storms with heavy rainfall;
- Annual fertilizing of the vegetative cover to maintain its vigor;
- Regular mowing of the vegetative cover to minimize fire hazards and to preserve aesthetics; and
- Topsoil replacement in areas of erosion followed by seeding and/or hydromulching to re-establish the vegetative cover.

Once the vegetative cover has been effectively established, long-term maintenance will then be limited to annual inspections, periodic fertilizing, and routine mowing.

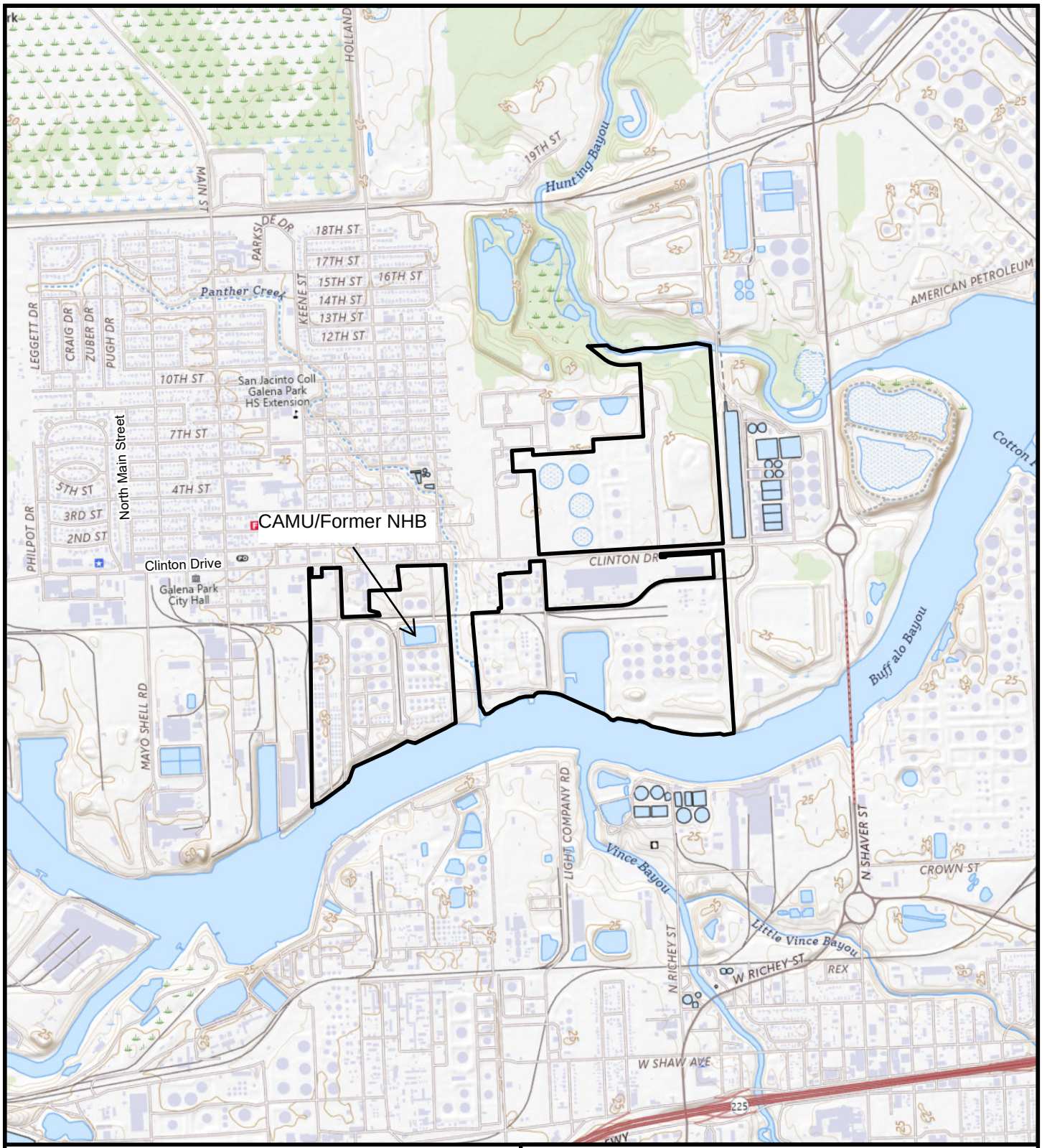
Post Closure Groundwater Monitoring

The post-closure schedule of groundwater monitoring will be conducted in accordance with the Industrial Hazardous Waste Permit No. 50054.

Deed Recordation

Deed recordation has been completed in accordance with Section 3.17 of the 1991 Closure Plan and will be updated upon closure of the CAMU.

FIGURES



TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

SITE LOCATION MAP

FORMER NHB/CAMU

CAMU

MW10
MW9
MW4
MW15
MW11
MW1
RW16
RW17
MW12
MW6
MW5
MW7
MW8
MW14
MW13
SWU
SWM
SWD
PANTHER CREEK
PANTHER CREEK
PANTHER CREEK

100–6
100–5
144–1
100–2
80–21
80–16
80–17
80–15
80–20
80–19
100–23
80–14
80–12
80–10
80–13
80–11
80–9
5–20
25–13
25–11
25–9
25–7
25–5
25–12
25–10
25–8
25–6
25–4
25–19
25–17
25–15
25–3
10–12
10–9
10–11
10–10
25–

LEGEND

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL (ZONE 3)
- RECOVERY WELL (ZONE 3)
- MONITORING WELL (ZONE 4)
- RECOVERY WELL (ZONE 4)
- RECOVERY WELL (ZONE 5)
- SURFACE WATER SAMPLE
- PLUGGED/ABANDONED WELL

DRAFTED BY: W.G.S. (N.J.)	SITE LAYOUT MAP NORTH HOLDING BASIN (NOR 004)
CHECKED BY:	KM LIQUIDS TERMINALS LLC 906 CLINTON DRIVE GALENA PARK, TEXAS
REVIEWED BY:	Groundwater & Environmental Services, Inc. 13003 SW FREEWAY, SUITE 190, STAFFORD, TEXAS 77477
NORTH	SCALE IN FEET: 0 APPROXIMATE 150 / DATE: 8-15-13 / FIGURE: 2

M:\Graphics\3600-Houston\Kinder Morgan\Galena Park Facility\Galena Park Facility SM.dwg, B-150 (NHB), 7/17/2010 1:54:48 PM, WShea

Southern Pacific Railroad

B'

Stormwater Sump

Stormwater Lift Station #2

A

A'

15

16

17

N H B

17

16

15

14

Dirt Road

Dirt Road

B

LEGEND

Proposed Contour

Existing Contour

0 60 120

SCALE IN FEET

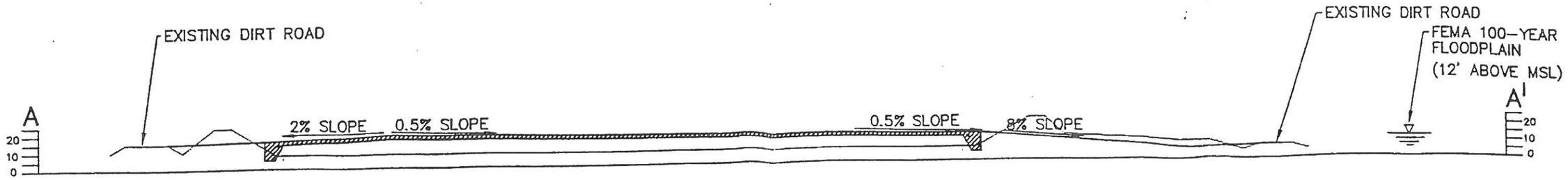
MALCOLM PIRNIE

GATX – GALENA PARK, TEXAS
NHB FINAL COVER CONTOURS

MALCOLM PIRNIE, INC.

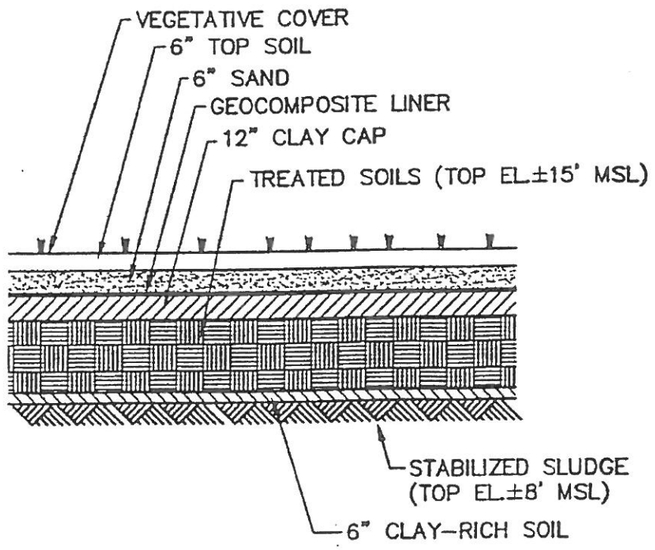
3–1A

3761 : 1665121190\I:\ACAD\PROJ\1665121\N-BASIN SCALE: 1:720I 09/26, 1994 at 11:32



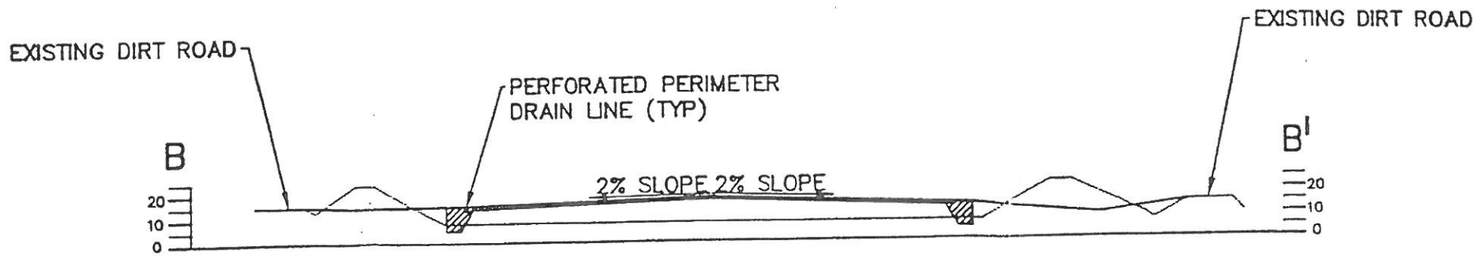
CROSS SECTION A–A

MEASURED IN FEET ABOVE MEAN SEA LEVEL



PROPOSED FINISHED SECTION

NOT TO SCALE



CROSS SECTION B–B

MEASURED IN FEET ABOVE MEAN SEA LEVEL

100 50 0 50 100

SCALE IN FEET

EXISTING

PROPOSED

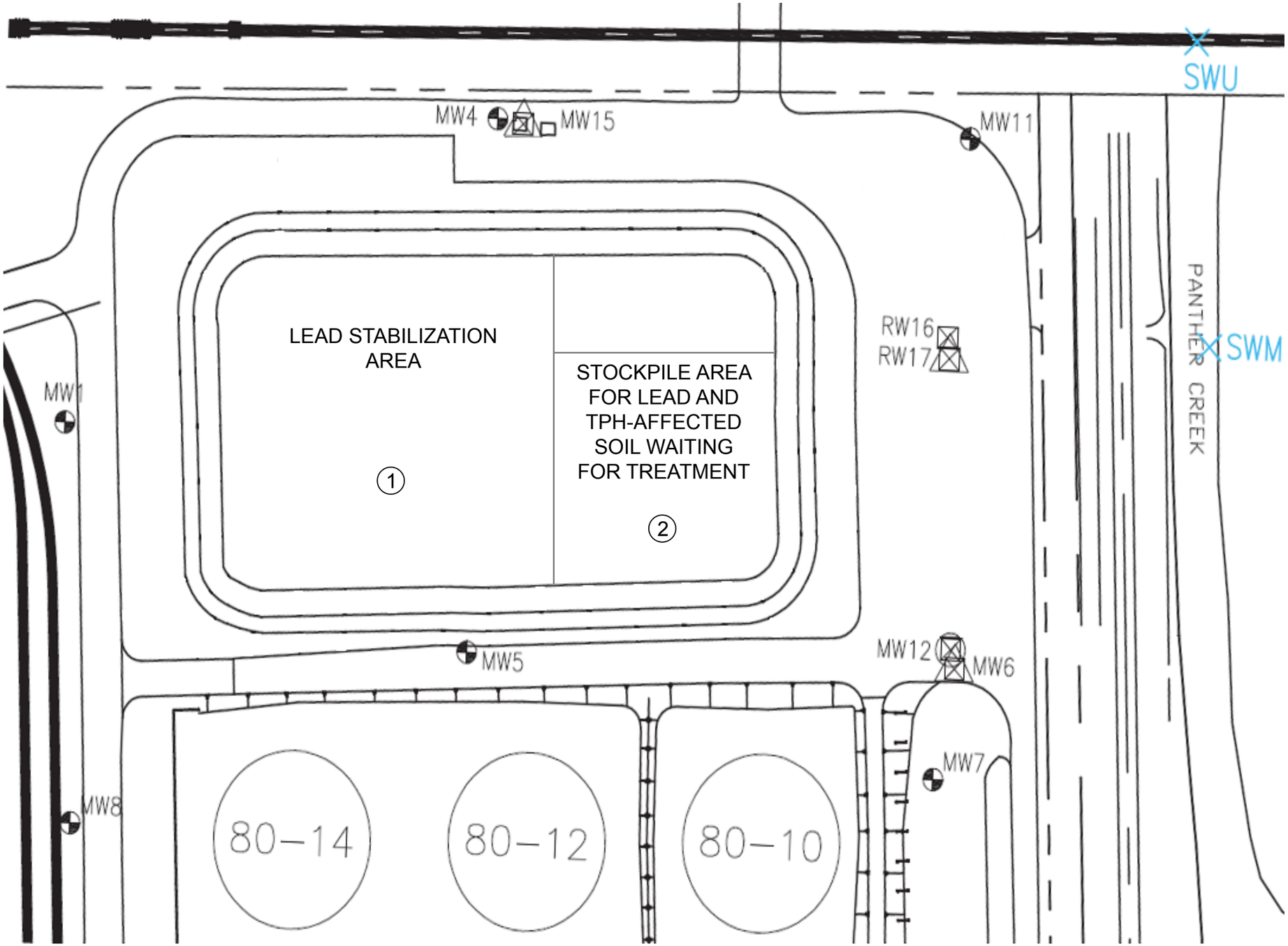
3761 : 2514002190\i: \ACAD\PROJ\1665121\CROSS SCALE: 1:720i 10/03, 1994 at 11:37

MALCOLM PIRNIE

GATX – GALENA PARK, TEXAS
NHB FINAL COVER CROSS SECTIONS

MALCOLM PIRNIE, INC.

3–1B



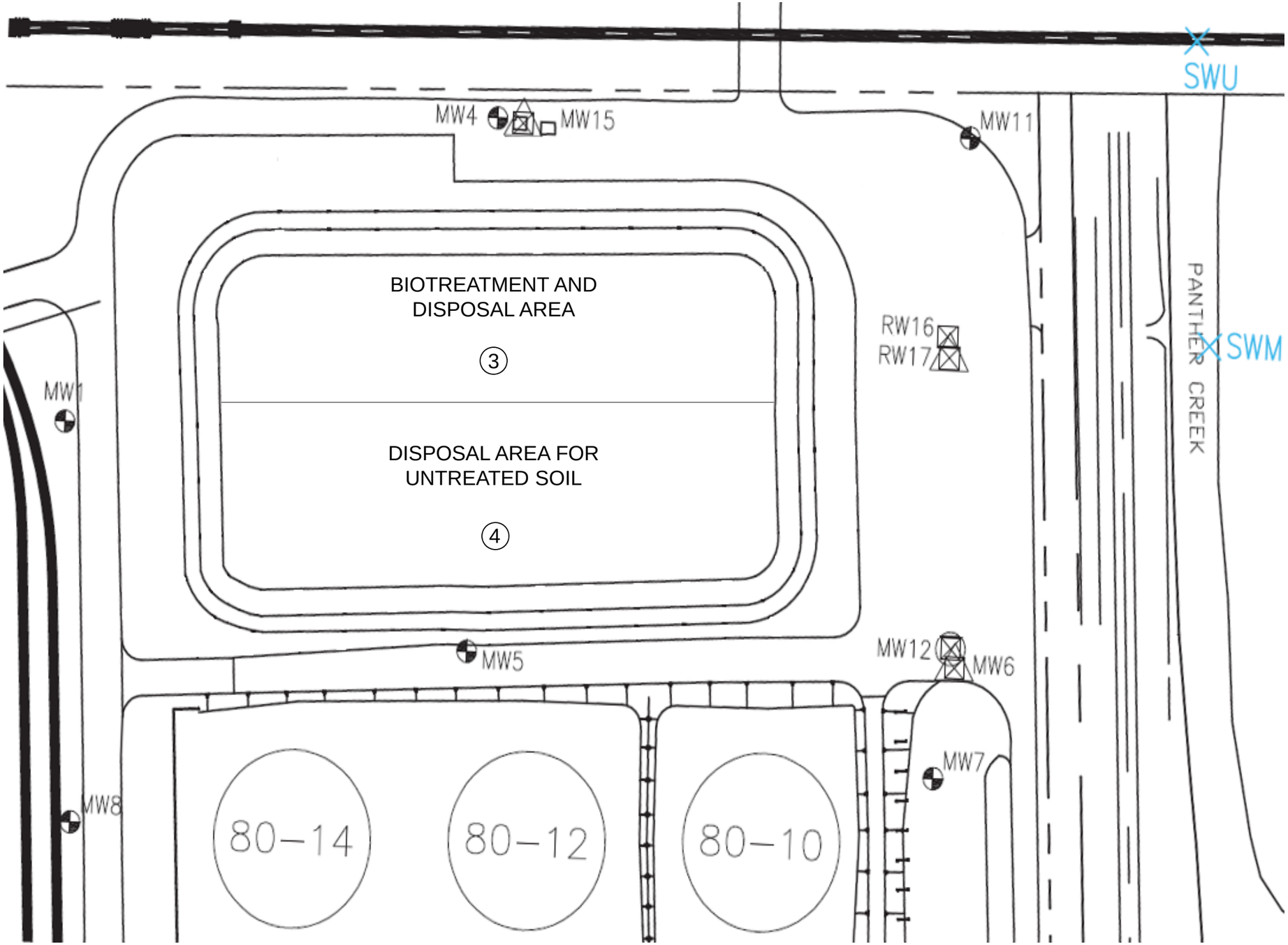
LEGEND

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL (ZONE 3)
- RECOVERY WELL (ZONE 3)
- MONITORING WELL (ZONE 4)
- RECOVERY WELL (ZONE 4)
- RECOVERY WELL (ZONE 5)
- SURFACE WATER SAMPLE
- PLUGGED/ABANDONED WELL

NOTES

1. UP TO 2800 cy OF LEAD AND TPH-AFFECTED SOIL TO BE TREATED PER BATCH IN AREA ONE.
2. ADDITIONAL SOILS WILL BE STOCKPILED IN AREA 2 TO AWAIT TREATMENT.
3. STABILIZED SOIL WILL BE LEVELED TO A UNIFORM THICKNESS ACROSS THE ENTIRE CAMU AND GRADED TO DRAIN UPON COMPLETION OF LEAD STABILIZATION.

DRAFTED BY:	**CAMU OPERATIONS DURING LEAD STABILIZATION**
CHECKED BY:	KM LIQUIDS TERMINALS LLC 906 CLINTON DRIVE GALENA PARK, TEXAS
REVIEWED BY:	Groundwater & Environmental Services, Inc. 13003 SW FREEWAY, SUITE 190, STAFFORD, TEXAS 77477
NORTH	APPROXIMATE SCALE IN FEET: 0 – 100 / DATE: 08-15-2013 / FIGURE: 4



LEGEND

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL (ZONE 3)
- RECOVERY WELL (ZONE 3)
- MONITORING WELL (ZONE 4)
- RECOVERY WELL (ZONE 4)
- RECOVERY WELL (ZONE 5)
- SURFACE WATER SAMPLE
- PLUGGED/ABANDONED WELL

NOTES

1. LEAD-STABILIZED SOIL WILL UNDERLAY AREAS 3 AND 4.
2. AREA 4 TO BE GRADUALLY FILLED WITH UNTREATED SOIL OVER THE ENTIRE AREA.
3. BIOTREATMENT AREA WILL BE FILLED VERTICALLY OVER ENTIRE ARE ATO ASSURE ADEQUATE AREA FOR EFFICIENT TREATMENT.

DRAFTED BY:

CHECKED BY:

REVIEWED BY:

NORTH

CAMU OPERATIONS DURING BIOTREATMENT

KM LIQUIDS TERMINALS LLC
906 CLINTON DRIVE
GALENA PARK, TEXAS

Groundwater & Environmental Services, Inc.
13003 SW FREEWAY, SUITE 190, STAFFORD, TEXAS 77477

APPROXIMATE SCALE IN FEET

0 100

DATE: 08-15-2013

FIGURE: 5

TABLES

Table 1

ADMINISTRATIVE INFORMATION

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, Texas

Company Name Plant Name	KM Liquids Terminals LLC Galena Park Terminal		
TCEQ Solid Waste Registration No.	30573		
Site Address	906 Clinton Drive Galena Park, TX 77547		
Mailing Address	1500 Clinton Drive Galena Park, TX 77547		
Company Contact	Johnny Kennedy 713-654-6035		
TCEQ Permit No. EPA Identification No.	50054 TXD026481523		
Waste Management Unit Number	Unit North Holding Basin DAF Tank Equalization Tank	NOR[1] Facility Unit No. 004 019[2] 020	
Status of Unit	Unit North Holding Basin DAF Tank Equalization Tank	NOR Facility Unit No. CAMU Closed and Removed Closed and Removed	
Common Name of Waste Management Unit	Unit North Holding Basin DAF Tank Equalization Tank	Unit Type CAMU Tank Tank	Common Name CAMU/Former NHB DAF Tank Equalization Tank

Notes

1 - NOR = Notice of Registration

2 - DAF and Equalization Tank added to NOR by letter, dated May 17, 1999.

Table 2

Conceptual Level Engineering Opinion of Probable Cost[1]

CAMU Closure - Former North Holding Basin

Kinder Morgan - Galena Park Terminal

Galena Park, Texas

COST ITEM	UNIT	UNIT COST	QUANTITY	COST
Final Cover Construction[2][3][4]				
Mobilization/Demobilization	LS	$75,000.00	1	$75,000
Dewatering/Grading/Stabilization Allowance	Allowance	$30,000.00	1	$30,000
1.5'-Thick Clay Layer	CY	$31.00	7,508	$233,000
60 mil. HDPE Geomembrane	SF	$1.50	135,150	$203,000
16-oz. Geotextile Cushion above Geomembrane	SF	$0.48	135,150	$65,000
1'-Thick Sand Drainage Layer	CY	$61.00	5,000	$305,000
1'-Thick General Fill Layer (Bldg. Perimeter)	CY	$27.00	3,617	$98,000
1'-Thick Crushed Stone Paving (Bldg. Perimeter)	CY	$119.00	3,617	$430,000
1'-Thick Gravel Layer Beneath Building	CY	$130.00	1,389	$181,000
12-oz. Geotextile below Gravel & Crushed Stone	SF	$0.43	135,150	$58,000
Drainage Piping and Stuctures	Allowance	$100,000.00	1	$100,000
Building Protection System Construction[5]				
32-oz. Geotextile Cushion above Gravel	SF	$0.69	37,500	$26,000
60 mil. HDPE Geomembrane	SF	$1.50	37,500	$56,000
Passive Gas Vents, Risers & Monitoring Probes	LS	$85,000.00	1	$85,000
Engineering:[6]				
Topographic and Documentation Surveys	LS	$20,000.00	1	$20,000
Regulatory Meetings	LS	$10,000.00	1	$10,000
Regulatory Submittals	LS	$40,000.00	1	$40,000
Construction Drawings and Specifications	LS	$50,000.00	1	$50,000
Bid Assistance	LS	$7,500.00	1	$8,000
Construction Quality Assurance[7]	LS	$110,000.00	1	$110,000
Laboratory Testing[9]	LS	$15,000.00	1	$15,000
Documentation Report	LS	$40,000.00	1	$40,000
			Subtotal:	$2,238,000
			Contingency (30%):	$448,000
			Total Cost:	$2,686,000

Notes:

1. This estimate represents a high-level/conceptual estimate, consistent with AACE 17R-97 Class 5 cost estimate guidelines, for preliminary budgetary purposes and is based on 2023 dollars.
2. Final cover surface area is approximately 3.1 acres (265' x 510').
3. Final cover outside building assumed to consist of clay, geomembrane, geotextile, sand, general fill, geotextile and crushed stone.
4. Final cover inside building assumed to consist of clay, geomembrane, geotextile, sand, geotextile and gravel.
5. Proposed building footprint is assumed to be 150' x 250' and all areas within the building are considered to be "occupied."
6. Engineering costs may vary significantly depending upon final design building foundation type, a shallow foundation has been assumed.
7. Construction quality assurance assumes resident representative on-site for 10 weeks.
8. Perimeter and personal air monitoring is assumed to be unnecessary.
9. Laboratory Testing is for imported materials only. Chemical analysis of existing materials is excluded.

TRC

Prepared By: TWM 12/22/2023

Checked By: K Knecht 12/22/2023

Conceptual Level Cost Back-up

Earthen Materials	Conversion for Tons/CY	Delivered Price/ton	Delivered Price/CY	Tax	Shrinkage	Material w/tax and shinkage	Installation/CY	Installed/CY	Contact	Phone #
1.5'-Thick Clay Layer			$17.50	N/A	20%	$21.00	$10.00	$31.00	Chuck Land (Mandy)	281-383-2511
1'-Thick Sand Drainage Layer (Bank Run Sand)	1.41	$18.50	$26.09	N/A	10%	$28.69	$7.00	$35.69	Houston Sand and Gravel (Justin)	281-487-7625
1'-Thick Sand Drainage Layer (Washed Sand)	1.41	$34.50	$48.65	N/A	10%	$53.51	$7.00	$60.51	Houston Sand and Gravel (Justin)	281-487-7625
1'-Thick General Fill Layer (Bldg. Perimeter)			$17.50	N/A	20%	$21.00	$6.00	$27.00	Chuck Land (Mandy)	281-383-2511
1'-Thick Crushed Stone Paving (Bldg. Perimeter)	1.7	$61.00	$103.70	8.25%	N/A	$112.26	$7.00	$119.26	Martin Marietta (Albert Lopez)	346-351-4504
1'-Thick Gravel Layer Beneath Building	1.7	$60.00	$102.00	N/A	N/A	$102.00	$28.00	$130.00	Martin Marietta (Albert Lopez)	346-351-4504

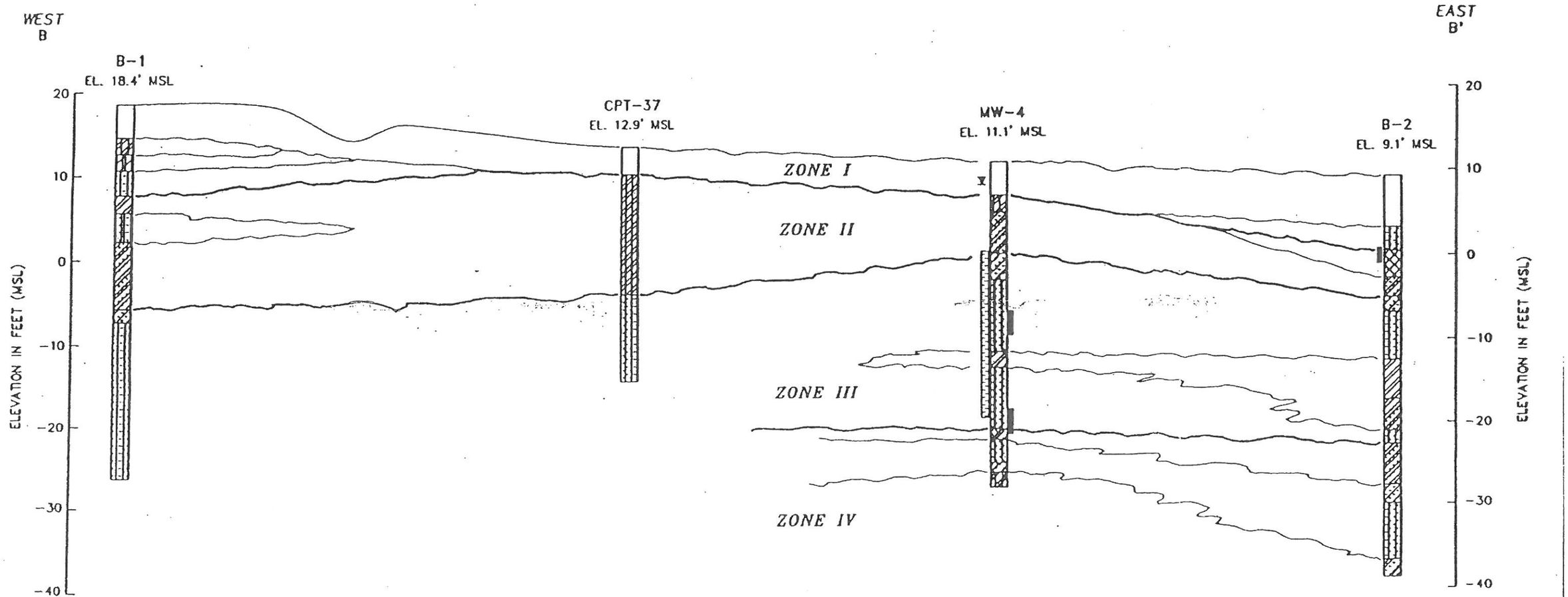
Earthen Materials (Quotes- Delivered)	Chuck Land	Houston S&G	Martin Marietta	Vulcan	Hedelburg	Notes
1.5'-Thick Clay Layer	$17.50/cy	N/A	N/A	No reply	No reply	
1'-Thick Sand Drainage Layer (Bank Run Sand)	$18.50/cy	$27.50/cy	N/A	No reply	No reply	
1'-Thick Sand Drainage Layer (Washed Sand)	$40.00/cy	$34.50/cy	$35.00/ton	No reply	No reply	
1'-Thick General Fill Layer (Bldg. Perimeter)	$17.50/cy	$23.21/cy	N/A	No reply	No reply	
1'-Thick Crushed Stone Paving (Bldg. Perimeter)	N/A	$56.35/ton	$61.00/ton	No reply	No reply	taxable item
1'-Thick Gravel Layer Beneath Building	N/A	TBD	$60.00/ton	No reply	No reply	

Geosynthetics Price Assistance	Material Cost	Labor Cost	Labor & Material	Notes	Contact and Phone Number
60 mil HDPE Geomembrane	$0.40	$0.50	$0.90	Assume $1.50/sf	Bob Trexler
32 oz. Geotextile Cushion	$0.44	$0.25	$0.69		Agru America
16 oz. Geotextile Cushion	$0.23	$0.25	$0.48		713-446-1646
8 oz. Geotextile Filter	$0.12	$0.25	$0.37		
12 oz. Geotextile Filter				Assume $0.43/sf	

Building Protection System Price Assistance	Lump Sum Conceptual Level for Vents, Risers, Probes and Monitors	$85,000	TerraPetra (Justin Conaway)	949-339-6949

TRC
Prepared by: T. Martin 12/22/2023
Checked By: K. Knecht 12/23/2023

APPENDIX A



EXPLANATION

MW-4 - MONITOR WELL NUMBER
B-5 - SOIL BORING NUMBER
EL. 11.1' MSL - GROUND LEVEL ELEVATION (MSL - MEAN SEA LEVEL)



- DEPICTS INTERVAL WHERE SAMPLE WAS OBTAINED FOR CHEMICAL ANALYSIS

FILL
SAND
SILTY SAND
CLAYEY SAND
SILT
SANDY SILT
CLAYEY SILT
CLAY
SANDY CLAY
SILTY CLAY
PEAT AND OTHER HIGHLY ORGANIC SOILS

0 50 100
HORIZONTAL SCALE IN FEET
(VERTICAL EXAGGERATION 5X)

(AFTER ENSR, 1990)

FIGURE 7

WEST-EAST GEOLOGIC CROSS SECTION B-B'
GATX - NORTH HOLDING BASIN
GALENA PARK, TEXAS

SOUTHWEST
A

EAST

NORTH
A'

B-4
EL. 19.9' MSL

NORTH HOLDING BASIN

MW-3
EL. 9.1' MSL

MW-2
EL. 9.0' MSL

B-2
EL. 9.1' MSL

CPT-40
EL. 11.3' MSL

ZONE I

ZONE II

ZONE III

ZONE IV

ELEVATION IN FEET (MSL)

30
20
10
0
-10
-20
-30
-40
-50

EXPLANATION

MW-4 - MONITOR WELL NUMBER
B-5 - SOIL BORING NUMBER
EL. 11.1' MSL - GROUND LEVEL ELEVATION (MSL - MEAN SEA LEVEL)



FILL
SAND
SILTY SAND
CLAYEY SAND
SILT
SANDY SILT
CLAYEY SILT
CLAY
SANDY CLAY
SILTY CLAY
PEAT AND OTHER HIGHLY ORGANIC SOILS

0 50 100
HORIZONTAL SCALE IN FEET
(VERTICAL EXAGGERATION 5X)

(AFTER ENSR, 1990)

FIGURE 8

SOUTH-NORTH GEOLOGIC CROSS SECTION A-A'
GATX - NORTH HOLDING BASIN
GALENA PARK, TEXAS

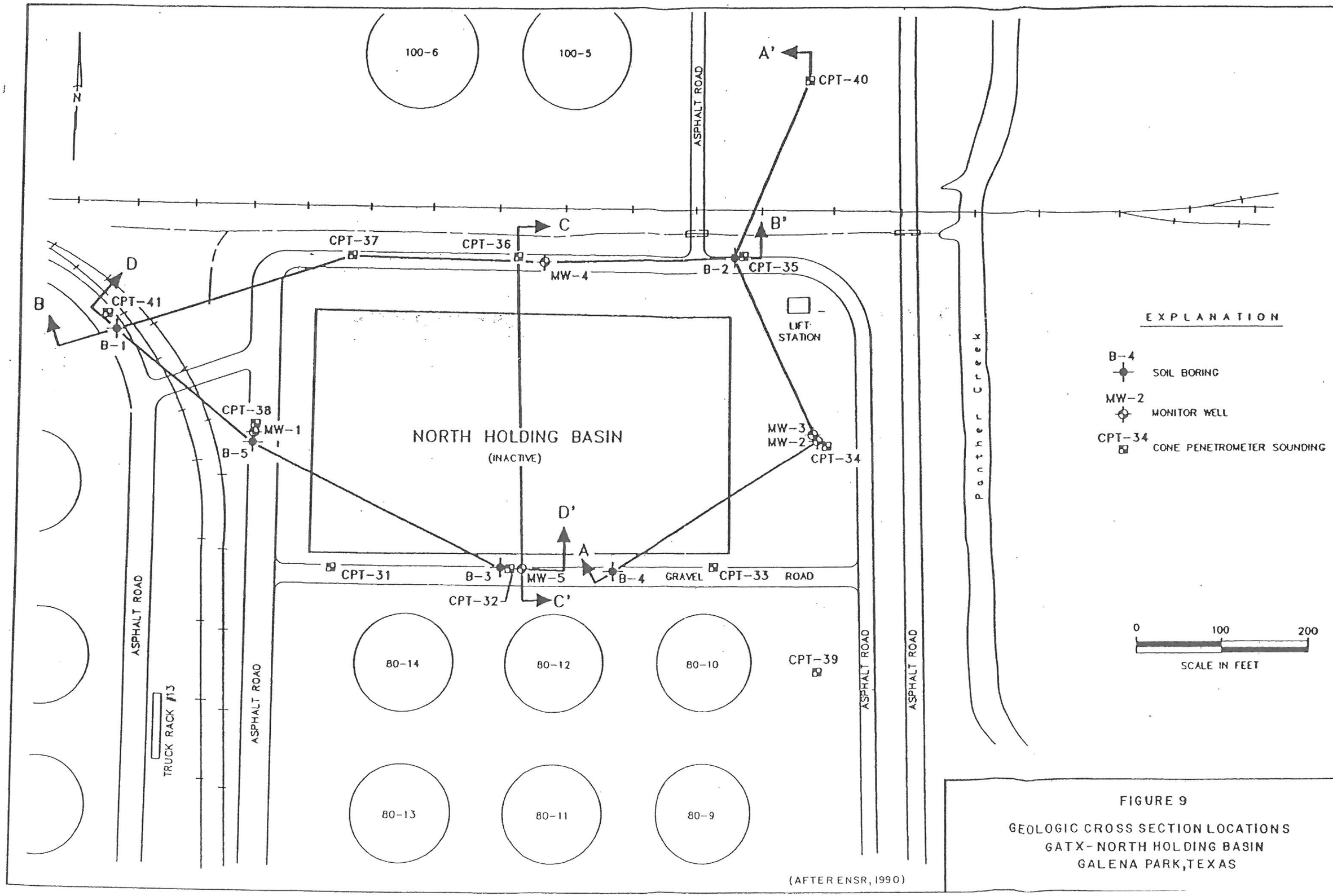


FIGURE 9

GEOLOGIC CROSS SECTION LOCATIONS
GATX-NORTH HOLDING BASIN
GALENA PARK, TEXAS

ATTACHMENT L

SEHB Closure Certification

Document No. 521-02-05

Closure Certification
Southeast Holding Basin

Prepared for:

GATX Terminals Corporation
Galena Park, Texas

August, 1987

ERT®
A RESOURCE ENGINEERING COMPANY

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1-1
2.0	LIQUID REMOVAL	2-1
3.0	SLUDGE AND SOIL REMOVAL	3-1
4.0	CONFIRMATION SAMPLING	4-1
	4.1 Sampling Program	4-1
	4.2 Analytical Results	4-1
5.0	CLOSURE OF EXCAVATION	5-1
6.0	DEED RECORDATION	6-1
7.0	CONCLUSION	7-1
8.0	CERTIFICATION	8-1

LIST OF FIGURE

Figure		Page
3.1	Areas of Seepage into Basin Excavation	3-6
4.1	Confirmation Sampling Locations	4-2
5.1	Top of Backfill Elevations	5-2
5.2	Top of Clay Cap Elevations	5-3
5.3	Top of Lime Stabilized Clay Cap Elevations	5-4
5.4	Top of Asphalt Elevations	5-6

LIST OF ATTACHMENTS

ATTACHMENT 1 - GATX LIQUID WASTE MANIFEST
ATTACHMENT 2 - GATX SOLID WASTE MANIFEST
ATTACHMENT 3 - CONFIRMATION OF SAMPLE RESULTS
ATTACHMENT 4 - CUMULATIVE TOXICITY CALCULATION
ATTACHMENT 5 - CHEMICAL ANALYSIS OF BACKFILL MATERIAL
ATTACHMENT 6 - DAILY FIELD REPORTS
ATTACHMENT 7 - BOUNDARY SURVEY

1.0 INTRODUCTION

GATX Terminals Corporation, Galena Park facility, operates a bulk storage terminal at 906 Clinton Drive, approximately nine miles east of Houston on the north side of the Houston Ship Channel. A variety of products have been stored at this 800-acre tank farm since 1935.

The southeast holding basin formerly received stormwater from approximately five (5) acres in the southeast portion of the GATX property. This acreage includes run off from five (5) tank car and truck loading/unloading stations. At one time, the basin contained both liquids and sludges from the operation as a stormwater collection basin.

In September, 1986, GATX submitted to the Texas Water Commission a revised closure plan for the southeast holding basin. The closure plan was implemented in the Spring of 1987 and entailed the following activities:

- Removal of all liquids
- Chemical stabilization/solidification of sludges
- Excavation and off-site disposal of sludges
- Excavation and off-site disposal of underlying aggregate and soil layers
- Confirmation sampling
- Excavation backfilling
- Installation of a clay cap
- Installation of an asphalt parking lot cover.

All closure activities were carried out in accordance with the approved closure plan. This report documents those activities.

2.0 LIQUID REMOVAL

Prior to the beginning of closure activities, GATX emptied the basin of liquids by using the basin pump. The liquid was pumped from the basin to Tank 29, until the pump lost suction. Approximately, 6000 gallons of liquid remained in the basin.

On March 16, 1987 Shamrock Farrell welders, GATX contract maintenance, removed an inactive 12" pipeline, from the pipe rack immediately north of the basin. Approximately 500 gallons of oily liquid drained into the west end of the basin during the pipeline removal. All piping removed from the basin area was flushed with water before "PIGS" were used to swab the interior of the pipes.

On March 17, 1987 Allstate Vacuum Services, subcontractor to Rollins Environmental Services, emptied the basin of all liquid. Approximately 6500 gallons of liquid was removed and transported to EMPAK, Inc. for disposal. Attachment 1 contains copies of the manifests used to record these shipments.

3.0 SLUDGE AND SOIL REMOVAL

Following the removal of the liquids, the sludge was stabilized. A trackhoe was used to blend Cement Kiln Dust (CKD) and the sludge. The mixture solidified and was removed and transported to Rollins Environmental Services in Deer Park, Texas. In addition to the stabilized material, the following items were transported to Rollins Environmental Services:

- 4" sump pump discharge piping.
- 8" basin pump discharge piping.
- 20'-12" abandoned pipe that was removed from the basin.
- 6" x 60' x 6' reinforced concrete fixed baffle and base.
- Soil excavated by manual methods beneath the west and north pipe racks to a depth 12".

During the first day of excavation, a layer of concrete/limestone aggregate was uncovered beneath the sludge. The aggregate covered the entire basin bottom and extended up the side slopes of the basin. The aggregate was approximately 18" thick on the bottom and 6" thick on the side slopes. The aggregate was removed and transported to Rollins Environmental Services.

Following the removal of the aggregate liner, 6" of soil was removed from the bottom before excavation was halted. Again, this soil was transported to the Rollins Environmental Services landfill. Table 3-1 is a summary of the waste manifests documenting off-site shipment of materials resulting from the stabilization and excavation operation. Attachment 2 contains copies of these manifests.

TABLE 3-1

WASTE REMOVAL SUMMARY

DATE	MANIFEST#		WEIGHT (POUNDS)
3-19-87	00333969		44,320
3-19-87	00333970		47,940
3-19-87	00333971		43,980
3-19-87	00333972		45,660
3-19-87	00333973		44,980
3-19-87	00333974		43,220
3-19-87	00335580		45,480
3-19-87	00335581		43,140
3-19-87	00335583		43,340
3-19-87	00335584		47,400
		Daily Total	449,460
3-20-87	00335585		48,800
3-20-87	00335586		41,280
3-20-87	00335588		48,080
3-20-87	00280223		47,860
3-20-87	00335593		45,800
3-20-87	00335597		47,800
3-20-87	00335582		45,580
3-20-87	00333585		48,400
3-20-87	00318968		44,260
3-20-87	00318969		41,180
3-20-87	00318970		46,840
3-20-87	00318971		48,880
3-20-87	00318973		45,060
3-20-87	00318974		40,840
3-20-87	00318975		46,080
		Daily Total	686,740

TABLE 3-1 (continued)
WASTE REMOVAL SUMMARY

DATE	MANIFEST#		WEIGHT (POUNDS)
3-21-87	00280221		45,960
3-21-87	00280220		31,200
3-21-87	00280241		46,040
3-21-87	00280240		49,220
3-21-87	00280239		45,280
3-21-87	00335594		44,620
3-21-87	00335592		48,580
3-21-87	00335591		47,880
3-21-87	00335590		47,880
3-21-87	00335589		49,400
3-21-87	00280225		42,140
3-21-87	00280224		47,040
3-21-87	00280242		46,420
3-21-87	00280243		46,480
3-21-87	00280215		47,620
3-21-87	00280219		48,000
		Daily Total	733,760
3-23-87	00280222		48,320
3-23-87	00280232		47,300
3-23-87	00280234		46,300
3-23-87	00280235		46,280
3-23-87	00280236		50,680
3-23-87*	00280237		5,200
		Daily Total	244,080

TABLE 3-1 (continued)
WASTE REMOVAL SUMMARY

DATE	MANIFEST#		WEIGHT (POUNDS)
3-24-87	00280233		48,700
		Daily Total	48,700
3-25-87	00277925		48,320
3-25-87	00277926		49,060
3-25-87	00277924		47,820
3-25-87	00280238		39,440
		Daily Total	184,640
		Total	2,347,380

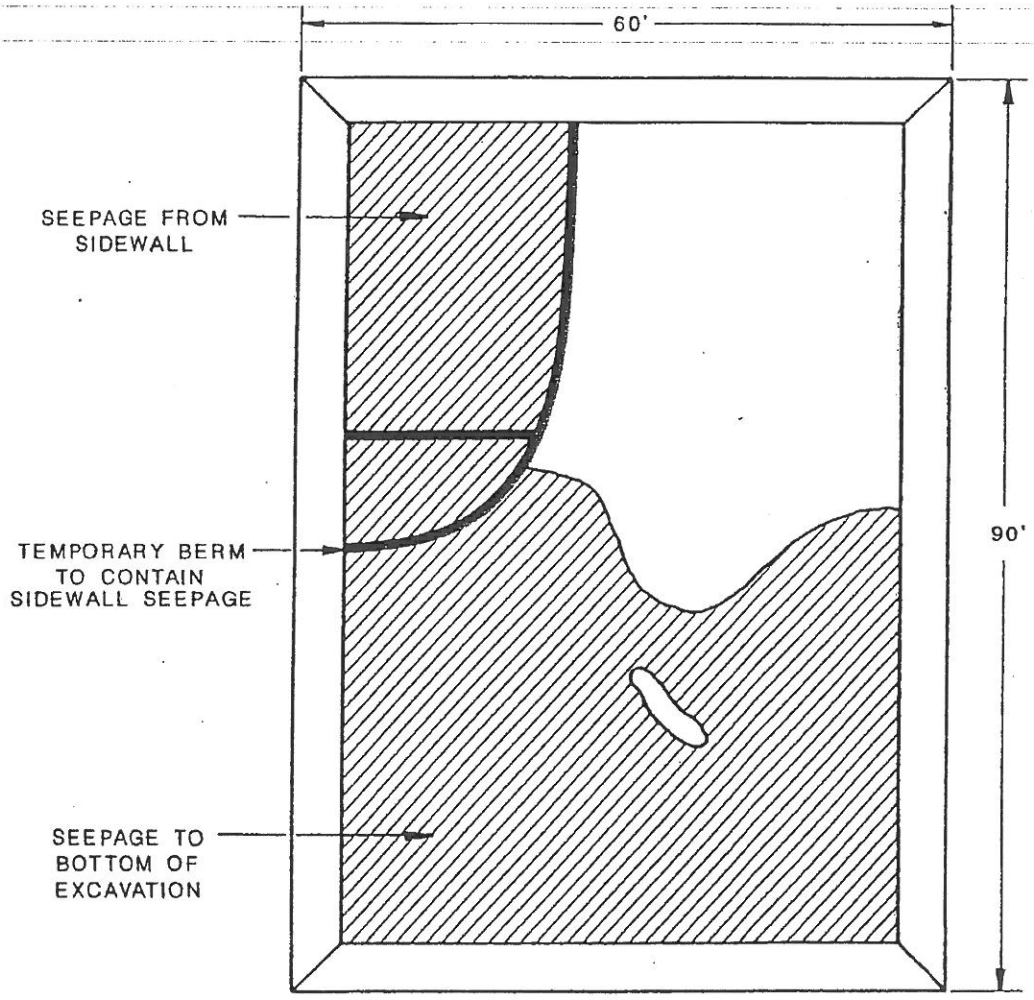
*This shipment contained piping.

Excavation was halted when seeping liquids entered the excavated basin from the bottom. Also, liquid entered the excavation from the side walls in the northeast corner of the basin. A berm was built to contain seepage from the northeast side wall. Figure 3.1 indicates the areas of major bottom seepage and the northeast side wall seepage.

Due to the basin's close proximity to the ship channel the water table occurs at a shallow depth. The seepage encountered indicates that the excavation extended approximately to the top of the water table. During high tides in the ship channel seepage into the bottom of the excavated increased.

Also, subsequent investigation indicated that the sump in the northeast corner was leaking. A 12" drain line had not been completely welded into the sump. The sump was repaired and the leak stopped.

All liquids that seeped into the excavation were collected and pumped to Tank 29 for discharge to the plant wastewater system.



AREAS OF SEEPAGE INTO EXCAVATION

0 10 20 40

SCALE IN FEET

RESOURCE ENGINEERING
ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

FIGURE 3.1

AREAS OF SEEPAGE INTO BASIN EXCAVATION

DRAWN BY: LMG.	DATE: 6-22-87	PROJECT NO.: 321-01
CHK'D BY:	REVISED:	DWG NO.:

4.0 CONFIRMATION SAMPLING

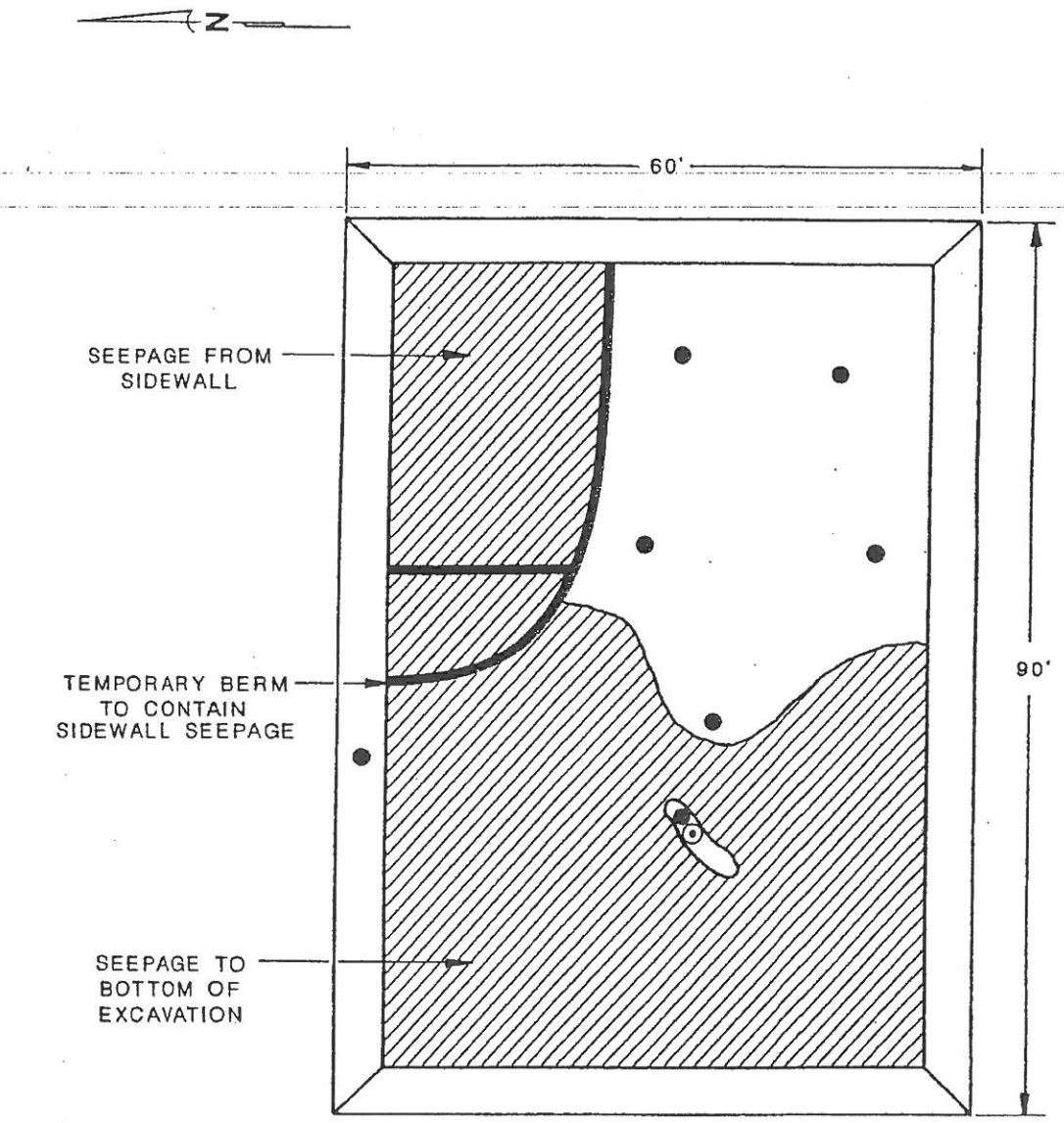
4.1 Sampling Program

Soil sampling was conducted in accordance with Section 4.3 of the closure plan. Due to high tides during the period of excavation, water seeped into the bottom of the basin and some sample locations were revised from those proposed. With concurrence from Mr. Cliff Hall of the TWC, confirmation samples were collected from dry areas on the bottom of the excavation to exclude influences from the infiltrating water. One additional sample point was added at the north sidewall at the request of Mr. Jerry Spetseris, the TWC representative present during sampling activities. Sample locations are presented in Figure 4.1.

All sample points were composited into one sample for analysis of all priority pollutants, E.P. Toxicity metals and pesticides, free cyanides and hexavalent chromium. Samples were collected with a stainless steel sampling trowel, composited in a stainless steel sampling mixing bowl, thoroughly mixed and split with the TWC representative. The sample was then transferred to an appropriate container, placed on ice and transported under chain-of-custody procedures to the Resource Engineering Laboratory. The sample for volatiles analysis was not composited; one grab sample was collected from the center of the excavation.

4.2 Analytical Results

The closure plan specified three sets of criteria that had to be met to achieve an "environmentally clean closure." These criteria included the EP Toxicity test standards, the "California



AREAS OF SEEPAGE INTO EXCAVATION

CONFIRMATION COMPOSITE SAMPLE LOCATIONS

VOLATILES SAMPLE

0 10 20 40

SCALE IN FEET

REI RESOURCE ENGINEERING
ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

FIGURE 4.1

CONFIRMATION SAMPLE LOCATIONS

DRAWN BY: LMG	DATE: 6-22-87	PROJECT NO.: 321-01
CHK'D BY: GLB	REVISED:	DWG.NO.:

List" land disposal restriction standards and compound-specific restrictions based on Drinking Water Standards, SNARL[S] or LD_{50} values (oral, rat). Tables 4.2.1, 4.2.2, and 4.2.3 present the analytical results in comparison to these criteria. Attachment 3 contains the complete chemical analysis data.

A review of the analytical results indicates that the remaining soils surrounding the excavation meet the standards imposed by the EP Toxicity test and the "California List" restrictions. They do not, however, pass all of the SNARL and LD_{50} restrictions. Since an "environmentally clean" closure could not be effectuated, the closure plan allows provisions to complete closure consistent with TWC guidance for Class II materials.

The priority pollutant analysis was used to calculate the cumulative LD_{50} (oral, rat) of the remaining soils. As defined by TWC Technical Guidance Document #1, a material meets Class II definition if it has an LD_{50} of greater than 500 mg/kg.

Finney's model for joint additive toxicity was calculated as specified in the closure plan:

$$\text{Predicted } LD_{50} = \frac{100}{\sum_{i=1}^{n} \frac{Pi}{LD_{50i}}}$$

where,

Pi = fractional concentration of constituent i, and
$LD_{50i} = LD_{50}$ (oral, rat) of constituent i.

TABLE 4.2.1

Confirmation Sample Results
EP Toxicity Test

Parameter	Result (mg/l)	Environmentally Clean Standard (mg/l)
Arsenic	<0.1	5.0
Barium	0.52	100.0
Cadmium	<0.1	1.0
Chromium	<0.1	5.0
Lead	<0.1	5.0
Mercury	<0.0005	0.2
Selenium	<0.1	1.0
Silver	<0.1	5.0
Endrin	<0.002	0.002
Lindane	<0.005	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.05	0.5
2,4-D	<0.005	10.0
2,4,5 - TP Silvex	<0.005	1.0

TABLE 4.2.2

Confirmation Sample Results
"California List"

Parameter	Result (ppm)	Environmentally Clean Standard (ppm)
Free Cyanides	<0.5	1000
Arsenic	1.08	500
Cadmium	2.0	100
Chromium (VI)	<0.1	500
Lead	34	500
Mercury	<0.001	20
Nickel	5.4	134
Selenium	<0.1	100
Thallium	<0.5	130
Polychlorinated Biphenyls	<0.02	50
Halogenated Organic Compounds - Total*	68.13	1000

* - Total concentration of chlorinated compounds as identified by full priority pollutant (plus peaks) analysis.

TABLE 4.2.3

Confirmation Sample Results
Drinking Water Standards,
SNARL[S] and LD_{50}[S]

Parameter	Result (mg/kg)	SNARL or DWS (ppm)	100x standard (ppm)	LD_{50} (mg/kg)
Volatiles[1]				
1,2-Dichloro-ethene	13.05	NS	-	770
Trichloro-ethene	15.87			4920
Benzene	7.82	10 day 0.23 Chronic .07	23 7	4894
Tetrachloro ethene	21.86			8850
Toluene	11.00	10 day 2.2 Chronic 0.34	220 34	5000
Xylenes	22.51	10 day 1.2 Chronic 0.62	120 62	4300
Cyclohexane	2.2	NS	-	29820
1,1,1,2-Tetra-chloropropane	17.35	NS	-	1600[2]
3a,4,7,7a - tetrahydro 4,7 - methano-1H-indene	6.77	NS	-	353
Methoxy cyclohexane	1.11	NS	-	2250[3]

NS - No Standard

TABLE 4.2.3 (continued)

Parameter	Result (mg/kg)	SNARL or DWS (ppm)	100x standard (ppm)	LD_{50} (mg/kg)
Acid/Base-Neutrals				
Phenolics	204	NS	--	384
2,4-Dimethyl Phenol	13.6	NS	--	3200
Naphthalene	34	NS	--	1250
Fluorene	15.9	NS	--	725[4]
Phenanthrene	36.6	NS	--	700
Anthracene	11.5	NS	--	725[4]
Fluoranthene	18.2	NS	--	2000
Pyrene	13.0	NS	--	2700
Butyl Benzyl Phthalate	121.6	NS	--	2330

NS - No Standard

TABLE 4.2.3 (continued)

Parameter	Result (mg/kg)	SNARL or DWS (ppm)	100x standard (ppm)	LD_{50} (mg/kg)
Other Tentative Compounds				
Cresols	147.5	NS	--	1454
Other Dimethyl Phenols	70.6	NS	--	444[5]
Methyl Naphthalenes	20.5	NS	--	4360
1,1 - Biphenyl	37.3	NS	--	3280
Dimethyl Naphthalenes	24.4	NS	--	5000
N-Methyl 2-Pyridinamine	4.9	NS	--	35[6]
1,1' - Oxybis benzene	54.6	NS	--	3370
Dibenzofuran	13.9	NS	--	500[6]

1 - Higher duplicate result reported
2 - LD50 for 1,1,1,3-
3 - LD50, oral mus
4 - LD50 for creosote
5 - LD_{50} for dimethyl phenol
6 - LD50, ipr mus

NS - No Standard

The cumulative LD_{50} of the remaining soils was calculated to equal 802,209 mg/kg. This meets the previously stated definition of having an LD_{50} value of greater than 500 mg/kg. Any residuals remaining following liquid and soil removal would be classified as a Class II Solid Waste according to TAC § 335.1 definition. Supporting calculations are presented in Attachment 4.

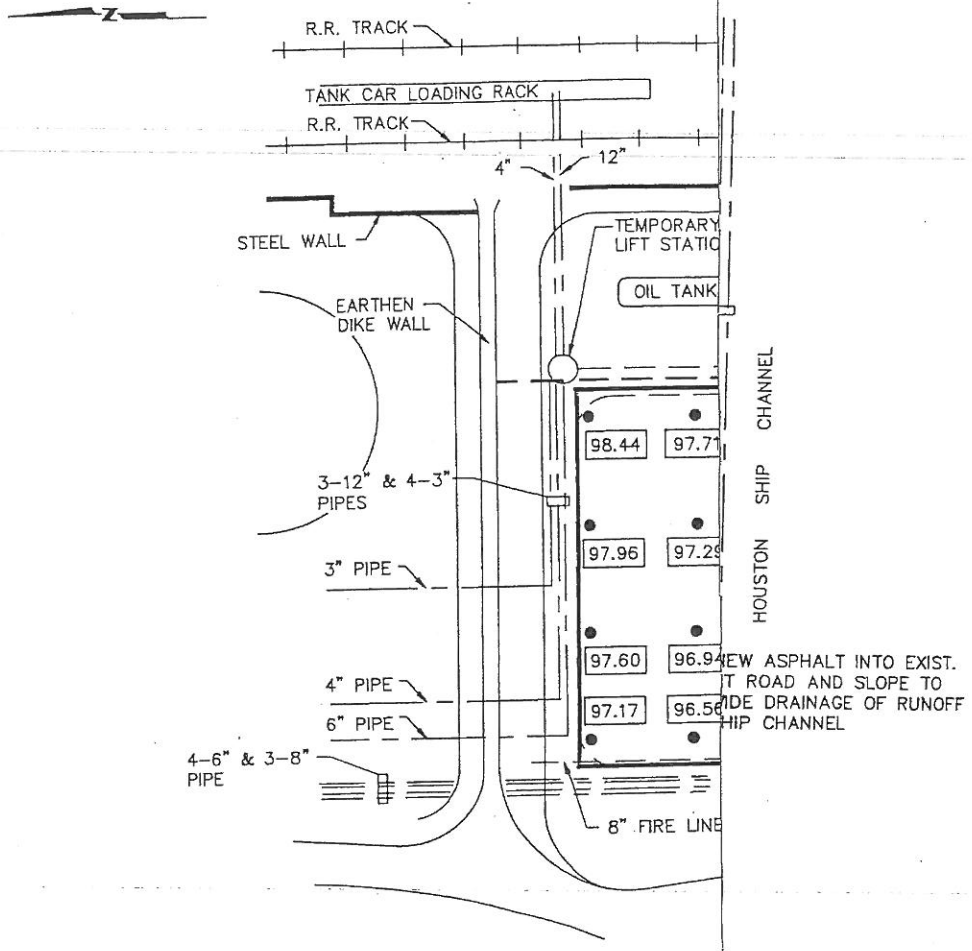
5.0 CLOSURE OF EXCAVATION

After the excavation and sampling activities were completed the basin was backfilled with dredge material resulting from dock construction. The dredge material was sampled for priority pollutant analysis prior to using it for fill material. The results were within normal background ranges with one exception. Aliphatic hydrocarbons similar to jet fuel were found at a concentration of 13.24 mg/kg. This was well within the standards specified for an environmentally clean closure, so the material was deemed acceptable as backfill material. Attachment 5 contains the chemical analysis of backfill material.

The backfill was completed in five 12" lifts of the dredge material. Figure 5.1 provides the elevations of the top of backfill as recorded April 6, 1987 by George Lamb and Associates.

After surveying the top of backfill, the 3-foot clay cap with a 2% slope was installed in five 8-inch lifts. Attachment 6 contains the field notes of the geologist monitoring the installation of the clay cap. Figure 5.2 illustrates the elevation of the top of clay, as recorded April 9, 1987 by George Lamb and Associates.

Following installation of the clay cap the top 12" of the clay was stabilized with lime slurry to yield a 6% lime-stabilized clay. The lime stabilized clay was cured for 2 days and compacted and re-surveyed. Figure 5.3 illustrates the elevation of the top of the lime stabilized clay, as recorded by George Lamb and Associates on April 15, 1987. Attachment 6 contains the field notes of the geologist, monitoring the stabilization.



SITE PLAN

30 60

N FEET
30'-0"

LEGEND:

● ELEVATION OF TOP OF BACKFILL

96.39

FIGURE 5.1

RESOURCE ENGINEERING INC.
ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

GATX SOUTHEAST HOLDING BASIN
TOP OF BACKFILL ELEVATIONS

DRAWN BY:	DATE:	PROJECT NO.
L.MARTIN	5/7/87	521-02

210204B

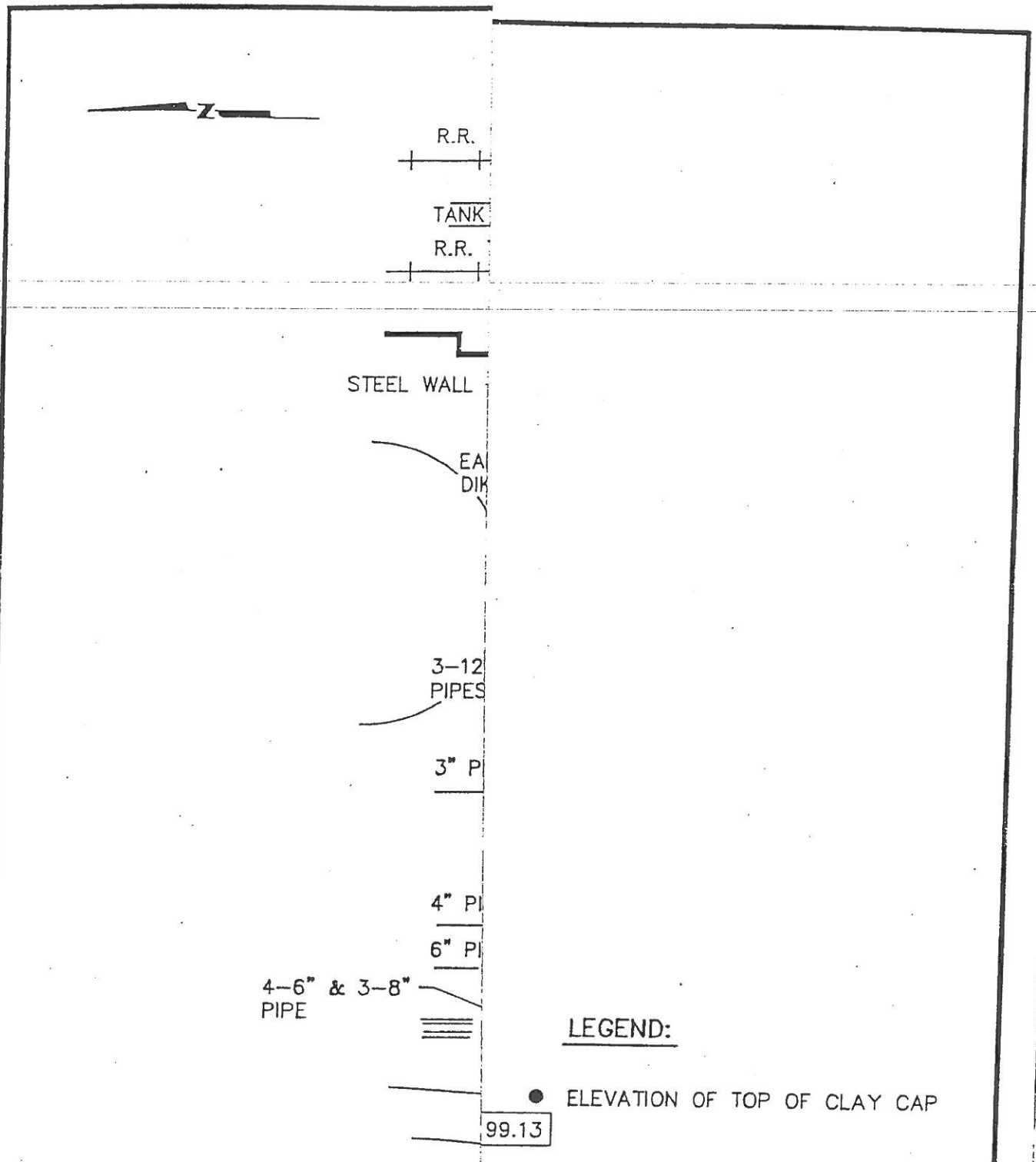


FIGURE 5.2

RESOURCE ENGINEERING INC.
ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

TX SOUTHEAST HOLDING BASIN
OP OF CLAY CAP ELEVATIONS

	DATE:	PROJECT NO.
MARTIN	5/7/87	521-02

5210205B

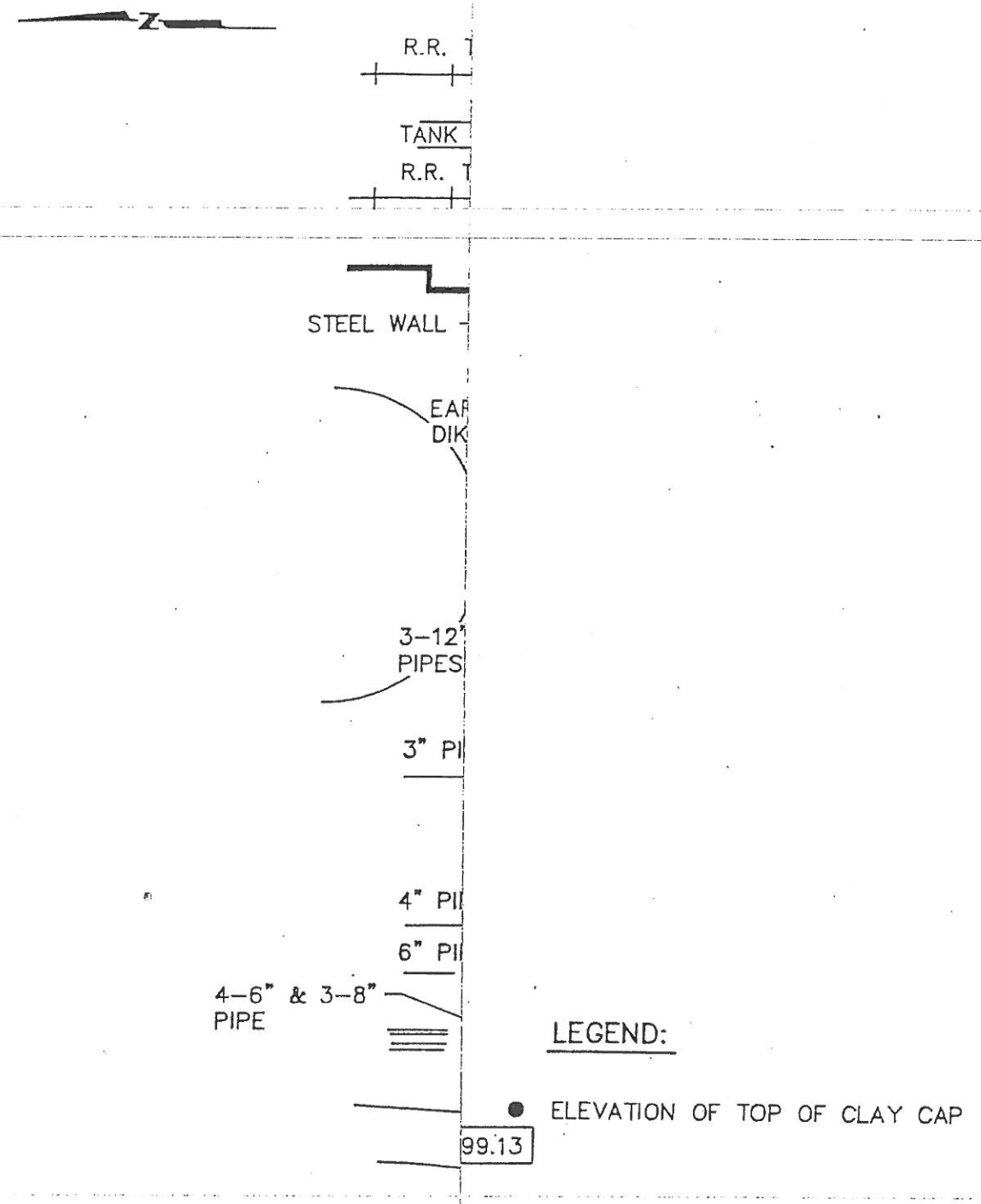


FIGURE 5.3

RESOURCE ENGINEERING INC.
ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

TX SOUTHEAST HOLDING BASIN
TOP OF LIME STABILIZED
CLAY CAP ELEVATIONS

	DATE:	PROJECT NO.
MARTIN	6/3/87	521-02

5210206B

Then, a 4 1/2" layer of black base was poured over the clay, and, the black base was compacted and allowed to cure overnight. Afterwards, a 1 1/2" layer of asphalt was poured and compacted on top of the black base. Figure 5.4 contains the elevations of top of asphalt.

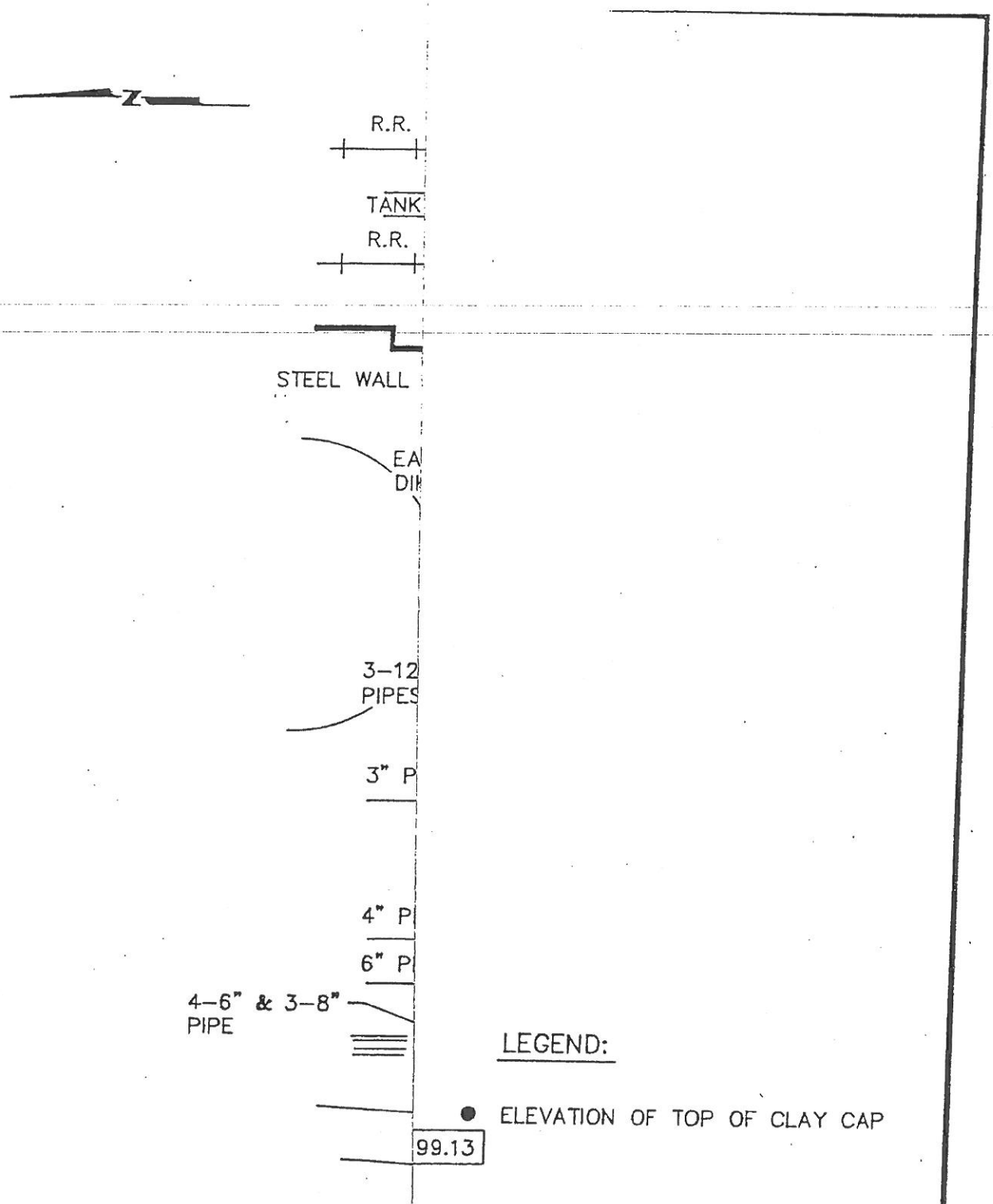


FIGURE 5.4

RESOURCE ENGINEERING INC.
ENVIRONMENTAL CONSULTANTS
HOUSTON, TEXAS

TX SOUTHEAST HOLDING BASIN
OP OF ASPHALT PARKING LOT
OVER CAP

	DATE:	PROJECT NO.
ALTERS	7/8/87	521-02

5210207

6.0 DEED RECORDATION

A permanent notice identifying the location and the material remaining at closure will be placed in the property description of the Harris County Deed Records. The notice will include this description of survey:

Description of Survey

Beginning at a point, a concrete Texaco monument, the Northwest corner of the Texas Company property as described in Volume 1163 Page 515 of the Harris County Deed Records, said point also being the Northeast corner of a tract of land described in Volume 6324 Page 409 of the Harris County Deed Records and located in the South line of Clinton Drive, based on a right-of-way width of 100';

Thence S01°49'38"E at a distance of 690.22' pass a 3/4" iron pipe located in the North line of the T & N.O. Railway Company, based on a right-of-way width of 80' and continuing S01° 49'38"E for a total length of 1858.62' along the West line of the afore-mentioned Texas Company property to a point;

Thence N87°46'32"W a distance of 152.41' to a 60d nail, set for corner, THE PLACE OF BEGINNING OF THIS SURVEY;

Thence N87°46'32"W a distance of 87.10' to a 60d nail set for corner;

Thence N02°18'07"W a distance of 62.51' to a 60d nail set for corner;

Thence N82°01'17"E a distance of 4.23' to a 60d nail set for corner;

Thence N02°27'45"E a distance of 12.65' to a 60d nail set for corner;

Thence N84°42'49"E a distance of 82.31' to a 60d nail set for corner;

Thence S01°52'59"E a distance of 86.70' to THE PLACE OF BEGINNING.

This Survey may be further described as being a tract of land containing 6997 sq. ft. (0.16063 acres) out of a 31.96 acre tract as described in Volume 1163 Page 515 of the Harris County Deed Records in the Ezekiel Thomas Survey-Abstract No. 73, Harris County, Texas.

Any residuals remaining following liquid and soil removal will be classified as a Class II Solid Waste according to TAC §§ 335.1 definition.

More specific information can be secured from the terminal manager, GATX Terminals Corporation, 906 Clinton Drive, Galena Park, Texas.

A copy of the boundary survey is included in Attachment 7.

7.0 CONCLUSION

Based upon the data presented in the previous sections and the attachments in this report, the following can be concluded:

1. The SE Holding Basin has been closed in accordance with the closure plan filed with the Texas Water Commission in September, 1986 and in accordance with the letter of approval from the TWC dated December 15, 1986.

2. The site meets all requirements for a Class II landfill and has been deed recorded in accordance with 31 Texas Administrative Code (TAC) 335.5 as such a facility.

8.0 CERTIFICATION

I am a registered professional engineer in good standing with the Texas Engineering Practice Act, Article 3271a, Vernon's Texas Civil Statutes. I certify that the verification of closure activities described by this report presents an accurate summary of the activities performed and that this facility has been closed in accordance with the specification contained in the approved closure plan.

RESOURCE ENGINEERING, INC.

James D. Anderson



James D. Anderson, P.E.

ATTACHMENT M

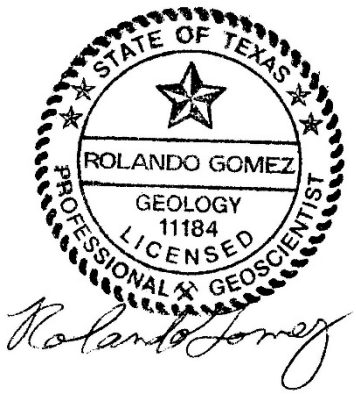
Geology Report

Geology Report

The geology report is presented in three sections, Section M1 – Geologic Report - Former North Holding Basin (NHB) and Former Southeast Holding Basin (SEHB), Section M2 – Supplemental Information, and M3 – Tabular Summary. The Section M1 contains the geological information and the historical hydrogeologic data for the Corrective Action Management Unit (CAM)/Former NHB (NOR 004) and the SEHB (NOR017). Section M2 contains information illustrating current groundwater contaminant distribution and potentiometric surface configurations at the SEHB and CAMU/Former NHB and current information related hydraulic gradients in and around the units. Also included is supplemental information related to geologic processes, boring logs, and historical groundwater elevation data. Section M3 contains tabulated geological/hydrogeological information for the SEHB and CAMU/Former NHB. The information includes; major geologic formations (Tables II.2a and II.2b), stratigraphic unit characteristics (Tables II.3a and II.3b), and aquifer characteristic information (Tables II.4a and II.4b).

The geologic discussion/data/information presented in this document have been previously submitted to the Texas Commission on Environmental Quality (TCEQ) and/or its predecessors (e.g., Texas Natural Resource Conservation Commission, TNRCC and/or the Texas Water Commission, TWC) as part of the initial RCRA permit and subsequent renewal applications, RCRA facility investigations, environmental assessment reports, and/or groundwater monitoring reports.

I certify have reviewed this document in sufficient depth to accept full responsibility for its contents related to the geologic discussion/data/information contained herein.



Rolando Gómez, P.G.
August 7, 2024

Section M1 – Geologic Report - Former North Holding Basin and Former Southeast Holding Basin

Report

GEOLOGY REPORT

Former North Holding Basin (NHB) and Former Southeast Holding Basin

prepared for:

GATX TERMINALS CORPORATION
Galena Park, Texas

November 7, 1991

TABLE OF CONTENTS

		Page
1.0	REGIONAL PHYSIOGRAPHY AND TOPOGRAPHY	1
2.0	REGIONAL GEOLOGY	1
3.0	ACTIVE GEOLOGIC PROCESSES	2
4.0	REGIONAL AQUIFERS	3
5.0	WASTE MANAGEMENT AREA SUBSURFACE CONDITIONS	4
6.0	GROUND WATER INVESTIGATION REPORT	7

LIST OF TABLES

Table No.	Description	(Tables follow Text)
1	Summary of Fluid Level Measurements First and Second Quarter 1991 - SEHB	
2	Ground Water Elevations - NHB	

LIST OF FIGURES

Figure No.	Description	(Figures follow Tables)
1	USGS Topographic Map GATX Galena Park Facility	
2	Geologic Map of the Area	
3	Correlation of Hydrogeologic Units	
4	Geologic Cross Sections Location Map - SEHB	
5	West-East Geologic Cross Section B-B' - SEHB	
6	North-South Geologic Cross Section J-J - SEHB	
7	West-East Geologic Cross Section B-B' - NHB	
8	South-North Geologic Cross Section A-A' - NHB	

TABLE OF CONTENTS

LIST OF FIGURES

Figure No.	Description	(Figures follow Tables)
9	Geologic Cross Section Locations - NHB	
10	Mean Potentiometric Surface for the SCF	
11	Isopach Map of the UNTU	
12	Mean Potentiometric Surface for the UWTU	
13	Potentiometric Surface Map - North Holding Basin	

1.0 Regional Physiography and Topography

The GATX Terminal Corporation Galena Park Terminal is located at 906 Clinton Drive in Galena Park, Texas. Galena Park is an incorporated suburban community approximately nine miles east of downtown Houston in Harris County. The facility is on the north bank of the Houston Ship Channel and is within the jurisdiction of the Houston Port Authority District which administers activities on the Ship Channel

The GATX Galena Park Facility is located within the Gulf Coast Plain physiographic province of North America. The Gulf Coast Plain is characterized as a nearly smooth, featureless depositional plain which borders the Gulf of Mexico. The Gulf Coast Plain extends approximately 150 miles inland from the coast.

Figure 1 presents the boundaries of the GATX facility on a topographic map. The Houston Ship Channel forms the southern boundary of the GATX plant site. The western portion of the plant site is separated from the central portion by Panther Creek. Hunting Bayou is immediately adjacent to most of the northern facility boundary. Surface elevations across the facility range from 24 to 4 feet above mean sea level. Surface water runoff in the northern portion of the facility (north of Clinton Drive) generally flows to the north and Hunting Bayou. Surface water runoff in the southern portion of the site is controlled by berms and ditches. Generally the land in the southern portion of the plant is flat lying or gently sloping to the south toward the Houston Ship Channel.

2.0 Regional Geology

The GATX Galena Park facility is underlain by a thick sequence (greater than 3,000 feet) of sedimentary deposits. These deposits crop out in belts parallel to the Gulf Coast and dip at low angles, thickening down-dip toward the Gulf. The surface geologic units underlying the GATX Galena Park facility are the Recent Alluvium and the Pleistocene age Beaumont Formation (see Figure 2). The alluvial material consists of clay, silt, and sand which may be up to 30 feet thick. The Beaumont Formation in this area is characterized by clay, silt, and occasional sand layers and is on the order of 100 feet thick. The Beaumont Formation is generally a poorly bedded, calcareous clay of various colors, containing thin, discontinuous stringers and lenses of silt and fine sand. Concretions of calcium carbonate, iron oxide and iron-manganese oxides are found in zones of weathering. The unit contains mainly stream channel, point bar, natural levee and backswamp deposits.

Well logs in the Galena Park area indicate that alternating clays, silts, and infrequent sands of the Beaumont, Montgomery, Bentley and Willis formations extend to depths of approximately 700 feet. All these formations are thought to have formed by the discharge of sediments from stream gaps. These deposits are deltaic and fluvial in origin and difficult to distinguish between because of their similarities. Each formation dips gently gulfward. The Montgomery Formation underlies the Beaumont Formation and is comprised of clay, silt, sand, and very minor amounts of gravel of granule to small pebble size. The Bentley Formation is also comprised largely of clay, silt, and sand with minor amounts of gravel. The gravel in the Bentley Formation is generally coarser than the gravel of the Montgomery Formation. The Bentley and Montgomery formations are both somewhat greater than 100 feet in thickness. The Willis formation underlies the Bentley Formation and is comprised of clay, silt, sand, and minor gravel of granule to pebble size. The maximum thickness of this unit is 75 feet.

Below a depth of 700 feet, shales, sandstones, and other indurated sedimentary facies are encountered that alternate with clays, "sticky" shales, and sands to depths in excess of 3,000 feet.

The Goliad Sand of Pliocene age, so called because of the relative preponderance of sand, underlies the Willis Formation. The Goliad Sand is underlain by the Miocene age Fleming Formation.

3.0 Active Geologic Processes

Faults

Development of subsurface fault zones is a recognized method of stress relief in an actively growing/subsiding basin, such as the margin of the Gulf Coast. As sediments are carried and deposited beyond the continental shelf, stresses build up near shore due to the increased weight of the accumulating sediments. The faults created, called growth faults, are usually very long, but produce little surficial expression. This is due to the limited displacements at depth and the general plastic character of the overlying sediments. Arcuate and smaller radiating faulting may also be associated with salt domes.

Approximately 1.5 to 2.5 miles to the north of the GATX Galena Park facility several small faults radiate from the Clinton Salt Dome. The faults form an east-west band nearly 3 miles long. None of these faults are observed at the facility. A small singular fault has been detected approximately 2.5 miles to the west of the facility. Two long, northwest trending faults radiate from the periphery of the Mykawa and South Houston Salt domes. However, any surface manifestation of the faults die out more than 2.5 miles to the southwest of the Galena Park facility. No surface expressions of faults are detected at the GATX Galena Park facility, and no evidence of faults is seen in aerial photographs of the area immediate adjacent to the facility.

Subsidence

The Pasadena area which adjoins Galena Park has long been recognized as an area with a high rate of land subsidence. This subsidence is due to the compaction of clay units in response to the rapid withdrawal of large quantities of ground water. As much as 10 feet of subsidence in the Pasadena area is estimated to have occurred between 1906 and 1978. Regional maps indicate that subsidence in excess of 8 feet may have occurred in the Galena Park area. Ground water withdrawal in the Pasadena area reached its peak in 1968 and then leveled off and slightly decreased until 1976. Ground water use declined rapidly after 1976 because of the introduction of surface water from Lake Livingston into the supply system. The rate of subsidence in the area decreased markedly after 1976 due to the decrease in ground water pumping. The latest data reviewed showed that approximately 0.1 feet of additional subsidence had occurred between 1978 and 1984.

Erosion

The flat lying to gently sloping nature of the topography at the GATX facility, coupled with extensive vegetation outside of the plant area results in little potential for large-scale erosion and scouring. No large scale erosional features are seen in the vicinity of the plant site, and erosion is highly localized. The Houston Ship Channel is a major navigation channel and is controlled throughout its length for the benefit of shipping traffic. The banks of the Channel that form the southern boundary of the plant site are armored by various means to protect against erosion.

Wetlands

A preliminary field reconnaissance of the GATX facility indicates that the GATX property has several wetlands. The majority of the extreme northern portion of the GATX property near Hunting Bayou is composed of natural wetlands as well as artificial impoundments formed by the dredge/fill operation several years ago. The remainder of the property apparently contains small, scattered wetlands often located on fill material. Several of these sites require additional characterization to confirm the presence of wetlands.

4.0 Regional Aquifers

The regional aquifers which are found beneath the GATX Galena Park facility include the Chicot and Evangeline Aquifers. The Chicot aquifer is composed of the Recent Alluvium, Beaumont Formation, Montgomery Formation, Bentley Formation, and Willis Sand. The Evangeline aquifer is composed of the Goliad Sand and upper portion of the Fleming Formation. The Burkeville confining layer within the upper Fleming Formation marks the base of the Evangeline aquifer. The Chicot aquifer is approximately 700 feet thick and the Evangeline aquifer is approximately 1,700 feet thick. The aquifers are thought to be hydraulically connected on a regional scale. Figure 3 presents a hydrostratigraphic section demonstrating the correlation of the aquifer units across Harris County.

The Chicot and Evangeline aquifers supply several hundred million gallons per day of fresh water in Harris County. Yields of large-capacity wells average about 1,800 gallons per minute (gpm), but some wells can produce up to 3,000 gpm. Ground water production is generally greater in the Evangeline aquifer and it has been more heavily developed as a ground water source. The total dissolved solids (TDS) concentration of the water produced ranges from less than 500 ppm to about 1,000 ppm. Transmissivities of the aquifers range from 2.7 ft^2/day to 5,200 ft^2/day, the estimated porosity is 30%, and storage coefficients range from 6.2×10^{-5} to 5×10^{-4}. Ground water is used for drinking water and industrial supply.

Unconfined conditions occur in the shallow portions of the aquifers in outcrop areas. Confined conditions prevail elsewhere in the aquifers. Recharge to the aquifers occurs from precipitation on the outcrop and from cross-formational flow. Aquifer discharges occur to the Gulf of Mexico, or via evapotranspiration and ground water pumping. Regional ground water flow is towards the Gulf of Mexico in the downdip direction. However, extensive ground water production in the Houston and Pasadena area have modified ground water flow directions. Ground water flow directions in the Galena Park area in the 1970s and early 1980s were to the east and south toward the large pumping center in Pasadena. Water levels in the Chicot aquifer declined more than 100 feet in the Pasadena area between 1950 and the late 1970s. Water levels recovered approximately 60 feet after pumping was reduced in the late 1970s after the introduction of surface water sources for supply.

5.0 Waste Management Area Subsurface Conditions

Subsurface Soils Investigation Report

Several subsurface investigations have been conducted at the waste management units that are covered by this post closure care permit, the North Holding Basin (NHB) and the Southeast Holding Basin (SEHB). This section of the geology report will briefly summarize the results of these investigations and will extensively reference the existing reports to provide information regarding methodologies used and the data collected. Subsurface investigations at each waste management are discussed below.

Southeast Holding Basin

The subsurface conditions at the SEHB are described in two reports, the Southeast Holding Basin Groundwater Monitoring Report (ENSR, October 1988) and the Expanded Groundwater Quality Assessment of the Former Southeast Holding Basin (ENSR, June 1990). The principal objective of the 1988 Groundwater Monitoring Report was to install ground water monitoring wells as part of an approved closure plan for the SEHB. The monitor wells were used to determine the impact of the SEHB on ground water quality. A summary of the field activities completed as a part of the monitor well installation are summarized in Chapter 2.0 of the report. Ten cone penetrometer (CPT) tests were conducted near the SEHB. Four monitor wells were installed.

The CPT logs are included in Appendix A of the 1988 Groundwater Monitoring Report. Appendix B contains the boring logs and E-logs for the monitor well boreholes, as well as the well construction details. Hydrographs for these four initial monitor wells are included in Appendix E.

Sampling of the four initial monitor wells revealed the presence of dense non-aqueous phase liquid (DNAPL) in the downgradient wells. A phased program of additional ground water investigation was undertaken to characterize the nature and extent of ground water contamination in the areas immediately surrounding the former SEHB and to evaluate sources of contamination other than the SEHB. The results of these additional investigations are presented in the Expanded Groundwater Quality Assessment.

Field activities performed during the expanded assessment are described in Chapter 3.0 of the Expanded Groundwater Quality Assessment. The assessment included a CPT investigation at 26 additional locations. The CPT logs are included in Appendix C of the assessment report. A soil boring and sampling program consisting of 31 borings to approximately 40 feet below land surface and 3 borings to 65 feet below land surface was also completed. Soil samples were collected for both geotechnical and chemical analysis. The boring logs are found in Appendix D. Results of geotechnical testing are presented in Appendix E and laboratory data is included in Appendix B. A total of 22 additional monitor wells and four piezometers were installed during the expanded assessment. In addition, three of the initial monitor wells have been replaced and two DNAPL recovery wells have been installed. Lithologic logs and well construction details for the monitor wells and piezometers are presented in Appendix H. The expanded assessment also included aquifer testing as a portion of the scope of work. The aquifer testing program consisted of one constant discharge pump test, 19 slug tests, and three bail-down tests. Aquifer test calculations and results are found in Appendix J.

Sediments encountered during subsurface investigations are the result of fluvial deposition during both the Recent Holocene and Later Pleistocene Epochs. Layers of sand, silt, and clay were deposited, scoured, removed and redeposited in lobate to linear bands that generally trend south to southeast following the rivers and streams which deposited them. Generally, the finer grained clays and silts were laid down as overbank and interdistributary deposits between stream channels where coarser sand predominates. As the streams or rivers moved laterally so did their deposits, creating complex sequence of interbedded sands, silts, and clays. ENSR identified eight distinct stratigraphic units in the subsurface in the vicinity of the SEHB. Beginning with the shallowest they are:

- Unit I - Uppermost Recent Fill (URF)
- Unit II - Sandy Channel Fill (SCF)
- Unit III - Uppermost Clayey Sand/Clayey Silt Unit (UCS/CSU)
- Unit IV - First Silty Clay/Clay Unit (FSCU)

- Unit V - Uppermost Natural Transmissive Unit (UNTU)
- Unit VI - Second Silty Clay/Clay Unit (SSC/CU)
- Unit VII - Lowermost Natural Transmissive Unit (LNTU)
- Unity VIII - Third Silty Clay/Clay Unit (TSC/CU)

The stratigraphic relationship of these zones in the vicinity of the SEHB are shown on east-west and north-south cross sections (Figures 4 through 6). Unit I (URF) is fill material consisting of asphalt, limestone gravel, shell fragments, rubble, and reworked clay, silt and sand. The thickness of the unit varies from 2 to 21 feet. It is thickest along roads, tank firewalls, and near the GATX docking slip.

Unit II (SCF) is probably derived from dredging operations in the Houston Ship Channel. It is uniformly present across the site and consists of very fine grained silty sand with decaying organic material. This unit is thought to provide a vertical and lateral pathway for contaminants. Its thickness ranges from 1 to 15 feet, with the thickest portions adjacent to the Ship Channel. In several locations the SCF is underlain by Unit III, in other locations Unit III is absent and Unit IV is the underlying unit. The SCF is often saturated near its base.

Unit III (UCS/CSU) appears to be an undisturbed natural deposit which is much finer grained than the SCF. It is composed of very fine grained to fine grained clayey sands and clayey silts. Thin interbeds of silty clay are present in parts of this unit. The UCS/CSU is relatively thin, ranging from less than 1 foot to a maximum of 6 feet. Unit III is thought to be hydraulically connected to Unit II.

Unit IV (FSCU) is the uppermost naturally occurring, low permeability geologic unit encountered beneath the plant site. It is laterally extensive and overlies Unit V. Thickness of this unit varies widely from less than 1 foot to almost 30 feet. It appears that portions of the FSCU have been removed by previous plant activities. The composition of the FSCU varies from a very plastic clay with little sand or silt to a low plasticity sandy clay or silty clay. Generally, the FSCU becomes slightly coarser towards its base and grades vertically into Unit V.

Unit V (UNTU) is the first granular, relatively transmissive natural material in the shallow subsurface. The UNTU has been the main focus of monitoring activities. In some cases, the UNTU directly underlies the SCF where Units III and IV are absent. The UNTU varies from 1 to 20 feet thick and is heterogeneous in nature. It is composed of clayey sands, silts, sandy silts, silty sands, sands, and clays. The contact with underlying Unit VI is generally sharp.

Unit VI (SSC/CU) was encountered in every boring completed in the vicinity of the SEHB. It is very competent, laterally extensive clay unit and is considered to be fairly effective in isolating the underlying LNTU. The unit is relatively uniform with a range of thickness from 13 to 21 feet. The SSC/CU is characterized as a clay to silty clay of moderate to high plasticity. Its physical appearance is characteristic of the Beaumont Formation.

Unit VII (LNTU) is the second continuous granular saturated zone. It is approximately 9 to 15 feet thick in the study area. The LNTU contains very fine grained to fine grained clayey silts, sandy silts, and silty sands with a trace of clay.

Unit VIII (TSC/CU) is defined as the lowermost relatively low permeability unit encountered. this unit was not fully penetrated during field investigations. It directly underlies Unit VII and appears to be similar in composition to the clays of the SSC/CU. The unit is a very stiff clay of medium to high plasticity with minor amounts of silt.

North Holding Basin

The subsurface conditions at the NHB are described in the North Holding Basin Groundwater Monitoring System Installation report (ENSR, July 1990). The principal objective of this investigation was to install a detection ground water monitoring system, however, the shallow subsurface was characterized to assist in siting of the wells. An overview of the field program is presented in Chapter 2.0 of the report. Eleven cone penetrometers (CPTs) were installed to investigate subsurface stratigraphy. The CPT logs are included in Appendix B of the report. Five soil borings were completed to obtain additional subsurface information and five monitoring wells were installed. The boring logs for the soil borings and monitoring wells are found in Appendices D and E of the report, respectively.

The maximum depth of subsurface investigation at the NHB was 45 feet below land surface. Sediments encountered during the investigation are the result of fluvial deposition, both during the late Pleistocene and recent Holocene epochs. Layers of sand, silt, and clay were deposited, scoured, removed, and redeposited in lobate and linear bands that generally trend south to southeast. Four stratigraphic units were identified by ENSR. The subsurface deposits were characterized and differentiated based on texture, consistency, color, vertical and lateral extent, and hydrogeologic significance. From shallowest to deepest the units are:

- Zone I (recent fill)
- Zone II (upper silty and sandy clays with silts, silty sand, and clayey sand lenses)
- Zone III (silty and clayey sands)
- Zone IV (lower silty and sandy clays)

These zones and the shallow subsurface of the NHB are presented on the geologic cross-sections (Figures 7 and 8). A plan view presenting the location of the cross-sections in given in Figure 9. Zone I fill materials are laterally extensive and composed of road base (limestone gravel, shell, and asphalt) below which are reworked silty clays and sandy clays. The thickness of the fill ranges from 15 feet along the road on the south margin of the NHB to two feet on the east side of the NHB. A thin unit of brown silty sand which was encountered over most of the area is also included in this zone. This unit is apparently an undisturbed, natural unit which occurs above the bottom of the NHB.

Zone II is comprised of the uppermost natural silty and sandy clays that are laterally extensive in the area of the NHB. The top of Zone II is generally encountered about 5 to 8 feet below MSL. The silty and sandy clays of Zone II are typically stiff and of low to medium plasticity. The maximum thickness of the Zone II unit is approximately 12 feet on the western edge of the NHB. The minimum thickness of 4 to 6 feet occurs on the northern boundary of the NHB. An organic soil containing black silts, silty sand, clayey silts, and silty clay of high organic content is found intermittently within Zone II. The thickness of this soil ranges from less than 1 foot to almost 10 feet on the eastern side of the NHB. The deposit appears to be low energy fluvial sediments that were deposited as channel fill.

Zone III is saturated and the monitor wells at the NHB are screened in this zone. The top of the unit is generally -3 to -5 feet MSL and its average thickness is 15 to 20 feet. Zone III is composed of silty sands with minor amounts of clayey sand.

Zone IV is defined as the silty clay to sandy clay zone immediately below Zone III. Zone IV is encountered at approximately -25 feet MSL. The total thickness of this zone was not penetrated during the NHB investigation. This zone is stiff and medium to highly plastic. In its upper portion,

it contains pockets and seams of fine silty sand.

6.0 Ground Water Investigation Report

Southeast Holding Basin

Information on ground water conditions at the SEHB is contained in several reports issued since 1988. The reports are the Southeast Holding Basin Groundwater Monitoring Report (ENSR, October 1988), Expanded Groundwater Quality Assessment of the Former Southeast Holding Basin (ENSR, June 1990), 1990 Annual Groundwater Monitoring Report for the Southeast Holding Basin (ENSR, January 1991), and the Semi-Annual Ground Water Monitoring Report (Malcolm Pirnie, July 1991). Boring logs noted the occurrence of saturated conditions in the subsurface are found in Appendix B of the Groundwater Monitoring Report and Appendix E of the Expanded Groundwater Quality Assessment Report. Water levels are noted on the cross sections in Figures 4 and 5. Water level measurements for the first and second quarter 1991 are presented in Table 1.

The first saturated sediments encountered below the land surface in the vicinity of the SEHB are found in Unit II - Sandy Channel Fill (SCF). The SCF has been characterized as an artificial ground water zone caused by the perching of rain water and facility water on top of the relatively impermeable first Silty Clay Unit (FSCU). The saturated thickness of the SCF ranges from less than 2 feet to more than 14 feet. The saturated thickness is greatest where the underlying FSCU has been partially removed and filled with channel dredge material. ENSR (1990) calculated a mean hydraulic conductivity value of 0.077 based on several slug tests. A mean potentiometric surface map for the SCF is presented in Figure 10. Calculated linear velocities for various areas are also shown on this figure. Hydraulic gradients and ground water flow velocities generally increase from the central portion of the plant toward the Houston Ship Channel and GATX docking slip. The docking slip and Ship Channel act as constant head boundaries for the SCF and ground water flows toward the shoreline.

The uppermost continuous water bearing zone in the area of the SEHB is Unit V - Uppermost Natural Transmissive Unit (UNTU). This unit is generally separated from the SCF by the First Silty Clay Unit (FSCU). Where the FSCU is absent, the UNTU hydrogeologic unit includes the SCF. The UNTU is a confined aquifer where it is overlain by the FSCU. A thickness map of the UNTU is presented in Figure 11. The UNTU is up to 20 feet thick in the vicinity of the SEHB. The calculated maximum mean hydraulic conductivity of the UNTU is 1.67 feet/day based on several slug tests and a pump test conducted in monitor wells in the UNTU. A mean potentiometric surface map of the UNTU is presented in Figure 12. The calculated linear velocity at various locations is also shown on this map. Hydraulic gradients and ground water flow velocities generally increase from the central portion of the plant area toward the Houston Ship Channel and the GATX docking slip. Ground water flow directions are toward these discharge points for the UNTU.

The vertical hydraulic conductivity of the FSCU has been calculated at 0.000104 feet/day from laboratory testing. The calculated vertical flow rate from the SCF through the FSCU to the UNTU ranges from 0.00013 to 0.000014 feet/day. The vertical gradient was downward at all locations except one on site. The low vertical flow rate indicates that where the FSCU is present, it should impede the vertical migration of contaminated ground water. However, high levels of contamination have been detected in the UNTU. This indicates that vertical migration is occurring through natural or manmade pathways in the FSCU.

The Lower Natural Transmissive Unit (LNTU) occurs below the UNTU and is separated from it by the Second Silty Clay/Clay Unit (SSC/CU). No ground water monitoring wells have been installed in the LNTU, to date.

North Holding Basin

Information on ground water conditions at the NHB is contained in the Monitoring System Installation report referenced above and two other annual ground water monitoring reports for 1990. These are the 1990 Annual Groundwater Monitoring Report for the North Holding Basin (ENSR, February 1991) and the Addendum Report for the North Holding Basin Groundwater Monitoring Program 1990 Annual Report (ReTec, June 1991). Boring logs noting the degree of saturation encountered during drilling are found in Appendices D and E of the Monitoring System Installation report. Available water level data is noted on the cross-sections in Figures 7 and 8.

Zone III is the uppermost continuous water-bearing zone in the vicinity of the NHB. Saturated sediments are found in Zone II in silty sand and clayey sand units above Zone III but they are not continuous. Field observations indicate that Zone III is capable of sustaining pumping at 10 gpm without significant drawdown. However, no pump tests have been performed. The nature of connection with deeper hydrostratigraphic units is unknown at this time.

Ground water levels for 1990 and the 1st Quarter of 1991 are presented in Table 2. The ground water flow direction in the shallow subsurface has been consistently toward Panther Creek east of the NHB. Figure 13 presents the most recent piezometric surface map (1st Quarter 1991). Shallow ground water appears to discharge to Panther Creek, where a steepening of the hydraulic gradient is apparent. The lateral hydraulic gradient across the NHB is 0.006. Assessment of hydraulic properties have not be completed to date, so no information is available regarding ground water flow rates. Measurement of water levels in a well pair (MW-3, Zone II and MW-2, Zone III) indicate an upward vertical gradient.

TABLE 1

SUMMARY OF FLUID LEVEL MEASUREMENTS
FIRST QUARTER - 1991

MEASUREMENT DATE: April 29, 1991
SOUTHEAST HOLDING BASIN
GATX GALENA PARK FACILITY

Well Location	Coordinates North	East	TOC (msl)	Depth to LNAPL	LNAPL (msl)	LNAPL Thickness	Depth to Water	Water (MSL)	Corr. Wtr (msl)	Depth to DNAPL	DNAPL (msl)	Total Depth	DNAPL Thickness
P-1	708040	3197714	18.93	9.01	9.92	0.35	9.45	9.48	9.78	NP	NP	17.21	0
P-2	708138	3197710	21.03	NP	NP	NP	10.72	10.31	-	NP	NP	39.1	0
P-3	708172	3197732	20.79	NP	NP	NP	10.47	10.32	-	NP	NP	15.1	0
P-4	708096	3197677	19.02	NP	NP	NP	8.75	10.27	-	NP	NP	14.8	0
MW-1	707983	3197590	21.58	NP	NP	NP	11.24	10.34	-	NP	NP	33.6	0
MW-2R	-	-	11.62	NP	NP	NP	3.30	8.32	-	NP	NP	21.7	0
MW-3R	707862	3197670	11.77	NP	NP	NP	3.73	8.04	-	NP	NP	25.1	0
MW-4R	707864	3197711	12.19	NP	NP	NP	4.65	7.54	-	24.32	12.13	25.0	.2
MW-5	707832	3197737	11.82	NP	NP	NP	5.39	6.43	-	22.58	10.76	25.0	2.42
MW-6	708100	3197727	20.07	NP	NP	NP	9.98	10.09	-	NP	NP	36.2	0
MW-7	707849	3197839	13.53	7.22	6.31	4.45	11.67	1.86	5.71	NP	NP	24.9	0
MW-8	708187	3197946	15.06	NP	NP	NP	7.24	7.82	-	NP	NP	NR	0
MW-9	708603	3197904	13.96	NP	NP	NP	4.99	8.97	-	NP	NP	NR	0
MW-10	707976	3198002	13.29	7.32	5.97	0.75	8.09	5.20	5.85	NP	NP	29.3	0
MW-11	707827	3197989	18.38	NP	NP	NP	14.16	4.22	-	NP	NP	NR	0
MW-12	707972	3197674	19.64	10.34	9.3	0.02	10.36	9.28	9.30	NP	NP	33.6	0

Notes: All measurements in feet
msl = Mean Sea Level
NP - Not Present
NR - Not Recorded
* - Screened in the Shallow Sandy Channel Fill

TABLE 1
(Continued)
SUMMARY OF FLUID LEVEL MEASUREMENTS
FIRST QUARTER - 1991

MEASUREMENT DATE: April 29, 1991
GATX GALENA PARK FACILITY

Well Location	Coordinates North	Coordinates East	TOC (msl)	Depth to LNAPL	LNAPL (msl)	LNAPL Thickness	Depth to Water	Water (MSL)	Corr. Wtr (msl)	Depth to DNAPL	DNAPL (msl)	Total Depth	DNAPL Thickness
MW-13	707830	3197653	11.02	NP	NP	NP	4.73	6.29	-	NP	NP	24.7	0
MW-14	707849	3197536	10.24	NP	NP	NP	4.15	6.09	-	NP	NP	26.4	0
*MW-15	708432	3197457	20.67	NP	NP	NP	7.70	12.97	-	NP	NP	19.0	0
MW-16	708434	3197470	19.80	NP	NP	NP	6.84	12.96	-	NP	NP	34.1	0
*MW-17	708273	3197420	16.72	NP	NP	NP	4.35	12.37	-	NP	NP	19.3	0
*MW-18	707851	3197845	13.59	NP	NP	NP	6.45	7.14	-	NP	NP	9.3	0
MW-19	708012	3197762	21.65	NP	NP	NP	10.48	11.17	-	NP	NP	NR	0
*MW-20	708101	3197738	20.18	9.95	10.23	1.22	11.17	9.01	10.07	NP	NP	NR	0
MW-21	708013	3197882	14.63	NP	NP	NP	6.61	8.02	-	NP	NP	NR	0
*MW-22	708009	3197740	19.37	NP	NP	NP	9.52	9.85	-	NP	NP	15.3	0
MW-23	707990	3197959	15.71	9.26	6.45	0.03	9.29	6.42	6.44	NP	NP	NR	0
MW-24	708023	3197999	13.70	NP	NP	NP	7.64	6.06	-	NP	NP	NR	0
MW-25	707928	3198005	12.97	NP	NP	NP	7.99	4.98	-	NP	NP	NR	0
MW-26	708129	3197991	12.08	NP	NP	NP	5.62	6.46	-	NP	NP	26.8	0
*MW-27	708190	3197904	14.70	NP	NP	NP	6.18	8.52	-	NP	NP	NR	0
MW-29	-	-	15.24	NP	NP	NP	7.92	7.32	-	NP	NP	13.9	0
MW-30	-	-	12.76	NP	NP	NP	7.06	5.7	-	NP	NP	29.8	0

Notes: All measurements in feet
msl = Mean Sea Level
NP - Not Present
NR - Not Recorded
* - Screened in the Shallow Sandy Channel Fill

TABLE 1
SUMMARY OF FLUID LEVEL MEASUREMENTS
SECOND QUARTER - 1991

MEASUREMENT DATE: June 5, 1991
SOUTHEAST HOLDING BASIN
GATX GALENA PARK FACILITY

Well Location	Coordinates North	Coordinates East	TOC (msl)	Depth to LNAPL	LNAPL (msl)	LNAPL Thickness	Depth to Water	Water (MSL)	Corr. Wtr (msl)	Depth to DNAPL	DNAPL (msl)	Total Depth	DNAPL Thickness
P-1	708040	3197714	18.93	8.71	10.22	0.39	9.10	9.83	10.17	NP	NP	17.2	0
P-2	708138	3197710	21.03	NP	NP	NP	10.41	10.62	-	NP	NP	39.1	0
P-3	708172	3197732	20.79	10.19	10.60	0.01	10.20	10.59	10.60	NP	NP	15.1	0
P-4	708096	3197677	19.02	8.41	10.61	Sheen	8.41	10.61	-	NP	NP	14.8	0
MW-1	707983	3197590	21.58	11.03	10.55	Sheen	11.03	10.55	-	NP	NP	33.6	0
MW-2R	-	-	11.62	NP	NP	NP	3.14	8.48	-	NP	NP	21.9	0
MW-3R	707862	3197670	11.77	NP	NP	NP	3.53	8.24	-	NP	NP	23.35	0
MW-4R	707864	3197711	12.19	NP	NP	NP	4.53	7.66	-	25.11	-12.92	25.75	0.64
MW-5	707832	3197737	11.82	NP	NP	NP	5.42	6.40	-	23.98	-12.16	24.97	0.99
MW-6	708100	3197727	20.07	9.67	10.40	Sheen	9.67	10.40	-	NP	NP	36.2	0
MW-7	707849	3197839	13.53	7.37	6.16	2.86	10.23	3.30	5.78	NP	NP	24.9	0
MW-8	708187	3197946	15.06	NP	NP	NP	7.03	8.03	-	NP	NP	NR	0
MW-9	708603	3197904	13.96	NP	NP	NP	4.60	9.36	-	NP	NP	NR	0
MW-10	707976	3198002	13.29	7.62	5.67	Sheen	7.62	5.67	-	NP	NP	29.3	0
MW-11	707827	3197989	18.38	NP	NP	NP	14.87	3.51	-	NP	NP	NR	0
MW-12	707972	3197674	19.64	10.05	9.59	0.01	10.06	9.58	9.59	NP	NP	33.6	0
MW-13	707830	3197653	11.02	NP	NP	NP	4.86	6.16	-	NP	NP	24.7	0

Notes: All Measurements in Feet
msl = Mean Sea Level
NP = Not Present
NR = Not Recorded
* = Screened in the Shallow Sandy Channel Fill

TABLE 1
(Continued)
SUMMARY OF FLUID LEVEL MEASUREMENTS
SECOND QUARTER - 1991

MEASUREMENT DATE: June 5, 1991
GATX GALENA PARK FACILITY

Well Location	Coordinates North	Coordinates East	TOC (msl)	Depth to LNAPL	LNAPL (msl)	LNAPL Thickness	Depth to Water	Water (MSL)	Corr. Wtr (msl)	Depth to DNAPL	DNAPL (msl)	Total Depth	DNAPL Thickness
MW-14	707849	3197536	10.24	NP	NP	NP	2.92	7.32	-	NP	NP	26.4	0
*MW-15	708432	3197457	20.67	NP	NP	NP	7.63	13.04	-	NP	NP	19.0	0
MW-16	708434	3197470	19.80	NP	NP	NP	6.69	13.11	-	NP	NP	34.1	0
*MW-17	708273	3197420	16.72	NP	NP	NP	4.19	12.53	-	NP	NP	19.3	0
*MW-18	707851	3197845	13.59	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
MW-19	708012	3197762	21.65	NP	NP	NP	9.81	11.84	-	NP	NP	NR	0
*MW-20	708101	3197738	20.18	9.69	10.49	1.09	10.78	9.40	10.34	NP	NP	NR	0
MW-21	708013	3197882	14.63	NP	NP	NP	6.54	8.09	-	NP	NP	NR	0
*MW-22	708009	3197740	19.37	NP	NP	NP	9.14	10.23	-	NP	NP	15.3	0
MW-23	707990	3197959	15.71	9.38	6.33	0.23	9.61	6.10	6.30	NP	NP	NR	0
MW-24	708023	3197999	13.70	NP	NP	NP	7.80	5.90	-	NP	NP	NR	0
MW-25	707928	3198005	12.97	NP	NP	NP	8.45	4.52	-	NP	NP	NR	0
MW-26	708129	3197991	12.08	NP	NP	NP	5.58	6.50	-	NP	NP	26.8	0
*MW-27	708190	3197904	14.70	NP	NP	NP	5.88	8.82	-	NP	NP	NR	0
MW-29	-	-	15.24	7.21	8.03	Sheen	7.21	8.03	-	NP	NP	13.9	0
MW-30	-	-	12.76	NP	NP	NP	7.36	5.40	-	NP	NP	29.8	0

Notes: All Measurements in Feet
msl = Mean Sea Level
NP = Not Present
NR = Not Recorded
* = Screened in the Shallow Sandy Channel Fill

Table 1

SUMMARY OF WATER LEVEL MEASUREMENTS
Historic Potentiometric Elevations
North Holding Basin

GATX - Galena Park Facility

Well ID	Unit Monitored	Total Depth (feet)	Top of Casing Elevation (msl)	POTENTIOMETRIC ELEVATION												
				3/02/1989 (msl)	4/23/1990 (msl)	7/20/1990 (msl)	10/18/1990 (msl)	3/26/1991 (msl)	11/26/91 (msl)	3/4/1992 (msl)	6/26/1992 (msl)	8/8/1992 (msl)	11/30/1992 (msl)	5/5/1993 (msl)	1/27/1994 (msl)	4/5/1994 (msl)
MW-1	Zone III	40.4	15.21	9.10	9.05	8.17	7.66	9.18	8.57	9.21	9.66	9.81	8.61	9.33	8.51	8.32
MW-2	Zone III	34.0	11.71	4.99	5.21	4.47	4.27	5.11	5.00	5.11	5.38	5.34	4.83	5.36	5.04	4.36
MW-3	Zone II	24.6	11.21	3.98	4.18	3.52	3.28	4.11	4.56	5.46	5.07	4.99	4.46	5.18	4.80	4.30
MW-4	Zone III	31.7	10.41	8.45	8.24	7.66	7.45	8.25	7.18	7.41	7.85	8.05	7.31	7.67	7.30	6.93
MW-5	Zone III	45.5	23.88	7.72	7.81	7.02	6.55	7.89	7.30	8.88	8.26	8.42	7.49	8.07	7.33	7.03
MW-6	Zone IV	53.9	11.88	N.M.	N.M.	N.M.	N.M.	N.M.	4.46	6.13	5.66	5.60	5.07	5.61	5.23	4.55
MW-7	Zone III	30.4	12.88	N.M.	N.M.	N.M.	N.M.	N.M.	5.46	6.48	6.20	6.27	5.59	6.14	5.65	5.08
MW-8	Zone III	34.9	16.73	N.M.	N.M.	N.M.	N.M.	N.M.	7.58	9.73	9.13	9.36	8.33	8.93	7.97	7.82
MW-9	Zone III	29.6	12.38	N.M.	N.M.	N.M.	N.M.	N.M.	4.83	4.88	4.88	4.69	4.33	4.65	4.68	4.09
MW-10	Zone III	27.3	19.64	N.M.	N.M.	N.M.	N.M.	N.M.	9.91	11.84	10.89	11.06	10.09	10.41	9.74	9.49
MW-11	Zone III	28.0	8.98	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	4.81	4.34	3.98
MW-12	Below Zone IV	82.0	10.78	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	-29.14	-39.34	-39.34
MW-13	Zone III	30.0	13.41	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	6.46	6.02	4.89
MW-14	Zone IV	58.0	13.86	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	6.03	5.90	5.91
MW-15	Zone IV	59.0	11.56	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	7.78	7.19	6.90

Notes:

All elevations are in feet relative to mean sea level (msl).
Negative values indicate elevations below mean sea level.
N.M. - not measured

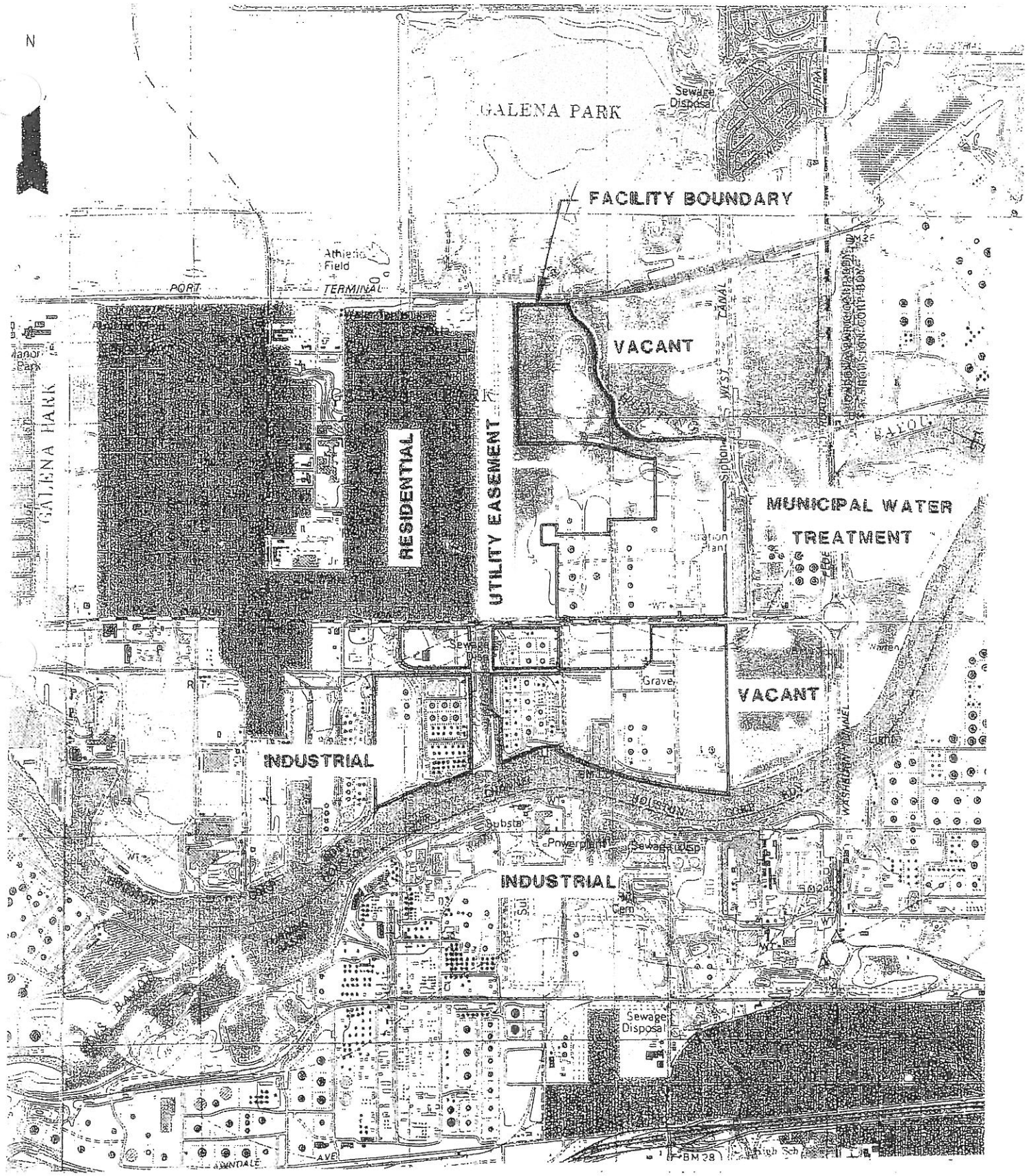
P:\PROJECTS\1665126\WL-DATA.XLW

TABLE 2

GROUNDWATER ELEVATIONS
GATX GALENA PARK FACILITY
NORTH HOLDING BASIN

Monitoring Well	Date	Measuring Point Elevation (ft MSL)	Total Depth of Well (ft BMP)	Water Depth (ft BMP)	Water Level Elevation (ft MSL)
MW-1	02-Mar-90	15.21	40.65	6.11	9.10
	23-Apr-90		40.65	6.16	9.05
	20-Jul-90		40.60	7.04	8.17
	18-Oct-90		40.60	7.55	7.66
	26-Mar-91		40.77	6.03	9.18
MW-2	02-Mar-90	11.71	33.99	6.72	4.99
	23-Apr-90		34.00	6.50	5.21
	20-Jul-90		34.00	7.24	4.47
	18-Oct-90		34.00	7.44	4.27
	26-Mar-91		34.30	6.60	5.11
MW-3	02-Mar-90	10.41	24.75	6.43	3.98
	23-Apr-90		24.63	6.23	4.18
	20-Jul-90		24.70	6.89	3.52
	18-Oct-90		24.50	7.13	3.28
	26-Mar-91		25.00	6.30	4.11
MW-4	02-Mar-90	11.21	31.70	2.76	8.45
	23-Apr-90		31.72	2.97	8.24
	20-Jul-90		31.80	3.55	7.66
	18-Oct-90		31.80	3.76	7.45
	26-Mar-91		32.01	2.96	8.25
MW-5	02-Mar-90	23.88	45.90	16.16	7.72
	23-Apr-90		45.81	16.07	7.81
	20-Jul-90		45.70	16.86	7.02
	18-Oct-90		45.00	17.33	6.55
	26-Mar-91		45.97	15.99	7.89

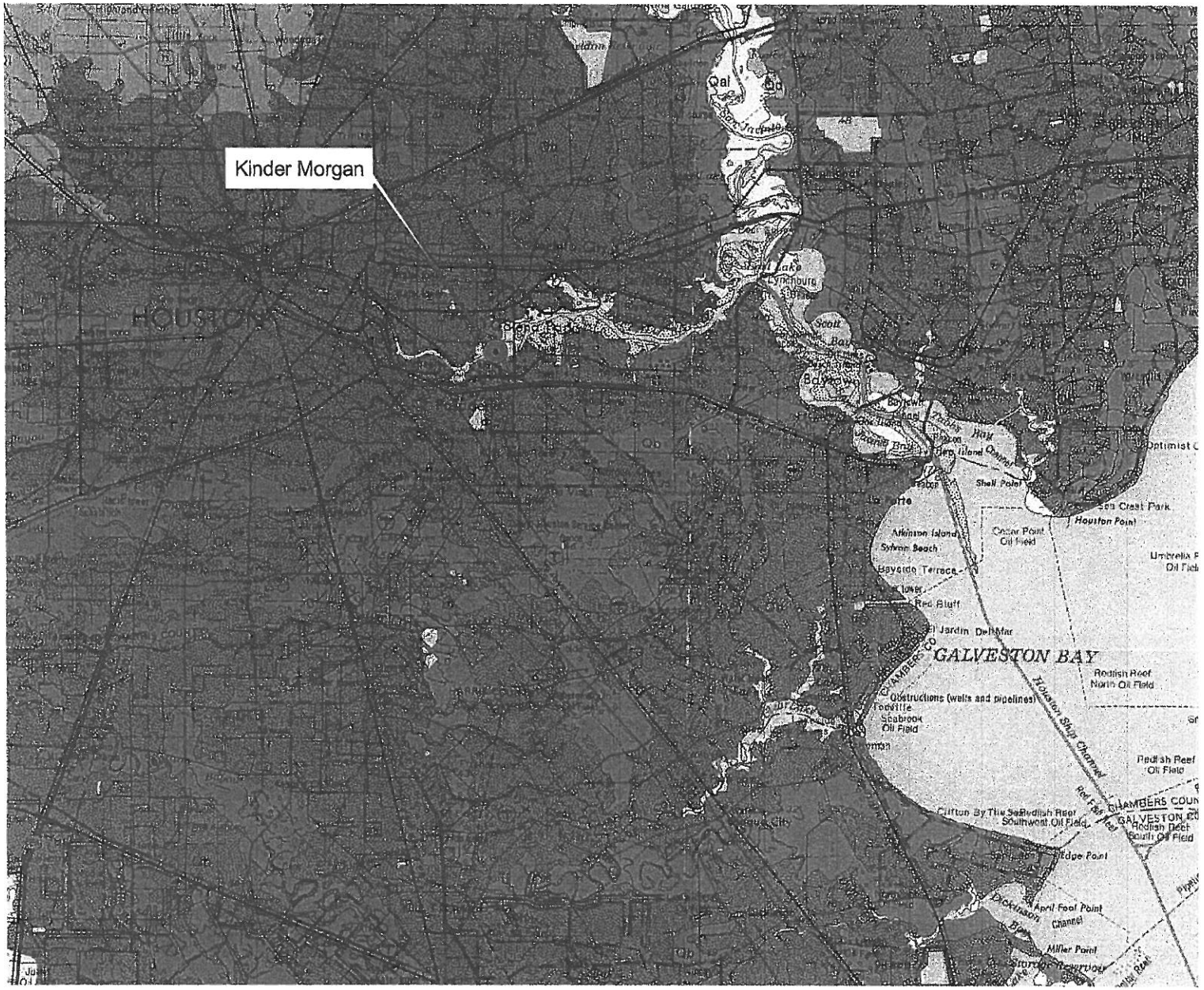
MSL - Mean Sea Level
BMP - Below Measuring Point



GATX

FIGURE 1

This map is a mosaic of USGS 7 1/2 minute topographic quadrangles -- Jacinto City, 1982; Park Place, 1982; and Pasadena, 1982



N

NOT TO SCALE:

Figure 2a
Geologic Map

Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

Geologic(8x11).mxd

CH2MHILL

EXPLANATION



Fill and spoil

Fill, F, material dredged for raising land surface above alluvium and barrier-island deposits and for creating land. Spoil, S, dredged material along waterways



Alluvium

Clay, silt, and sand, organic matter abundant locally; includes point-bar, natural levee, stream channel, backswamp, coastal marsh, mud flat, and narrow beach deposits that are shown by line symbol



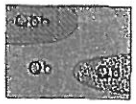
Barrier-island deposits

Sand, silt, and clay; mostly sand, well-sorted, fine-grained, abundant shells and shell fragments; interfingers with clay and silt in landward direction; includes beach ridge, spit, tidal channel, tidal-delta, and sand dune deposits



Deweyville Formation

Sand, silt, and clay, some gravel; includes point bar, natural levee, stream channel, and backswamp deposits at a level only slightly above that of the present floodplain; sand coarser than that in alluvium; surface characterized by relict meanders of much larger radius of curvature than those of present streams, some scattered pimple mounds, thickness locally more than 50 feet. High-level Deweyville, Qdt, surfaces cut into the Beaumont Formation, and high-level Deweyville deposits along Trinity River are intermediate in position between the surface of the Beaumont and the level of most Deweyville deposits



Beaumont Formation

Beaumont Formation, Qb, with barrier-island and beach deposits, Qbb, mapped separately. Beaumont Formation, Qb, mostly clay, silt, and sand; includes mainly stream channel, point-bar, natural levee, backswamp, and to a lesser extent coastal marsh and mud-flat deposits; concretions of calcium carbonate, iron oxide, and iron-manganese oxides in zone of weathering; surface almost featureless, characterized by relict river channels shown by meander patterns and pimple mounds on meanderbelt ridges, separated by areas of low, relatively smooth, featureless backswamp deposits without pimple mounds; thickness ± 100 feet. The stippled overprint (source shown in Index to Geologic Mapping) shows areas that are "Dominantly clay and mud of low permeability, high water-holding capacity, high compressibility, high to very high shrink-swell potential, poor drainage, level to depressed relief, low shear strength, and high plasticity; geologic units include interdistributary muds, abandoned channel-fill muds, and overbank fluvial muds." The nonstippled areas are "Dominantly clayey sand and silt of moderate permeability and drainage, low to moderate compressibility and shrink-swell potential, level relief with local mounds and ridges, and high shear strength; geologic units include meanderbelt, levee, crevasse splay, and distributary sands"

Holocene

Holocene or late (?) Pleistocene

Pleistocene

QUATERNARY

Barrier-island and beach deposits, Qbb, mostly fine grained sand normally without shell material; surface slightly higher than that of surrounding deposits, characterized by numerous pimple mounds and rounded depressions; probably part of "Ingleside" barrier-island system; thickness less than 80 feet
Physical properties: "Dominantly sand, high to very high permeability, low water-holding capacity, low compressibility, low shrink-swell potential, good drainage, low ridge and depressed relief, high shear strength, and low plasticity. Geologic units include beach, foredunes, barrier-strandplain-chenier vegetated flats, Pleistocene barrier and strandplain sands"



Lissie Formation

Upper part, clay, silt, sand, and very minor siliceous gravel of granule and small pebble size, gravel more abundant northeastward, locally calcareous, concretions of calcium carbonate, iron oxide, and iron-manganese oxides common in zone of weathering; fluviatile; surface fairly flat and featureless except for numerous rounded shallow depressions and pimple mounds. Lower part, clay, silt, sand, and minor amount of gravel; gravel slightly coarser than in upper part, noncalcareous, iron oxide concretions more abundant than in upper part; fluviatile; very gently rolling; thickness ± 200 feet



Willis Formation

Clay, silt, sand, and minor siliceous gravel of granule to pebble size including some petrified wood; sand coarser than in younger units. Deeply weathered and lateritic, indurated by clay and cemented by iron oxide locally, concretions of iron oxide numerous, noncalcareous; fluviatile, maximum thickness 25 feet



Tertiary rocks on Hockley salt dome

Sandstone, very fine grained, hard, abundant porcellaneous to opaline cement, poorly bedded, jointed, greyish white; possibly Catahoula Formation (Stenzel, 1946) (See Index of Geologic Mapping for reference.)

Pleistocene

Miocene

QUATERNARY

TERTIARY

CR

Outcrop of caprock reported on Damon Mound

Not found. Reportedly used for building stone (Berner, 1926)

U
D

Fault

U, upthrown; D, downthrown side

10,000-meter Universal Transverse Mercator grid ticks, shown in blue

Figure 2b
Geologic Map

Geologic(8x11)B.mxd

CH2MHILL

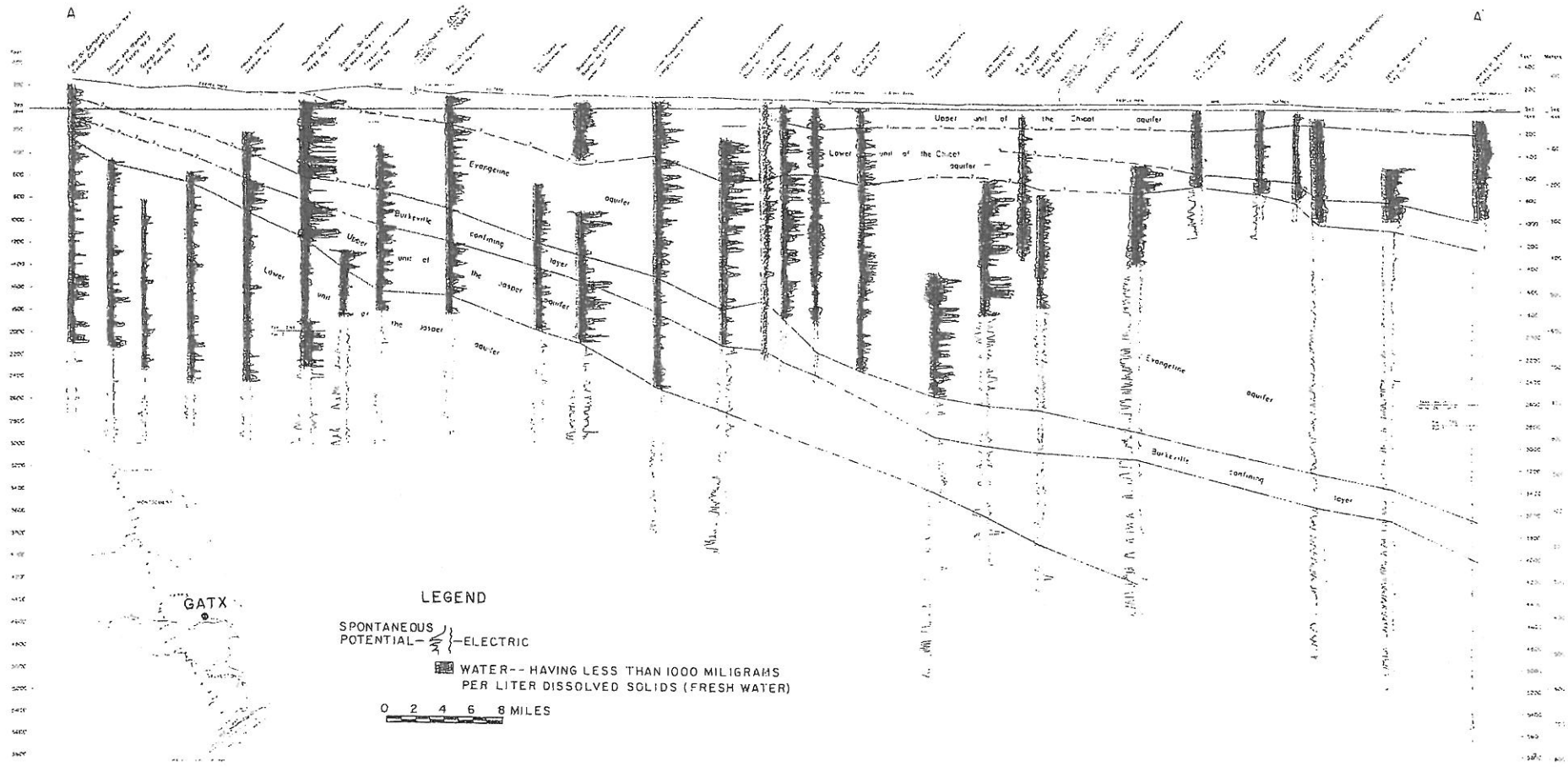


FIGURE 3

CORRELATION OF HYDROGEOLOGIC UNITS
FROM NORTHERN MONTGOMERY COUNTY
TO THE GULF OF MEXICO

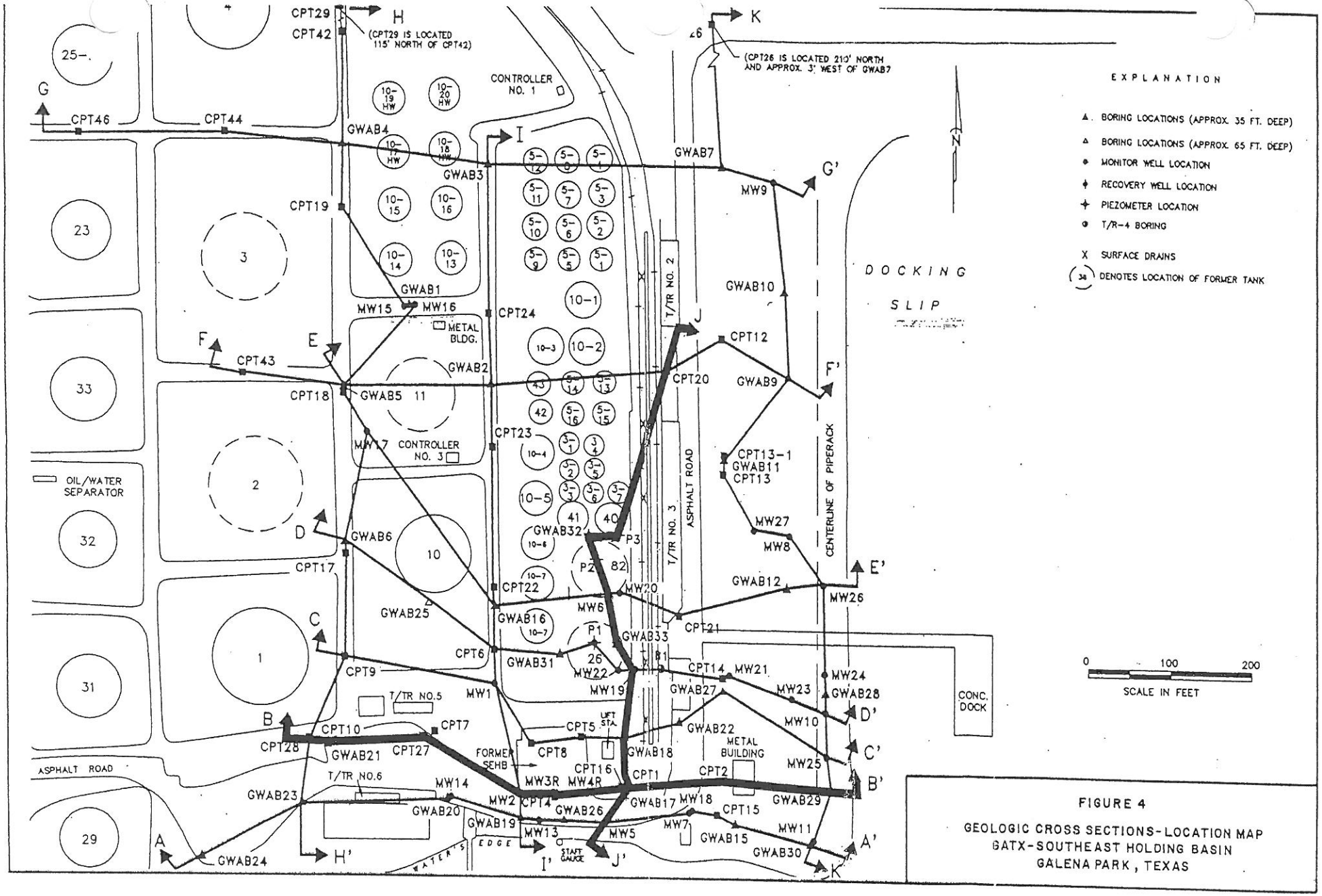
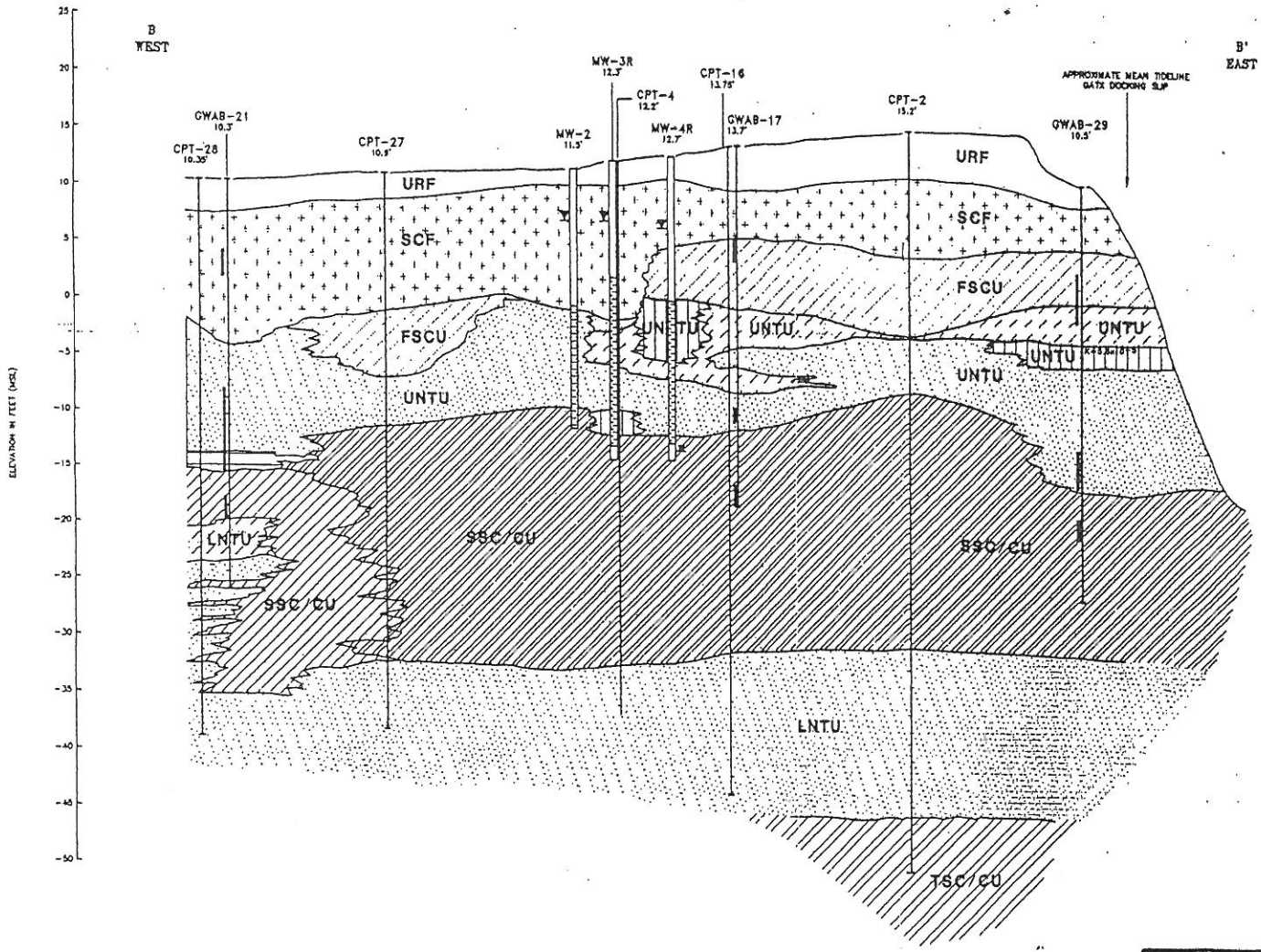


FIGURE 4

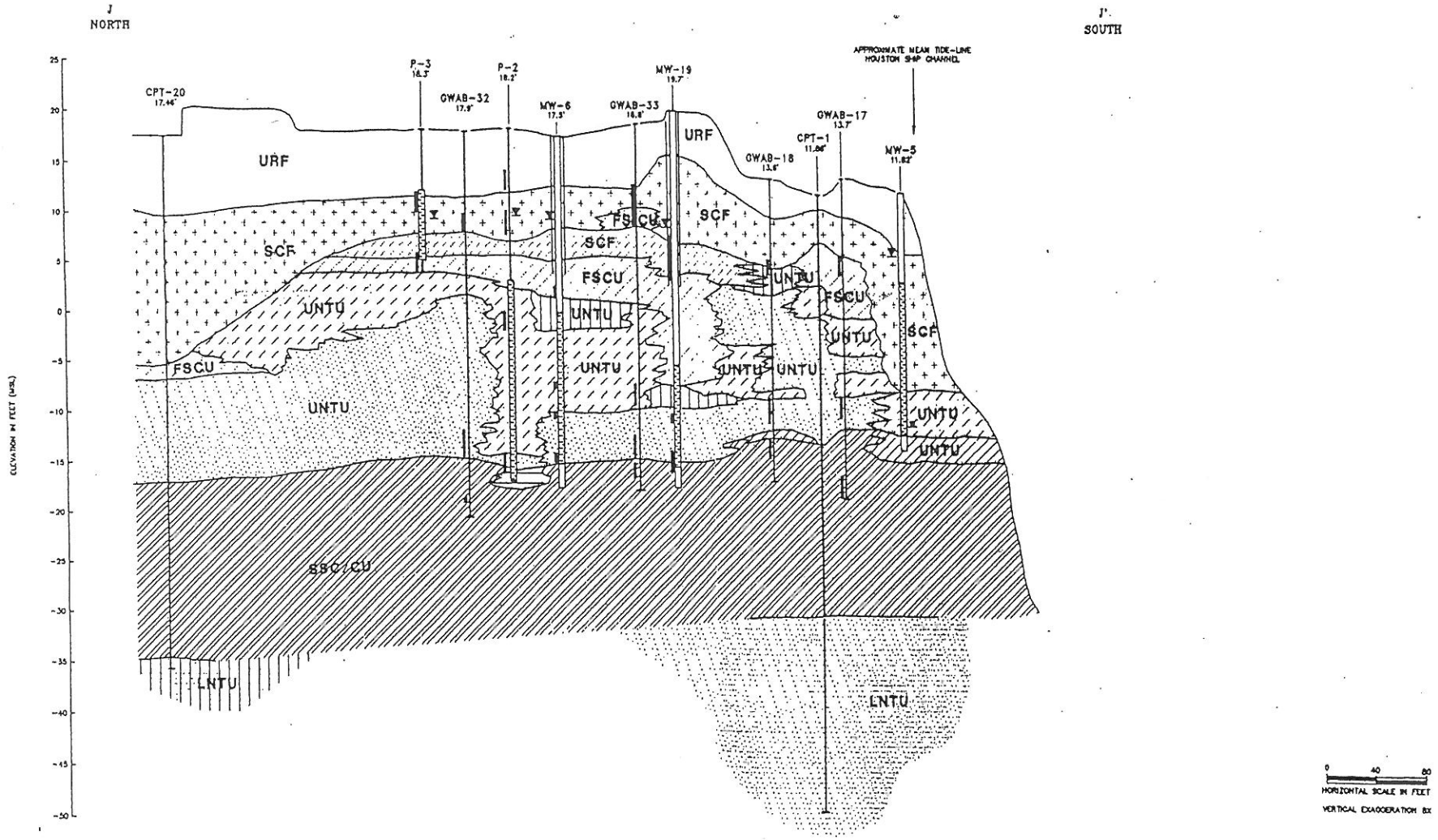
GEOLOGIC CROSS SECTIONS-LOCATION MAP
GATX-SOUTHEAST HOLDING BASIN
GALENA PARK, TEXAS



(AFTER ENSR, 1990)

FIGURE 5

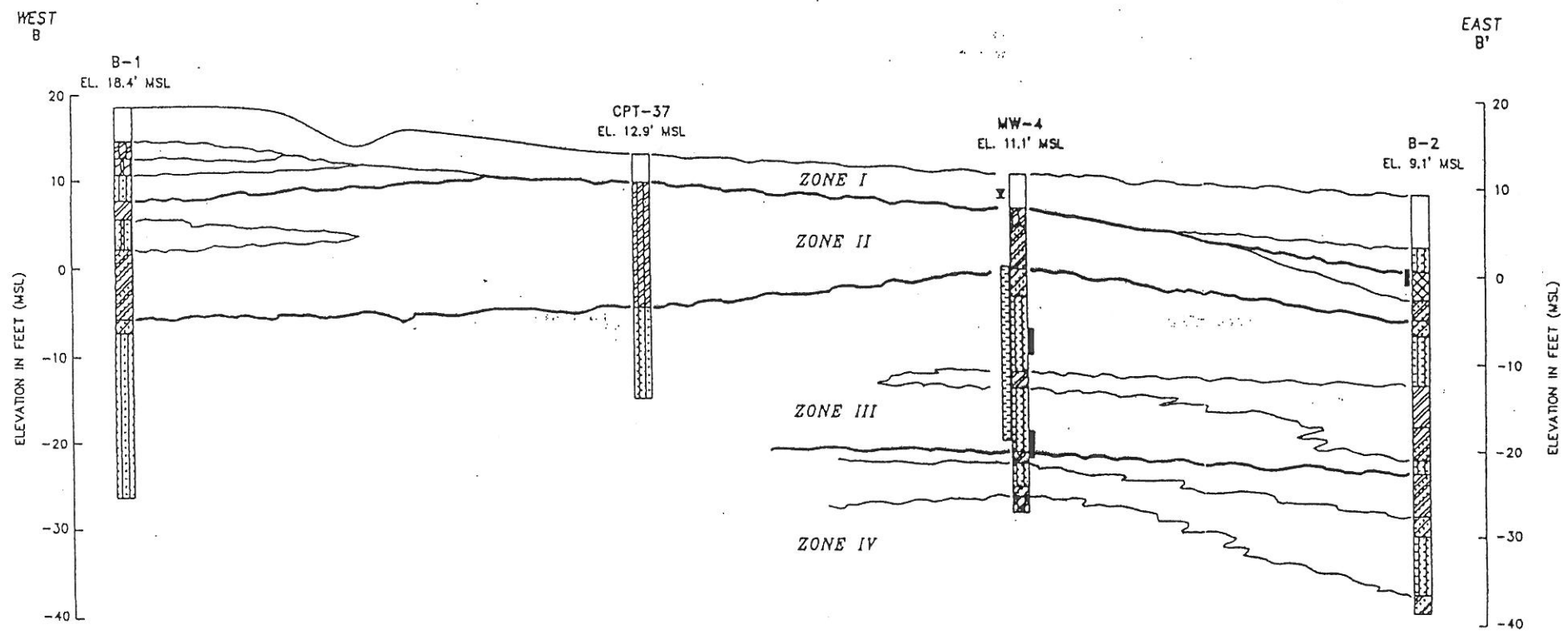
WEST-EAST GEOLOGIC CROSS SECTION B-B' SEHB
GATX - SOUTHEAST HOLDING BASIN
GALENA PARK, TEXAS



(AFTER ENSR, 1990)

FIGURE 6

NORTH-SOUTH GEOLOGIC CROSS SECTION J-J' SEHB
GATX SOUTHEAST HOLDING BASIN
GALENA PARK, TEXAS



EXPLANATION

MW-4 - MONITOR WELL NUMBER
B-5 - SOIL BORING NUMBER
EL. 11.1' MSL - GROUND LEVEL ELEVATION (MSL - MEAN SEA LEVEL)
- DEPICTS INTERVAL WHERE SAMPLE WAS OBTAINED FOR CHEMICAL ANALYSIS
SCREENED INTERVAL

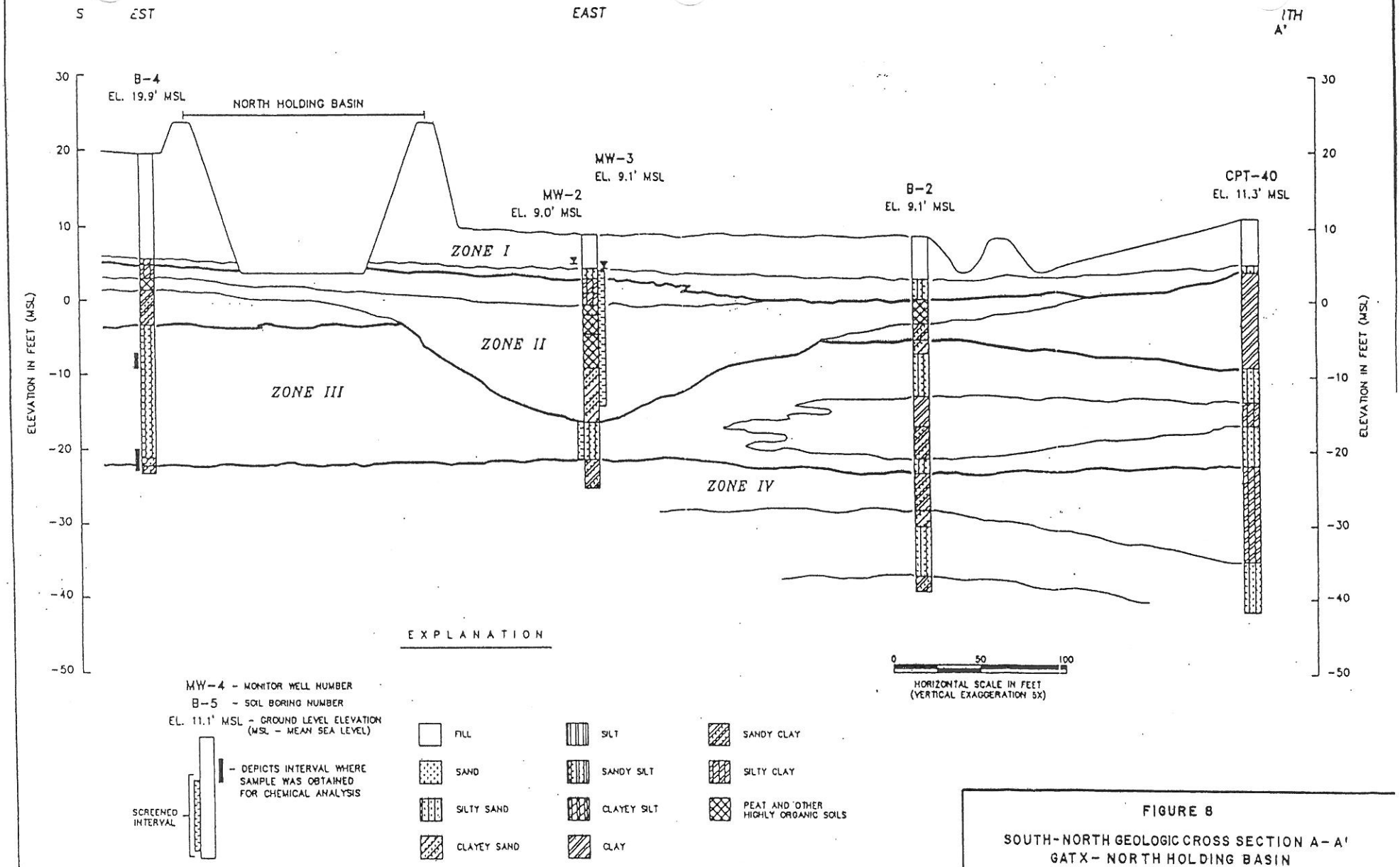
FILL
SAND
SILTY SAND
CLAYEY SAND
SILT
SANDY SILT
CLAYEY SILT
CLAY
SANDY CLAY
SILTY CLAY
PEAT AND OTHER HIGHLY ORGANIC SOILS

0 50 100
HORIZONTAL SCALE IN FEET
(VERTICAL EXAGGERATION 5X)

(AFTER ENSR, 1990)

FIGURE 7

WEST-EAST GEOLOGIC CROSS-SECTION B-B'
GATX - NORTH HOLDING BASIN
GALENA PARK, TEXAS



(AFTER ENSR, 1990)

FIGURE 8

SOUTH-NORTH GEOLOGIC CROSS SECTION A-A'
GATX - NORTH HOLDING BASIN
GALENA PARK, TEXAS

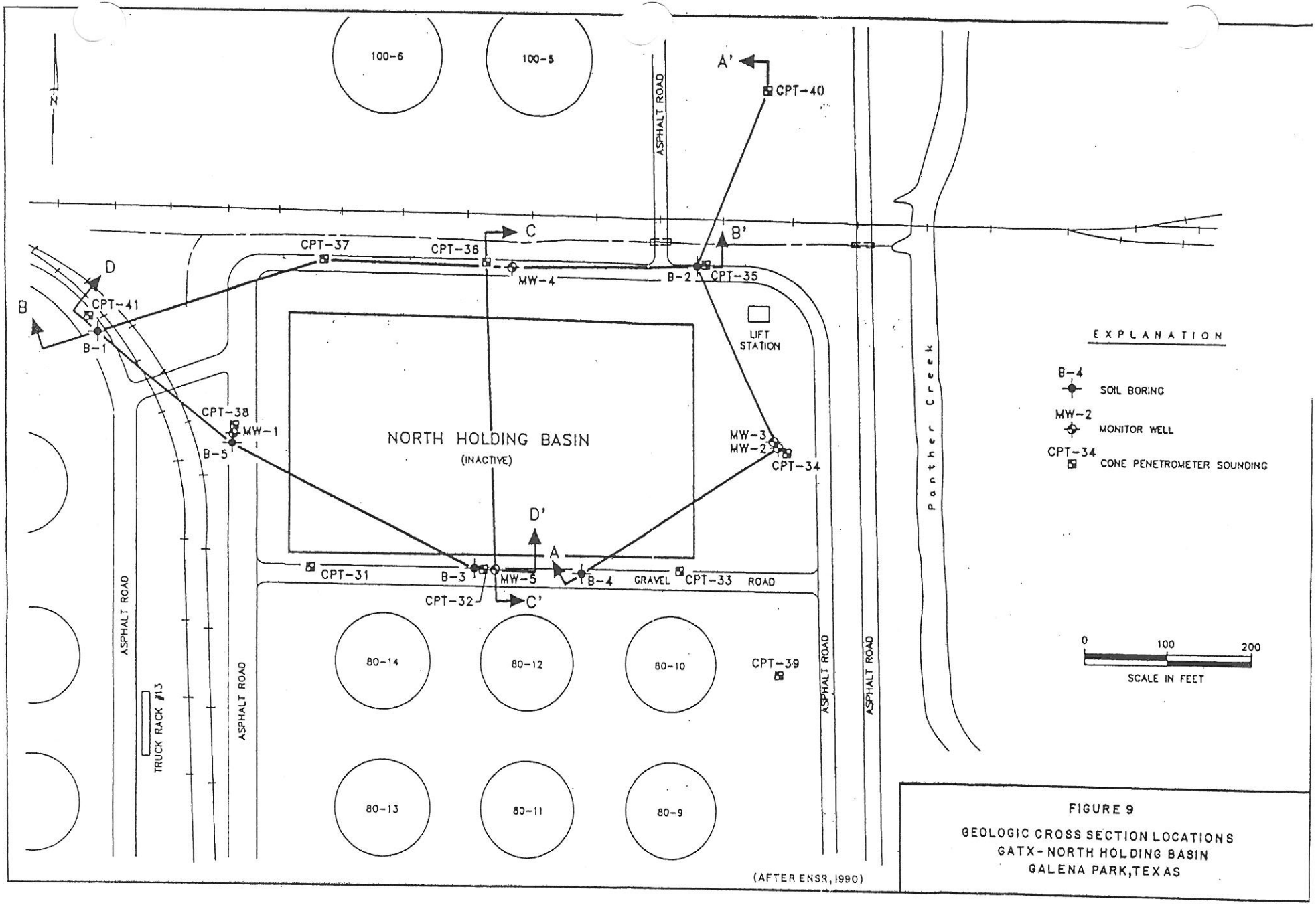


FIGURE 9

GEOLOGIC CROSS SECTION LOCATIONS
GATX - NORTH HOLDING BASIN
GALENA PARK, TEXAS

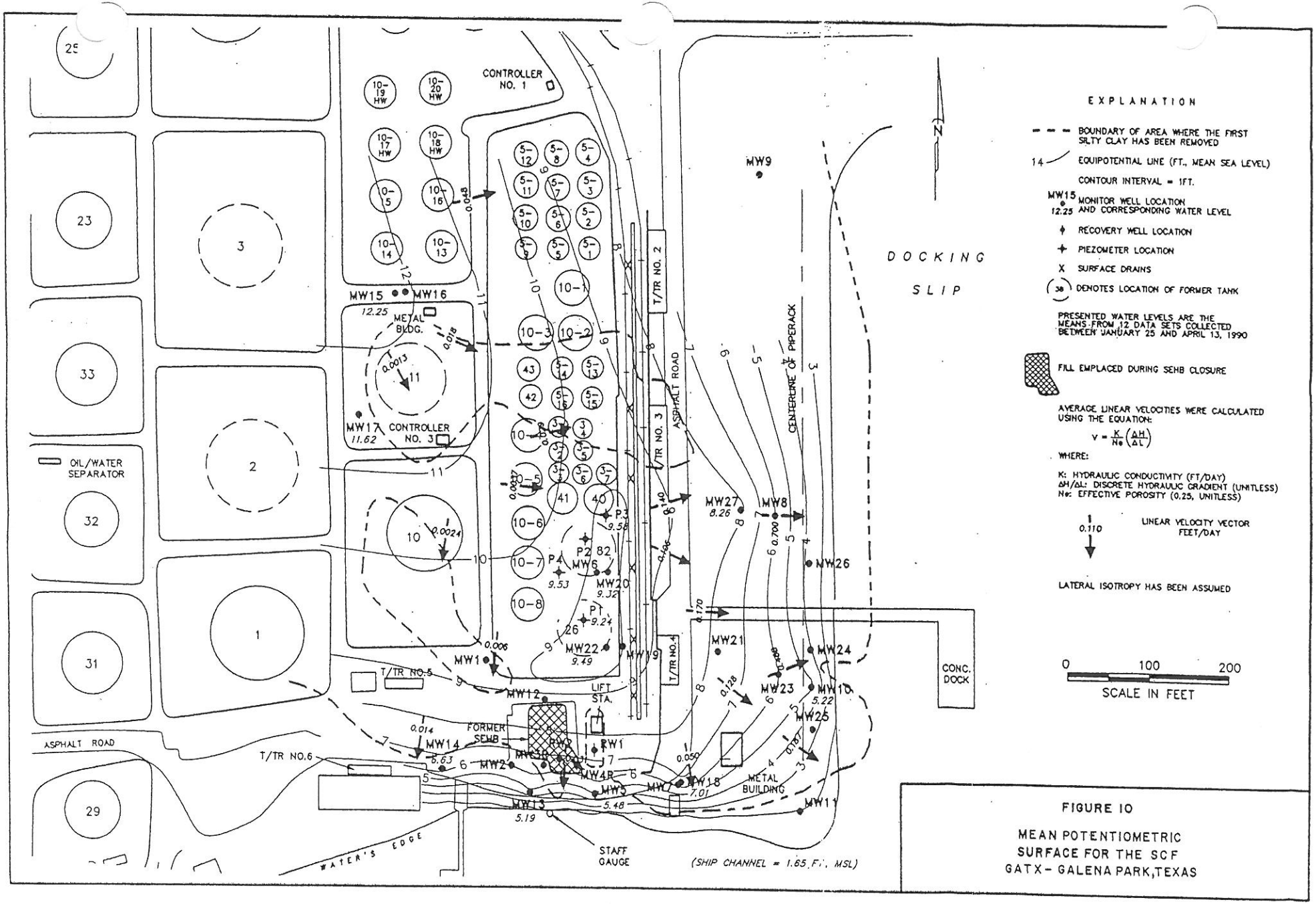
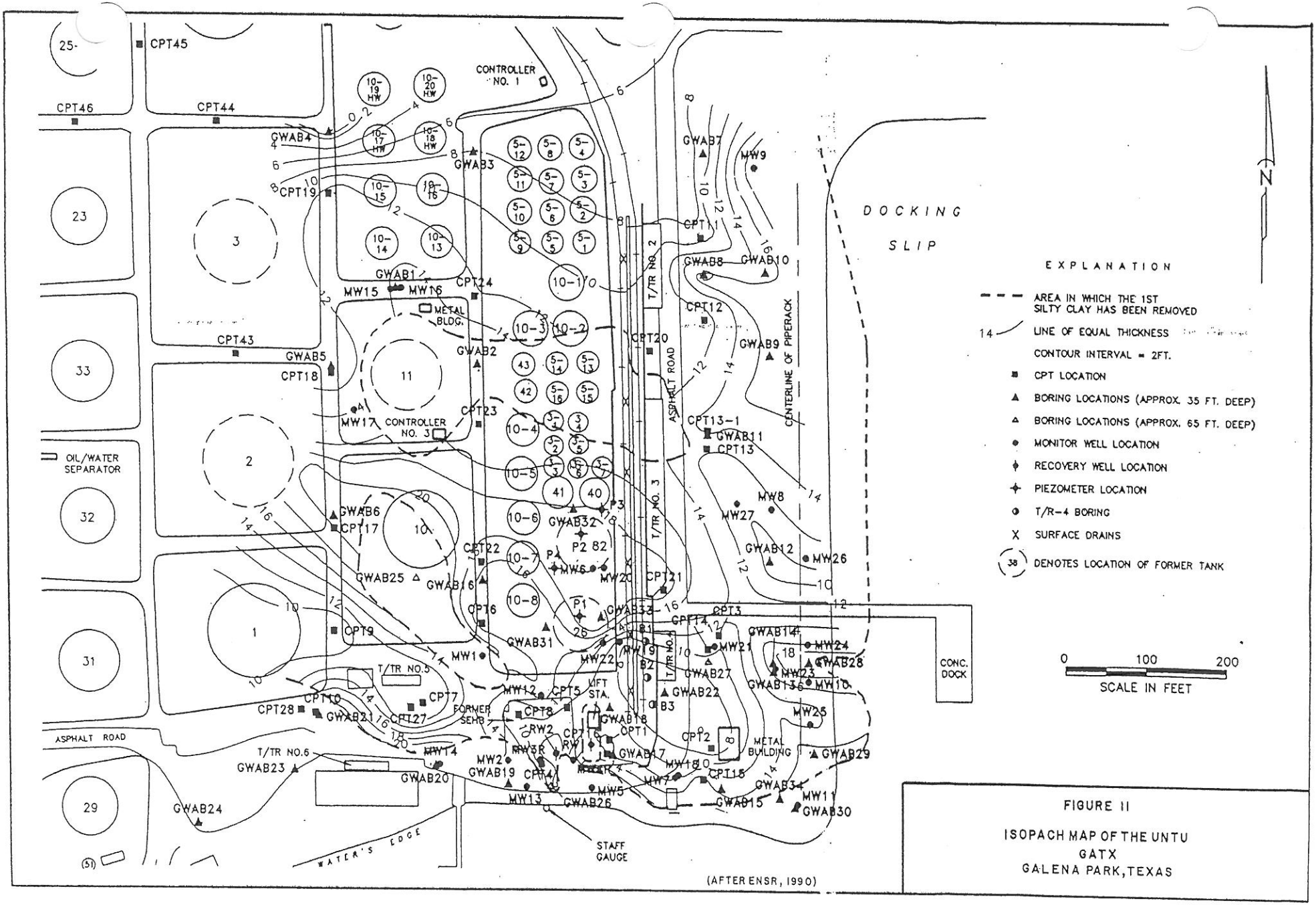


FIGURE 10

MEAN POTENTIOMETRIC SURFACE FOR THE SCF GATX - GALENA PARK, TEXAS



(AFTER ENSR, 1990)

FIGURE 11

ISOPACH MAP OF THE UNTU
GATX
GALENA PARK, TEXAS

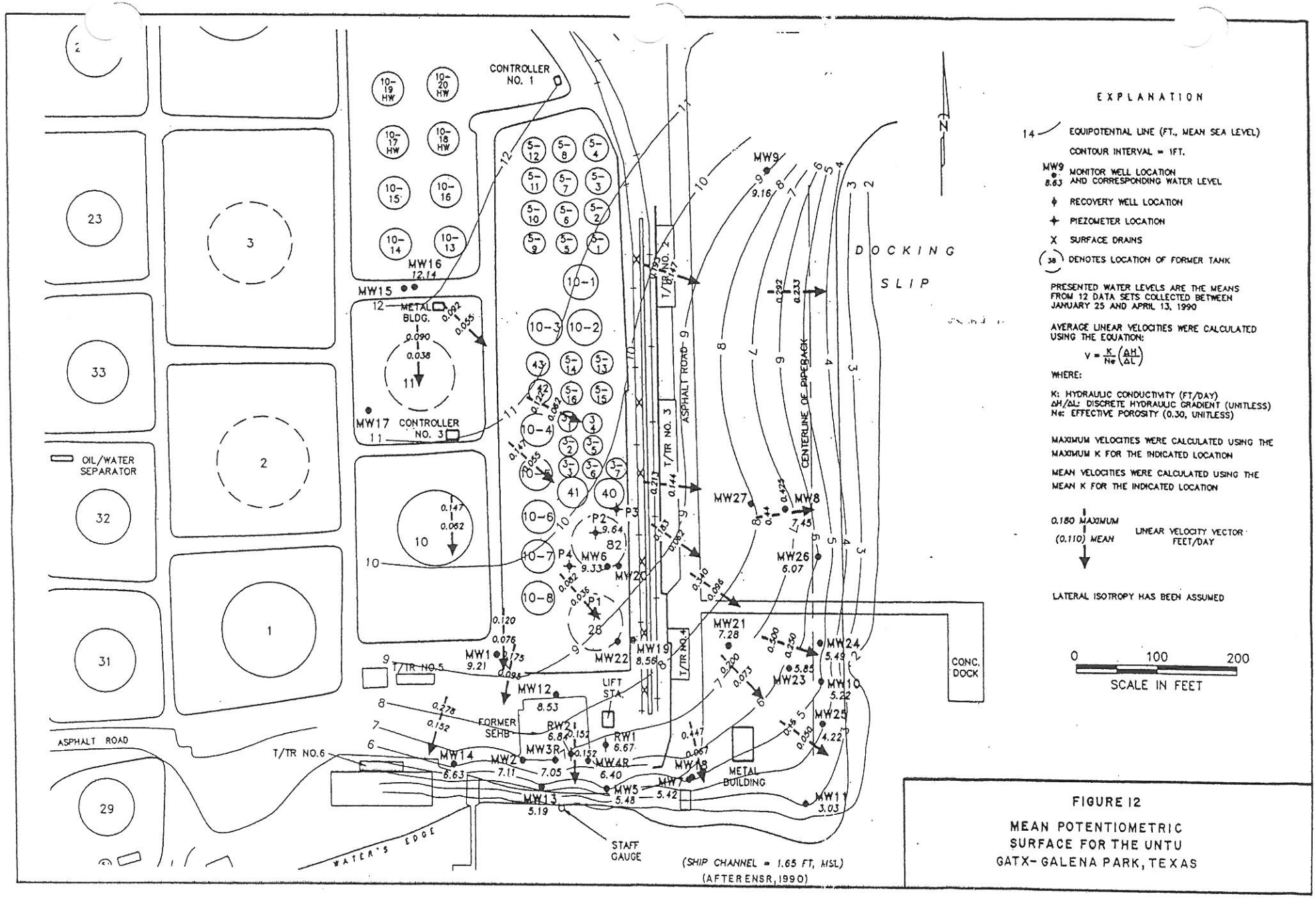


FIGURE 12

MEAN POTENTIOMETRIC SURFACE FOR THE UNTU GATX- GALENA PARK, TEXAS

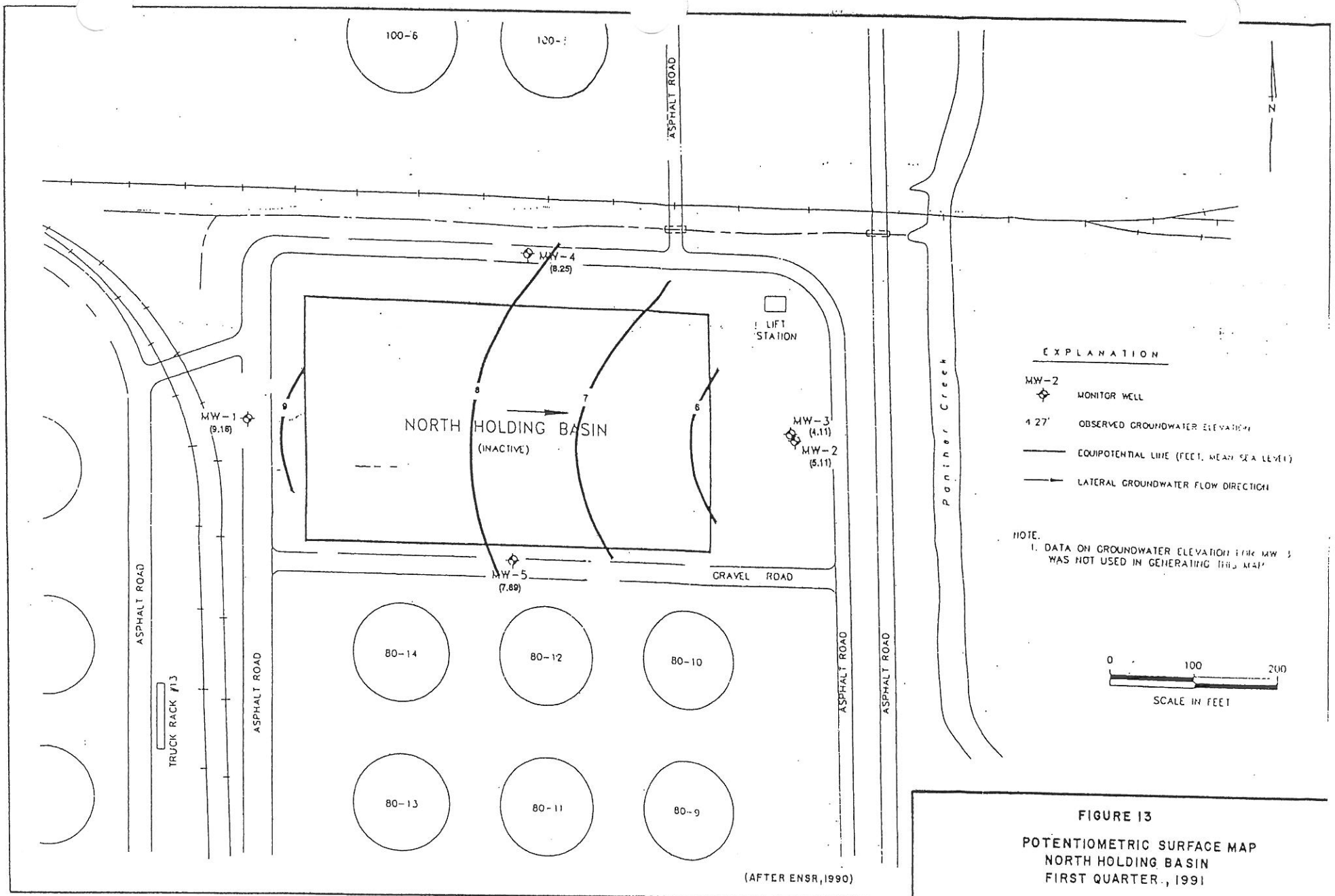


FIGURE 13

POTENTIOMETRIC SURFACE MAP
NORTH HOLDING BASIN
FIRST QUARTER., 1991

Section M2 – Supplemental Information

This Section information detailing current groundwater contaminant distribution and potentiometric surface configurations at the SEHB and CAMU/Former NHB and current information related hydraulic gradients in and around the units. Also included is supplemental information related to geologic processes, boring logs, and historical groundwater elevation data.

Active Geologic Processes

The active geologic processes are discussed in detail in *Section 3.0 Active Geologic Processes* of the Geology Report contained in Section M1. As a supplement to the geologic process information provided in the Geology Report, a map identifying all the active and inactive faults in the area of the facility has been attached in this section.

Contaminant Plume and Potentiometric Surface Maps

Groundwater data collected for the SEHB and Former NHB during the 2023 was used to update area contaminant plume and potentiometric surface maps. These maps were taken from the *Annual Corrective Action Program Report, Reporting January 1, 2023 to December 31, 2023* (AECOM. February, 2024). These maps are provided to the TCEQ through the ongoing corrective action program at the facility in association with the regulatory requirements. Groundwater potentiometric elevation maps, LNAPL distribution maps and concentration maps for SEHB and Former NHB for 2023 are provided in this section.

Boring Logs

Attached to this addendum is Appendix M1 which contains boring logs from each of the waste management areas. The logs include all the soil boring data collected for the installation of all the monitoring wells associated with each waste management area.

Historic Groundwater Level Measurements

Appendix M2 is attached to this addendum and contains the historical groundwater level data that was collected annually in conjunction with the compliance groundwater sampling. These tables include depth below the top of casing and corrected depth to water shown in feet above or below mean sea level (MSL). Water level elevations are corrected (adjusted) to account for density difference between water and LNAPL. Groundwater elevation data from 2023 for each well in both the CAMU/Former NHB and the SEHB can be found in Appendix M2.

Updated Site Hydraulic Gradients

The hydraulic gradients for both vertical and horizontal migration were calculated for the SEHB and the CAMU/Former NHB. Both areas' gradients were calculated from groundwater data collected during 2023 and are included in this section. For groundwater elevation data from 2023 please refer to Appendix M2.

Site Aquifer Characteristics

SEHB

The two impacted hydrologic units found beneath the SEHB are SCF and UNTU. These units are hydraulically connected with each other part, but are not hydraulically connected to the underlying regional aquifer. The upper limit of these two units is 5 feet below ground surface (bgs) and the lower limit is 35 feet bgs.

CAMU/Former NHB

The two impacted hydrologic units found beneath the CAMU/Former NHB are Zone III and Zone IV. These units are hydraulically connected with each other part, but are not hydraulically connected to the underlying regional aquifer. The upper limit of these two units is 40 feet bgs and the lower limit is 80 feet bgs.

Migration Pathways

Contaminants entering the uppermost aquifers will migrate laterally toward the respective surface water bodies (Panther Creek for CAMU/Former NHB and the Houston Ship Channel/Docking Slip for SEHB). Under natural conditions, groundwater discharges to the surface water bodies; however, the Corrective Action Program has intercepted the pathway making the natural migration pathway incomplete.

Figures

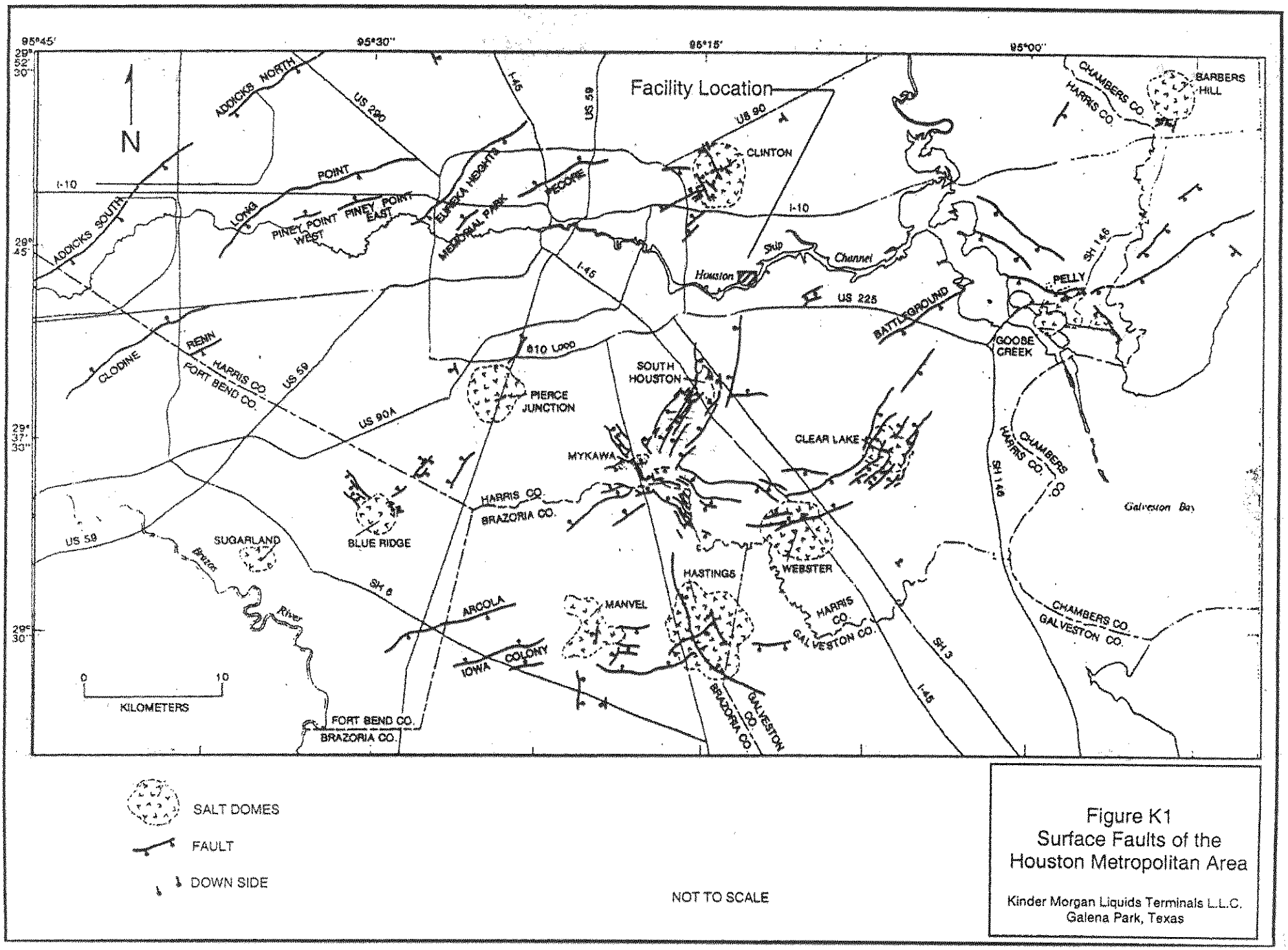
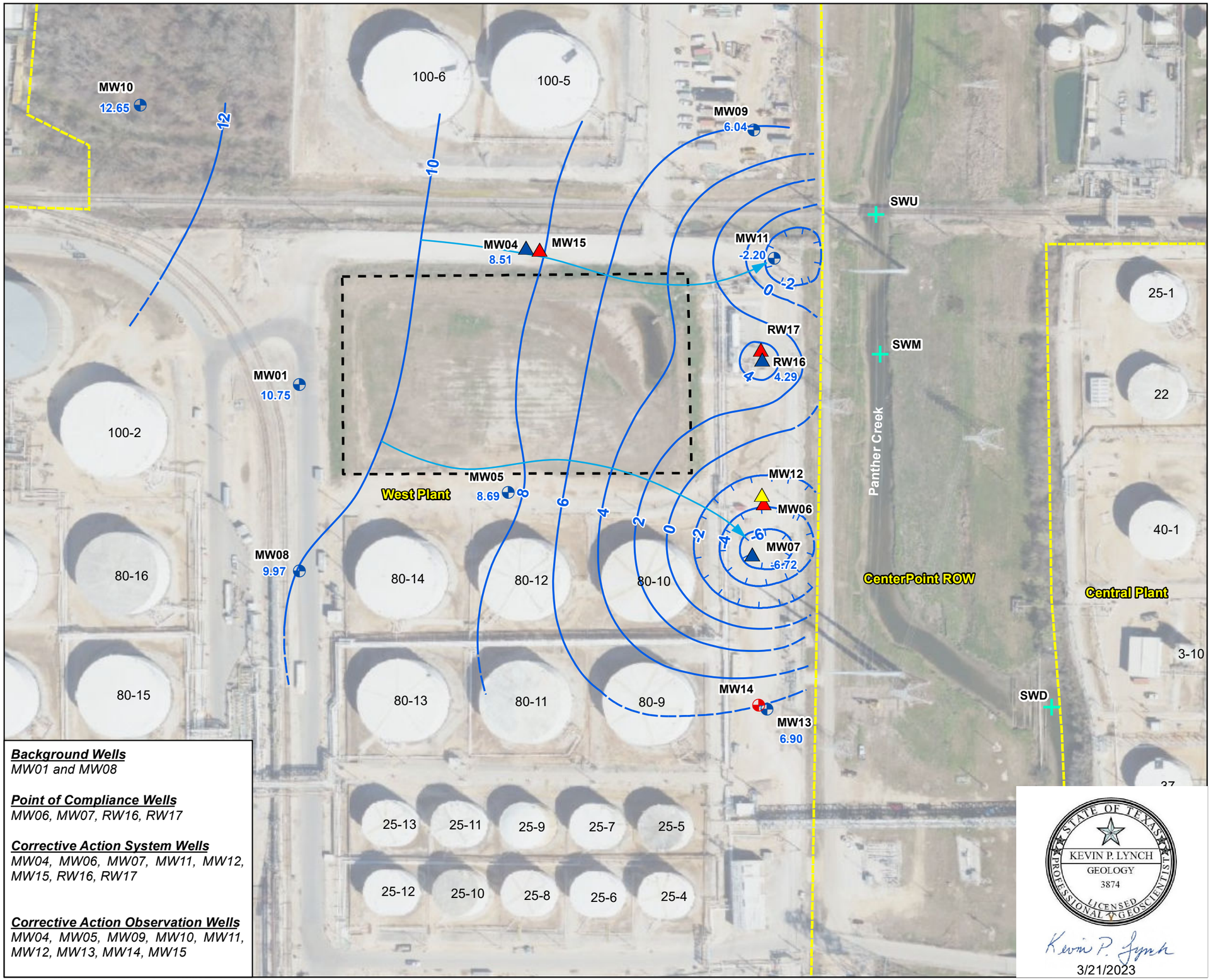


Figure K1
Surface Faults of the
Houston Metropolitan Area

Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Feet, Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction

Image: TNRIS Texas Imagery Service
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

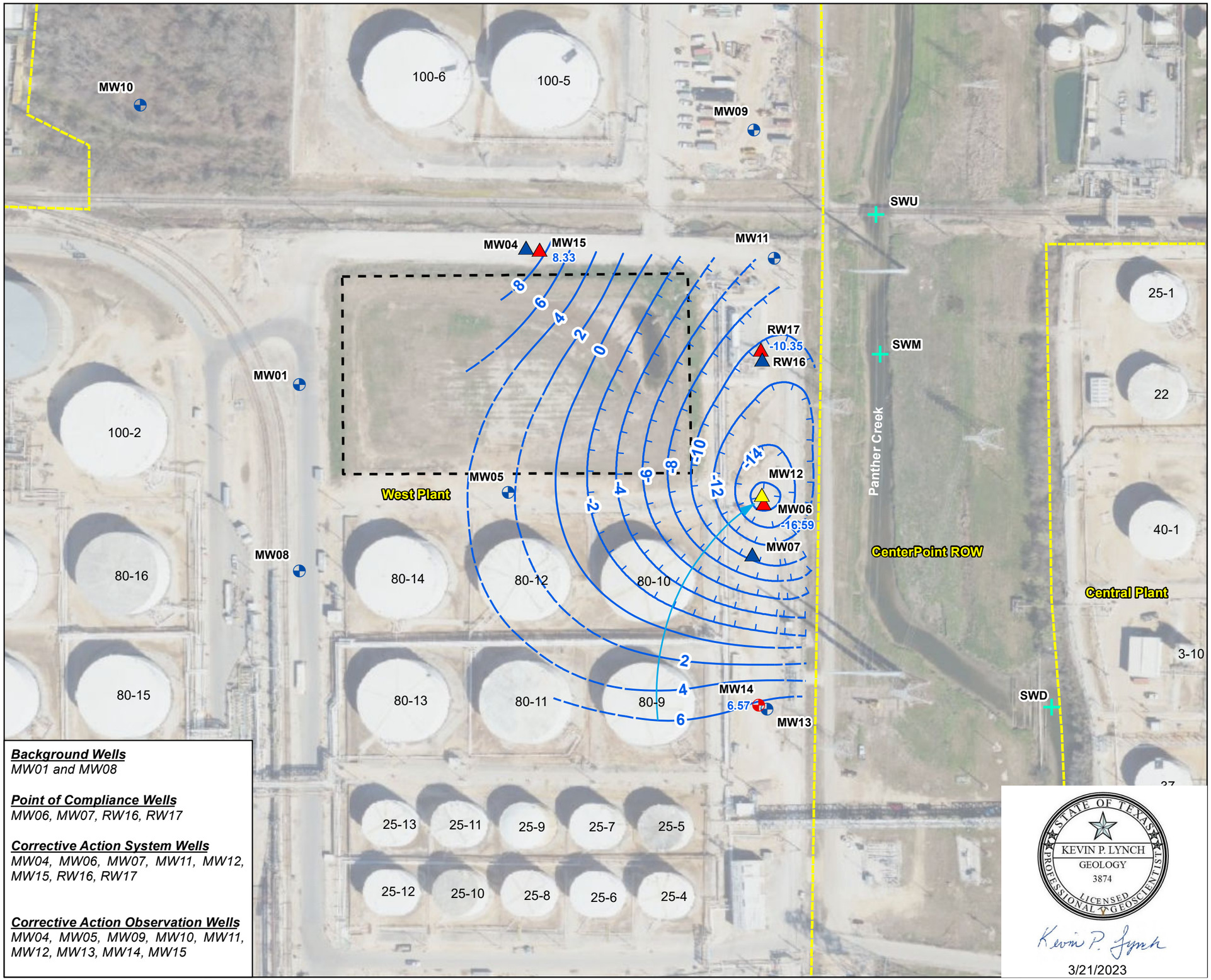
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/21/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/21/2023	60699810 / Figure7a_GW_NHB_Zone3_Jan2023 / 7a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7a_GW_NHB_Zone3_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Feet, Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction

Image: TNRIS Texas Imagery Service
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

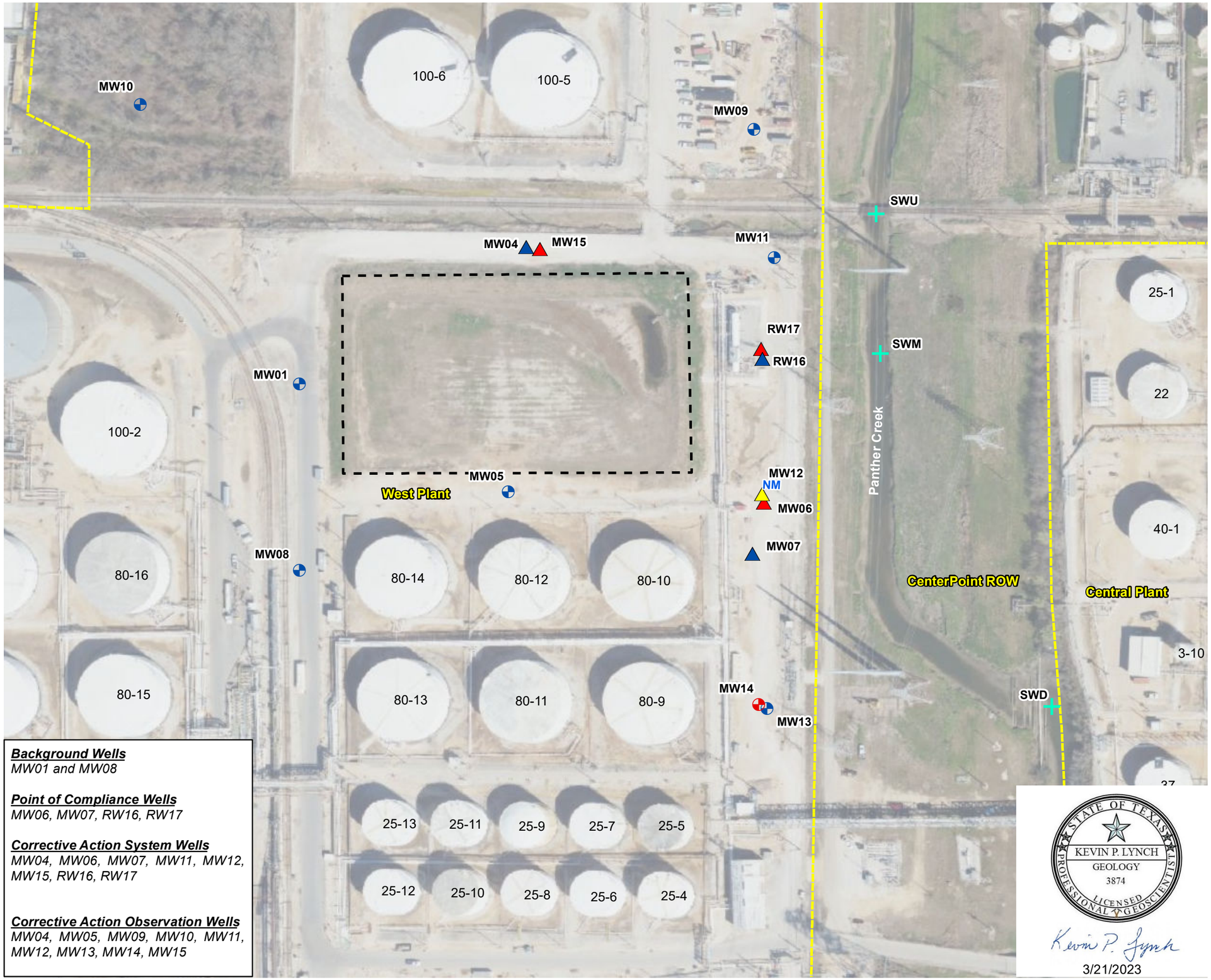
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/21/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/21/2023	60699810 / 7b_GW_NHB_Zone4_Jan2023 / 7b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7b_GW_NHB_Zone4_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

NM Not Measured

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

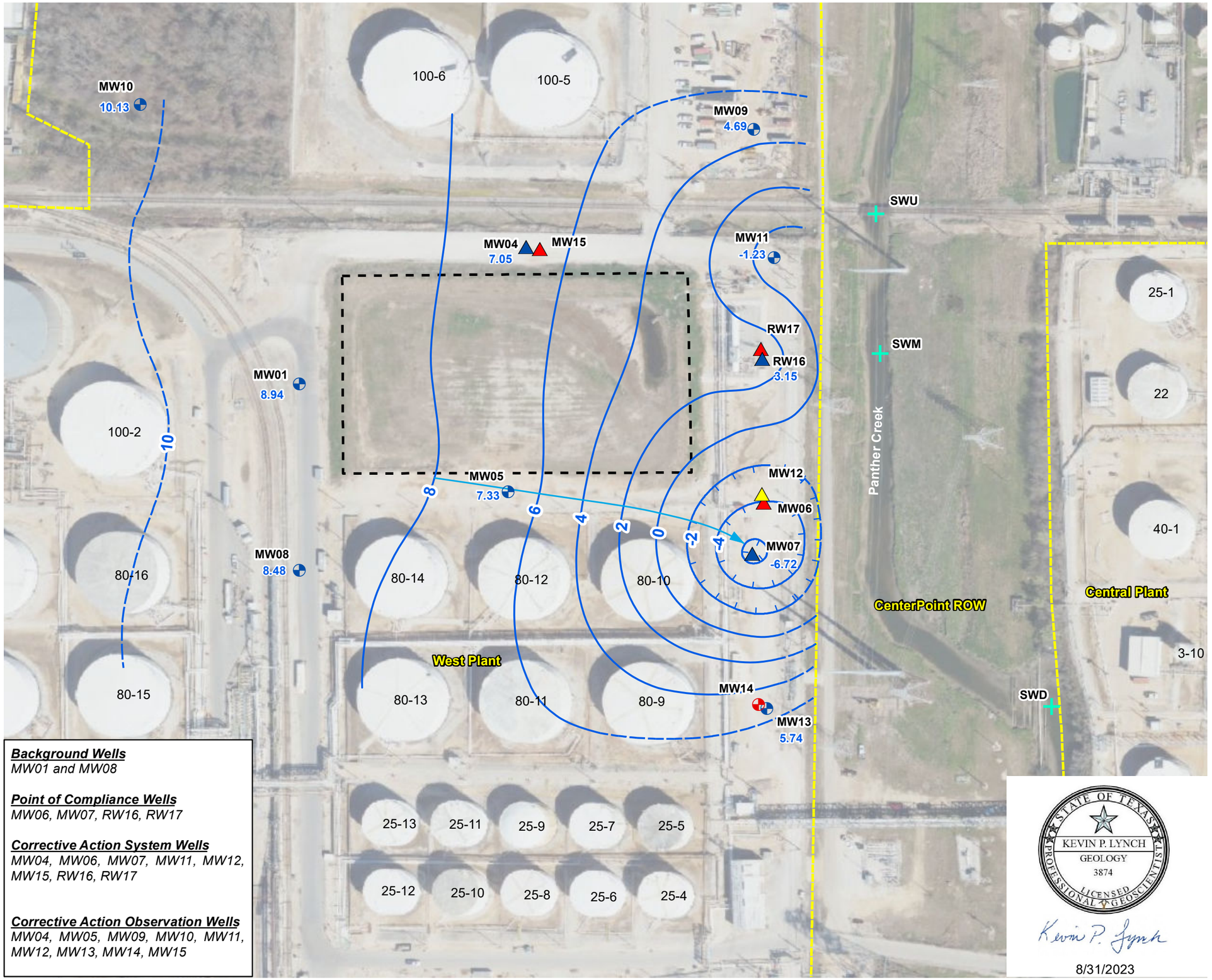
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/7/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/7/2023	60699810 / Figure7c_GW_NHB_Zone5_Jan2023 / 7c

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7c_GW_NHB_Zone5_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- 10' Groundwater Contour with Elevation (Feet, Mean Sea Level) Dashed Where Inferred
- Contour Interval - 2 ft.
- Groundwater Flow Direction

NM = Not Measured

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
8/31/2023

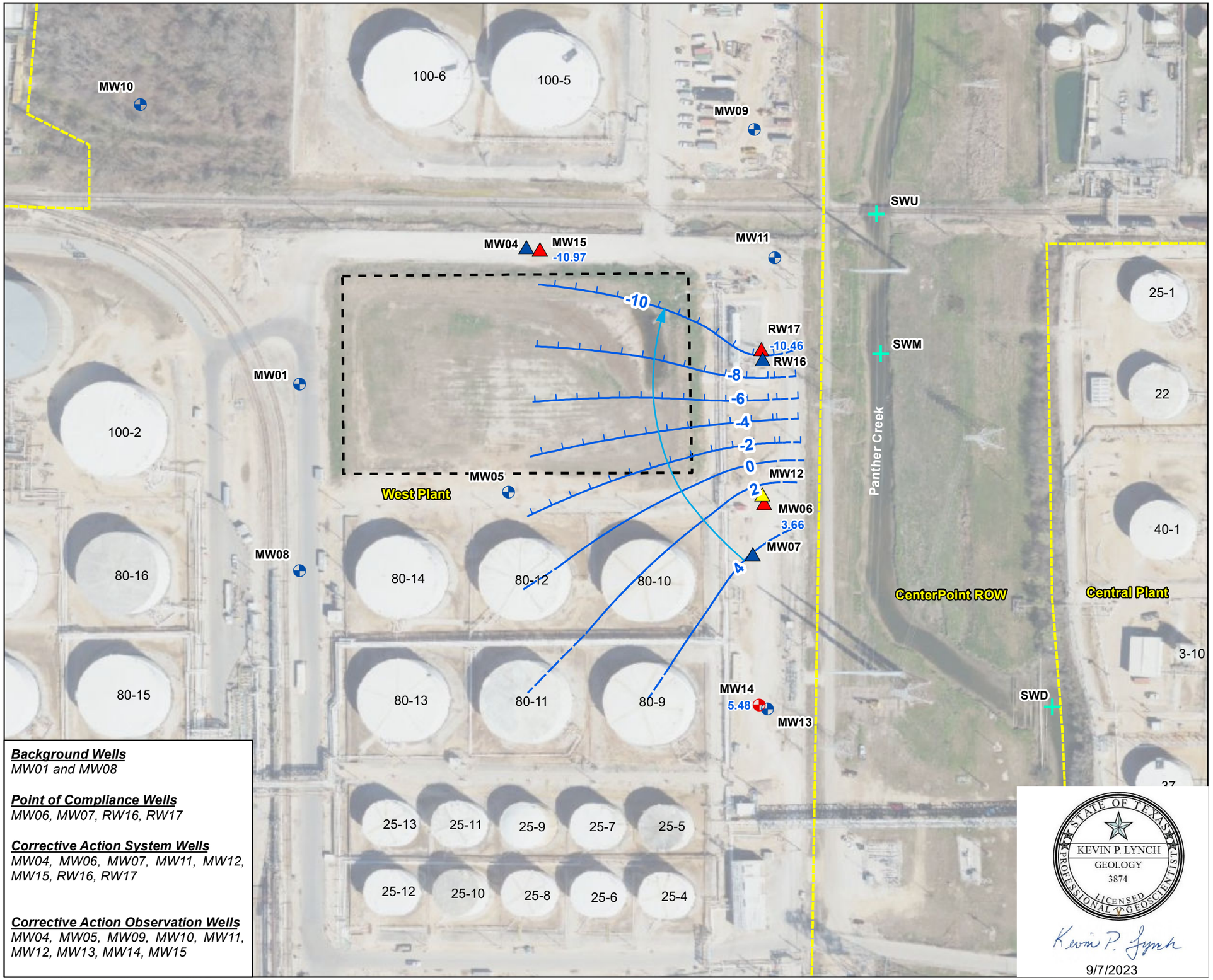
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map July 21, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	8/31/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 8/31/2023	Project No: 60699810 / File Name: Figure7d_GW_NHB_Zone3_Jul2021 / Figure: 7d

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7d_GW_NHB_Zone3_Jul2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Feet, Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
9/7/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

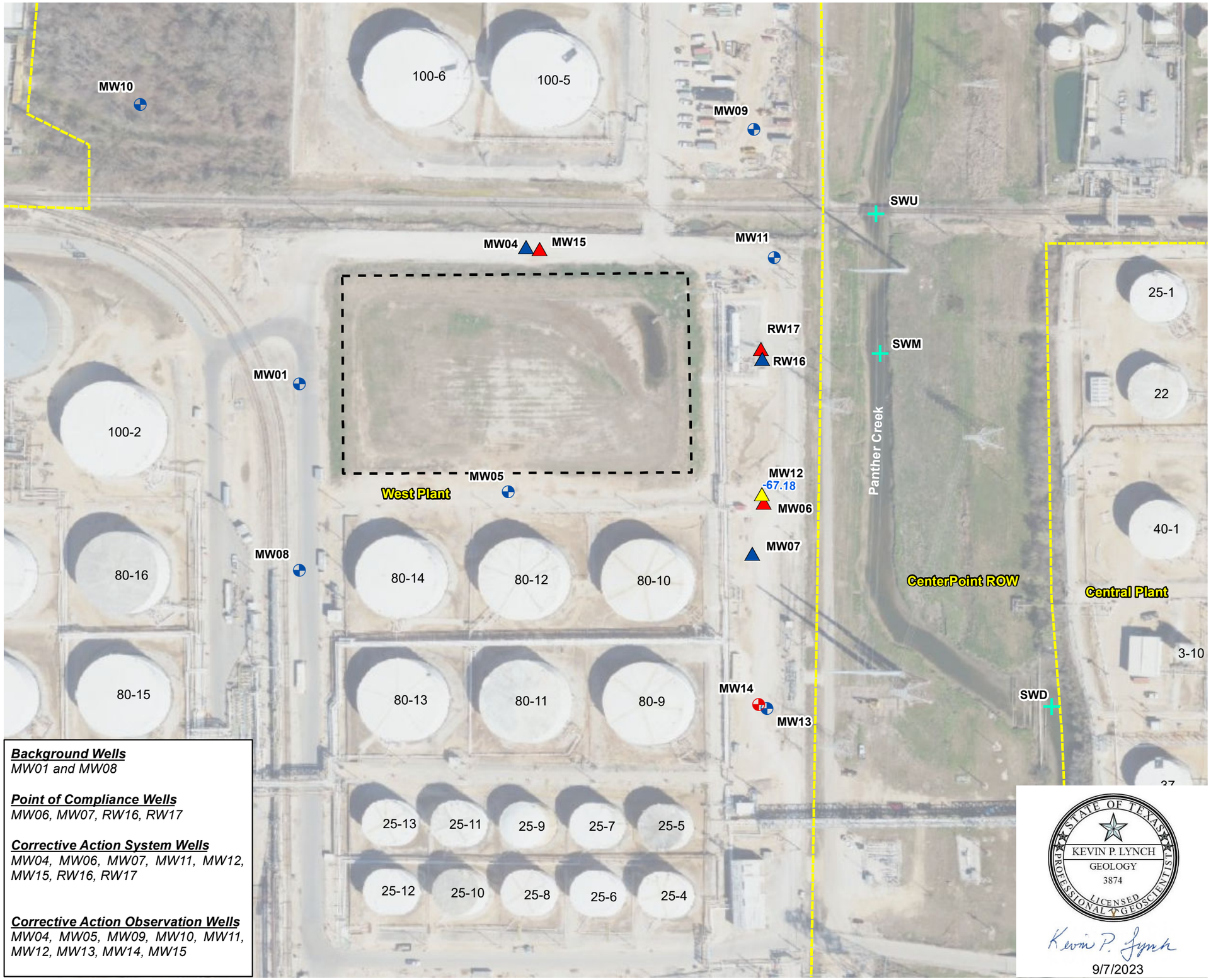
Title: **Groundwater Elevation Map July 21, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	9/7/2023	60680986	Figure7e_GW_NHB_Zone4_Jul2022	7e
	Chk'd By: WG	Date: 9/7/2023			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7e_GW_NHB_Zone4_Jul2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

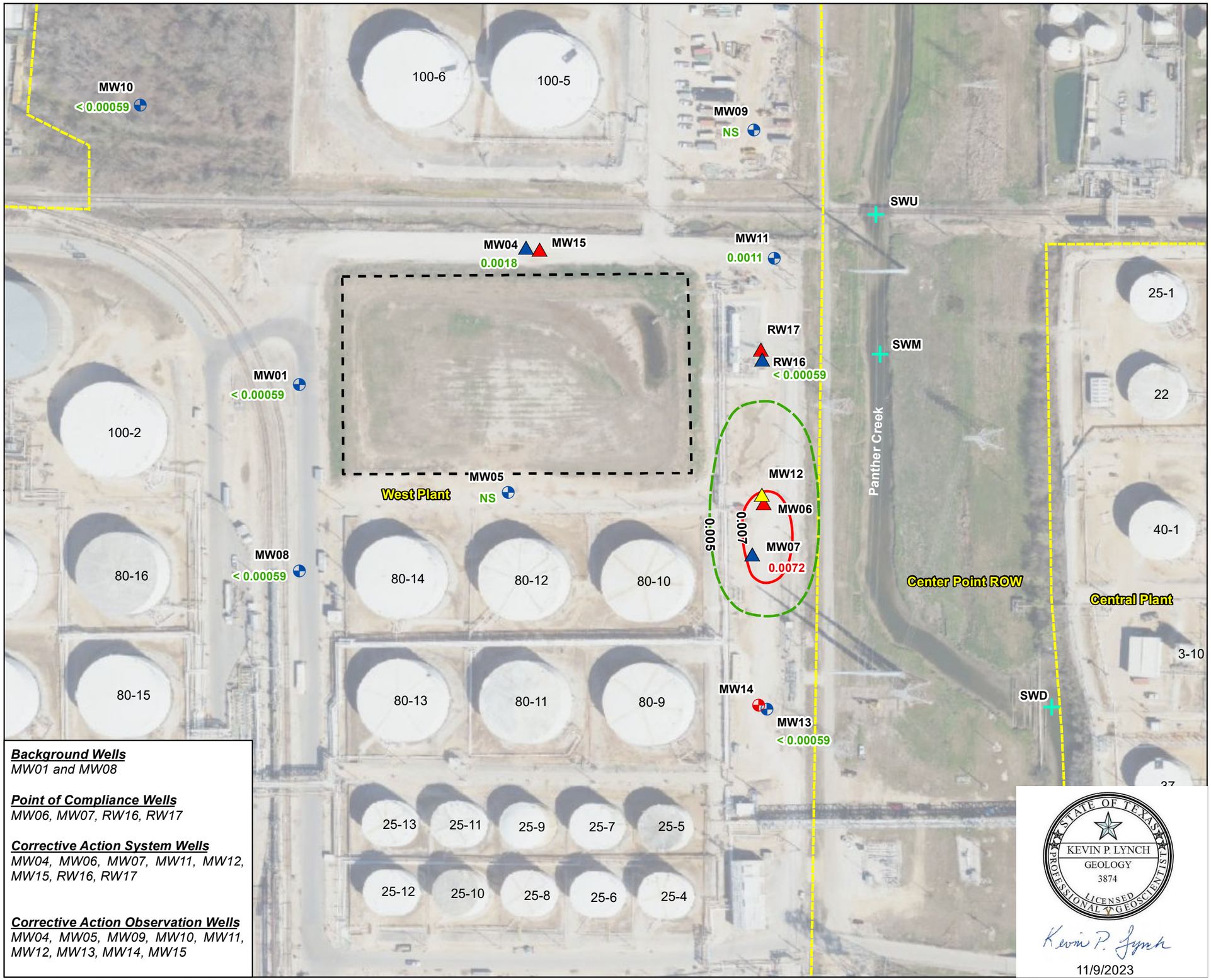
Kevin P. Lynch
9/7/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map July 21, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/7/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/7/2023	60699810 / Figure7f_GW_NHB_Zone5_Jul2023 / 7f



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
11/9/2023

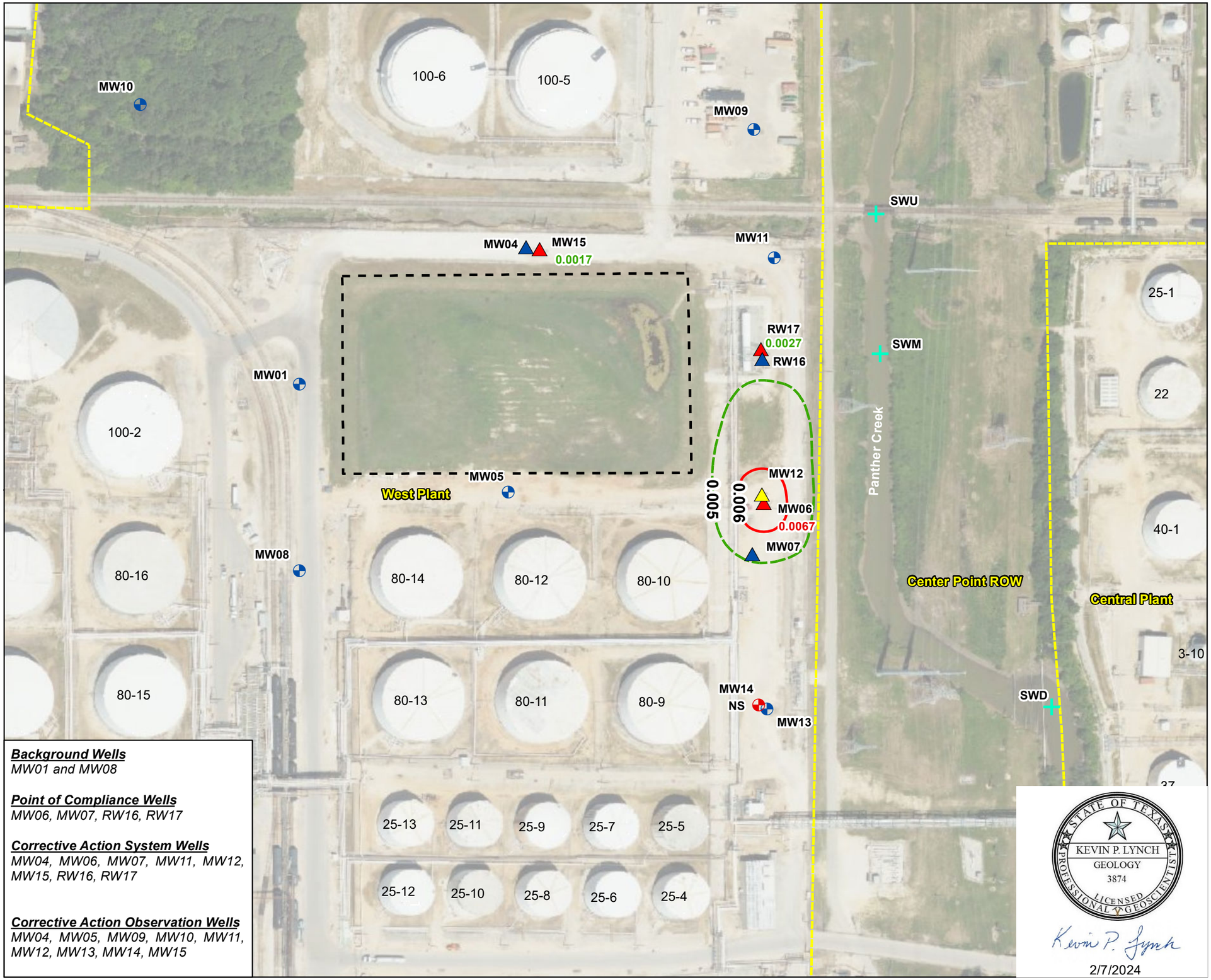
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane January 31, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/9/2023	60699810 / Figure15a_DCA_NHB_Zone3_Jan2023 / 15a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\15a_DCA_NHB_Zone3_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/7/2024

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

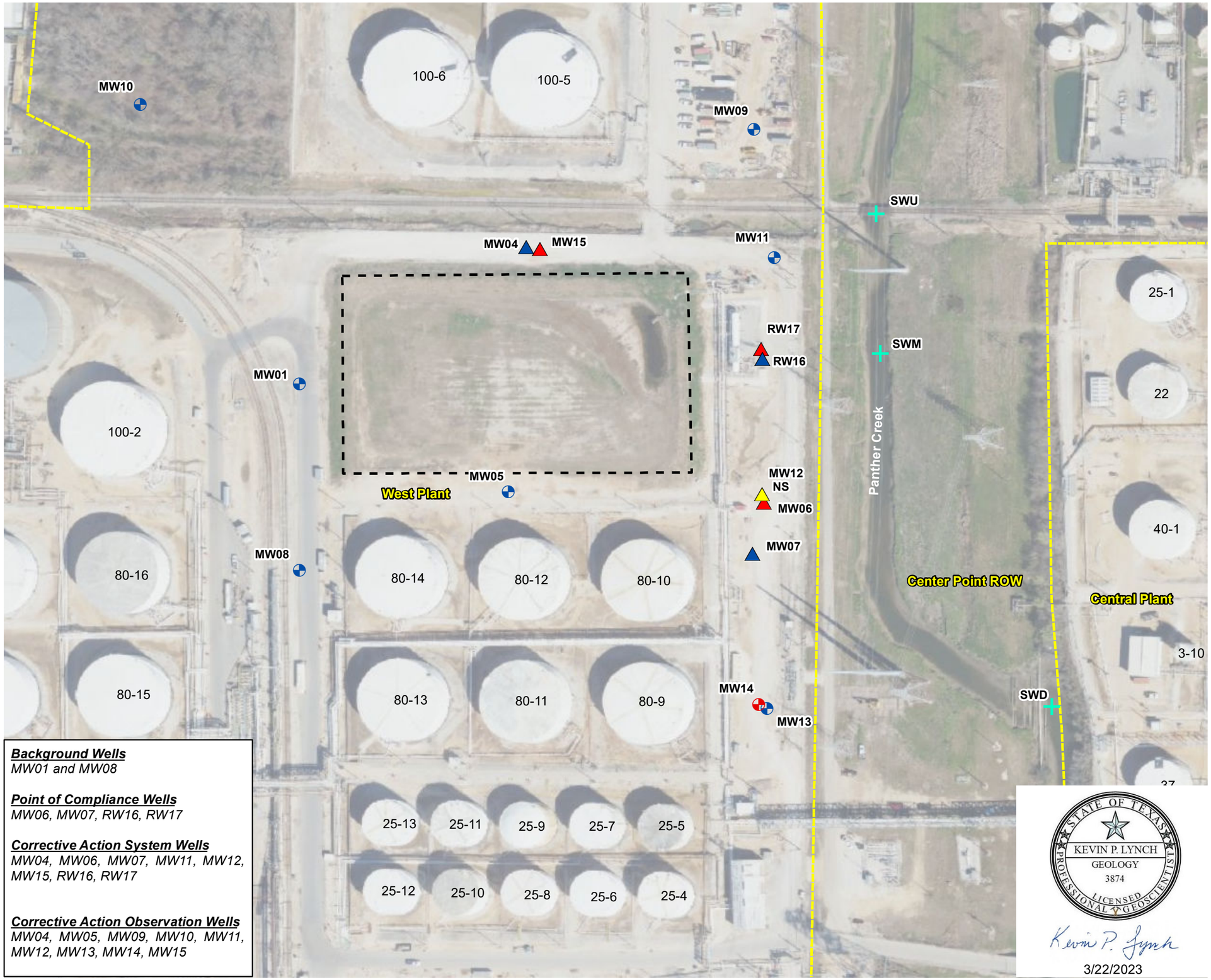
Title: **Contaminant Isopleth Map 1,2 Dichloroethane January 31, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/7/2024	60699810	Figure15b_DCA_NHB_Zone4_Jan2023	15b
	Chk'd By: AH	Date: 2/7/2024			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\15b_DCA_NHB_Zone4_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Groundwater protection standard for 1,2-Dichloroethane is 0.005 mg/L.

NS = Not Sampled per TCEQ concurrence (May 16, 2011)

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

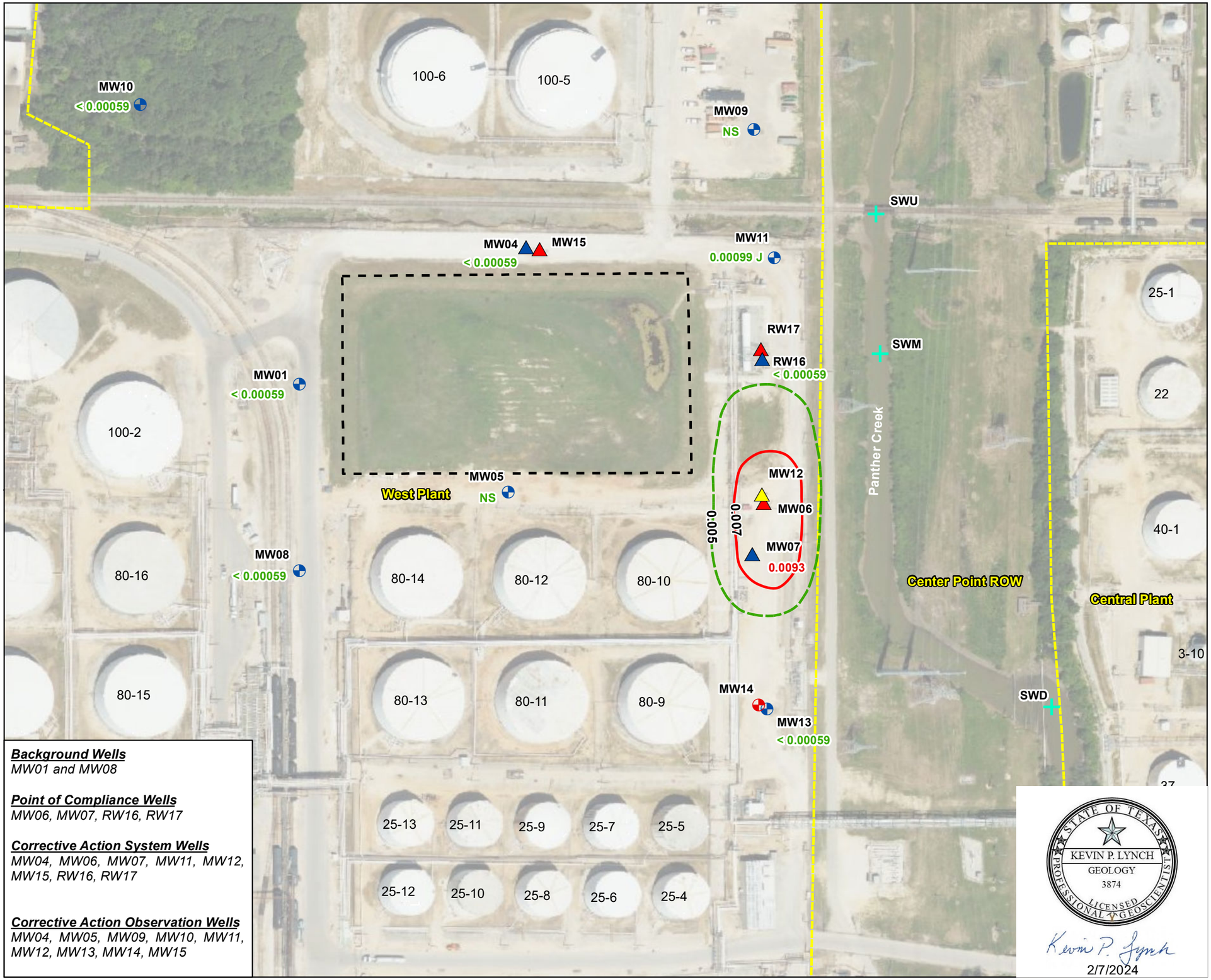
Kevin P. Lynch
3/22/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane January 31, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/22/2023	60699810 / Figure15c_DCA_NHB_Zone5_Jan2023 / 15c



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/7/2024

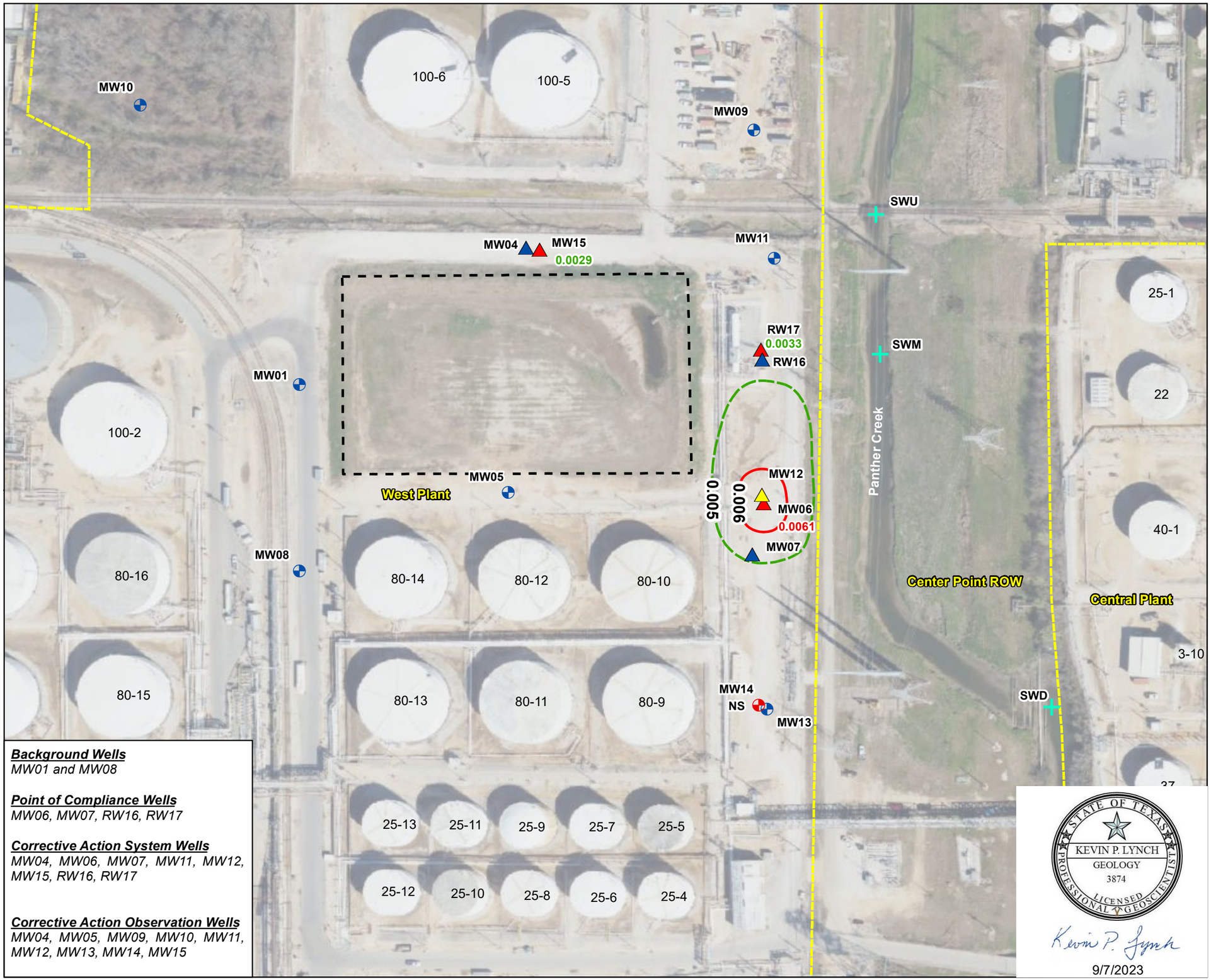
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane July 21, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/7/2024	60699810	Figure15d_DCA_NHB_Zone3_Jul2023	15d
	Chk'd By: AH	Date: 2/7/2024			



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
9/7/2023

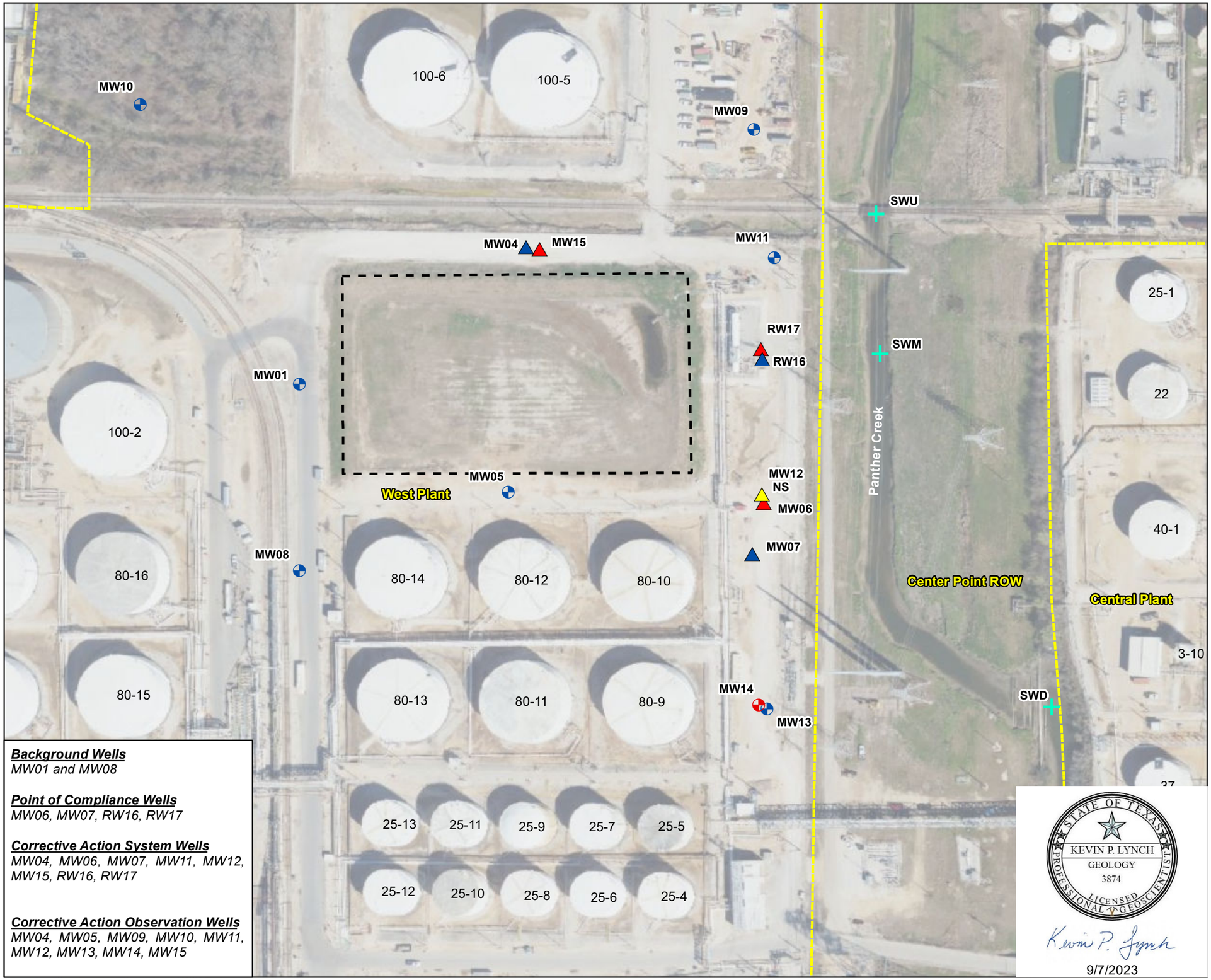
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane July 21, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	9/7/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 9/7/2023	Project No: 60680986 / File Name: Figure15e_DCA_NHB_Zone4_Jul2023 / Figure: 15e

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\15e_DCA_NHB_Zone4_Jul2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Groundwater protection standard for 1,2-Dichloroethane is 0.005 mg/L.

NS = Not Sampled per TCEQ concurrence (May 16, 2011)

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
9/7/2023

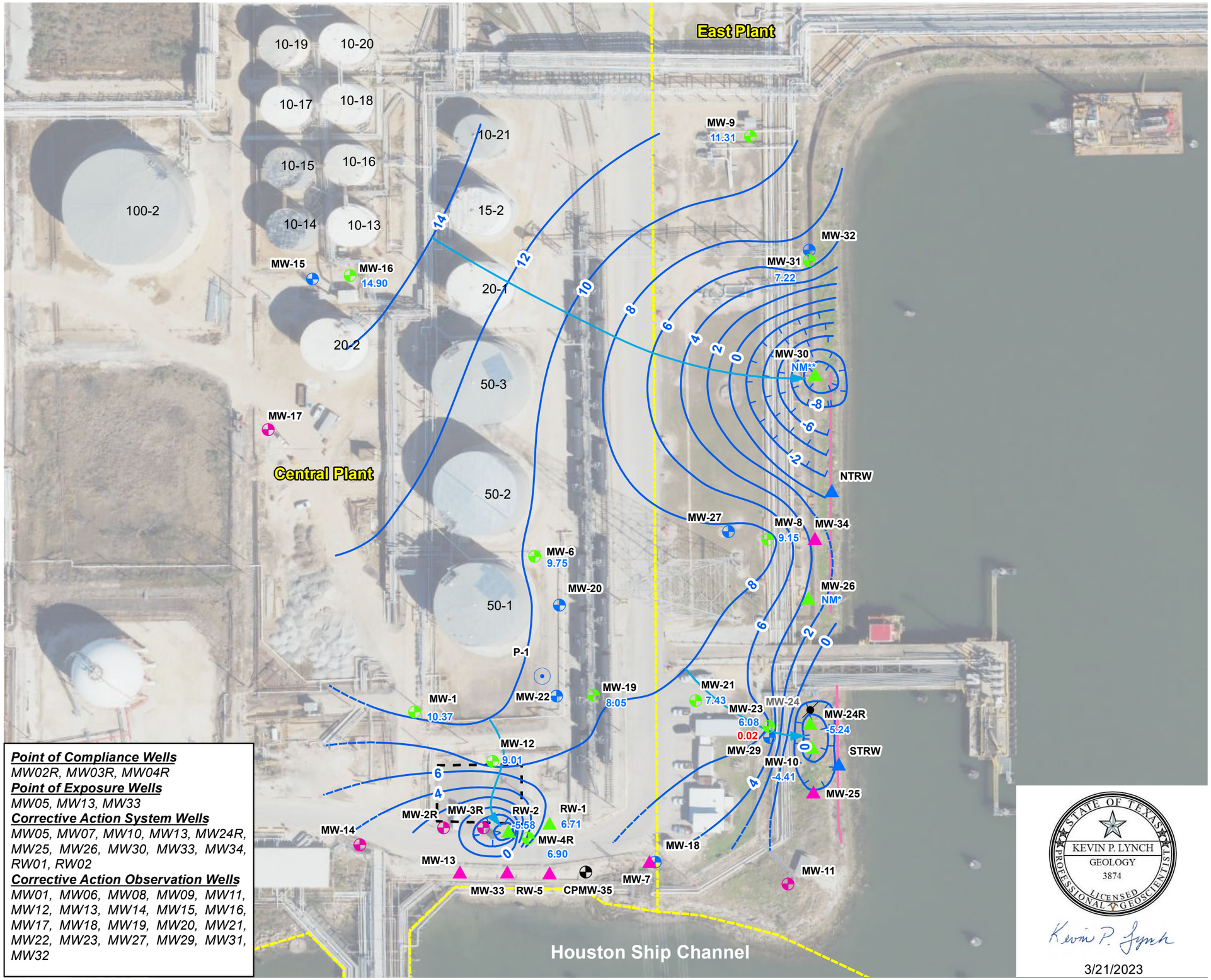
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane July 21, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	9/7/2023	60699810	Figure15f_DCA_NHB_Zone5_Jul2023	15f
	Chk'd By: AH	Date: 9/7/2023			



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction
- 0.06 Product Thickness (ft.)
- NM* Well inaccessible
- NM** Groundwater elevation greater than pump assembly, elevation estimated.

Notes:
Only data from wells completed in UNTU are shown.

0 100 200 Feet
Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

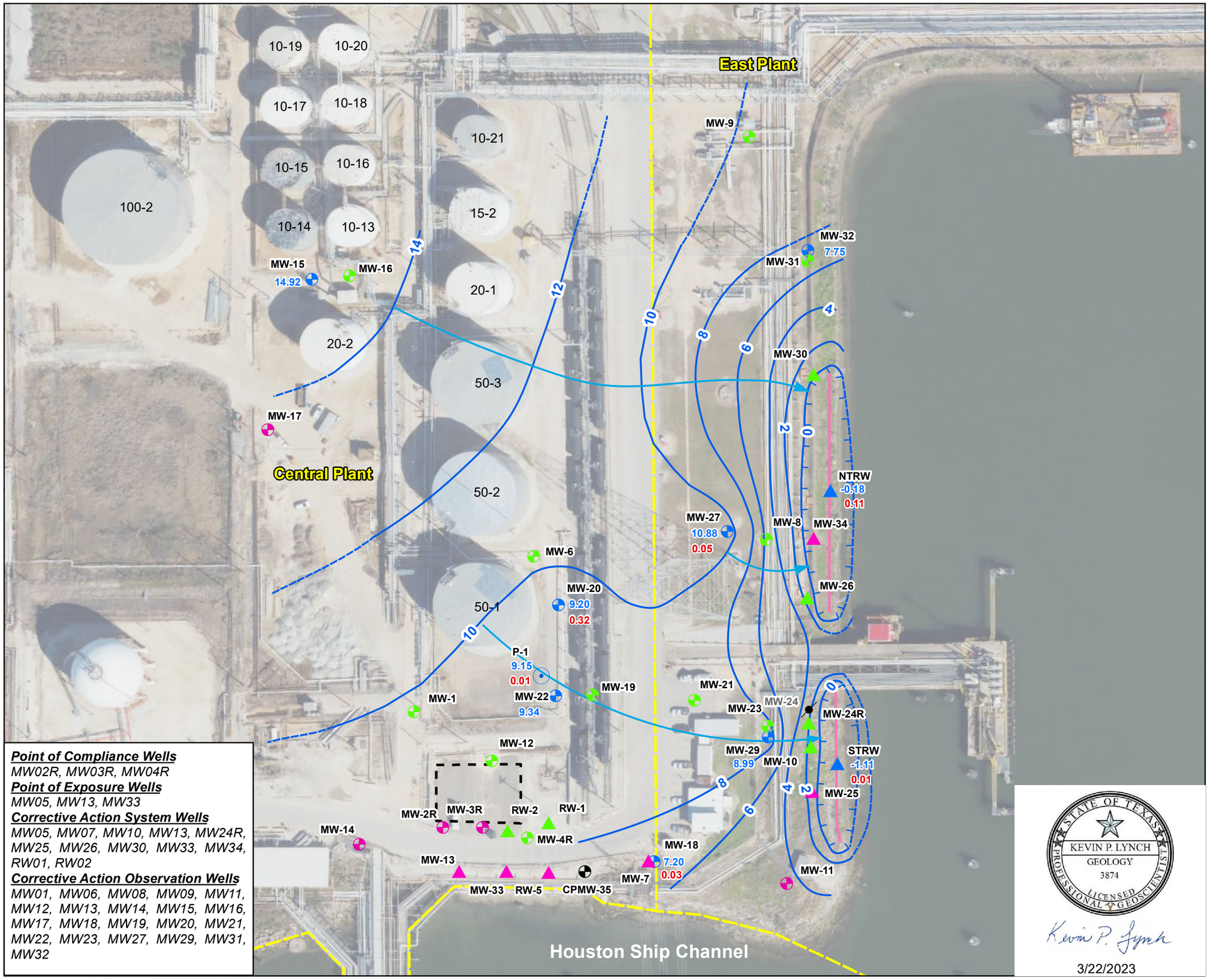
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 30, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/22/2023	Project No: 60699810 / File Name: 8a_GW_SEHB_UNTU_Jan2023 / Figure: 8a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\8a_GW_SEHB_UNTU_Jan2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction
- 0.03 Product Thickness (ft.)

Notes:
Only data from wells completed in SCF are shown.

0 100 200 Feet
Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

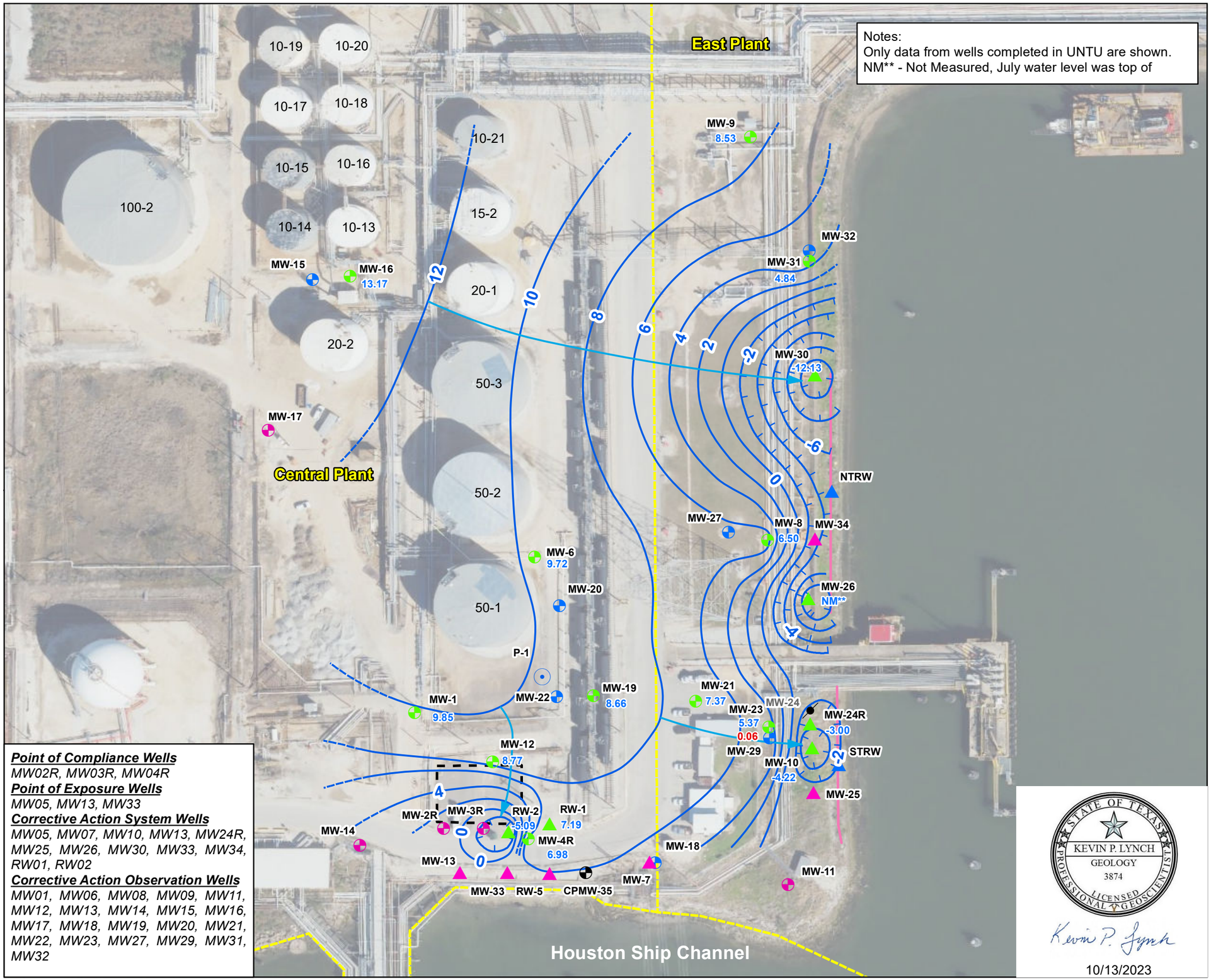
Kevin P. Lynch
3/22/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 30, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/23/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/23/2023	60699810 / 8b_GW_SEHB_SCF_Jan2023 / 8b



Notes:
Only data from wells completed in UNTU are shown.
NM** - Not Measured, July water level was top of

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 10' — Groundwater Contour with Elevation (Mean Sea Level) Dashed Where Inferred
- Contour Interval - 2 ft.
- 0.01 — Product Thickness (ft.)
- [5.31] — Not Used in Contouring
- Groundwater Flow Direction

0 100 200 Feet

Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch

10/13/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

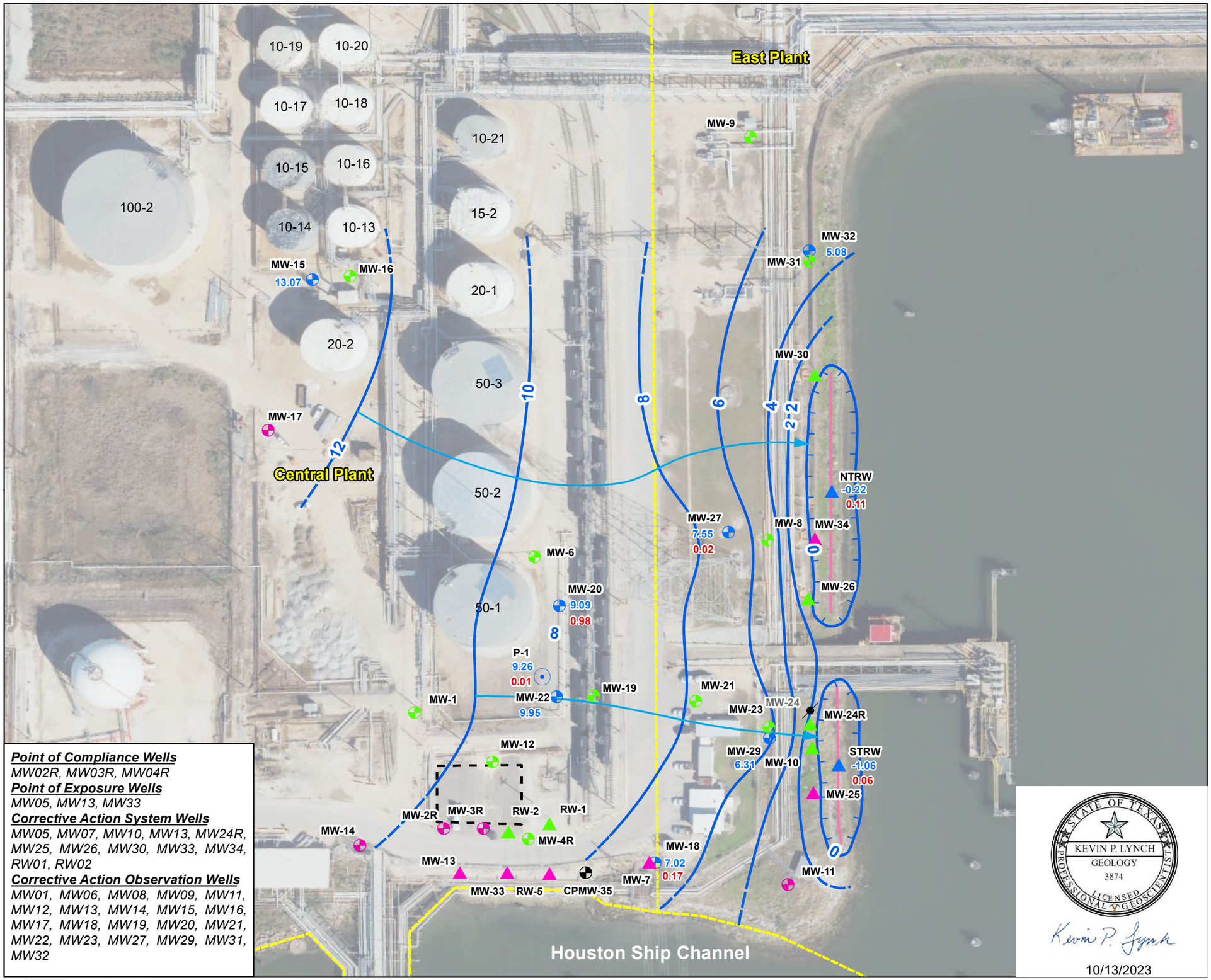
Title: **Groundwater Elevation Map July 20, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	10/13/2023	60699810	Figure8c_GW_SEHB_UNTU_Jul2023	8c
	Chk'd By: AH	Date: 10/13/2023			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\8c_GW_SEHB_UNTU_Jul2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 10' — Groundwater Contour with Elevation (Mean Sea Level) Dashed Where Inferred
- Contour Interval - 2 ft.
- 0.13 — Product Thickness (ft.)
- Groundwater Flow Direction

Notes:
Only data from wells completed in SCF are shown.

0 100 200 Feet

Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch

10/13/2023

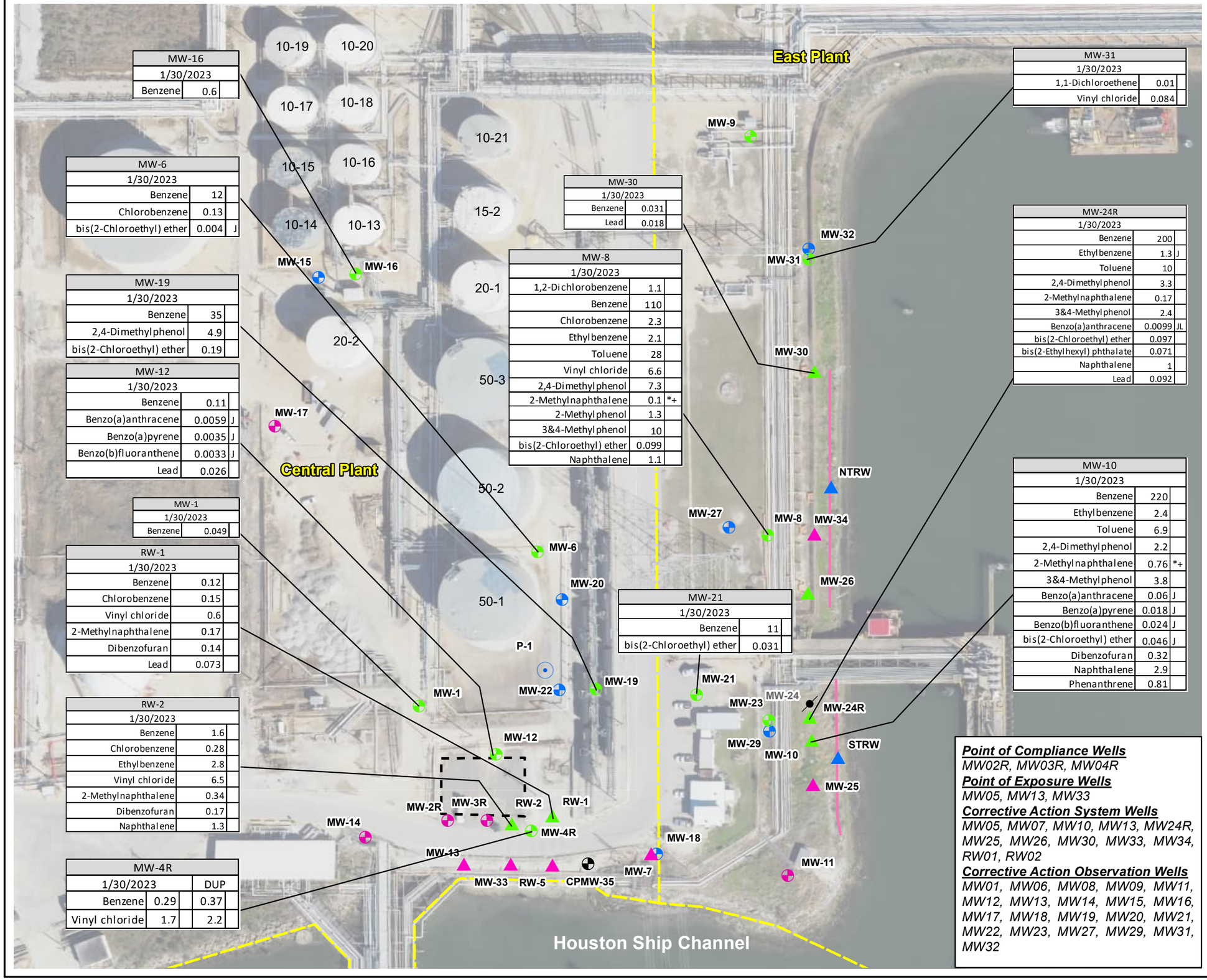
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map July 20, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	10/13/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 10/13/2023	Project No: 60699810
			File Name: Figure8d_GW_SEHB_SCF_Jul2023
			Figure: 8d

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\8d_GW_SEHB_SCF_Jul2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. L - Bias in sample result is likely low.
3. *+ - LCS and/or LCSD is outside acceptance limits, high biased.
4. Values presented in mg/L
5. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

0 100 200 Feet
Approximate Scale

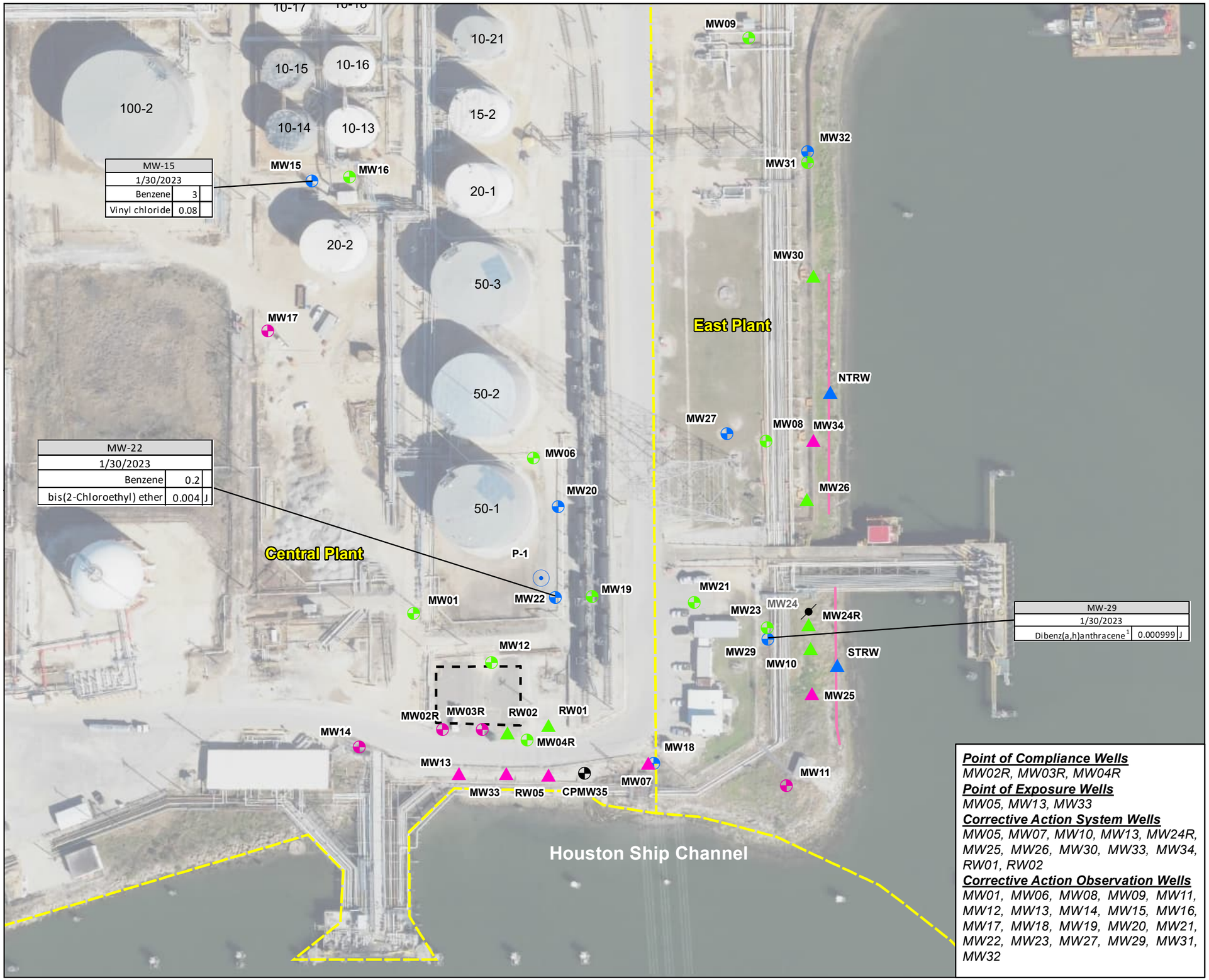
N

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 11/9/2023	Project No: 60699810
			File Name: 16a_COC_SEHB_UNTU_Jan2023
			Figure: 16a



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. Values presented in mg/L
3. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

0 100 200 Feet
Approximate Scale

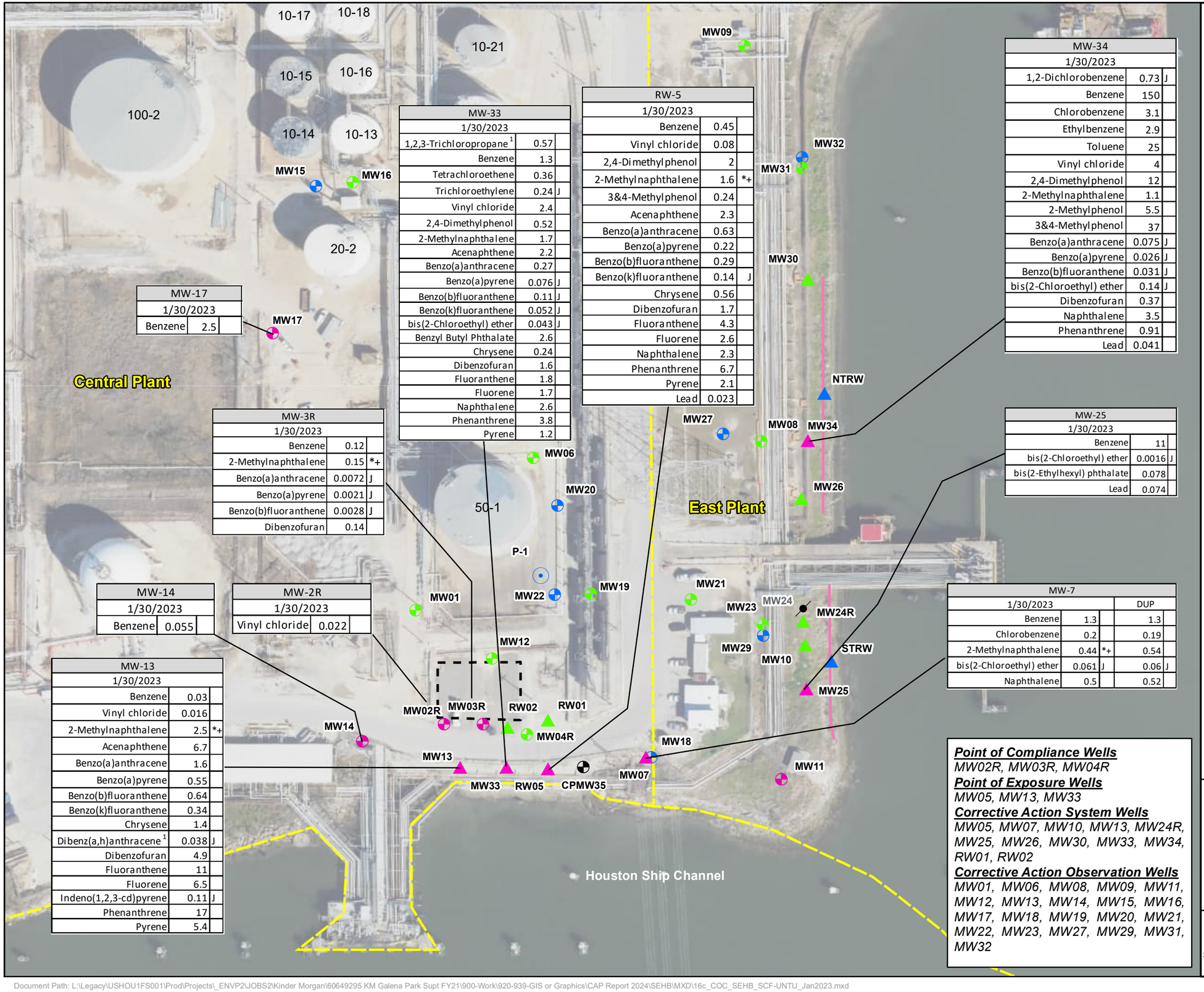
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/22/2023	Project No: 60699810 / File Name: 16b_COC_SEHB_SCF_Jan2023 / Figure: 16b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\16b_COC_SEHB_SCF_Jan2023.mxd



MW-17		
1/30/2023		
Benzene	2.5	

MW-33		
1/30/2023		
1,2,3-Trichloropropane [1]	0.57	
Benzene	1.3	
Tetrachloroethene	0.36	
Trichloroethylene	0.24	J
Vinyl chloride	2.4	
2,4-Dimethylphenol	0.52	
2-Methylnaphthalene	1.7	
Acenaphthene	2.2	
Benzo(a)anthracene	0.27	
Benzo(a)pyrene	0.076	J
Benzo(b)fluoranthene	0.11	J
Benzo(k)fluoranthene	0.052	J
bis(2-Chloroethyl) ether	0.043	J
Benzyl Butyl Phthalate	2.6	
Chrysene	0.24	
Dibenzofuran	1.6	
Fluoranthene	1.8	
Fluorene	1.7	
Naphthalene	2.6	
Phenanthrene	3.8	
Pyrene	1.2	

RW-5		
1/30/2023		
Benzene	0.45	
Vinyl chloride	0.08	
2,4-Dimethylphenol	2	
2-Methylnaphthalene	1.6	*+
3&4-Methylphenol	0.24	
Acenaphthene	2.3	
Benzo(a)anthracene	0.63	
Benzo(a)pyrene	0.22	
Benzo(b)fluoranthene	0.29	
Benzo(k)fluoranthene	0.14	J
Chrysene	0.56	
Dibenzofuran	1.7	
Fluoranthene	4.3	
Fluorene	2.6	
Naphthalene	2.3	
Phenanthrene	6.7	
Pyrene	2.1	
Lead	0.023	

MW-34		
1/30/2023		
1,2-Dichlorobenzene	0.73	J
Benzene	150	
Chlorobenzene	3.1	
Ethylbenzene	2.9	
Toluene	25	
Vinyl chloride	4	
2,4-Dimethylphenol	12	
2-Methylnaphthalene	1.1	
2-Methylphenol	5.5	
3&4-Methylphenol	37	
Benzo(a)anthracene	0.075	J
Benzo(a)pyrene	0.026	J
Benzo(b)fluoranthene	0.031	J
bis(2-Chloroethyl) ether	0.14	J
Dibenzofuran	0.37	
Naphthalene	3.5	
Phenanthrene	0.91	
Lead	0.041	

MW-25		
1/30/2023		
Benzene	11	
bis(2-Chloroethyl) ether	0.0016	J
bis(2-Ethylhexyl) phthalate	0.078	
Lead	0.074	

MW-3R		
1/30/2023		
Benzene	0.12	
2-Methylnaphthalene	0.15	*+
Benzo(a)anthracene	0.0072	J
Benzo(a)pyrene	0.0021	J
Benzo(b)fluoranthene	0.0028	J
Dibenzofuran	0.14	

MW-14		
1/30/2023		
Benzene	0.055	

MW-2R		
1/30/2023		
Vinyl chloride	0.022	

MW-7			
1/30/2023			DUP
Benzene	1.3		1.3
Chlorobenzene	0.2		0.19
2-Methylnaphthalene	0.44	*+	0.54
bis(2-Chloroethyl) ether	0.061	J	0.06 J
Naphthalene	0.5		0.52

MW-13		
1/30/2023		
Benzene	0.03	
Vinyl chloride	0.016	
2-Methylnaphthalene	2.5	*+
Acenaphthene	6.7	
Benzo(a)anthracene	1.6	
Benzo(a)pyrene	0.55	
Benzo(b)fluoranthene	0.64	
Benzo(k)fluoranthene	0.34	
Chrysene	1.4	
Dibenz(a,h)anthracene [1]	0.038	J
Dibenzofuran	4.9	
Fluoranthene	11	
Fluorene	6.5	
Indeno(1,2,3-cd)pyrene	0.11	J
Phenanthrene	17	
Pyrene	5.4	

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. *+ - LCS and/or LCSD is outside acceptance limits, high biased.
3. Values presented in mg/L
4. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

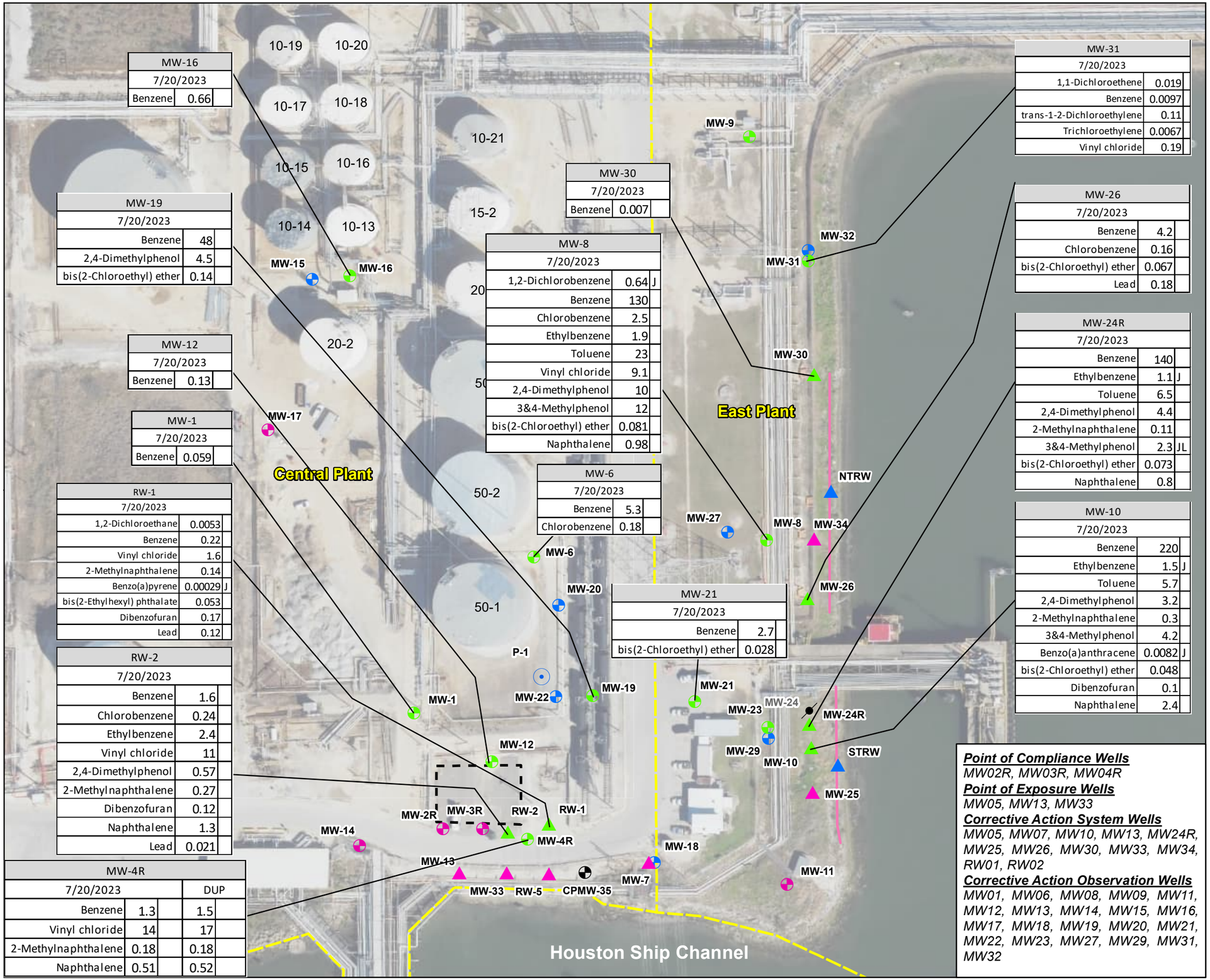
0 100 200 Feet
Approximate Scale

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin - SCF/UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/22/2023	Project No: 60699810 / File Name: 16c_COC_SEHB_SCF/UNTU_Jan2023 / Figure: 16c



MW-16		
7/20/2023		
Benzene	0.66	

MW-19		
7/20/2023		
Benzene	48	
2,4-Dimethylphenol	4.5	
bis(2-Chloroethyl) ether	0.14	

MW-12		
7/20/2023		
Benzene	0.13	

MW-1		
7/20/2023		
Benzene	0.059	

RW-1		
7/20/2023		
1,2-Dichloroethane	0.0053	
Benzene	0.22	
Vinyl chloride	1.6	
2-Methylnaphthalene	0.14	
Benzo(a)pyrene	0.00029	J
bis(2-Ethylhexyl) phthalate	0.053	
Dibenzofuran	0.17	
Lead	0.12	

RW-2		
7/20/2023		
Benzene	1.6	
Chlorobenzene	0.24	
Ethylbenzene	2.4	
Vinyl chloride	11	
2,4-Dimethylphenol	0.57	
2-Methylnaphthalene	0.27	
Dibenzofuran	0.12	
Naphthalene	1.3	
Lead	0.021	

MW-4R			DUP	
7/20/2023				
Benzene	1.3		1.5	
Vinyl chloride	14		17	
2-Methylnaphthalene	0.18		0.18	
Naphthalene	0.51		0.52	

MW-30		
7/20/2023		
Benzene	0.007	

MW-8		
7/20/2023		
1,2-Dichlorobenzene	0.64	J
Benzene	130	
Chlorobenzene	2.5	
Ethylbenzene	1.9	
Toluene	23	
Vinyl chloride	9.1	
2,4-Dimethylphenol	10	
3&4-Methylphenol	12	
bis(2-Chloroethyl) ether	0.081	
Naphthalene	0.98	

MW-6		
7/20/2023		
Benzene	5.3	
Chlorobenzene	0.18	

MW-21		
7/20/2023		
Benzene	2.7	
bis(2-Chloroethyl) ether	0.028	

MW-31		
7/20/2023		
1,1-Dichloroethene	0.019	
Benzene	0.0097	
trans-1-2-Dichloroethylene	0.11	
Trichloroethylene	0.0067	
Vinyl chloride	0.19	

MW-26		
7/20/2023		
Benzene	4.2	
Chlorobenzene	0.16	
bis(2-Chloroethyl) ether	0.067	
Lead	0.18	

MW-24R		
7/20/2023		
Benzene	140	
Ethylbenzene	1.1	J
Toluene	6.5	
2,4-Dimethylphenol	4.4	
2-Methylnaphthalene	0.11	
3&4-Methylphenol	2.3	JL
bis(2-Chloroethyl) ether	0.073	
Naphthalene	0.8	

MW-10		
7/20/2023		
Benzene	220	
Ethylbenzene	1.5	J
Toluene	5.7	
2,4-Dimethylphenol	3.2	
2-Methylnaphthalene	0.3	
3&4-Methylphenol	4.2	
Benzo(a)anthracene	0.0082	J
bis(2-Chloroethyl) ether	0.048	
Dibenzofuran	0.1	
Naphthalene	2.4	

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. L - Estimate is biased low
3. Values presented in mg/L
4. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

0 100 200 Feet
Approximate Scale

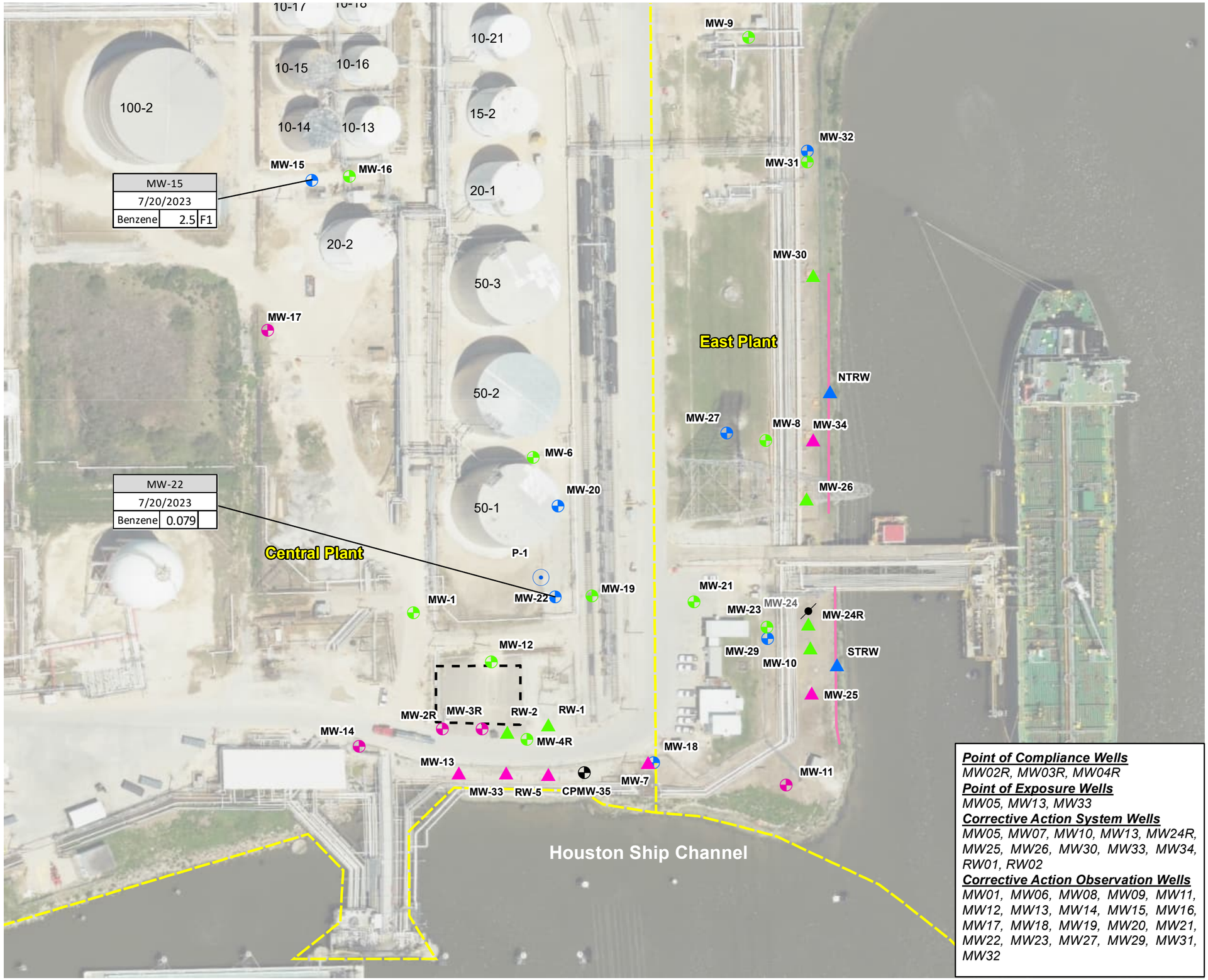
N

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	11/9/2023	60699810	Figure16d_COC_SEHB_UNTU_Jul2023	16d



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. Values presented in mg/L
3. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.
4. F1 - MS and/or MSD recovery exceeds control limits.

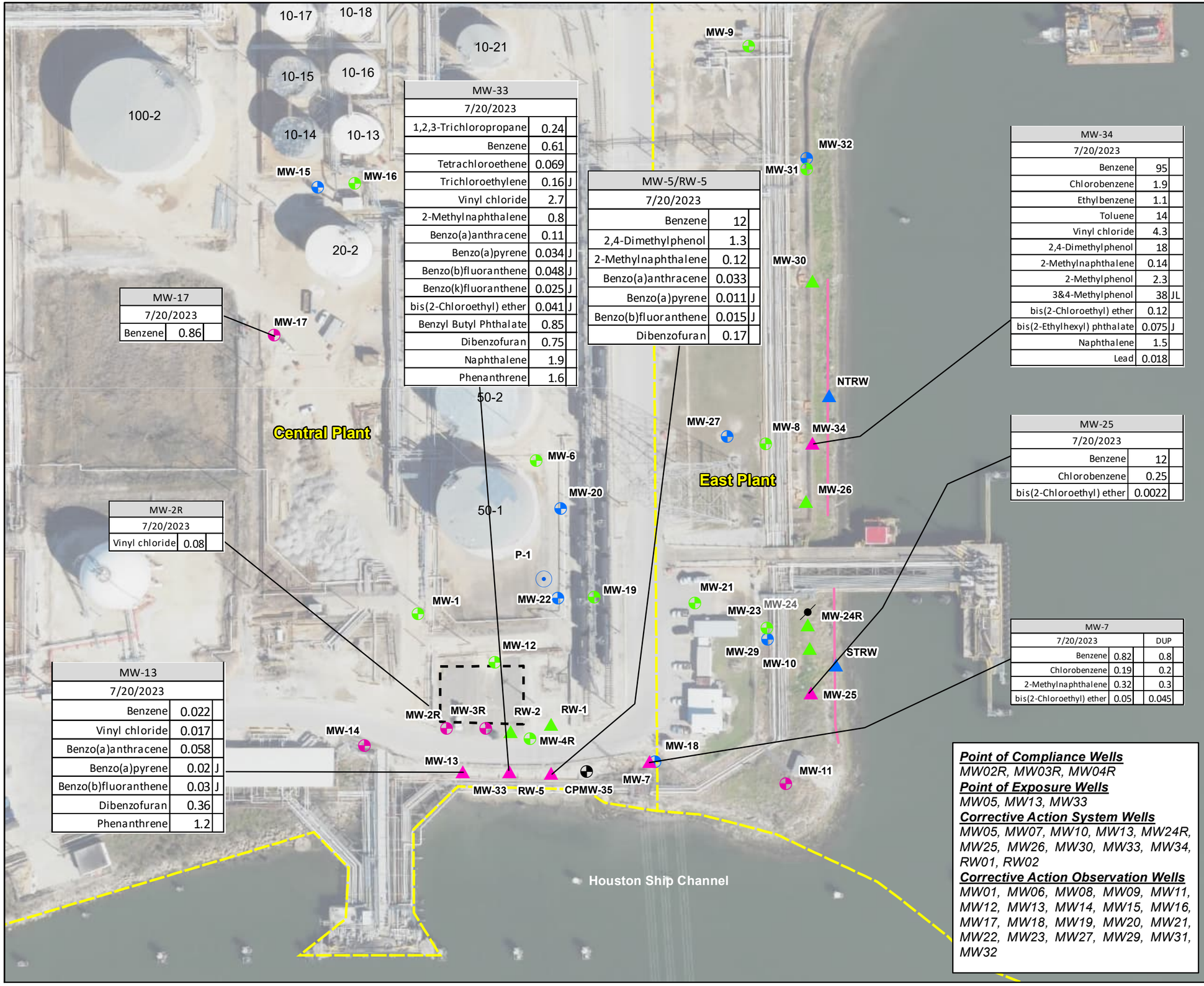
0 100 200 Feet
Approximate Scale

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/21/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/21/2024	60680986	Figure16e_COC_SEHB_SCF_Jul2023	16e



MW-33	
7/20/2023	
1,2,3-Trichloropropane	0.24
Benzene	0.61
Tetrachloroethene	0.069
Trichloroethylene	0.16 J
Vinyl chloride	2.7
2-Methylnaphthalene	0.8
Benzo(a)anthracene	0.11
Benzo(a)pyrene	0.034 J
Benzo(b)fluoranthene	0.048 J
Benzo(k)fluoranthene	0.025 J
bis(2-Chloroethyl) ether	0.041 J
Benzyl Butyl Phthalate	0.85
Dibenzofuran	0.75
Naphthalene	1.9
Phenanthrene	1.6

MW-5/RW-5	
7/20/2023	
Benzene	12
2,4-Dimethylphenol	1.3
2-Methylnaphthalene	0.12
Benzo(a)anthracene	0.033
Benzo(a)pyrene	0.011 J
Benzo(b)fluoranthene	0.015 J
Dibenzofuran	0.17

MW-34	
7/20/2023	
Benzene	95
Chlorobenzene	1.9
Ethylbenzene	1.1
Toluene	14
Vinyl chloride	4.3
2,4-Dimethylphenol	18
2-Methylnaphthalene	0.14
2-Methylphenol	2.3
3&4-Methylphenol	38 JL
bis(2-Chloroethyl) ether	0.12
bis(2-Ethylhexyl) phthalate	0.075 J
Naphthalene	1.5
Lead	0.018

MW-25	
7/20/2023	
Benzene	12
Chlorobenzene	0.25
bis(2-Chloroethyl) ether	0.0022

MW-7		
7/20/2023		DUP
Benzene	0.82	0.8
Chlorobenzene	0.19	0.2
2-Methylnaphthalene	0.32	0.3
bis(2-Chloroethyl) ether	0.05	0.045

MW-2R	
7/20/2023	
Vinyl chloride	0.08

MW-13	
7/20/2023	
Benzene	0.022
Vinyl chloride	0.017
Benzo(a)anthracene	0.058
Benzo(a)pyrene	0.02 J
Benzo(b)fluoranthene	0.03 J
Dibenzofuran	0.36
Phenanthrene	1.2

MW-17		
7/20/2023		
Benzene	0.86	

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. L - Estimate biased Low
3. Values presented in mg/L
4. Only chemicals whose concentrations exceeding their applicable GWPS (mg/L) are shown.

0 100 200 Feet

Approximate Scale

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

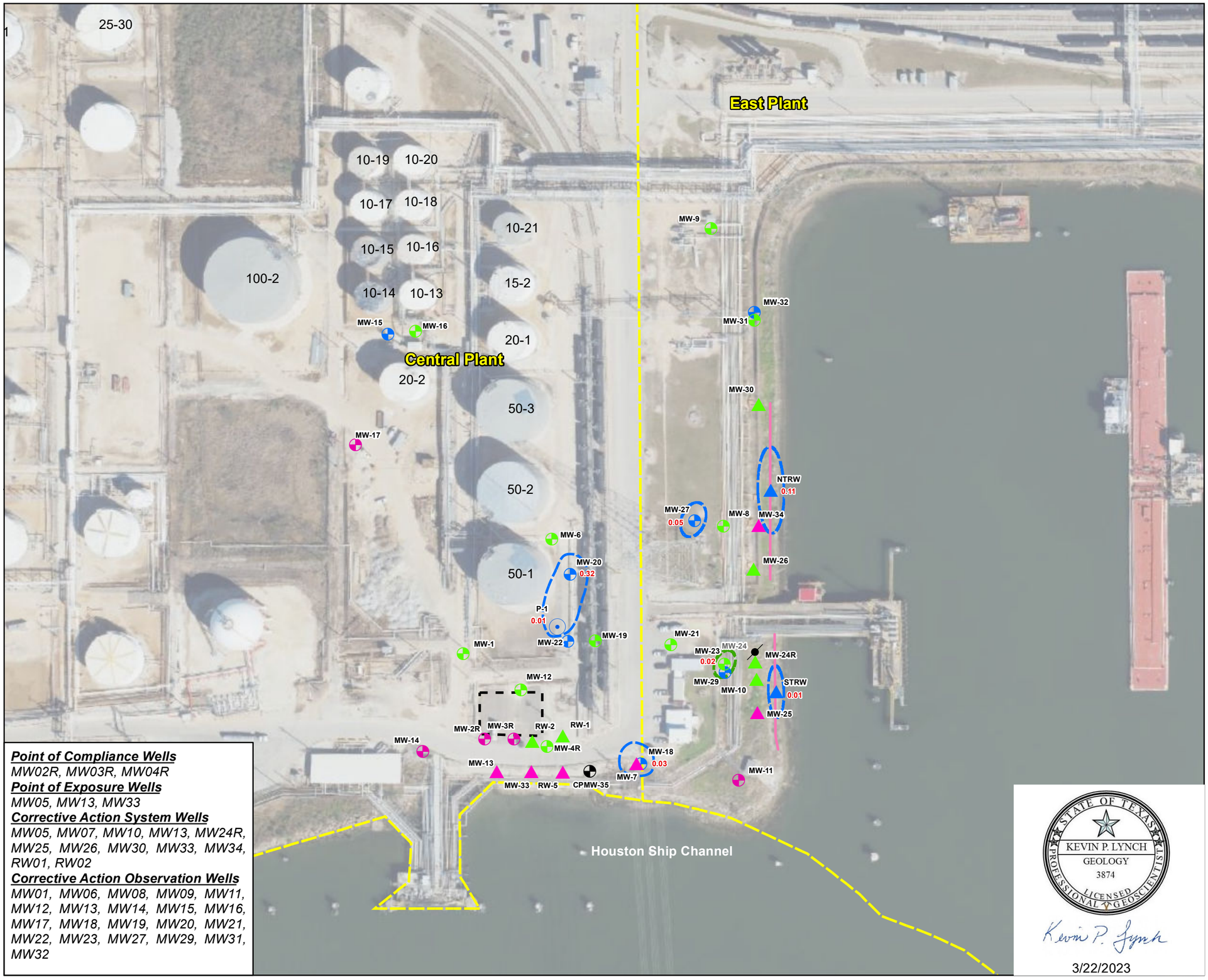
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin - SCF/UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 11/9/2023	Project No: 60699810 / File Name: Figure16f_COC_SEHB_SCF/UNTU_Jul2023 / Figure: 16f

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\16f_COC_SEHB_SCF-UNTU_Jul2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 1.13 - LNAPL Thickness (ft)
- Approximate Extent of LNAPL in SCF
- Approximate Extent of LNAPL in UNTU

0 100 200 Feet
Approximate Scale

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/22/2023

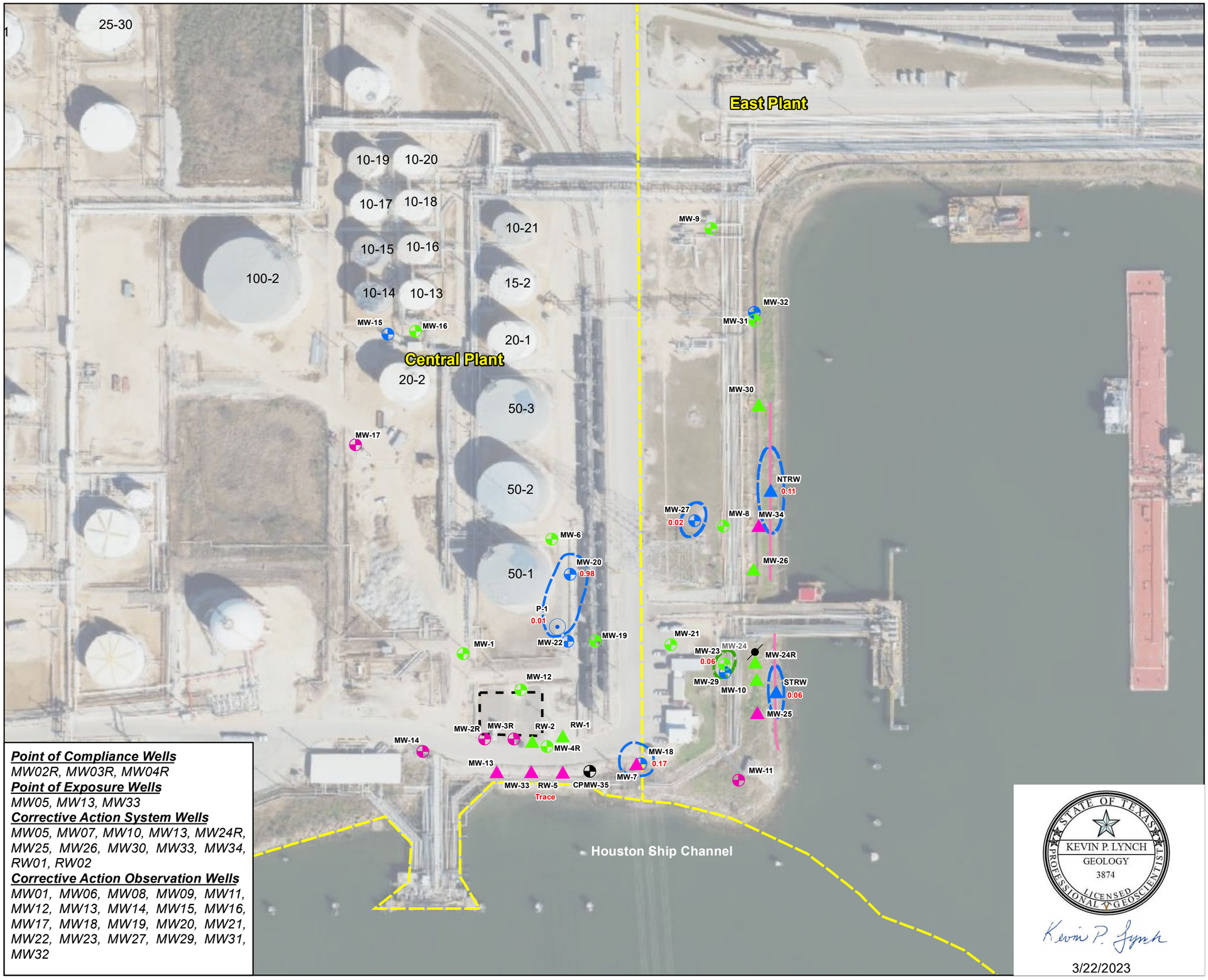
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map January 30, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/22/2023	60699810 / 21a_LNAPL_SEHB_Jan2023 / 21a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\21a_LNAPL_SEHB_Jan2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 1.13 - LNAPL Thickness (ft)
- Approximate Extent of LNAPL in SCF
- Approximate Extent of LNAPL in UNTU

0 100 200 Feet
Approximate Scale

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/22/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map July 20, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/6/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/6/2023	60699810 / 21a_LNAPL_SEHB_Jan2023 / **21b**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\21b_LNAPL_SEHB_Jul2023.mxd

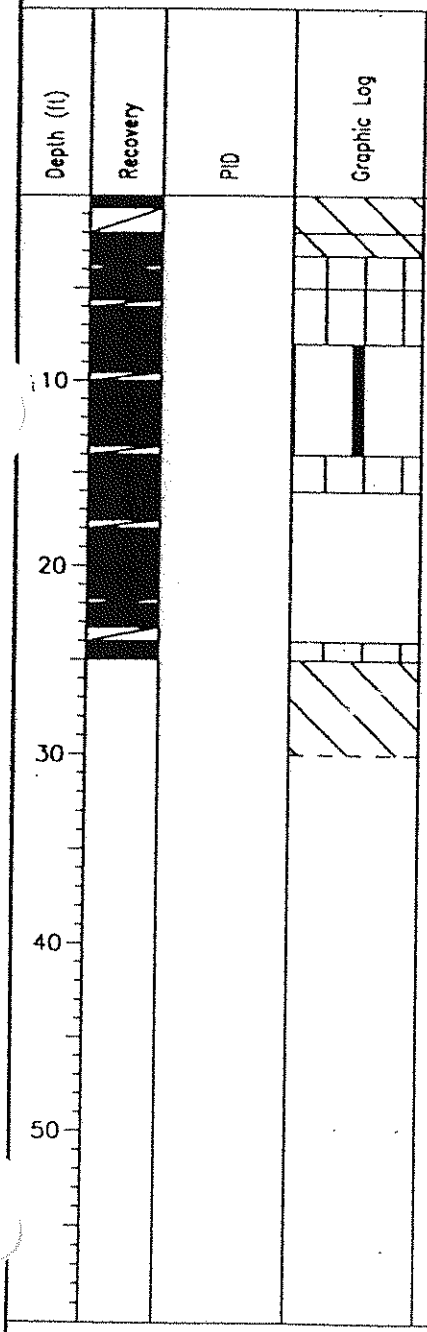
Appendix M1

SEHB Boring Logs

ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001
Project Name: GATX
Borehole Dia.: 10.75in
Total Depth: 30.00'
Elevation: 13.68'
Logged By: B. Nelson
Contractor: Fugro Geosciences
Drilling Method: Hollow Stem Auger
Date Started: 11/14/88
Date Completed: 11/14/88

Site Id: RW01
Location: GATX Terminal, Galena Park, TX
Consulting Firm: ENSR
Remarks:



Material Description

SILTY CLAY, reddish brown, several thin black seams
SILTY CLAY, dark gray to black
SILTY SAND, black, shell fragments, dry
SILTY SAND, grayish green, saturated with hydrocarbons
CLAYEY SILT, gray, mottled iron staining, black seams, soft, dry to moist
SILTY SAND, gray, moist with hydrocarbons
SAND, light gray, very fine sand, saturated with water
few clay stringers
SILTY SAND
SILTY CLAY, light gray to buff, hard

ARCADIS
GERAGHTY & MILLER

	Project Number: HT000297.0001
	Project Name: GATX
	Borehole Dia.: 10.75in
	Total Depth: 30.22'
Site Id: RW02	Elevation: 12.73'
Location: GATX Terminal, Galena Park, TX	Logged By: B. Nelson
Consulting Firm: ENSR	Contractor: Fugro Geosciences
Remarks:	Drilling Method: Hollow Stem Auger
	Date Started: 11/03/88
	Date Completed: 11/04/88

Depth (ft)	Recovery	PID	Graphic Log	Material Description
				ROAD BASE FILL, sandy clay with gravel, red, hard
		20 ppm		CLAYEY SAND, dark gray to black, hnu-20ppm
		60 ppm		SILTY CLAY with sand, medium gray, moist, firm, hnu readings up to 60ppm
10				becoming wet
				SILTY SAND, light gray, wet
20		90 ppm		hnu-90ppm
		400 ppm		some sand stringers, hnu-400ppm
				SILTY CLAY, light gray to buff, hard, wet near top, some dark brown hydrocarbons near top of sample
30				
40				
50				

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-1

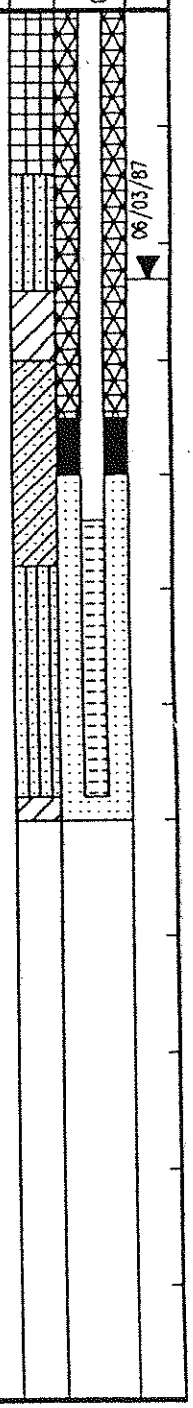
Client : GATX TERMINALS CORPORATION
Project Name : SE HOLDING BASIN CLOSURE PLAN
Project Location : GALENA PARK, TEXAS
Job Number : 521-02-04 Boring No : MW-1
Logged By : S. BAIRD
Approved By : J. BARRINGER
Drilled By : GULF COAST CORING, ROSENBERG, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 05/27/87 Date Completed : 05/27/87
Method : ROTARY WASH Total Depth : 35.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.7 FT
Slot Size : 0.010 IN Type : PVC SCH40
Casing Dia : 4 IN I.D. Length : 21.3 FT

DEPTH IN FEET	DESCRIPTION TOP OF CASING ELEVATION: 21.58 FT. MSL SURFACE ELEVATION : 21.7 FT. MSL
5	ROAD AND DIKE FILL
10	SILTY SAND (SM) – Sandy Channel Fill, loose dark gray and tan, non-plastic, wet.
15	CLAYEY SILT/SILTY CLAY (ML/CL), firm, light gray with orange mottling, medium plastic, slightly moist.
20	VERY CLAYEY SAND (SC), some silt layers, soft, light gray and tan, v.f.g. sand, moist to wet.
25	SILTY SAND (SM), loose, cream and tan, non-plastic, saturated.
30	
35	SILTY CLAY (CL), very stiff, dark brownish-red with gray mottling.
40	T.D. – 35.0 ft. Bore drilled with a 4-inch drag bit on a rotary wash swamp buggy using potable water with a bentonite based drilling mud. Bore washed in first major clay at 35.0 due to close proximity to CB and CPT-6. Ran electric log (gamma, resistance, spontaneous potential) to ascertain lithologic layers. Bore overreamed with 8 inch drag bit to 34.0. Drilling fluids pumped into labeled drums. Well set with flush valve, Triloc screen and casing; sand pack 16-30 screened and washed silica sand; sealed with 1/2" bentonite pellets and tremied cement bentonite slurry. Top of casing set below grade with an aluminum locking cap and a water tight manhole cover.
45	
50	
55	

SAMPLE NO. | SAMPLE TYPE | RECOVERY (FEET) | BLOW COUNT | GRAPHIC LOG | WELL COMPLETION | WATER LEVEL



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-2

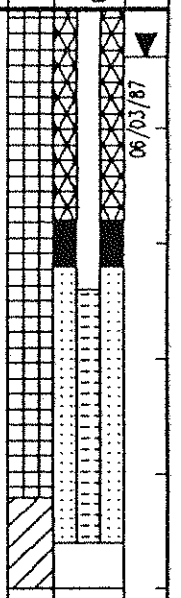
Client : GATX TERMINALS CORPORATION
Project Name : SE HOLDING BASIN CLOSURE PLAN
Project Location : GALENA PARK, TEXAS
Job Number : 521-02-04 Boring No : MW-2
Logged By : S. BAIRD
Approved By : J. BARRINGER
Drilled By : GULF COAST CORING, ROSENBERG, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 05/26/87 Date Completed : 05/27/87
Method : ROTARY WASH Total Depth : 25.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.3 FT
Slot Size : 0.010 IN Type : PVC SCH40
Casing Dia : 4 IN I.D. Length : 12.2 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	P.I.D. READING
	TOP OF CASING ELEVATION: 11.48 FT. MSL SURFACE ELEVATION : 11.5 FT. MSL					
0	ASPHALT parking lot overlying sandy road fill, wood pilings, mud weighted up to prevent circulation loss.	1	ST	0.5		10
		2	ST	1.0		20
5		3	ST	1.0		—
		4	ST	NR		3
		5	ST	1.0		
10	SANDY CHANNEL FILL	6	SS	NR		
		7	SS	NR		
15						
20						
	SILTY CLAY (CL), very stiff, dark reddish brown, with gray mottling, medium to high plasticity, slightly moist, no odor.					
25	T.D. 25.0 ft. Bore drilled with a 4 inch drag bit on a rotary wash swamp buggy using potable water with a bentonite based drilling mud. Bore sampling attempted, wood (possibly old dock pilings?) encountered. Decision made to wash bore to first clay or 27' and run electric log (gamma, resistance, spontaneous potential) to ascertain lithologic layers. Bore overreamed with an 8 inch drag bit. Drilling fluids pumped into labeled drums. Well set with flush valve, Triloc screen and casings; sand pack 16-30 screened and washed silica sand; sealed with 1/2" bentonite pellets and tremied cement bentonite slurry. Top of casing set below grade with an aluminum locking cap and a water-tight manhole cover.					
30						
35						
40						
45						
50						
55						

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-3R

Client : GATX Terminals Corporation
Project Name : SE Holding Basin GW Monitoring System
Project Location : Galena Park, Texas
Job Number : 2970-007 Boring No : MW-3R
Logged By : J. Barringer
Approved By : B. Nelson
Drilled By : Southwestern Laboratories, Houston, Texas

DRILLING AND SAMPLING INFORMATION
Date Started : 2-15-89 Date Completed : 2-15-89
Method : HSA Total Depth : 28.0 ft.

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/1.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0'

TOP OF CASING ELEVATION: 11.77 FT. MSL
SURFACE ELEVATION : 12.3 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	PID READING
0	Fill – Sandy Channel Fill – Asphalt from 0–1.5', silty fine sand and lime stabilized clay(1.5–2.2'), soft, dark brown and light red, with abundant oyster shell fragments, strong odor.	1	ST	1		8ppm 55ppm
2	Sandy Channel Fill – silty very fine sand, loose, dark brown to black, mottled with gray pockets, non-platic, black staining, very moist, appears to be dredge spoil material used to fill in basin.	2	ST	1.5		10ppm 15ppm
4		3	ST	1.4		90ppm 50ppm
6		4	ST	1.5		
8		5	ST	NR		
10	–– @10.0–10.5 ft. wet, strong odor FILL – Clayey Silt, soft light to dark gray with black and purple staining, with some very grained sand, slight plasticity, wet, very strong hydrocarbon odor, slightly oily.	6	ST	1.6		50ppm
12		7	ST	NR		
14	SILTY CLAY (CL), firm, light gray, medium plasticity, moist.	8	ST	1.8		50ppm
16	CLAYEY SAND (SC)–soft to loose, light gray olive and tan with orange mottling, silty to very fine grained sand, slight to non-plastic, strong odor, wet.	9	ST	0.3		
18	SILTY SAND (SM), loose, strong odor.	10	ST	1.7		
20		11	ST	1.4		
22	CLAYEY SILT (ML)–soft, light tan and light red with ferrous mottling, slight plasticity, very moist to wet	12	ST	1.3		

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL — 02/02/90

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-3R

Client : GATX Terminals Corporation
Project Name : SE Holding Basin GW Monitoring System
Project Location : Galena Park, Texas
Job Number : 2970-007 Boring No : MW-3R
Logged By : J. Barringer
Approved By : B. Nelson
Drilled By : Southwestern Laboratories, Houston, Tx.

DRILLING AND SAMPLING INFORMATION
Date Started : 2-15-89 Date Completed : 2-15-89
Method : HSA Total Depth : 28.0 ft.

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/1.5' sump
Slot Size : 0.010" Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0'

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 11.77 FT. MSL SURFACE ELEVATION : 12.3 FT. MSL							
26	SILTY CLAY / CLAY (CL/CH), very stiff to hard, light gray, buff, olive, and orange, medium to high plasticity, with abundant flecks of black organic material and calcareous nodules (1-1.5mm in diam.) slightly moist, strong odor	13	ST	1.4				
28		14	ST	1.9				
30								
32								
34								
36								
38								
40								
42								
44								
46								

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-4R

Client : GATX TERMINALS CORPORATION
Project Name : SE HOLDING BASIN GW MONITORING SYSTEM
Project Location : GALENA PARK, TEXAS
Job Number : 2970-007 Boring No : MW-4R
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : SOUTHWESTERN LABORATORIES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/14/89 Date Completed : 02/14/89
Method : HSA Total Depth : 28.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.0 FT w/1.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

DESCRIPTION
TOP OF CASING ELEVATION: 12.19 FT. MSL
SURFACE ELEVATION : 12.7 FT. MSL

DEPTH IN FEET	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT
0	1	ST	NR	
2	2	ST	1.0	
4	3	ST	1.5	
6	4	ST	1.7	
8	5	ST	1.3	
10	6	ST	1.7	
12	7	ST	1.0	
14	8	ST	0.1	
16	9	ST	1.8	
18	10	ST	1.8	
20	11	ST	1.8	
22	12	ST	1.5	

ASPHALT and ROAD FILL

Sandy Channel Fill – Silty Sand, loose to soft, dark brown with black staining, oyster shell fragments, clayey pockets, strong hydrocarbon odor, very moist.

--From 4.5 to 8.0 ft. wet, very strong odor, hydrocarbon sheen.

SILTY CLAY (CL), soft to firm, light gray with orange mottling, medium plasticity, with occasional silty fine sand partings and black carbonaceous material, slightly moist, strong hydrocarbon odor.

CLAYEY SILT (ML), soft, light gray with orange mottling, slight plasticity, very moist, strong hydrocarbon odor.

CLAYEY SAND (SC), soft, light gray, slight plasticity, v.f.g. sand, slight odor, very moist.

SILTY SAND (SM), loose to soft, light brown, gray and buff with orange mottling, little clay, non to slight plasticity, occasional carbonaceous material, very strong odor and black staining, wet.

GRAPHIC LOG | WELL COMPLETION | WATER LEVEL 04/13/89

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-4R

Client : GATX TERMINALS CORPORATION
Project Name : SE HOLDING BASIN GW MONITORING SYSTEM
Project Location : GALENA PARK, TEXAS
Job Number : 2970-007 Boring No : MW-4R
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : SOUTHWESTERN LABORATORIES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/14/89 Date Completed : 02/14/89
Method : HSA Total Depth : 28.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.0 FT w/1.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 12.19 FT. MSL SURFACE ELEVATION : 12.7 FT. MSL							
	SILTY SAND (SM) (Continued)							
26	SILTY CLAY/CLAY (CL/CH), very stiff to hard, light gray, tan, and olive, with orange mottling, medium to high plasticity, occasional carbonaceous material, strong odor, slightly moist.	13	ST	1.9				
	--	14	ST	1.1				
28	WELL CONSTRUCTION DETAILS T.D. Pilot Hole (6.25"): 28 ft. T.D. Well Bore (10.75"): 27 ft. T.D. Well Casing: 27 ft. Screen Interval: 15.5-27.5 ft. Bentonite Seal: 9.5-12.5 ft. Sand Pack: 12.5-28 ft. Cement/Bentonite grout to approximately 6" below ground surface. Top of casing set below grade with a stainless steel cap and 8" diameter bolting manhole cover. HNu and OVA were inoperative during the drilling of MW-4R.							
30								
32								
34								
36								
38								
40								
42								
44								
46								

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-5

Client : GATX TERMINALS CORPORATION
Project Name : SE HOLDING BASIN GW MONITORING SYSTEM
Project Location : GALENA PARK, TEXAS
Job Number : 2870-007 Boring No : MW-5
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : SOUTHWESTERN LABORATORIES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/15/89 Date Completed : 02/15/89
Method : HSA Total Depth : 28.0 FT
WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/1.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 9.0 FT

DESCRIPTION
TOP OF CASING ELEVATION: 11.82 FT. MSL
SURFACE ELEVATION : 12.4 FT. MSL

DEPTH IN FEET	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT
0				
	1	ST	1.0	
2	2	ST	1.4	
4	3	ST	0.5	
6	4	ST	1.2	
8	5	ST	1.6	
10	6	ST	1.5	
12	7	SS	0.4	
14	8	SS	NR	
16	9	SS	NR	
18	10	SS	NR	
20	11	SS	NR	
22	12	SS	1.3	

FILL, asphalt and road base.

FILL – Clayey Silt – soft, dark brown to black and light red, abundant oyster shell fragments, strong odor, moist.

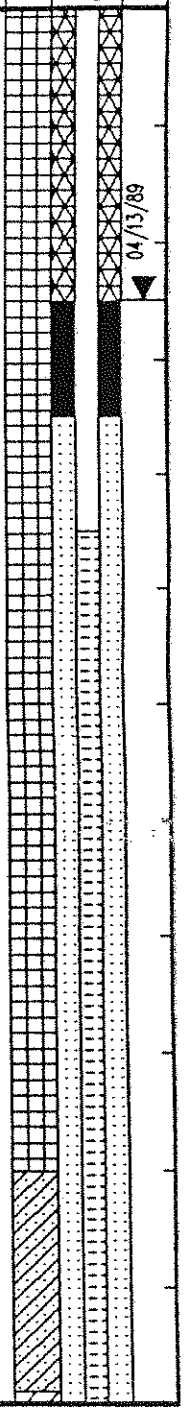
FILL – Silty Clay – soft, dark red with gray mottling, medium plasticity, moist.

Sandy Channel Fill – Silty Sand – loose, gray to dark brown, non-plastic, v.f.-f.g. sand, abundant micaceous mineral fragments, little clay, with occasional decomposed vegetation from 6-14 ft., wet and oily from 6-10 ft.
-- from 6 to 22 ft. HNu readings range from 10 to 105 ppm.

From 10 to 16 ft. saturated.

CLAYEY SAND (SC), soft and compact, light gray and buff, slight to medium plasticity, slight odor, very moist to wet.

--from 22.5 to 23 ft., HNu reading 40 ppm.



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-5

Client : GATX TERMINALS CORPORATION
Project Name : SE HOLDING BASIN GW MONITORING SYSTEM
Project Location : GALENA PARK, TEXAS
Job Number : 2970-007 Boring No : MW-5
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : SOUTHWESTERN LABORATORIES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/15/89 Date Completed : 02/15/89
Method : HSA Total Depth : 28.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/1.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 9.0 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 11.82 FT. MSL SURFACE ELEVATION : 12.4 FT. MSL							
26	SILTY CLAY/CLAY (CL/CH), very stiff to hard, light gray with orange mottling, medium to high plasticity, abundant calcareous nodules (0.5-1.5 mm in diam.), occasional black and purple carbonaceous material, slight odor, slightly moist.	13	ST	1.9				
28	--From 27 to 27.5 ft., HNu-reading of 6 ppm.	14	ST	1.5				
	WELL CONSTRUCTION DETAILS T.D. Pilot Hole (6.25"): 28 ft. T.D. Well Bore (10.75"): 25.5 ft. T.D. Well Casing: 25.5 ft. Screen Interval: 9-24 ft. Bentonite Seal: 5-7 ft. Sand Pack: 7-28 ft. Cement/Bentonite grout to approximately 6" below ground surface. Top of casing set below grade with a stainless steel cap and an 8" diameter bolting manhole cover.							
30								
32								
34								
36								
38								
40								
42								
44								
46								

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-6

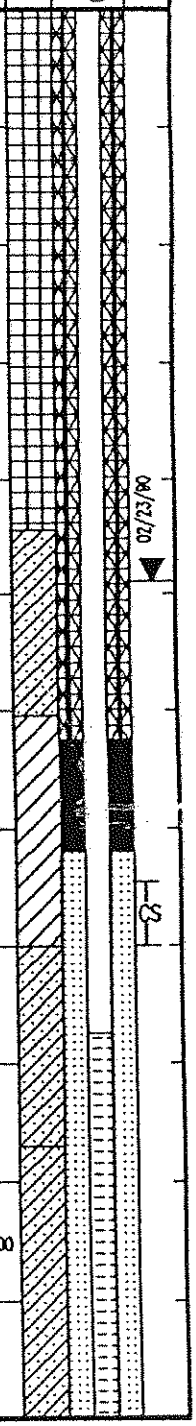
Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-6
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 11/14/89 Date Completed : 11/20/89
Method : HSA Total Depth : 34.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS Triloc # 304
Casing Dia : 4 IN I.D. Length : 20.0 FT

TOP OF CASING ELEVATION: 20.07 FT. MSL
SURFACE ELEVATION : 17.5 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA ppm	HNu ppm
2	FILL 0'–4.0' – Silty clay, soft, dark brown and red, intermixed with pockets of v.f. sand, shell, and calcareous gravel, creosote soaked soils from 0"–3", stained black, slightly plastic, moist, very strong odor.	1	ST	1.3		20 >1000 >1000	
4	4.0'–4.7' – Silty clay, firm to stiff, dark brownish red with little light gray mottled, with roots, slightly plastic, slightly moist, medium odor.	2	ST	0.9		70 70 150	
6	4.7'–9.0' – Silty sand/sandy silt,(Sandy Channel Fill), loose, dark gray and brown, v.f.sand, with occasional roots, non plastic, moist to wet, very strong odor.	3	ST	0.9		>1000	
8		4	ST	0.4		250 >1000	
10	CLAYEY SAND (SC), compact and soft, dark tan with pinpoint ferrous and black mottles, silty v.f. sand, occasional roots, non-plastic, wet, strong odor. From 10.0'–12.0' – slight light green mottles.	5	ST	1.6		>1000	
12		6	ST	1.2		>1000	
14	SILTY CLAY (CL), firm to slightly stiff, medium gray with dark orange and black stained mottles, oily appearance on fresh break, v.f. sandy partings and occasional calcareous nodules, medium plastic, slightly moist, strong odor. Tree limb parts from 13'–14'.	7	ST	1.6		>1000	
16		8	ST	1.3		>1000	
18	CLAYEY SAND/CLAYEY SILT (SC), compact and firm, tan and light gray with dark orange mottling, silty v.f. sand, occasional root hairs and black pinpoint staining, non to slightly plastic, very moist, strong odor.	9	ST	1.6		>1000	
20		10	ST	1.6		>1000	
22	CLAYEY SAND (SC), compact, tan and light gray with light gray and light orange mottling, silty v.f. and f. sand, non-plastic, wet, very strong odor. Hydrocarbon sheen floating on surface of wet sample, fossil trace of roots provide a porous network, leave pinpoint holes on fresh break. 22.0'–27.0' – Color changes to light greenish-gray with black pinpoint staining, very strong odor.	11	ST	1.4		>1000	1000
		12	ST	1.8		>1000	



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-6

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-6
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 11/14/89 Date Completed : 11/20/89
Method : HSA Total Depth : 34.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS Trilloc # 304
Casing Dia : 4 IN I.D. Length : 20.0 FT

TOP OF CASING ELEVATION: 20.07 FT MSL
SURFACE ELEVATION : 17.5 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA ppm	HNu ppm	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
26	CLAYEY SAND (SC) (Continued)	13	ST	1.6		>1000	>1000			
28	27.0'-32.4' - Loose, color changes to light gray and cream, little clay, black pinpoint staining, abundant biotite and feldspar fragments, saturated, slight odor. Perm sample 27.0'-27.5' = (2.0 x 10-6 cm/sec)	14	ST	1.4		30 40 40	300			
30		15	SS	1.3		30				
32		16	SS	0.9		10 15 20				
34	CLAY (CH), very stiff to hard, dk brownish red w/lt gray mottling, abundant silty pockets & partings & calc. nodules (1-5 mm in diam.), flocculated & fractured with black carbonaceous material infilling fractures, highly plastic, dry, slight odor.	17	ST	1.8		20 8 10				
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

WELL NUMBER: MW-6

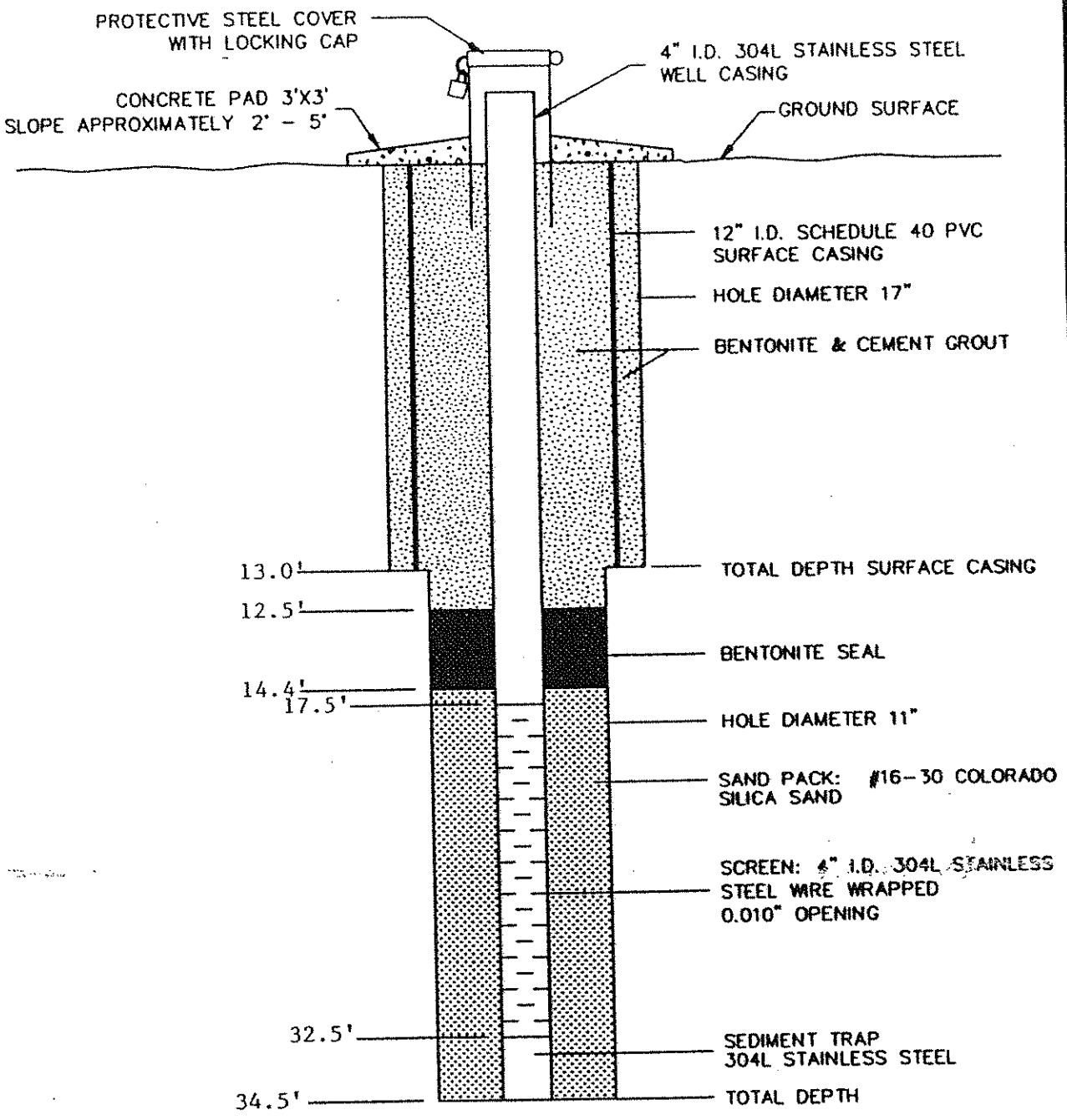
DATE INSTALLED: 11/16/89-11/20/89

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 17.50'

TOP WELL CASING ELEVATION: 20.07'
(MEASUREMENT POINT)

LOCATION: N 708, 100 E 3, 197, 727



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297016

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-7

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-7
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 12/20/89 Date Completed : 01/02/90
Method : HSA Total Depth : 28.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.1' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

DEPTH IN FEET	DESCRIPTION TOP OF CASING ELEVATION: 13.53 FT MSL SURFACE ELEVATION : 14.45 FT MSL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
2	FILL. 0'-3.0' - Clay and concrete fragments, at 2.0' red brown silty clay, at 3.0' sandy clay, dark brown and red brown.									
4	3.5'-9.0' - Sandy Channel Fill - Clayey Sand, slightly dense, dark gray, v.f.g. to f.g., moist.	1	ST	1.2		30 200 >1000	50 100 300			02/23/90
6	6.0' - Becomes dark gray, with some roots, slight to moderate odor.	2	ST	1.6		>1000	200 250 250			
8	8.0' - Slightly cohesive, medium to dark gray, with oil sheen and oil pockets at clay/clayey sand break, v.f.g.-f.g., becomes wet to saturated. At 8.5'-9.0' very oily and wet.	3	ST	2.0		>1000 350 >1000	200			
10	SILTY CLAY (CL), firm to slightly stiff, light to medium gray with olive mottles, with dark black-gray speckling, medium to high plasticity, slightly sandy, medium odor. At 10', with orange-red mottling, less plastic, sandier.	4	ST	1.0		>1000 >1000	200 200			
12	SANDY CLAY (CL), firm to slightly stiff, light gray with tan ferrous mottling, v.f.g., slight to medium plasticity, moderate odor.	5	ST	1.7		>1000 900 >1000	500 450 480			
14	CLAYEY SAND (SC), compact to dense, light gray and tan with slight ferrous mottling, black speckled staining, v.f. and f. sand, silty, occasional root hairs, non plastic, very strootng odor, saturated with water and oil.	6	ST	1.1		NV	400 450 550			
16		7	ST	1.7		NV	20 14 14			
18	19.0'-20.0' - Becomes light gray clayey v.f.g. sand with light green mottling, wet, less oily than above.	8	ST	1.8		NV	40 30 15			
20	20.0'-24.0' - Becomes soft and loose clayey v.f. sand, light gray and tan with slight green mottling, saturated with water and some oil, strong odor.	9	ST	1.7		NV	5 5 10			
22		10	ST	1.7		NV	30 30 150			

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-7

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2870-011-350 Boring No : MW-7
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 12/20/89 Date Completed : 01/02/90
Method : HSA Total Depth : 28.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.1' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

TOP OF CASING ELLEVATION: 13.53 FT. MSL
SURFACE ELEVATION : 14.45 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
26	SILTY SAND (SM), loose, lt. gray & lt. black w/lt. green & rose mottling, some clay (20%), saturated, med. odor.	11	ST	1.7		NW	3 4 8.5			WL
	SANDY CLAY (CL), very stiff.									
	SILTY CLAY (CL), very stiff to stiff, lt. gray mottled with orange, abundant calcareous nodules < 1 mm in diameter and rounded, flocculated appearance, medium to highly plastic, slightly moist, medium odor.									
28	CLAY (CH) - hard, very calcareous, calcareous nodules compose approx. 50% of sample, no odor.	12	ST	1.65		NW	0.5			
	Note: Surface casing was installed, grouted, and a temporary cap placed at the surface on 12-20-89. Due to freezing weather conditions, the completion of the monitor well was delayed until 1-2-90.									
30										
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

WELL NUMBER: MW-7

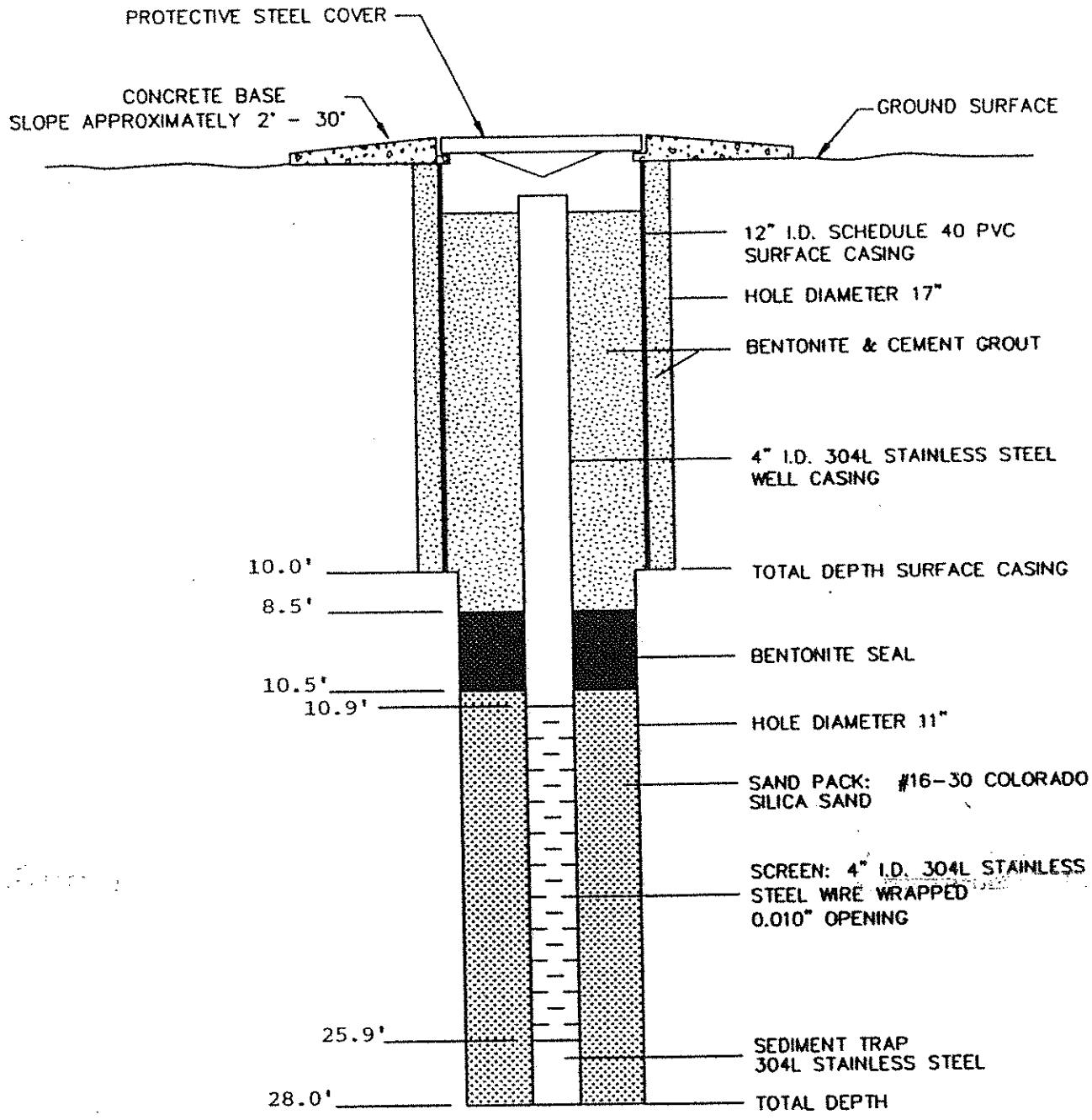
DATE INSTALLED: 12/20/89-1/2/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 14.5'

TOP WELL CASING ELEVATION: 13.53'
(MEASUREMENT POINT)

LOCATION: N 707, 849 E 3, 197, 839



ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-8

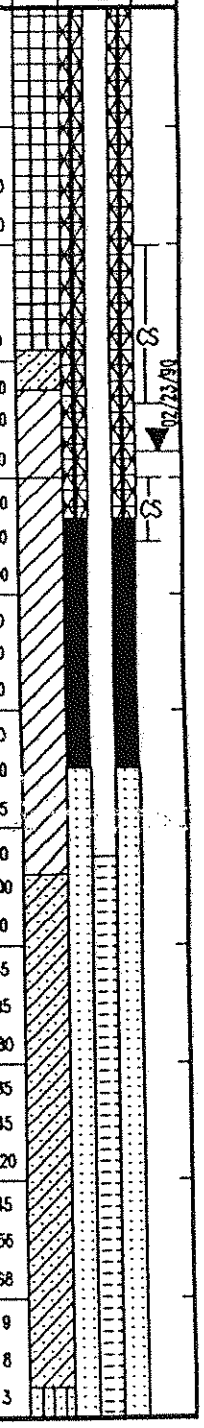
Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-8
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 12/20/89 Date Completed : 01/02/90
Method : HSA Total Depth : 29.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.0' SUMP
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 17.5 FT

TOP OF CASING ELEVATION: 15.06 FT. MSL
SURFACE ELEVATION : 12.1 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL 0'–1.5' – Dark brown sandy clay topsoil with organic material, grades to silty sand. 1.5'–3.0' – Light gray to dark gray mixed v.f.g. to f.g. silty sand, moist, with odor.						
2		1	ST	1.8		4 20 100	50 150 200
4	3.0'–4.0' – Sandy Channel Fill, medium to dark gray, becomes clayey, with moderate to strong odor. 4.0'–5.0' – Black, saturated, strong odor.	2	SS	1.8		5 10 500	20 10 40
6	5.0'–6.0' – loose, light gray, silty, v.f.g. sand, wet to very wet. CLAYEY SAND (SC), med. to dk. gray, very clayey, moist/wet.						
	SANDY CLAY (CL), firm, light to medium gray with ferrous mottling, v.f.g., slightly plastic, grading to silty clay.	3	SS	2.0		300 >1000 >1000	350 500 500
8	SILTY CLAY (CL), soft to firm, light to medium gray with red–orange mottling and abundant black streaks and mottles, with abundant weathered ferrous nodules, v.f.g. sandy partings and pockets, slight to medium plasticity, moist, medium odor.	4	ST	1.6		>1000 900 200	500 450 200
10		5	ST	1.25		400 400 250	40 50 30
12		6	ST	1.7		80 280 380	10 30 35
14	14.0'–14.8' – Grades to sandy clay/clayey sand, very moist.	7	ST	1.6		>1000 800 280	50 200 80
16	CLAYEY SAND (SC), soft and compact, light gray and tan, mottled with brown and light orange, occasional black root hairs, v.f.g. and f.g. sand with some silt (approx. 20%), non-plastic, wet, very strong odor, volatilizes instantly, hydrocarbon sheen on surface.	8	ST	1.9		>1000	45 85 180
18		9	ST	1.5		100 180 200	35 45 120
20	21.0'–21.5' – Abundant black stained mottling, very wet, very strong odor. 21.5'–21.8' – Medium gray sandy clay layer.	10	ST	1.6		500 280 450	45 56 68
22		11	ST	1.8		150 20 10	9 8 3
	SILTY SAND (SM) (Continued on next page)						



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-8

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-8
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 12/20/89 Date Completed : 01/02/90
Method : HSA Total Depth : 29.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 17.5 FT

TOP OF CASING ELEVATION: 15.06 FT. MSL
SURFACE ELEVATION : 12.1 FT MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	SILTY SAND (SM), loose, light gray, cream and rose with light green mottling, v.f. and f.g. sand, with little clay, abundant mica fragments, with occasional gray clay laminae (< 0.25 in. thick), non-plastic, saturated, slight to medium odor.	12	ST	1.9		20 18 25	2 1 1			SS
26	SANDY CLAY/CLAYEY SAND (CL/SC), interlayered, soft to firm, each layer 1"-3" thick, sand is lt. gray with green mottling, clay is lt. orange, slightly plastic, moist, slight odor.	13	ST	2.0		65 90	10 5			
28	CLAY (CH), very stiff, light gray mottled with dark brownish red, little silt, abundant calcareous nodules and black carbonaceous material, flocculated appearance, highly plastic, slightly moist, no odor.					10	0			
30	Note: Surface casing was installed, grouted, and a temporary cap placed at the surface on 12-20-89. Due to freezing weather conditions, the completion of the monitor well was delayed until 1-2-90.									
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

WELL NUMBER: MW-8

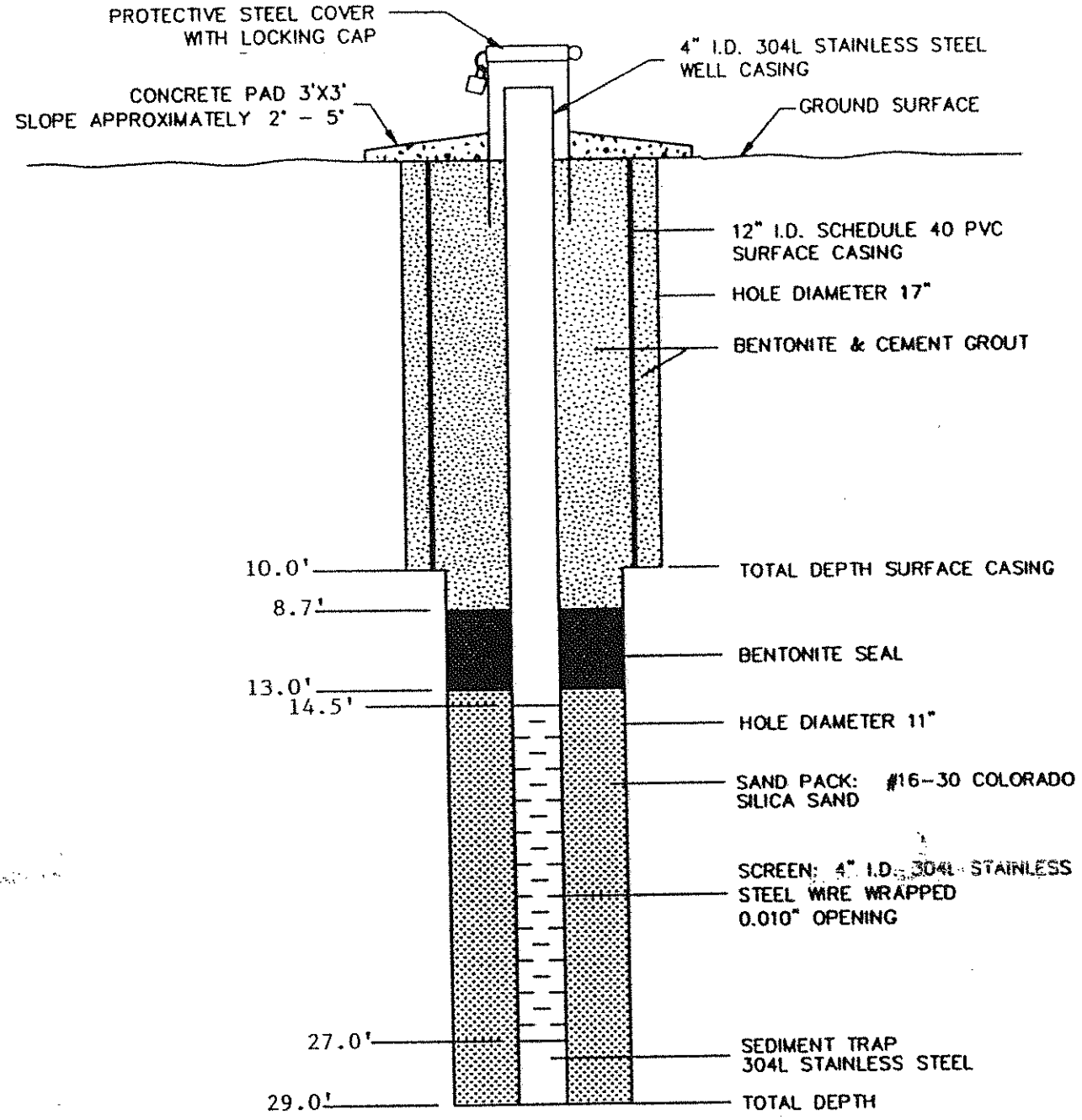
DATE INSTALLED: 12/21/89-1/2/90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 12.1' MSL

TOP WELL CASING ELEVATION: 15.06' MSL
(MEASUREMENT POINT)

LOCATION: N 708, 187 E 3,197, 946



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297016

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-9

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-9
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 12/21/89 Date Completed : 01/10/90
Method : HSA Total Depth : 33.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/3.0' sump
Slot Size : 0.010 IN Type : PVC SCH40
Casing Dia : 4 IN I.D. Length : 15.0 FT

TOP OF CASING ELEVAION: 13.96 FT. MSL
SURFACE ELEVATION : 11.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
0	FILL. 0'–2.0' – Dark brown silty clay with roots.									
2	2.0'–3.5' – Silty clay, firm, red brown, with gravel and shell fragments, plastic, moist.	1	ST	1.5		0	0			
4	3.5'–7.2' – Sandy Channel Fill – Silty Sand, light brown, light to medium gray, slightly clayey, moist, no odor. 4.0' – Dark brown, sandy, heavy organic material, no odors.	2	SS	0.2		0	0			
6	6.0' – Light brown/tan, v.f.g.–f.g., slightly clayey, moist to slightly wet, no odors. 6.5' – Loose, light brown, tan, v.f.g., wet.	3	SS	2.0		0 100 90				02/23/90
8	CLAYEY SAND (SC), compact, medium gray/olive gray, v.f.g.–f.g., cohesive, grading to very clayey sand, medium dense, light gray with olive ferrous mottles, slightly cohesive, moist to wet.	4	SS	1.9		40	0			
10	SILTY CLAY (CL), firm, light gray with ferrous mottling, v.f.g., very slight plasticity, moist, no odors. CLAYEY SAND/CLAYEY SILT (SC/ML), firm and compact, light gray to buff with ferrous and light green mottling, with very silty v.f. sand, non-plastic, very moist, very slight to no odor, no staining.	5	ST	1.4		2 8 10	NW			
12	12.0'–15.0' – Grades to v.f. sandy silt, slightly compact to loose, homogeneously cream with light green mottling, very moist, slight odor.	6	ST	0.9		5 5 80	NW			
14	14.0'–14.5' – Wet. 15.0' – Grades back to clayey sand/clayey silt, moist, no odor.	7	ST	2.0		20 5 8	NW			
16	16.0'–18.5' – Becomes slightly plastic.	8	ST	1.9		5 40 20	NW			
18		9	ST	1.8		2	NW			
20	20.6'–26.0' – Becomes more silty, color changes to homogeneous cream with dark brown carbonaceous mottling, wet.	10	ST	1.5		5 5 0	NW			
22		11	ST	2.0		0	NW			

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-9

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-9
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 12/21/89 Date Completed : 01/10/90
Method : HSA Total Depth : 33.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/3.0' sump
Slot Size : 0.010 IN Type : PVC SCH40
Casing Dia : 4 IN I.D. Length : 15.0 FT

DEPTH IN FEET	DESCRIPTION TOP OF CASING ELEVATION: 13.96 FT. MSL SURFACE ELEVATION : 11.7 FT. MSL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	CLAYEY SAND/CLAYEY SILT (SC/ML) (Continued)	12	ST	1.9		0	NM			
26	CLAYEY SAND/SANDY CLAY (SC/CL), interlayered, clayey sand is compact, light gray to cream, layers are 1"-3" thick, silty, wet, no odor; sandy clay is firm, light gray to cream, layers are 1" thick, very moist, no odor.	13	ST	1.7		0	NM			
28		14	ST	1.8		0	NM			
30	CLAY (CH), very stiff, dark brownish red mottled with light gray, approx. 10% silt, abundant clusters of weathered calcareous nodules, flocculated appearance and slightly slickensided, medium to high plasticity, (fat clay), very slightly moist no odor, no staining.	15	ST	1.7		0	NM			
32										
34	Note: Surface casing was installed, grouted, and a temporary cap placed at the surface on 12-20-89. Due to freezing weather conditions, the completion of the monitor well was delayed until 1-10-90.									
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

WELL NUMBER: MW-9

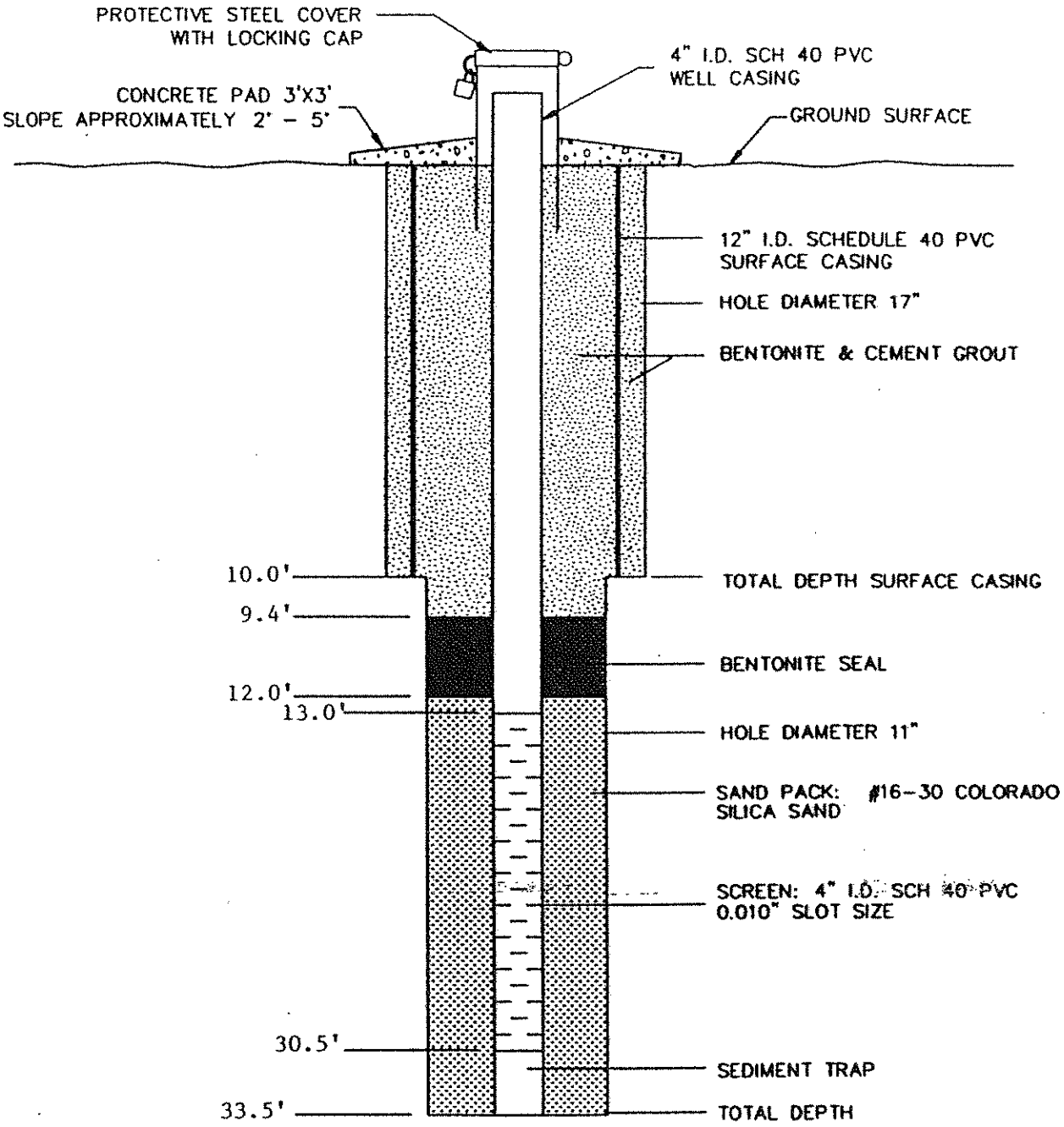
DATE INSTALLED: 12/21/89-1/9/90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 11.7'

TOP WELL CASING ELEVATION: 13.96'
(MEASUREMENT POINT)

LOCATION: N 708, 603 E 3, 197, 904



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297026

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-10

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-10
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/04/90 Date Completed : 01/04/90
Method : HSA Total Depth : 26.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

TOP OF CASING ELEVATION: 13.29 FT. MSL
SURFACE ELEVATION : 10.1 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
2	FILL 0'–2.0' – Sandy Channel Fill – loose, light tan and cream, v.f. to f.g. sand, occasional root hairs, non-plastic, very moist to wet, slight organic odor.	1	ST	1.6		5 5 10	4 3 9			02/23/90
4	2.0'–6.0' – Becomes dark gray and black stained silty sand, very strong pungent odor (possibly fuel oil), oily.	2	ST	NR		400	190			
6		3	ST	1.5		>1000	450 450 480			
8	SANDY CLAY/CLAYEY SAND (CL/SC), compact & firm, lt. grayish tan w/ferrous mottling and black pinpoint staining, with free oil, silty v.f. sand, slight to non-plastic, very moist to wet, very strong pungent odor. From 7'–8', grades to very firm sandy clay, lt gray with red mottling.	4	ST	0.9		>1000	NM			
10	CLAYEY SAND (SC), slightly compact to loose, light tan and cream with ferrous mottling and some black staining, v.f.g. sand, wet, very strong odor. Note: Hit water at 10.0 ft.	5	ST	1.1		>1000	NM			
12		6	ST	1.3		NM	NM			
14	SILTY SAND (SM), loose, light tan and orange and light gray and cream, predominantly v.f.g. sand, approx. 20% f.g. and approx. 5% med.g. sand, little clay, occasional mica mineral fragments, non-plastic, saturated, strong pungent odor, with occasional laminae of black oily contamination.	7	ST	1.4		NM	NM			
16		8	ST	1.3		NM	NM			
18		9	ST	1.3		NM	200 50 30			
20	18.0'–23.9' – Alternating occasional layers of sandy clay, 1/2"–1" thick, light gray, increase in med. sand to 10–12%, no free product observed, color changes to light gray and cream with light green mottling, medium odor.	10	ST	0.9		NM	NM			
22		11	ST	1.5		NM	NM			
	23.9'–24.1' – Sandy clay layer.	12	ST	1.4		NM	NM			

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-10

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-10
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/04/90 Date Completed : 01/04/90
Method : HSA Total Depth : 26.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

DESCRIPTION
TOP OF CASING ELEVATION: 13.29 FT. MSL
SURFACE ELEVATION : 10.1 FT. MSL

DEPTH IN FEET	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
26	13	ST	1.35		NW	NW			

SILTY CLAY/CLAY (CL/CH), very stiff to hard, dark brownish red with light gray mottling, abundant calcareous nodules (1 – 4 mm in diameter), occasional black carbonaceous material, flocculated appearance, medium to high plasticity, slightly moist to dry, slight odor.

28 30 32 34 36 38 40 42 44 46

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

WELL NUMBER: MW-10

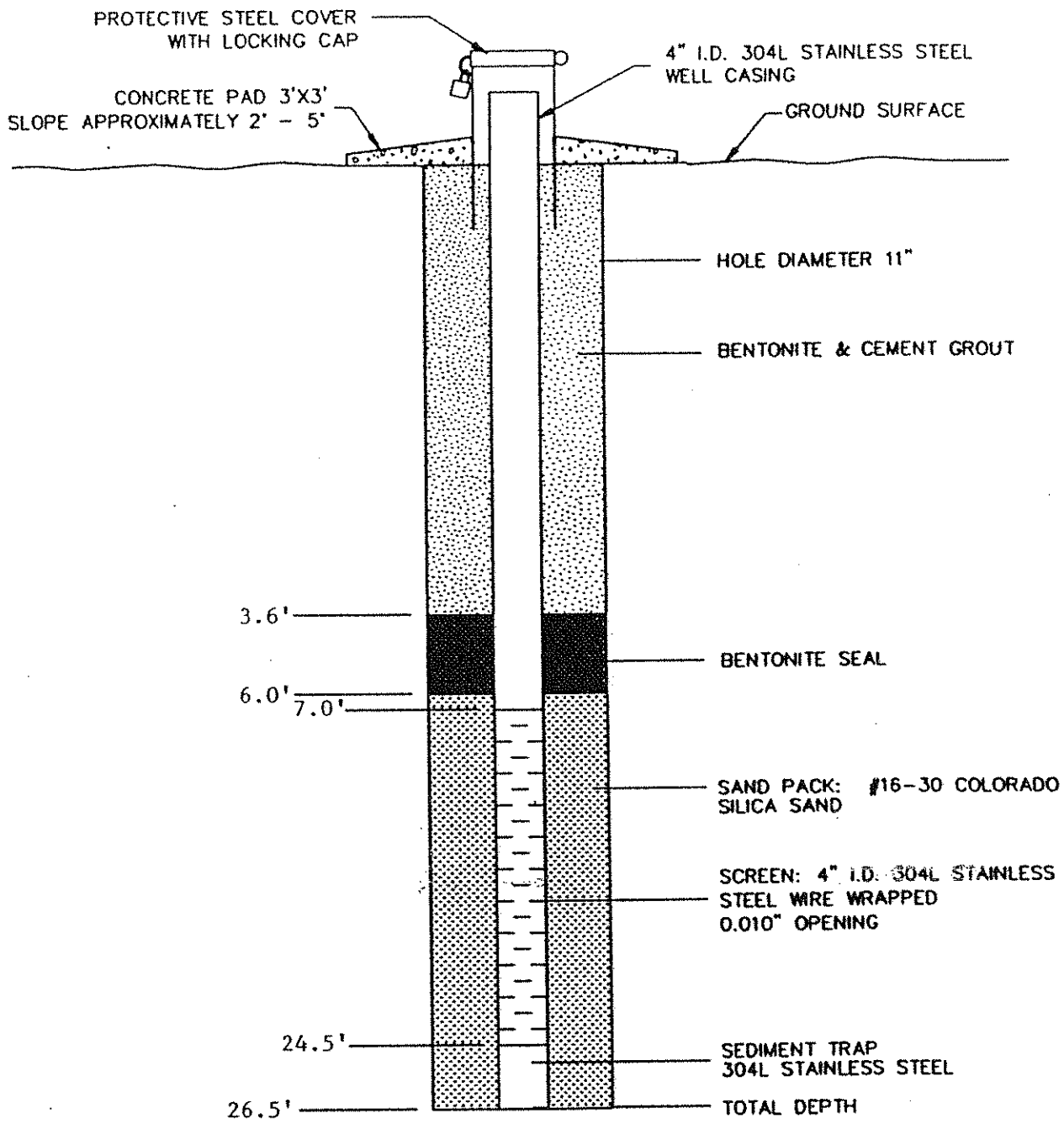
DATE INSTALLED: 1-4-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 10.1'

TOP WELL CASING ELEVATION: 13.29'
(MEASUREMENT POINT)

LOCATION: N 707, 976 E 3, 198, 002



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-11

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-11
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/05/90 Date Completed : 01/05/90
Method : HSA Total Depth : 28.5 FT
WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0 sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

TOP OF CASING ELEVATION: 18.38 FT. MSL
SURFACE ELEVATION : 14.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL						
	0'-12.0' - Silty sand, loose and soft, dark brown, red, gray, and tan, intermixed (not layered) with clay (MOSAIC), some roots and shell material, no staining, very moist, no odor.						
4		1	ST	1.1		NW	NW
8	8.0'-12.0' - Slightly plastic, slight odor.						
10		2	ST	1.3		NW	NW
12	12.0'-21.7' - Clay, soft, not compacted, dark tan, gray, red, intermixed with pockets of silty sand (MOSAIC), medium plastic, very moist, sticky, medium odor.						
14	14.0'-18.0' - Stained black, no oily sheen, wet in sandy pockets, gasoline odor.	3	ST	1.7		NW	NW
18	18.0'-21.7' - Black staining, very strong gasoline odor.						
20		4	ST	1.8		NW	NW
22	SANDY CLAY (CL), soft, lt. gray & buff, slt. plastic, wet, strong odor.						
	SANDY CLAY/CLAYEY SAND (CL/SC), interlayered, each layer is 4-inches thick. Sandy clay is firm, lt. gray w/ferrous mottling & black staining, med. plastic, strong odor. Clayey sand is compact, lt. gray & cream w/black staining, wet, strong odor.	5	ST	2.0		NW	NW

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-11

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-11
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/05/90 Date Completed : 01/05/90
Method : HSA Total Depth : 28.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

DESCRIPTION
TOP OF CASING ELEVATION: 18.38 FT. MSL
SURFACE ELEVATION : 14.7 FT. MSL

DEPTH IN FEET	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
SANDY CLAY/CLAYEY SAND (CL/SC) (continued)	5	ST	2.0		NW	NW			
26 CLAYEY SAND (SC), compact & soft, lt. gray & cream, slt. plastic, wet, strong odor	6	ST	1.6		NW	NW			
SILTY CLAY (CL), stiff to very stiff, light gray with light orange mottling, numerous silty pockets and partings, concholdal fractures filled with black organic material, slickensided, medium to high plasticity, dry, medium odor.									
28									
30									
32									
34									
36									
38									
40									
42									
44									
46									

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-11

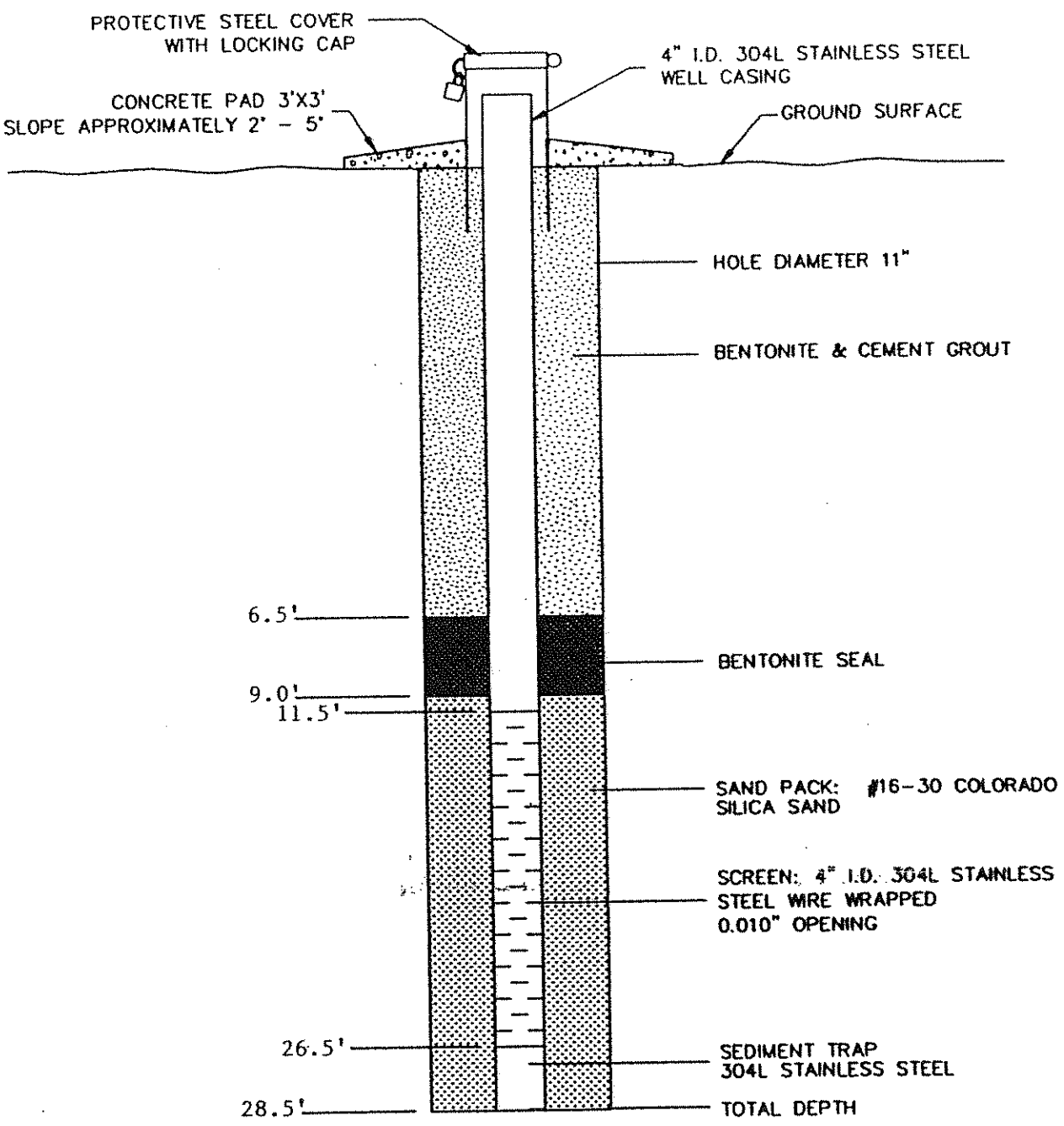
DATE INSTALLED: 1-4-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 14.7'

TOP WELL CASING ELEVATION: 18.38'
(MEASUREMENT POINT)

LOCATION: N 707, 827 E 3, 197, 989



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-12

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-12
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/08/90 Date Completed : 01/08/90
Method : HSA Total Depth : 32.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/2.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

DESCRIPTION
TOP OF CASING ELEVATION: 19.64 FT. MSL
SURFACE ELEVATION : 16.7 FT. MSL

DEPTH IN FEET	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0						
2						
4						
6	1	ST	1.0		NW	NW
8	2	ST	1.1		>1000	NW
10	3	ST	1.6		20 150 800	NW
12	4	ST	1.4		>1000	NW
14	5	ST	1.9		280 250 650	NW
16	6	ST	1.5		200 120 30	NW
18	7	ST	1.9		280 180 150	NW
20	8	ST	1.8		130 180 550	NW
22	9	ST	1.8		110 50 80	NW
	10	ST	1.8		200 200 55	NW

FILL, sand ramp, lime stabilized silty sand, cream and light brown.

FILL, lime stabilized clay, soft, light red brown and gray, with calcareous gravel, no odor from 5.3'-7.0'.

Sandy Channel Fill, loose, dark tan, slightly wet, very strong odor, contaminated with creosote from 7.5'-8.5'.

CLAYEY SAND (SC), soft and compact, light gray with black stained mottling and slight ferrous mottling, v.f.g. to f.g. sand, silty, black areas are oily, non-plastic, wet, very strong odor.

SANDY CLAY (CL), soft to firm, mottled medium gray, orange and black, with occasional roots, numerous sandy pockets, v.f.g. sand, slightly plastic, very moist.

SANDY SILT (ML), compact to soft, light gray and olive gray with pinpoint black staining, v.f.g. sand, clayey, non to slightly plastic, wet, medium odor, no oil observed.
13.8' - Becomes sandier, v.f.g. sand.

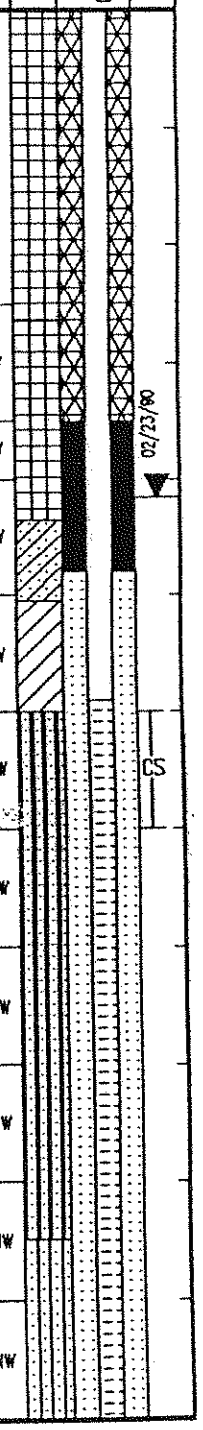
16.0' - Grading to clayey silt, less sandy, very moist.

18.0' - Light gray and olive gray with olive ferrous mottles, sand increasing, v.f.g. with v.f.g.-f.g. pockets, with clayey silt seams and pockets, non-plastic, moist to very moist.

21.0' - Becoming sandier, slightly dense, v.f.g.-f.g. sand, grades to silty sand.

SILTY SAND (SM), compact to dense, homogeneously light gray, little clay, non-plastic, wet to saturated, medium odor.

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-12

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-12
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/08/90 Date Completed : 01/08/90
Method : HSA Total Depth : 32.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/2.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 19.64 FT. MSL SURFACE ELEVATION : 16.7 FT. MSL									
	SILTY SAND (SM) (Continued)	11	ST	NR						
26	26.0'-27.0' – Loose, light gray laminated with orange and tan, free oil in laminae.	12	ST	1.8		750 180 160	NW			CS
28	SILTY CLAY/CLAY (CL/CH), stiff to very stiff, light gray with orange red mottling, abundant v.f.g. sandy pockets and calcareous nodules (1-4 mm in diameter), slightly slickensided, black carbonaceous material on fresh break, medium to highly plastic, no odor.	13	ST	2.0		25 10 10	NW			
30		14	ST	2.0		12 8 0	NW			
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-12

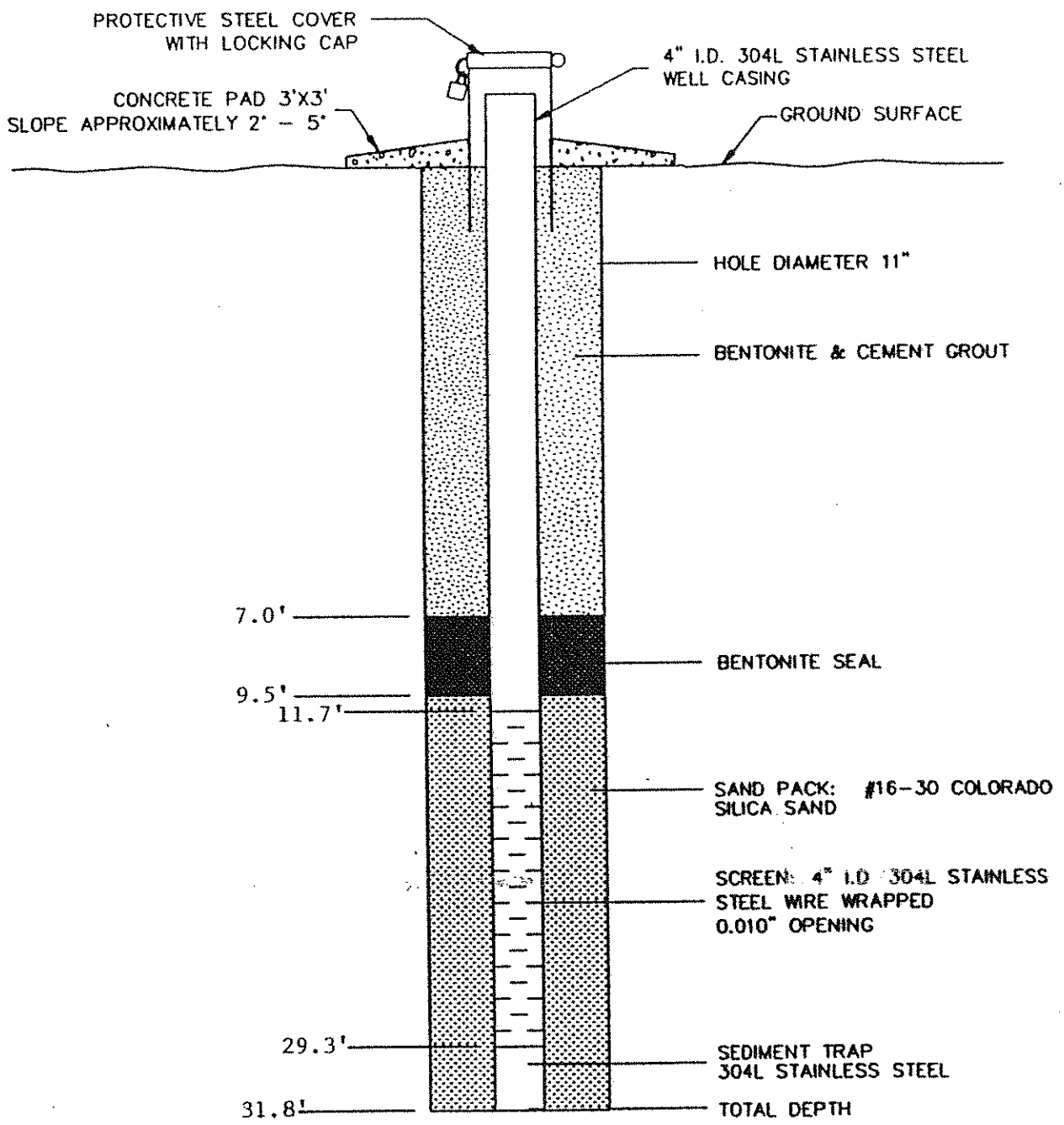
DATE INSTALLED: 1-8-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 16.7'

TOP WELL CASING ELEVATION: 19.64'
(MEASUREMENT POINT)

LOCATION: N 707, 972 E 3, 197, 674



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-13

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-13
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/10/90 Date Completed : 01/10/90
Method : HSA Total Depth : 26.0 FT
WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

DEPTH IN FEET	DESCRIPTION TOP OF CASING ELEVATION: 11.02 FT MSL SURFACE ELEVATION : 11.6 FT. MSL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
2	FILL 0'–1.0' – Asphalt and roadbase. 1.0'–2.2' – Lime stabilzed shells and gravel. 2.2'–4.0' – Wood (parts of an old dock) mixed with clay.									
4	4.0'–12.5' – Silty clay intermixed with silty sand, soft, dark red, brown, and cream, slightly plastic, moist, very strong possible fuel oil odor, abundant gravel, slightly oily.	1	ST	1.3		350 420 150				02/23/90
6				NR						
8		2	ST	1.7		100 150 200				
10	11.5' – Hit water.	3	ST	0.6		500				
12	12.5'–13.5' – Concrete blocks or platform.									
14	13.5'–18.8' – Sandy Channel Fill – Silty Sand, loose dark gray and brown with black staining, with fragments of wood, non-plastic, saturated, medium odor.	4	ST	1.4		460 200 150				
16	16.0'–18.8' – Silty sand mixed with coarse grained quartz gravel, loose, oil floating on sample, saturated.	5	SS	1.5		120 40 20				
18	CLAYEY SAND (SC), compact, very light gray and cream with very light green mottling, with alternating laminae of light gray clay and silty sand, v.f.g. and f.g. sand, non to slightly plastic, wet, slight to no odor, no oil observed.	6	ST	0.9		80 60 60				
20		7	ST	1.9		10				
22	SILTY CLAY (CL), very stiff, light gray with some ferrous mottling, with abundant black carbonaceous material, v.f.g. sandy pockets, medium to high plasticity, slightly moist, no odor.	8	ST	1.8		4 2 2				

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-13

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-13
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/10/90 Date Completed : 01/10/90
Method : HSA Total Depth : 26.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 11.02 FT. MSL SURFACE ELEVATION : 11.6 FT. MSL									
26	CLAY (CH), very stiff to hard, dark brownish red with light gray mottling, abundant calcareous nodules (0.5–4 mm in diameter), slight slickensides, high plasticity, slightly moist, no odor.	9	ST	1.6			0 0 0			
28										
30										
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-13

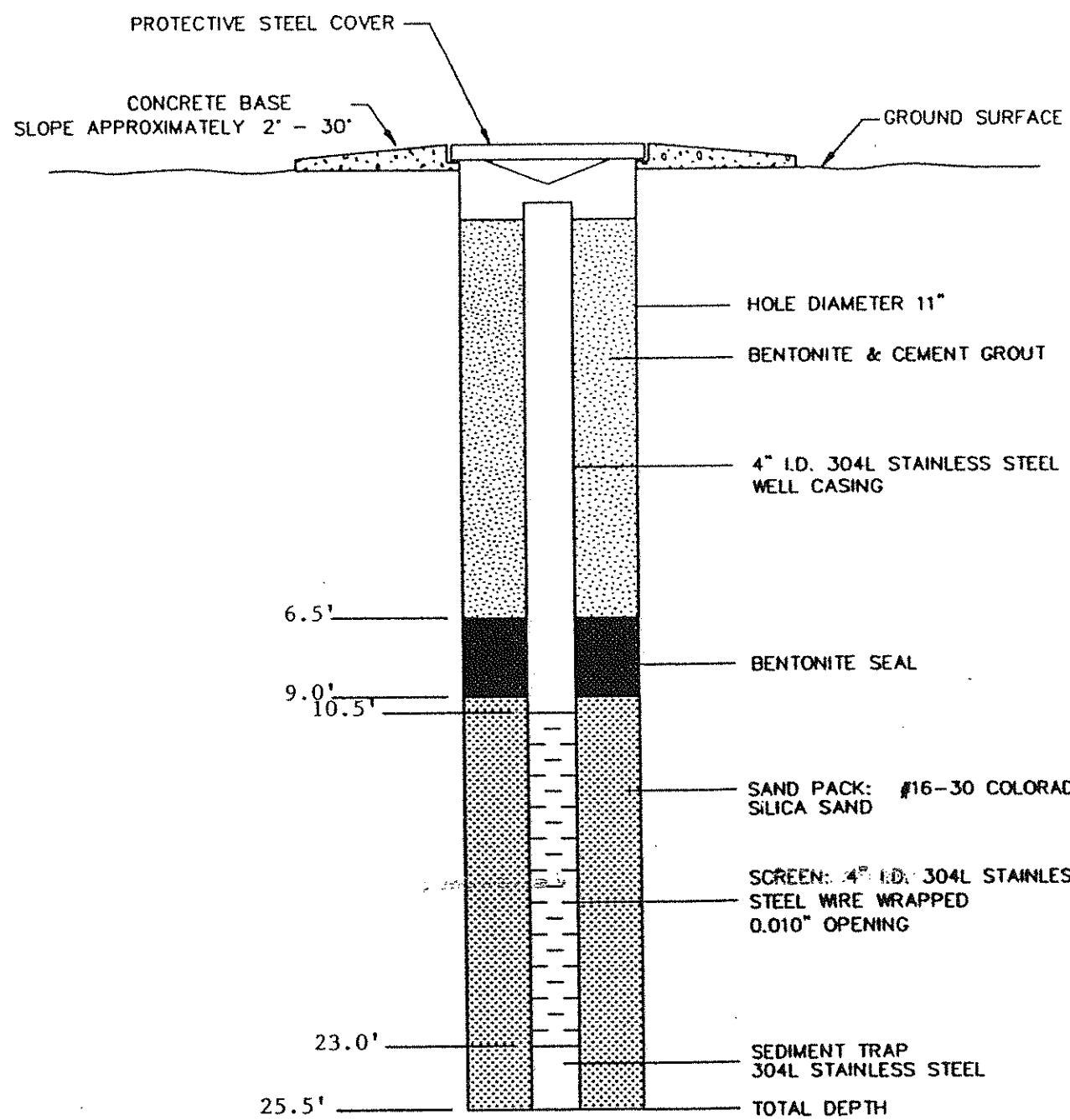
DATE INSTALLED: 1/10/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 11.6'

TOP WELL CASING ELEVATION: 11.02'
(MEASUREMENT POINT)

LOCATION: N 707, 830 E 3, 197, 653



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-14

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-14
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/11/90 Date Completed : 01/11/90
Method : HSA Total Depth : 30.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 20.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 5.0 FT

TOP OF CASING ELEVATION: 10.24 FT. MSL
SURFACE ELEVATION : 10.4 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	FILL 0"–6" – Asphalt and road base. 6"–2.2' – Lime stabilized shells and gravel.									
2	2.2'–4.0' – Silty clay intermixed with silty sand, shells and gravel, firm, dark red and brown, slightly plastic, slightly moist, very strong gasoline odor.	1	ST	1.2		>1000	60 250 490			
4	4.0'–12.7' – Sandy Channel Fill – Silty Sand, loose, dark reddish brown, clayey pockets, saturated with gasoline, very strong odor. 5.0' – Hit water.	2	SS	1.5		>1000	200 160 160			02/23/90
6	6.0'–8.0' – Clay content increases.	3	SS	1.7		>1000 >1000 800	110 40 90			
8	9.5'–10.0' – Abundant roots and stems.	4	SS	1.5		>1000	28 150 30			
10		5	SS	0.7		>1000	170			
12	12.0'–12.7' – Silty sand, loose, dark gray, channel fill, wet to saturated, slight odor, hydrocarbon sheen on surface of water.	6	SS	1.4		6 8 20	3			
14	CLAYEY SAND (SC), soft to compact, dark gray, v.f.g. sand, with clayey pockets, slightly plastic, very moist to wet, slight to medium odor.	7	SS	1.6		20 32 60	4 4 5			
16	SILTY SAND (SM), loose to slightly compact, dark gray and tan, with alternating dark gray clayey laminae, v.f.g. and f.g. sand, rounded, slightly plastic in laminated areas, saturated, slight odor.	8	SS	1.3		25 40 35	1 4 2			
18		9	SS	0.9		15 15 25	0			
20	20.0'–24.0' – Very loose, sand is finely laminated (2–3 mm thick), varve-like appearance, no clay.	10	SS	0.6		25	0			
22		11	SS	1.0		0	0			

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-14

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-14
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/11/90 Date Completed : 01/11/90
Method : HSA Total Depth : 30.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 20.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 5.0 FT

TOP OF CASING ELEVATION: 10.24 FT. MSL
SURFACE ELEVATION : 10.4 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
26	CLAYEY SAND/SANDY CLAY (SC/CL), soft, homogeneously dark gray, with abundant alternating laminae of tan silty sand, structure is very finly laminated, varve-like, possible pond bottom, very moist, no odor.	12	SS	1.6		0	0			
	26.0'-27.3' - Becomes interlayered with clay, firm, dark gray, clay layers are 1/2 to 1 inch thick.	13	ST	1.9		12 15 12	0			
28	CLAY (CH), stiff to very stiff, dark brownish red mottled with blue gray, little silt, flocculated appearance and slickensided, highly plastic, slightly moist, no odor.	14	ST	1.9		0	0			
30										
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

WELL NUMBER: MW-14

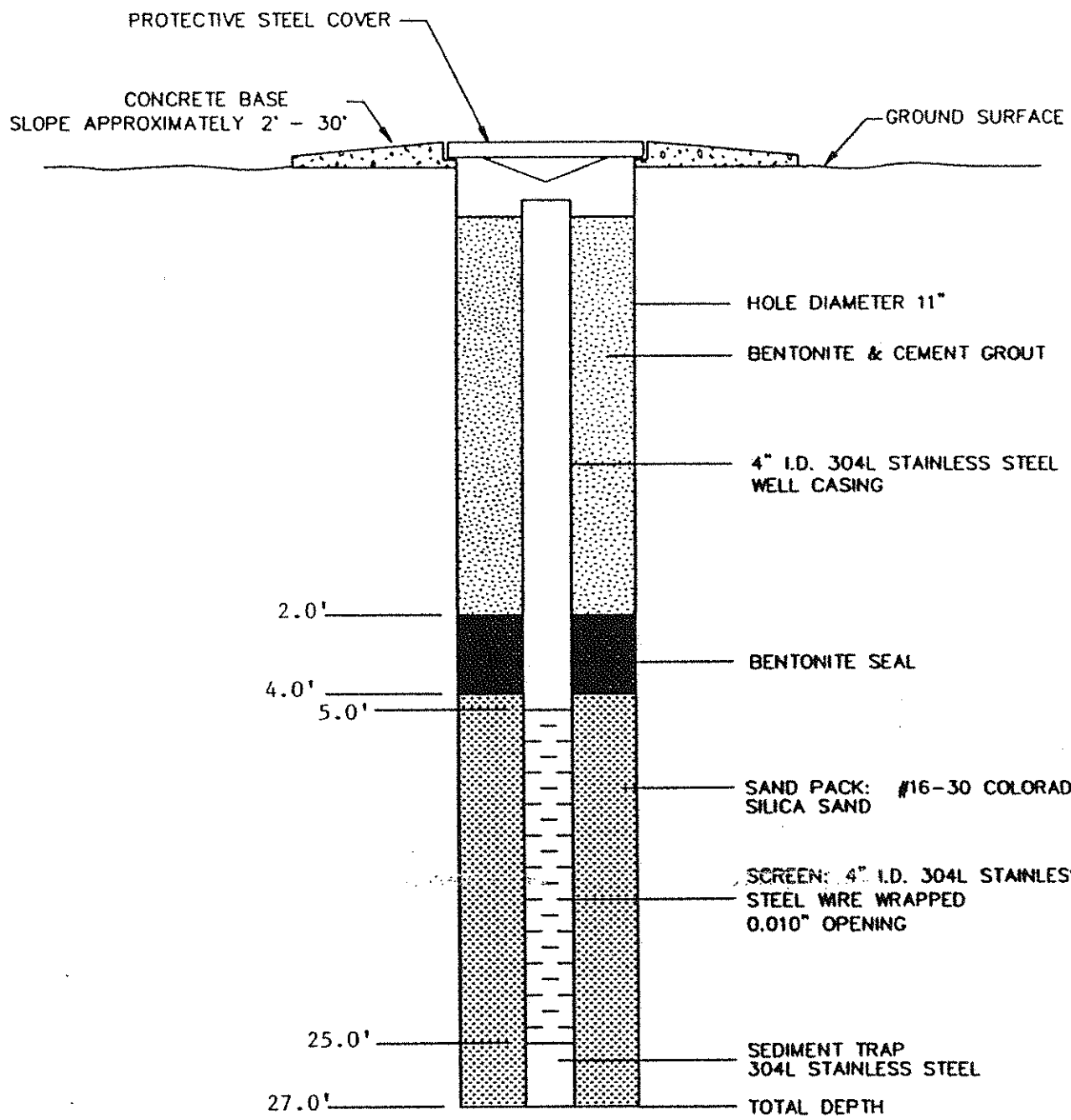
DATE INSTALLED: 1/11/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 10.4'

TOP WELL CASING ELEVATION: 10.24'
(MEASUREMENT POINT)

LOCATION: N 707, 849 E 3, 197, 536



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-15

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-15
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

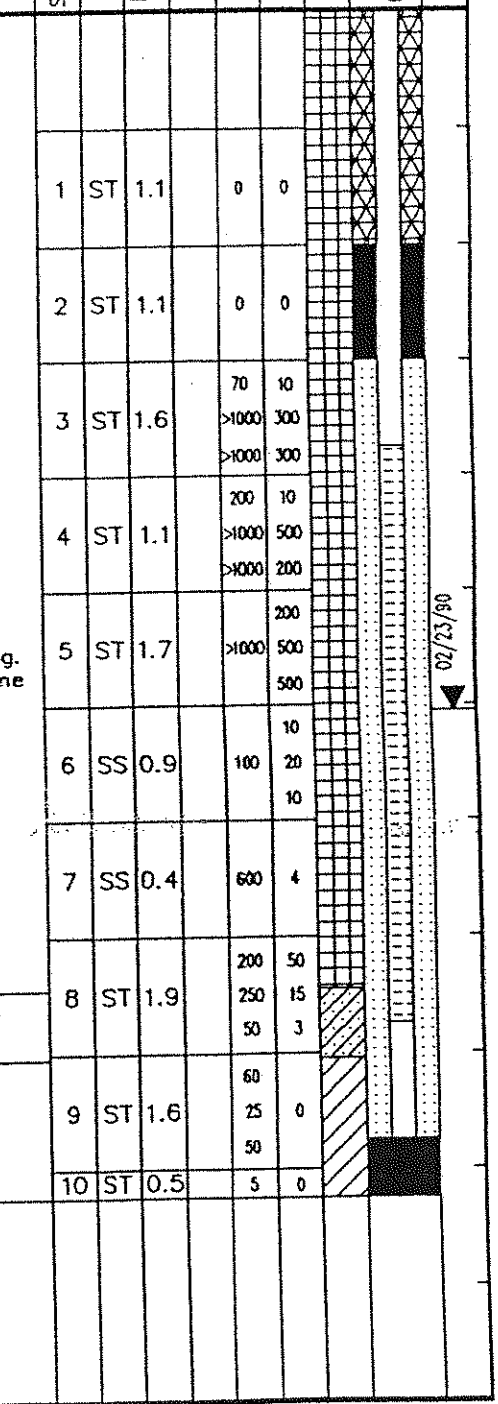
DRILLING AND SAMPLING INFORMATION
Date Started : 01/12/90 Date Completed : 01/12/90
Method : HSA Total Depth : 20.5 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 7.5 FT

TOP OF CASING ELEVATION: 20.67 FT. MSL
SURFACE ELEVATION : 20.6 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
	FILL. 0'-2.0' - Sand and gravel road base.						
2	2.0'-4.0' - Silty sand, loose to compact, tan, cream and light orange, intermixed with pockets of brown-red clay and shell fragments, moist, no odor.	1	ST	1.1		0	0
4	4.0'-6.0' - Clay content increases, firm, and slightly plastic.	2	ST	1.1		0	0
6	6.0'-10.8' - Clay, firm, dark brown and red, intermixed with pockets of silty sand, very moist, very strong benzene odor. 6.2'-6.4' - Wet in a sandy lense.	3	ST	1.6		70 >1000 >1000	10 300 300
8		4	ST	1.1		200 >1000 >1000	10 500 200
10	10.8'-17.0' - Sandy Channel Fill, loose, tan and dark gray, v.f.g. sand, abundant wood fragments, saturated, very strong benzene odor.	5	ST	1.7		>1000	200 500 500
12		6	SS	0.9		100	10 20 10
14		7	SS	0.4		600	4
16	CLAYEY SAND (SC), compact, dark to light gray, occasional roots, w/black stained mottling, non-plastic, wet, medium odor.	8	ST	1.9		200 250 50	50 15 3
18	SILTY CLAY (CL), soft to firm, light to medium gray with ferrous mottling, with numerous white sandy partings, v.f.g. sand, occasional roots, medium plastic, moist, slight odor.	9	ST	1.6		60 25 50	0
20	20.0'-20.5' - Becomes sandier, grading to a clayey v.f. sand.	10	ST	0.5		5	0
22							

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

WELL NUMBER: MW-15

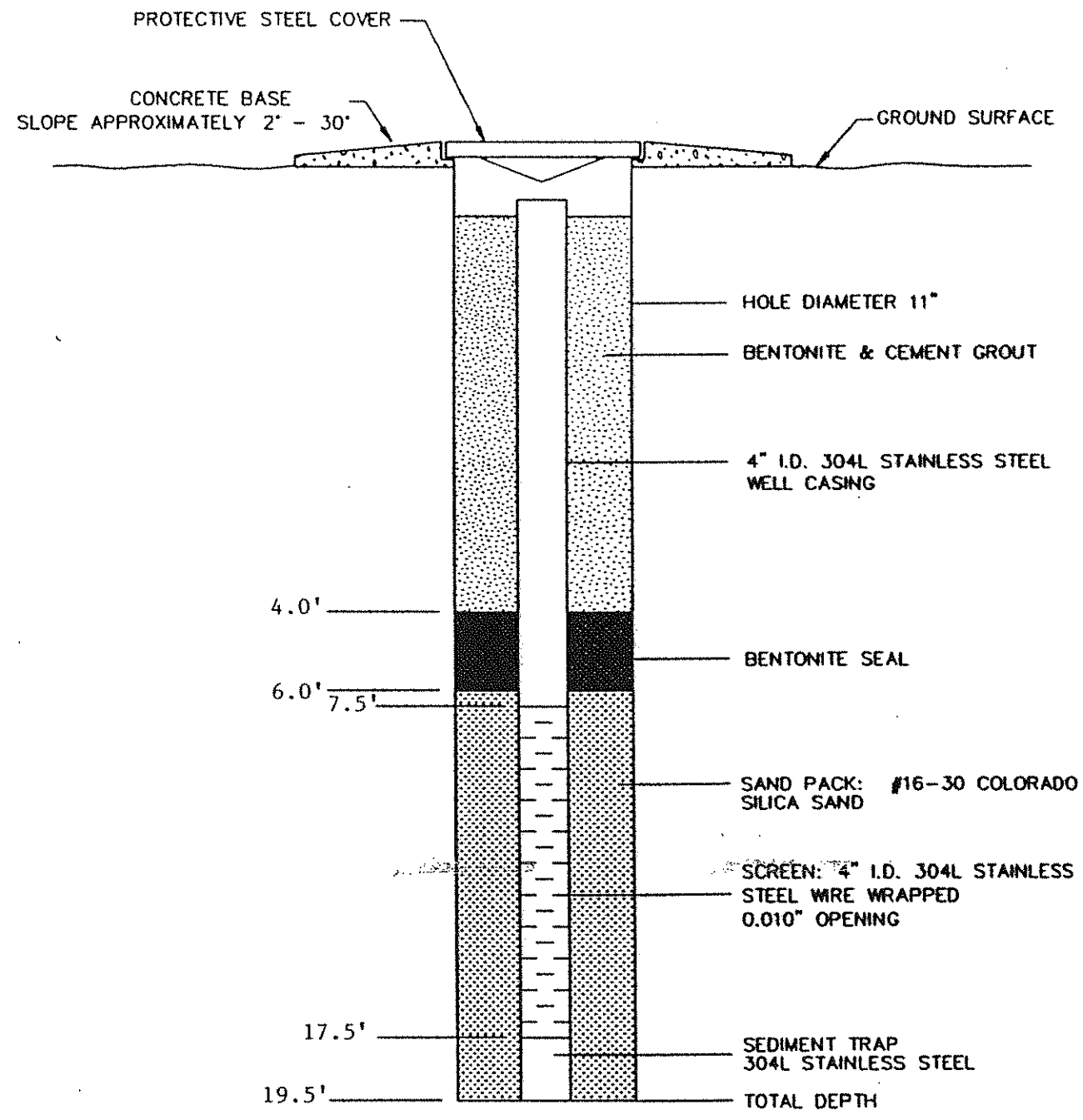
DATE INSTALLED: 1/12/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 20.6'

TOP WELL CASING ELEVATION: 20.67'
(MEASUREMENT POINT)

LOCATION: N 708, 432 E 3, 197, 457



ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-16

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-16
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/15/90 Date Completed : 01/15/90
Method : HSA Total Depth : 38.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0'sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 20.0 FT

TOP OF CASING ELEVATION: 19.80 FT. MSL
SURFACE ELEVATION : 20.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
2	FILL 0'–1.0' – Road base 1.0'–4.0' – Fine sand mixed with gravel									
4	4.0'–4.7' – Fine sand mixed with clay lenses, soft, light tan, brown, and red, low–medium plasticity, dry, no odors or staining.	1	ST	1.0		0				
6	4.7'–6.2' – Very fine to fine sand, loose, light brown and tan, little silt, some clay, very moist, no odor. 6.2'–10.5' – Clay mixed with fine sand, quartz gravel, and calcareous gravel, soft to firm, dark red, brown, and black, contaminated, moist, strong pungent odor.	2	ST	1.2		110 500 1000				
8		3	ST	0.9		>1000				
10	10.5'–12.4' – Sandy Channel Fill – fine sand, loose, tan, stained gray and black, wet, strong chemical odor.	4	ST	0.7		>1000				02/23/90
12	12.0'–12.4' – Fine sand mixed with wood chips, loose, black, very wet–sludgey, strong chemical odor. 12.4'–16.2' – Wood, black, very contaminated, very wet, (possibly old burn pit).	5	ST	2.0		>1000				
14		6	ST	2.0		>1000				
16	16.2'–16.5' – Very fine to fine sand, channel sand, loose, dark brown–black, wet, strong odor.									
18	CLAYEY SAND (SC), soft, dark gray mottled with orange and black specks, with little silt, non–plastic to slightly plastic, wet, strong odor.	7	ST	1.3		250 40				
20	SANDY CLAY (CL), firm, light gray with ferrous mottling, v.f.g. sand, some rootlets, medium plastic, very moist, slight odor.	8	ST	1.7		600 200				
22	CLAYEY SAND (SC), soft & compact, lt. gray & tan w/some ferrous mottling, v.f.g. sand, slt, plastic, very moist, slight odor. CLAYEY SILTY SAND (SC), loose, homogeneously light grayish–tan, v.f.g. to f.g. sand, abundant mica mineral fragments, non–plastic, wet, slight odor.	9	ST	1.4		26 45 18	NW			
		10	ST	1.6		20 38 15	NW			

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-16

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-16
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 01/15/90 Date Completed : 01/15/90
Method : HSA Total Depth : 38.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 20.0 FT

DEPTH IN FEET	DESCRIPTION TOP OF CASING ELEVATION: 19.80 FT. MSL SURFACE ELEVATION : 20.7 FT. MSL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	CLAYEY SAND (SC) (Continued) 24.0'–26.2' – Saturated.	11	ST	1.1		45 15 10	NW			
26	SILTY SAND (SM), compact to dense, light orange, tan and cream, slightly laminated appearance, v.f.g. sand, occasional laminae of clay, wet, none to slight odor.	12	SS	1.5	0-4-4-5	10 0 0	NW			
28		13	SS	1.2		9	NW			
30	30.0'–34.9' – Becomes clayey sand/sandy clay, alternating thin layers 1/2–3 in. thick. Clayey sand is loose, light orange and cream, wet; sandy clay is light gray and cream with little f.g. sand.	14	SS	2.0		12	NW			
32		15	SS	1.8		0	NW			
34										
	SANDY CLAY (CL), firm, light gray with orange and red mottling, abundant ferrous nodules and calcareous nodules, abundant sandy pockets, medium plastic, very moist, no odor.	16	ST	2.0		0	NW			
36	CLAY (CH), very stiff to hard, medium gray with ferrous mottling and black root-like organic material, abundant calcareous nodules (1/2–2 mm in diameter), slightly flocculated, high plasticity, slightly moist to dry, no odor.	17	ST	1.8		0	NW			
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

WELL NUMBER: MW-16

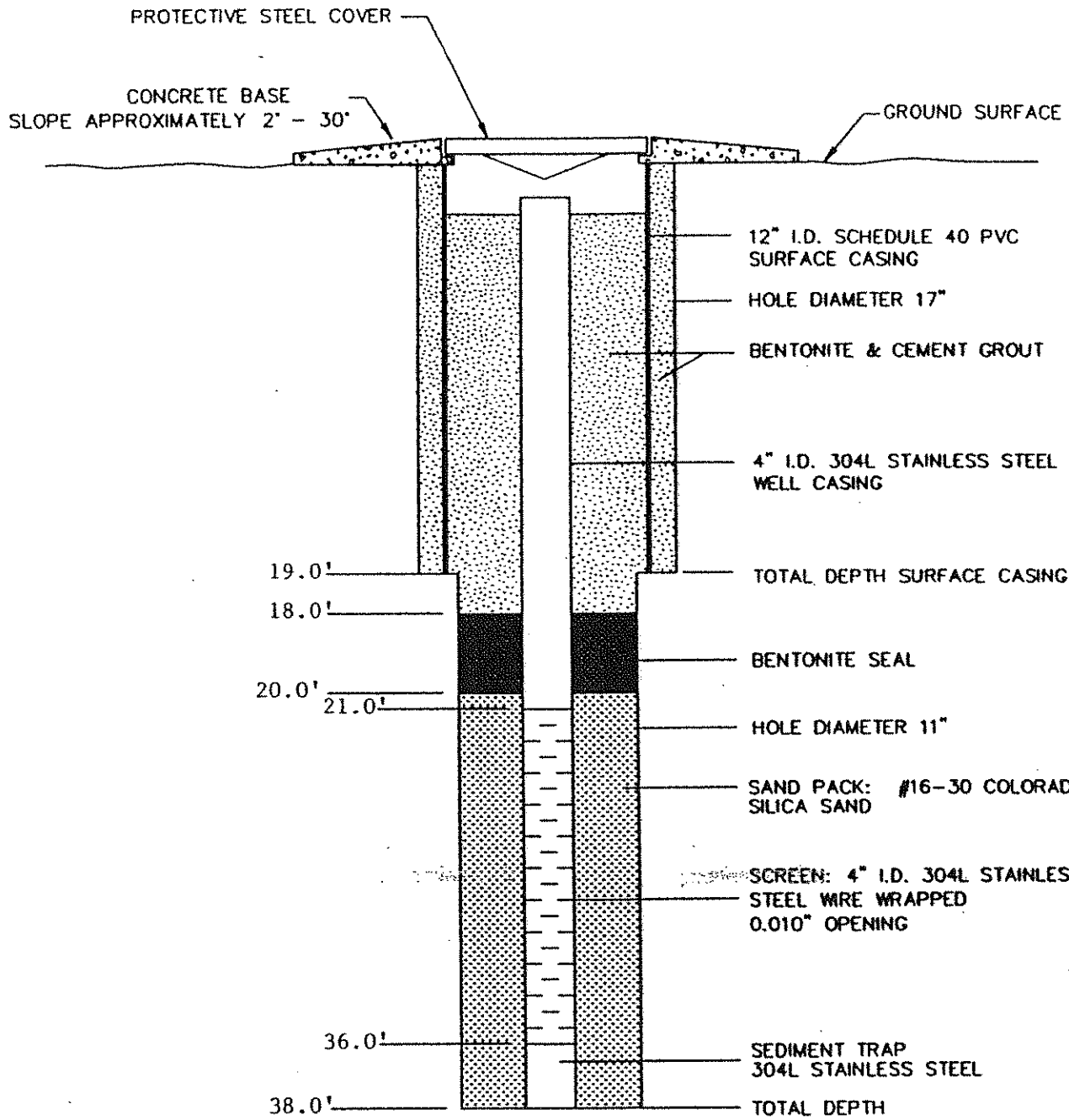
DATE INSTALLED: 1/12/90-1/15/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 20.7'

TOP WELL CASING ELEVATION: 22.31'
(MEASUREMENT POINT)

LOCATION: N 708, 434 E 3, 197, 470



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-17

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No :
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX.

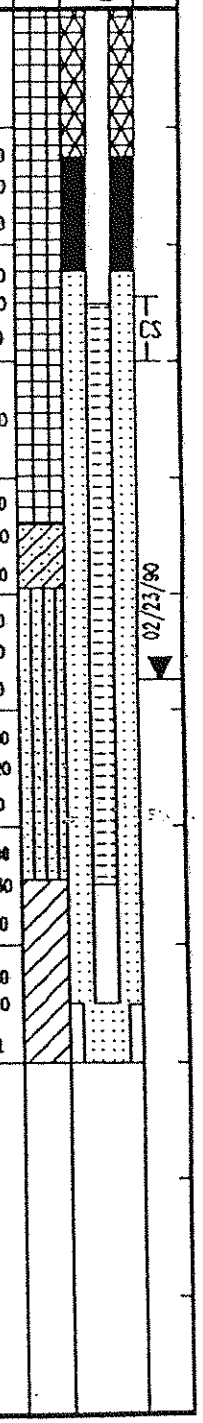
DRILLING AND SAMPLING INFORMATION
Date Started : 1/15/90 Date Completed : 1/16/90
Method : HSA Total Depth : 18.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 7.5 FT

TOP OF CASING ELEVATION: 16.72 FT. MSL
SURFACE ELEVATION : 14.5 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL. 0'-4.0' – Stiff red clay intermixed with silty sand, mottled with black staining, very moist to saturated, very strong chemical odor.						
2		1	ST	1.2		>1000	350 500 550
4	4.0'-8.8' Sandy Channel Fill – Silty, loose, dark gray to black, mixed with calcareous gravel, hydrocarbon sheen on surface, very strong odor, saturated.	2	ST	1.9		>1000	550 550 200
6		3	ST	.2		>1000	200
8						600	170
	CLAYEY SAND (SC), soft and compact, dark gray with black mottling and ferrous mottling, v.f.g. sand, very moist to wet, non-plastic	4	SS	1.9		>1000 >1000	500 250
10	SILTY SAND (SM), loose to compact, dark grayish and olive with slight ferrous mottling, v.f.g. sand, little clay (~5-10%), wet, strong to medium odor.	5	ST	1.7		750 550 600	50 50 30
12		6	ST	1.6		>1000 600 600	200 120 70
14		7	ST	1.6		>1000 >1000 150	130 130 70
16	SILTY CLAY (CL), firm to stiff, gray to olive with light green and ferrous mottling, v.f.g. sandy pockets and partings with occasional root hairs and weathered ferrous nodules, very moist, slight odor.	8	ST	1.5		500 50 18	110 10 1
18							
20							
22							

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-17

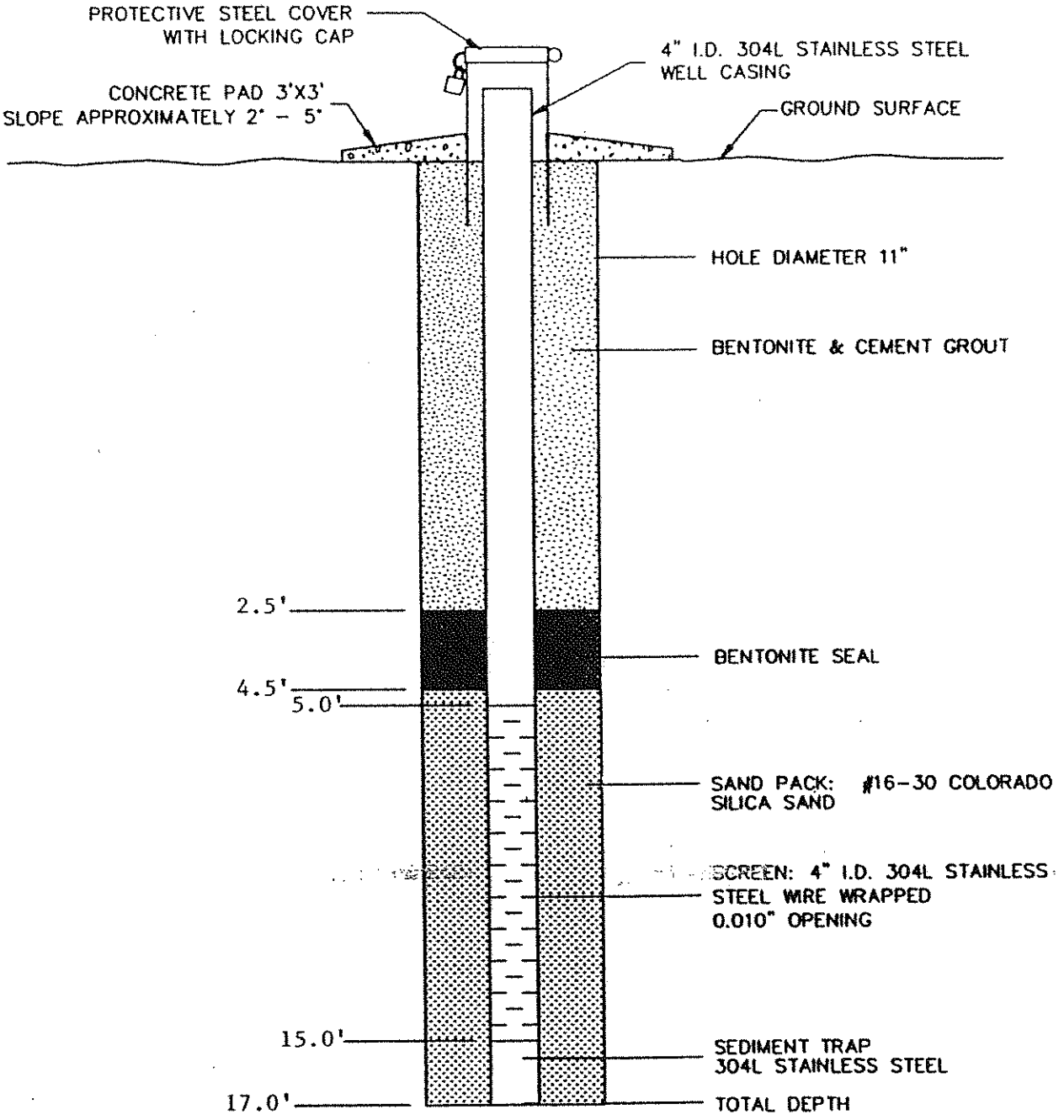
DATE INSTALLED: 1-16-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 14.5'

TOP WELL CASING ELEVATION: 16.72'
(MEASUREMENT POINT)

LOCATION: N 707, 273 E 3, 197, 420



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-18

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No :
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TEXAS

DRILLING AND SAMPLING INFORMATION
Date Started : 1/17/90 Date Completed : 1/17/90
Method : HSA Total Depth : 10.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 5.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 2.5 FT

TOP OF CASING ELEVATION: 13.59 FT. MSL
SURFACE ELEVATION : 14.38 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
0	Fill 0'-3.5' - Silty clay, red brown and dark brown, sandy with black stain, some gravel and concrete fragments, very moist to wet to 1'.									
2		1	ST	1.3		20 50 20				
4	3.5'-4.0' - Sandy Channel Fill - silty sand, loose, medium gray, v.f.g. to f.g. slightly silty sand, moist. 4.0' - Becomes brown gray, with odor.	2	ST	1.4		600 500 500				
6	5.8' - Black staining, moist to very wet. 6.0' - Becomes clayey, slightly cohesive, dark gray, wet, with same odor, and oily appearance.	3	ST	1.2		>1000				02/23/90
8	SILTY CLAY (CL), firm, light gray with red to orange and olive mottles silty to sandy, slight to medium plastic, with odor. 8.0' - very firm to stiff, with dark gray streaks and mottles, sand increasing with pockets, medium plastic, no oil, with odor.	4	ST	1.6		>1000				
10										
12										
14										
16										
18										
20										
22										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

WELL NUMBER: MW-18

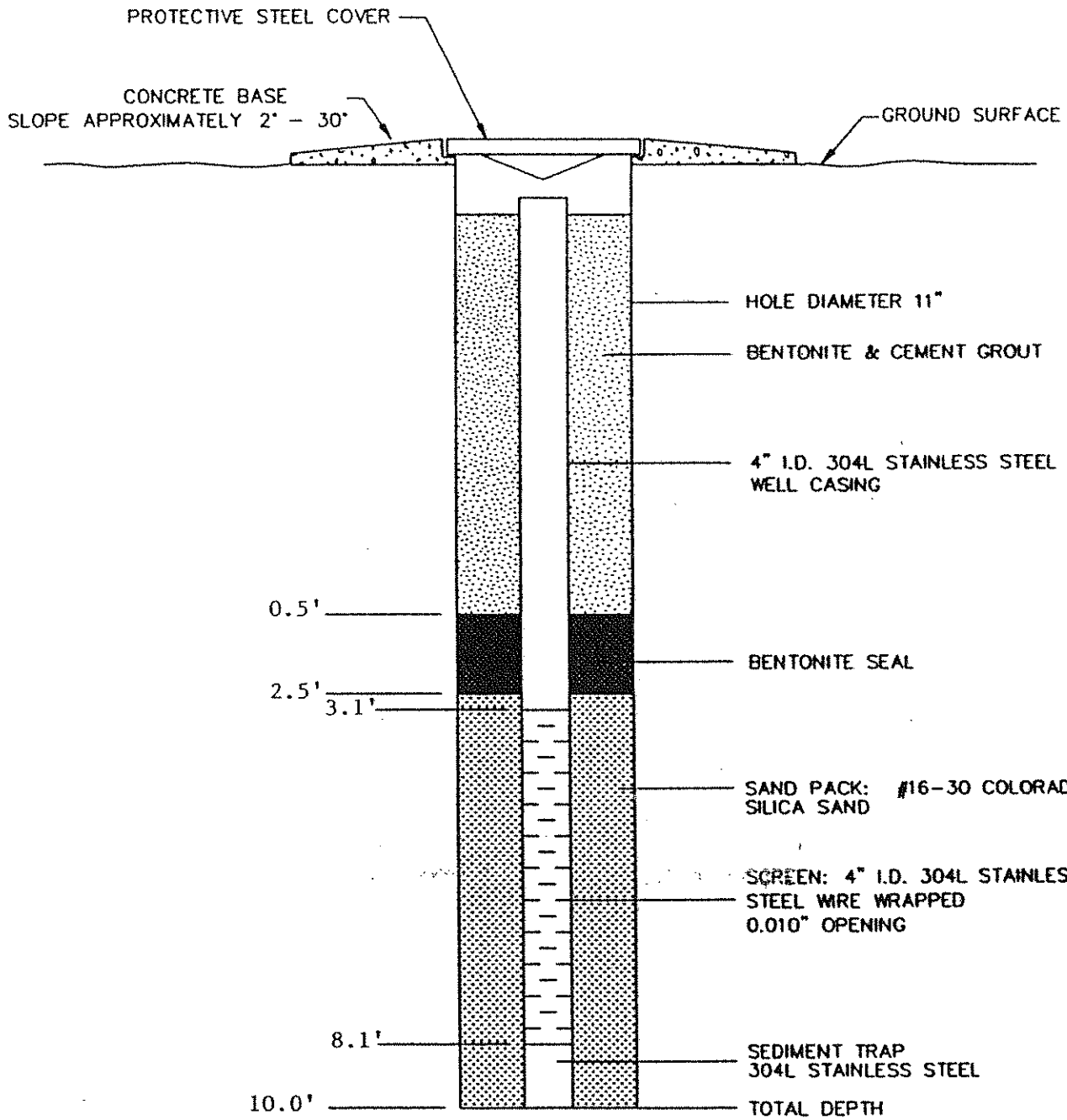
DATE INSTALLED: 1/17/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 14.38'

TOP WELL CASING ELEVATION: 13.59'
(MEASUREMENT POINT)

LOCATION: N 707, 851 E 3, 197, 845



ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-19

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER ASSESSSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-19
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/01/90 Date Completed : 02/02/90
Method : HSA Total Depth : 37.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.0 FT. w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 27.0 FT

DESCRIPTION
TOP OF CASING ELEVATION: 21.65 FT. MSL
SURFACE ELEVATION : 19.7 FT. MSL

FILL
0'-1.0' - Limestone gravel with beige sand and clay
1.0'-4.0' - Silty clay, dark brown, moist, with black stained silty sand, strong odor.

4.0'-13.0' - Sandy Channel Fill, silty sand, dark brown to black.

5.0'-6.0' - Silty sand, medium brown with some black stains, moist with odor.

6.0'-10.5' - Becomes brown to gray with rootlets, moist.

10.5' - Dark gray, very moist to slightly wet.
11.0' - Oil in some pockets, strong odor.

CLAYEY SAND (SC), medium gray and slightly blue gray, some apparent cohesion, grades to sandy clay, heavy odor.

SANDY CLAY (CL), med gray to blue gray, silty v sandy, moist, odor.

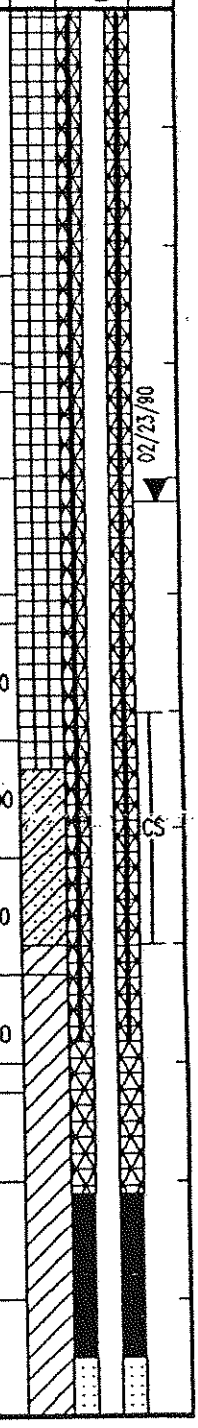
SILTY CLAY (CL), firm, light blue gray and dark gray with occasional green blue mottles, some v.f.g. sand pockets, slightly plastic.

19.0'-22.0' - Very silty with v.f.g. sand pockets, slight odor.

22.0'-24.0' - Silty to very silty, with iron nodules and staining along planes and seams.

DEPTH IN FEET	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
6	1	ST	1.1		>1000	
8	2	ST	.6		>1000	
10	3	SS	0			
12	4	SS	.8		>1000	110
14	5	SS	.4		>1000	100
16	6	SS	.7		600	40
18	7	SS	1.1		200	10
20	8	ST	1.1		110	
22	9	ST	1.3		80	
	10	ST	1.9		80	

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-19

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-19
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/01/90 Date Completed : 02/02/90
Method : HSA Total Depth : 37.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 10.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 27.0 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 21.65 FT. MSL SURFACE ELEVATION : 19.7 FT. MSL									
	SILTY CLAY (CL) (Continued) 24.0' – Very silty, less plastic, with v.f.g. sand increasing with depth.	11	ST	1.8		20				
26	26.0' – Very silty, grades to compact clayey silt.	12	ST	1.6		20 15-20 20				
	CLAYEY SILT (ML/CL), light gray with ferrous staining and mottling, with v.f.g. sand, with some cohesion, slightly plastic, moist.									
28	28.0' – V.f.g. sandy silt with clay, moist.	13	ST	1.5		200 200-300 400				
	SILTY SAND (SM), light gray, v.f.g. sand with some clay, moist. Becomes slightly wet at 29.5'. 30.0' – Numerous small oil pockets, v.f.g.–f.g., trace clay, wet to saturated, with odor and slight sheen.	14	ST			400				CS
32	32.0' – Very compact to slightly dense, medium gray, v.f.g.–f.g. silt, becomes less cohesive, less to no oil.	15	ST	1.7		400 700 400				
34	34.0' – With clayey pockets.									
	CLAY (CL/CH), very stiff, red brown with blue-gray mottling, trace silt, very flocculated to slickensided, blocky, very plastic.	16	ST	1.7		110 10 0				CS
36		17	ST	1.0		0 0 0				
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

WELL NUMBER: MW-19

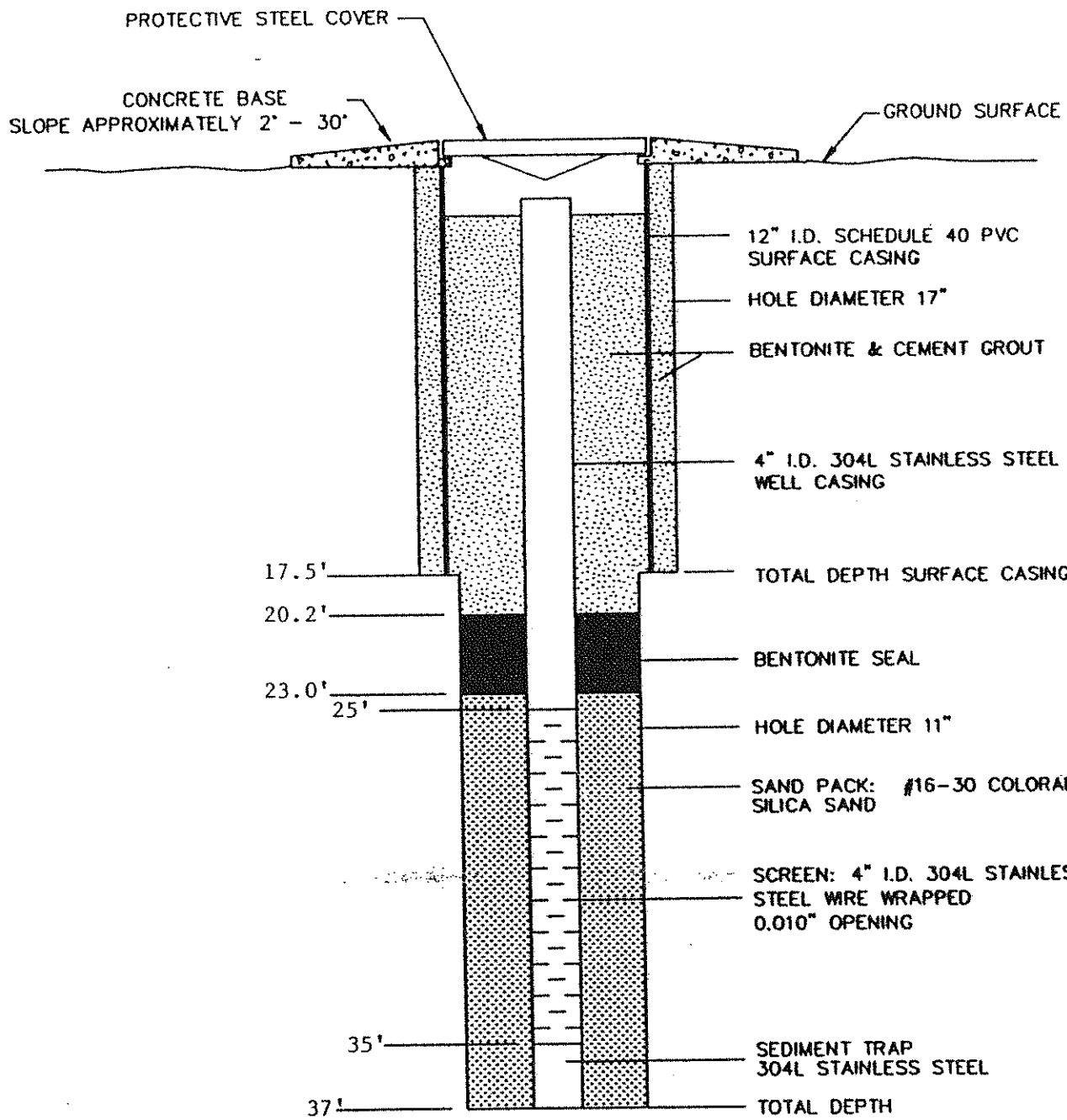
DATE INSTALLED: 2/1/90-2/5/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 19.7' MSL

TOP WELL CASING ELEVATION: 21.65' MSL
(MEASUREMENT POINT)

LOCATION: N 707, 762 E 3, 198, 012



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER: 2970-011
CHK'D.BY:	REVISED:	

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-20

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-20
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

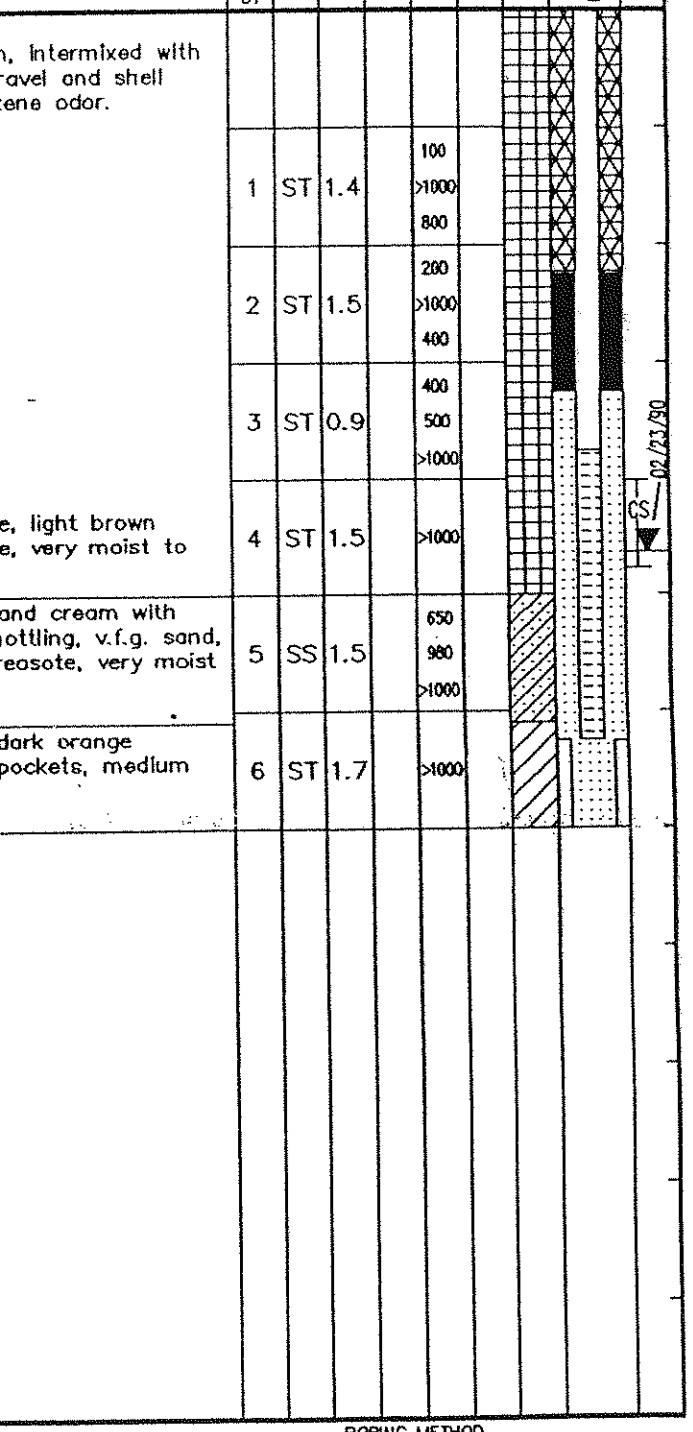
DRILLING AND SAMPLING INFORMATION
Date Started : 02/08/90 Date Completed : 02/08/90
Method : HSA Total Depth : 14.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 5.0 FT
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 10.0 FT

TOP OF CASING ELEVATION: 20.18 FT. MSL
SURFACE ELEVATION : 17.6 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL 0'-8.9' - Clay, firm to soft, dark red and brown, intermixed with pockets of silty sand, occasional calcareous gravel and shell fragments, medium plastic, moist, strong benzene odor.						
2		1	ST	1.4		100 >1000 800	
4		2	ST	1.5		200 >1000 400	
6		3	ST	0.9		400 500 >1000	
8	8.9'-10.0' - Sandy Channel Fill - Silty Sand, loose, light brown and tan, root hairs, non-plastic, free creosote, very moist to wet, very strong odor.	4	ST	1.5		>1000	
10	CLAYEY SAND (SC), compact and soft, light gray and cream with abundant black mottled staining, little ferrous mottling, v.f.g. sand, some silt, non-plastic, slightly saturated with creosote, very moist to wet, very strong benzene odor.	5	SS	1.5		650 980 >1000	
12	SILTY CLAY (CL), firm to stiff, medium gray with dark orange mottling and black stained mottling, v.f. sandy pockets, medium plastic, moist, strong benzene odor.	6	ST	1.7		>1000	
14							
16							
18							
20							
22							

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

WELL NUMBER: MW-20

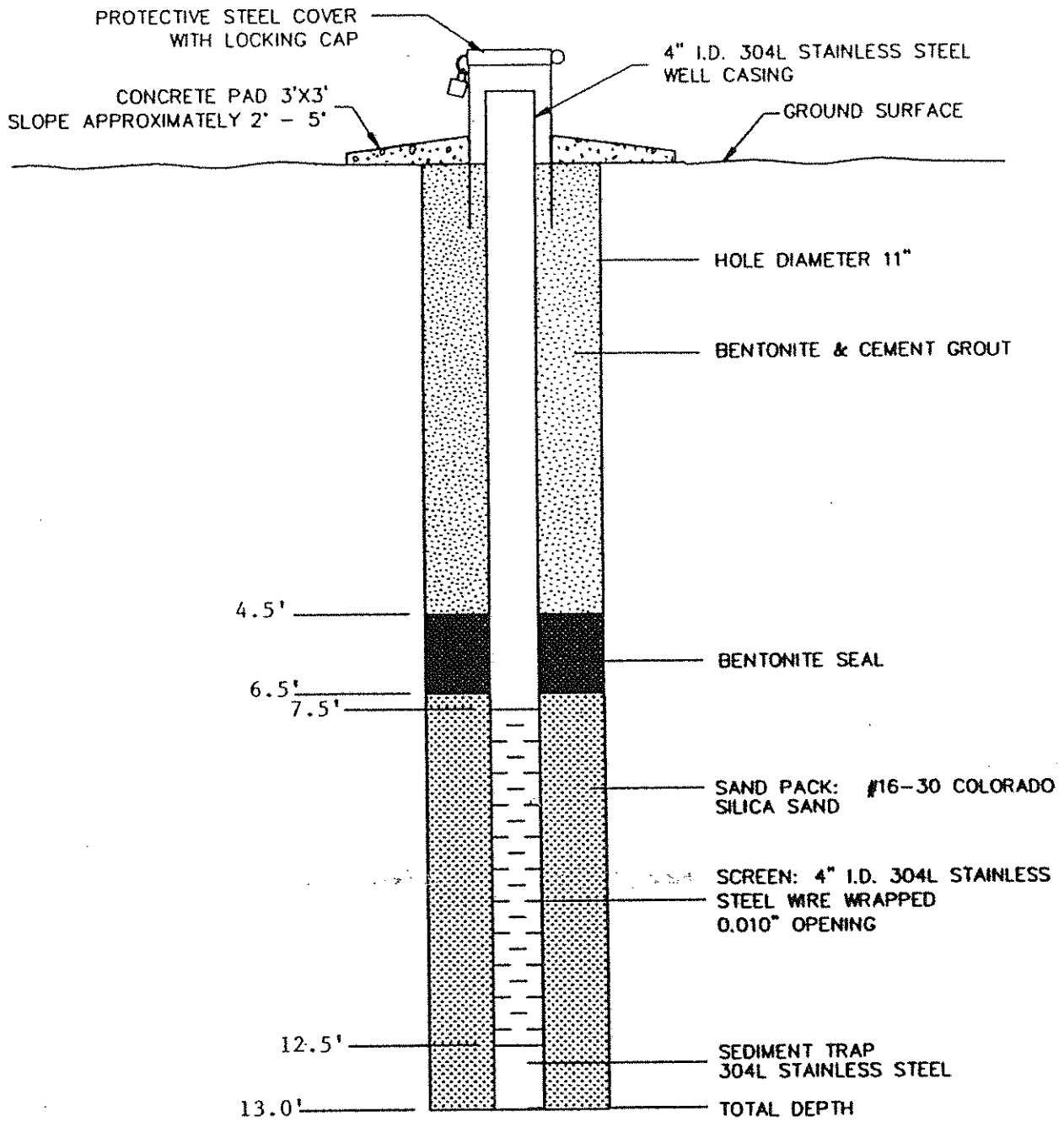
DATE INSTALLED: 2-8-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 17.6' MSL

TOP WELL CASING ELEVATION: 20.18' MSL
(MEASUREMENT POINT)

LOCATION: N 707, 738 E 3, 198, 101



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER: 2970-011
CHK'D.BY:	REVISED:	

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-21

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-21
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/08/90 Date Completed : 02/09/90
Method : HSA Total Depth : 32.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 17.5 FT

TOP OF CASING ELEVATION: 14.63 FT. MSL
SURFACE ELEVATION : 14.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
0	FILL 0'–1.5' – Beige sand with limestone gravel.									
2	1.5'–8.0' – Sandy Channel Fill – Silty Sand, loose, soft, medium gray, f.g. sand, dry to damp, no odors or staining.	1	ST	0.9		0				
4		2	ST	0.2		0				
6	6.0'–8.0' – Becomes medium to dark gray with dark brown and occasional black stain, moist.	3	SS	1.2		20-30				02/23/90
8	8.0' – Becomes clayey, very moist to slightly wet.									
10	CLAYEY SAND (SC), with some olive brown ferrous mottling, very clayey with silt, becoming more clayey with depth, with some cohesion, very moist to slightly wet.	4	SS	2.0		50-90 70-90 70-90				SS
12	SANDY CLAY (CL), firm, light to medium gray with ferrous mottles, with numerous v.f.g. sandy pockets, slight to medium plastic, moist. 11.0' – Very firm, less sandy, becoming silty, grading to silty clay.	5	ST	1.3		60-80 80 70-80				
14	SILTY CLAY (CL), very firm to stiff, light to medium gray with ferrous mottles, medium plastic.	6	ST	1.4		>1000 700 500				
16	17.5' – Becoming sandy, less plastic.	7	ST	1.5		>1000 200 50				
18	SANDY CLAY (CL), firm, light gray, becoming sandier with depth, very slightly plastic, very moist. 20.0' – Very sandy, moist to slightly wet.	8	ST	1.0		250				
20	CLAYEY SAND (SC), slight to medium dense, light gray, very clayey to 21', silty below 21', v.f.g.–f.g. sand, very moist to wet.	9	ST	1.3		70 350				
22	22.0' – Becoming very silty, with clayey pockets and seams, wet. 23.0' – With ferrous staining. 24.0' – Interbedded with thin sandy clay seams.	10	ST	1.4		270 180 75				

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-21

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-21
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/08/90 Date Completed : 02/09/90
Method : HSA Total Depth : 32.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 17.5 FT

DESCRIPTION
TOP OF CASING ELEVATION: 14.63 FT. MSL
SURFACE ELEVATION : 14.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
24	CLAYEY SAND (SC) (Continued)	11	ST	1.8		40 100 150				
	25.5' – Grades to silty sand, less cohesive.									
26	SILTY SAND (SM), medium dense, light gray with occasional dark gray specking, trace to slightly clayey, wet to saturated.	12	ST	2.0		100-150				
28	28.4'–28.7' – Sandy clay seam, medium dense, with some red brown, v.f.g.–f.g. sand.	13	ST	2.0		100 160 20				
30	SILTY CLAY (CL), hard, red brown with light blue gray mottles, very calcareous to 30', slightly flocculated and blocky, medium to high plasticity.	14	ST	1.7		12 6 4				
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-21

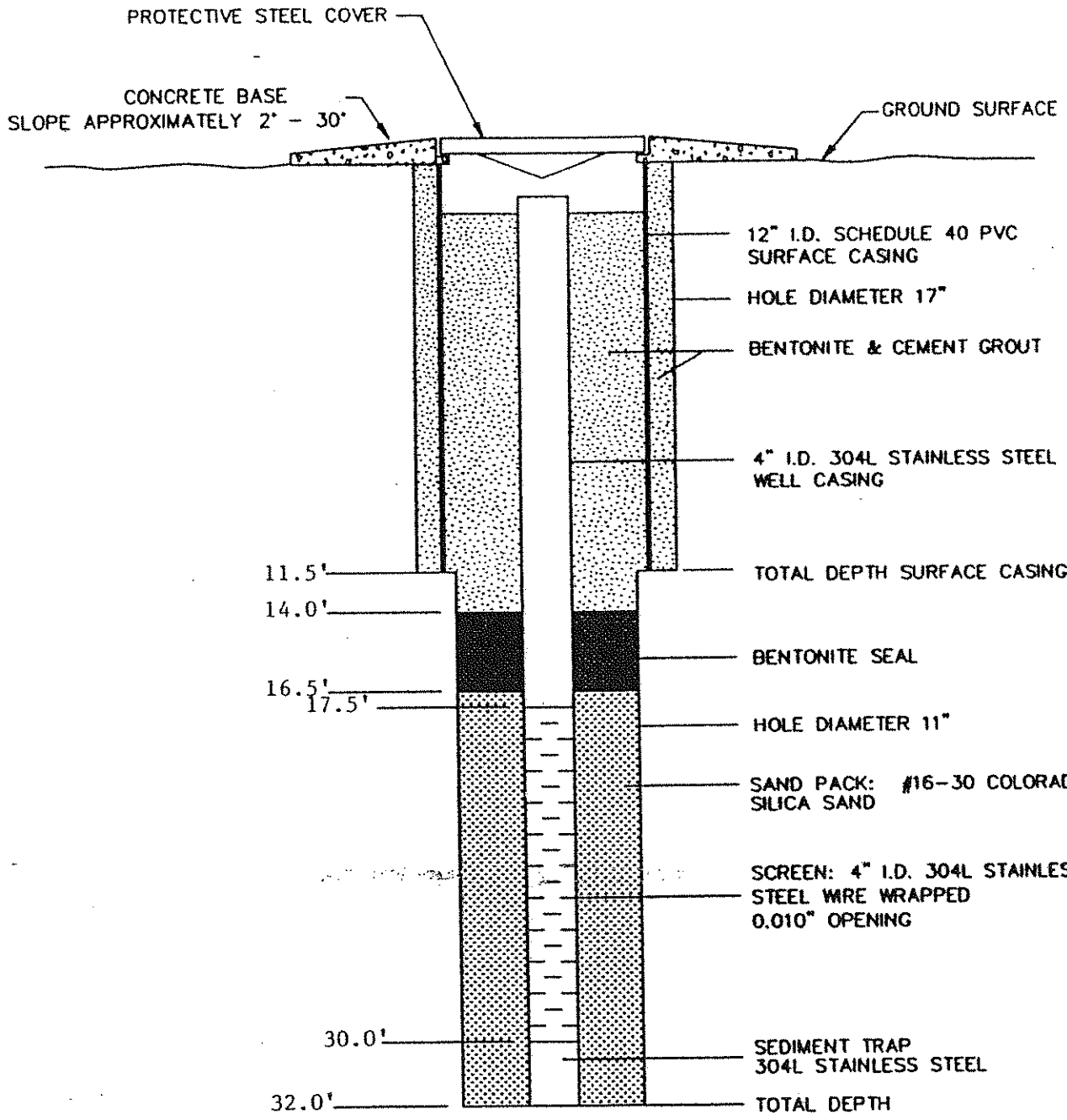
DATE INSTALLED: 2/8/90-2/9/90

TYPE COMPLETION: Below Grade

GROUND SURFACE ELEVATION: 14.7'

TOP WELL CASING ELEVATION: 14.63'
(MEASUREMENT POINT)

LOCATION: N 707, 882 E 3, 198, 013



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297018

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-22

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-22
Logged By : S. EUBANKS
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

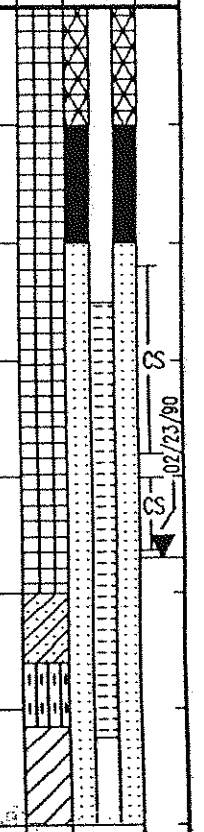
DRILLING AND SAMPLING INFORMATION
Date Started : 02/08/90 Date Completed : 02/08/90
Method : HSA Total Depth : 14.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 7.5 FT w/1.5' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 8.0 FT

TOP OF CASING ELEVATION: 19.37 FT. MSL
SURFACE ELEVATION : 16.1 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL 0'–2.4' – Clay and sand intermixed, reddish brown with gray some laminated clay/sand, strong odor.						
2	2.4'–10.0' – Sandy Channel Fill – Silty Sand, loose, tan and dark gray, v.f.g., some roots, moist, strong odor.	1	ST	1.2		860 >1000 >1000	
4	4.9'–6.3' – Turns much darker with oily appearance, wet to saturated.	2	SS	1.1		>1000	
6	6.3'–10.0' – Sand is very oily, loose, gray, moist, strong odor.	3	SS	1.2		>1000	
8		4	ST	1.1		>1000	
10	CLAYEY SAND (SC), soft, light gray with some black staining, strong odor, moist.	5	ST	2.0		250 >1000 >1000	
12	CLAYEY SILT (ML). SILTY CLAY (CL), firm, gray with black staining and ferrous mottling, occasional calcareous nodules, moist, strong odor.	6	ST	2.0		500 700 >1000	
14							
16							
18							
20							
22							

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-22

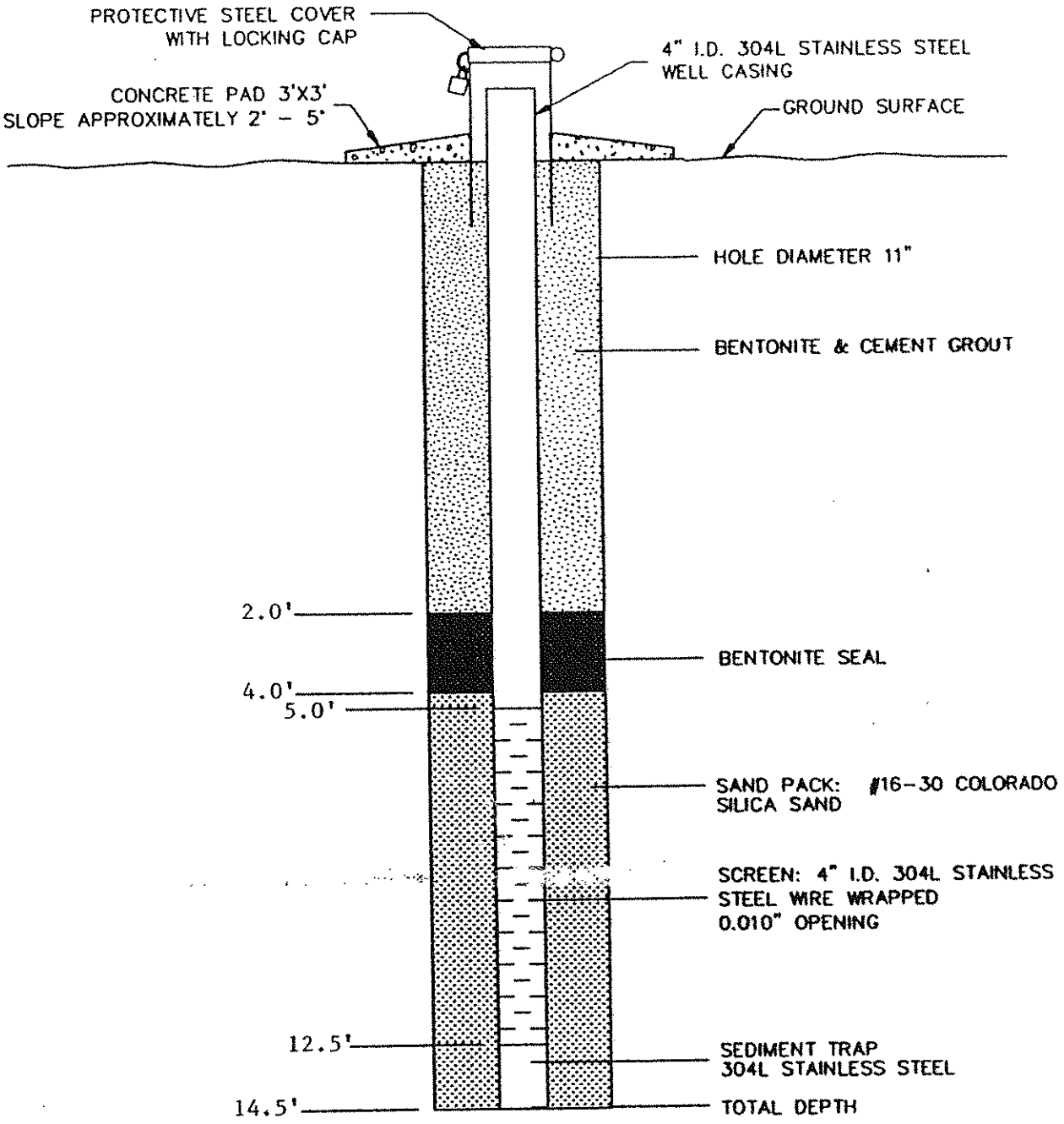
DATE INSTALLED: 2-8-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 16.1' MSL

TOP WELL CASING ELEVATION: 19.37' MSL
(MEASUREMENT POINT)

LOCATION: N 707, 740 E 3, 198, 009



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-23

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-23
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

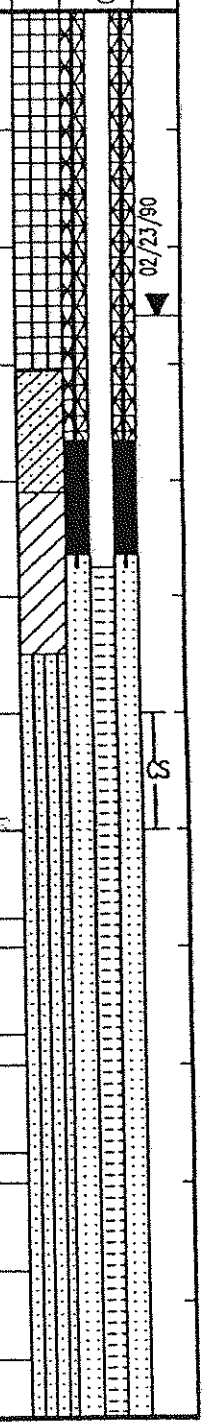
DRILLING AND SAMPLING INFORMATION
Date Started : 02/13/90 Date Completed : 02/15/90
Method : HSA Total Depth : 30.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 12.5 FT

TOP OF CASING ELEVATION: 15.71 FT. MSL
SURFACE ELEVATION : 12.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL 0"–3" – Grass and roots. 3"–6.1' – Sandy Channel Fill, – loose, dark brown and tan, with roots, no staining, non-plastic, very moist, no odor.						
2		1	SS	0.5		0	
4	4.2'–6.1' – Color changes to tan with black stained mottling, black oily contamination, wet, strong chemical fuel odor.	2	SS	1.4		>1000	
6	CLAYEY SAND/SANDY CLAY (SC/CL), soft and compact, light gray and cream with some black pinpoint staining, non-plastic, very moist, strong odor.	3	SS	1.4		>1000	
8	SILTY CLAY (CL), firm, dark gray with dark orange mottling, with v.f. sandy pockets, some black stained mottling, oily appearance on fresh break, medium plasticity, moist, strong odor.	4	SS	1.5		>1000	
10	10.0' – Oil on augers.	5	ST	0.3		>1000	
12	SILTY SAND (SM), compact to loose, light gray and tan with some light orange laminations, approx. 10–15% clay, abundant black root hairs from 11'–14', v.f.g. sand, non-plastic, wet, very strong gasoline odor. Slight oily sheen from 11'–20'.	6	ST	0.8		700 >1000 >1000	
14		7	SS	0.7		>1000	
16	17.0'–21.0' – Clay content increases to clayey silty v.f. sand, buff and tan mottled with light orange, clay is in laminae 2–4 mm thick, light gray.	8	SS	1.2		>1000	
18		9	SS	1.3		>1000	
20	20.3'–20.7' – Clay lense, gray.	10	SS	1.5		200	
22	21.0'–26.9' – Alternating silty sand and clayey sand, loose, silty sand is light orange and buff with light green mottling; clayey sand is light gray; each layer is 2"–3" thick, slightly plastic, saturated, moderate gasoline odor.	11	SS	1.5		150 200 200	
		12	SS	1.5		700 400	

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-23

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-23
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/13/90 Date Completed : 02/15/90
Method : HSA Total Depth : 30.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 17.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 12.5 FT

TOP OF CASING ELEVATION: 15.71 FT. MSL
SURFACE ELEVATION : 12.7 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	SILTY SAND (SM) (Continued)					400				
26	25.0'–26.9' – Becomes homogeneously light gray.	13	SS	1.5		400				
		14	SS	1.5		100 50 20				
28	SANDY CLAY (CL), stiff, dark brownish red mottled with light gray, v.f. sandy pockets, some silt, medium plastic, slt. moist, slt. odor.									
30	CLAY (CH), very stiff to hard, dark brownish red with light gray mottling, abundant calcareous nodules and gravel, occasional black carbonaceous material, flocculated appearance, highly plastic, slightly moist, medium odor.	15	ST	2.0		2 2 0				
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-23

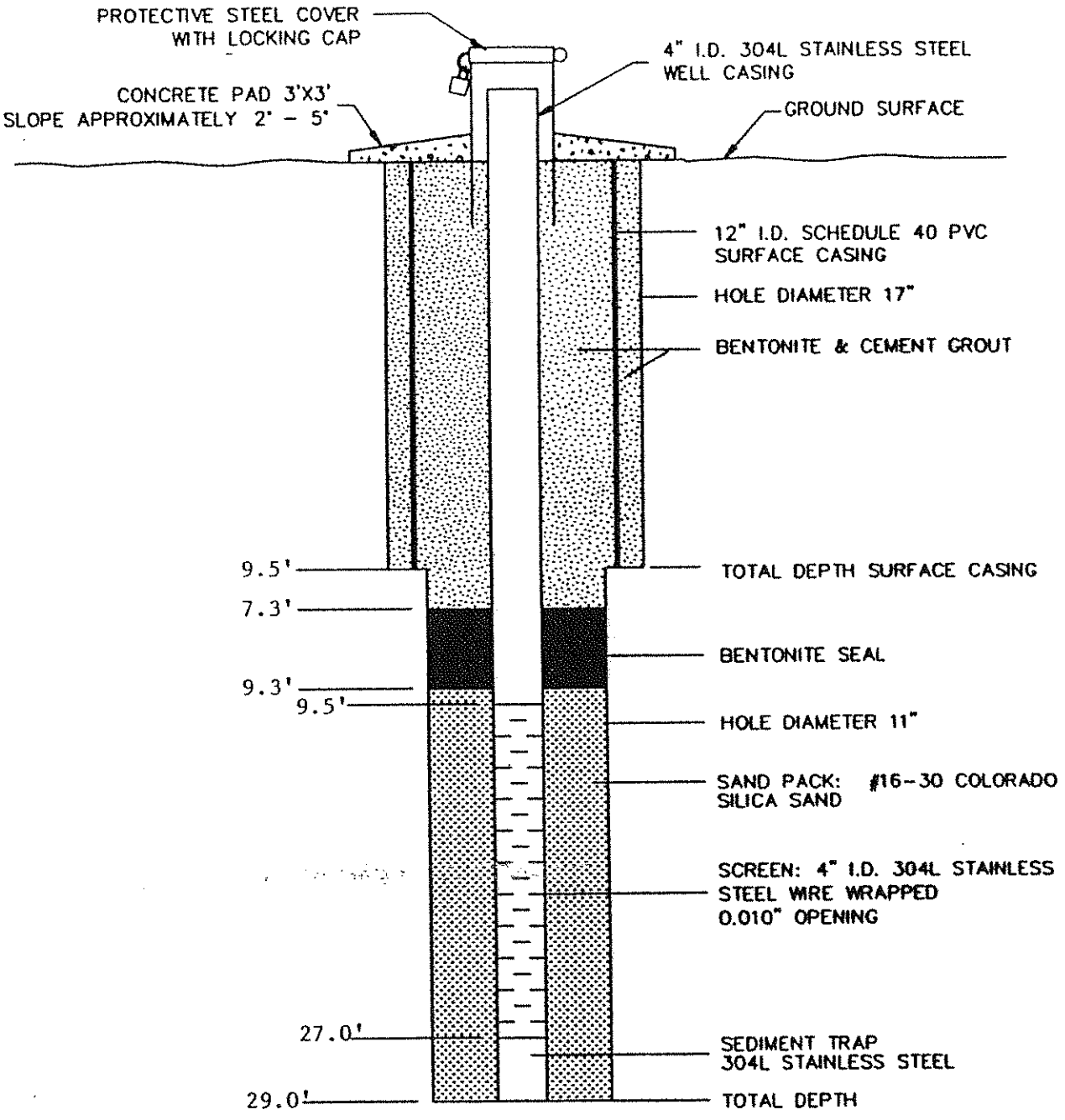
DATE INSTALLED: 2/13/90-2/15/90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 12.7' MSL

TOP WELL CASING ELEVATION: 15.71' MSL
(MEASUREMENT POINT)

LOCATION: N 707, 990 E 3, 197, 959



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER: 2970-011
CHK'D.BY:	REVISED:	

CE297016

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-24

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-24
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

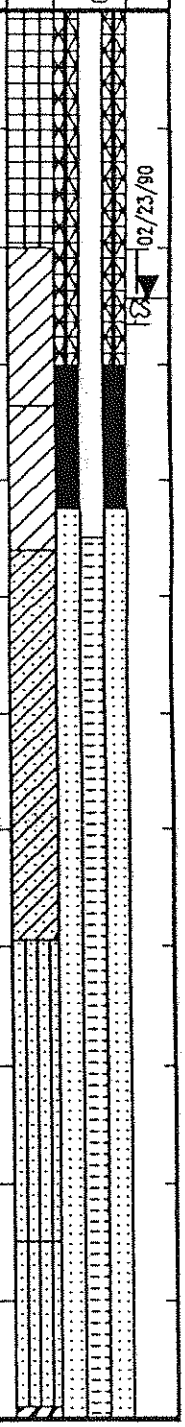
DRILLING AND SAMPLING INFORMATION
Date Started : 02/16/90 Date Completed : 02/19/90
Method : HSA Total Depth : 26.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 12.5 FT

TOP OF CASING ELEVATION: 13.70 FT. MSL
SURFACE ELEVATION : 10.4 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
2	FILL 0"–4" – Roots and grass, silty sand, compact, stained black, very moist, slight odor. 4"–4.0' – Sandy Channel Fill – loose to compact, buff, tan and brown, trace of clay, non-plastic, no odor. 2.8'–3.2' – Wet.	1	ST	0.9		3 4 4	
4	3.2'–4.0' – very compact, black stained mottling, wet, sewer odor and gasoline odor.	2	SS	1.6		4	
6	SANDY CLAY/CLAYEY SAND (CL/SC), soft and compact, tan and light gray with occasional light orange mottling, black staining, v.f.g. sand, slightly plastic, very moist, strong fuel oil and gasoline odor. 4.0'–4.8' – The sample is totally stained black and oily.	3	SS	1.8		100 100 200	
8	SILTY CLAY (CL), firm to stiff, medium gray with dark orange mottling and black staining, sticky clay with abundant v.f.g. sandy pockets, medium plastic, moist, very strong fuel oil odor.	4	ST	1.3		400 >1000 >1000	
10	CLAYEY SAND (SC), soft and compact, light gray and buff with light orange and light green mottling, silty v.f.g. sand, slight to non-plastic, very moist to wet, strong fuel oil odor, no oil noted on samples.	5	ST	1.2		>1000	
12		6	ST	1.4		>1000 >1000 500	
14		7	ST	1.6		50 100 400	
16		8	ST	1.5		500	
18	SILTY SAND (SM), loose, light orange, cream and tan with black staining, slightly laminated appearance, v.f. and f. sand, 10–15% clay, non-plastic, wet, medium to strong fuel odor, no oil noted on samples.	9	ST	1.3		280 300 280	
20		10	ST	1.7		300 400 500	
22	SILTY SAND (SM), with interlaminae of sandy clay, light gray with some orange and rose mottling, silty sand layers are 2"–3" thick, sandy clay laminae are 5mm–8mm thick, slightly plastic, very moist to wet, slight fuel oil odor.	11	ST	1.4		800 100 90	
		12	SS	NR			

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-24

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-24
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/16/90 Date Completed : 02/19/90
Method : HSA Total Depth : 26.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT. w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 12.5 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 13.70 FT. MSL SURFACE ELEVATION : 10.4 FT. MSL									
26	CLAY/SILTY CLAY (CH/CL), very stiff, dark brownish red mottled with light bluish gray, abundant calcareous gravel and nodules, black carbonaceous threadlike material, flocculated appearance, highly plastic, slightly moist, slight odor.	13	ST	1.5		20 10 2				
28										
30										
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS – DRIVEN SPUT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-24

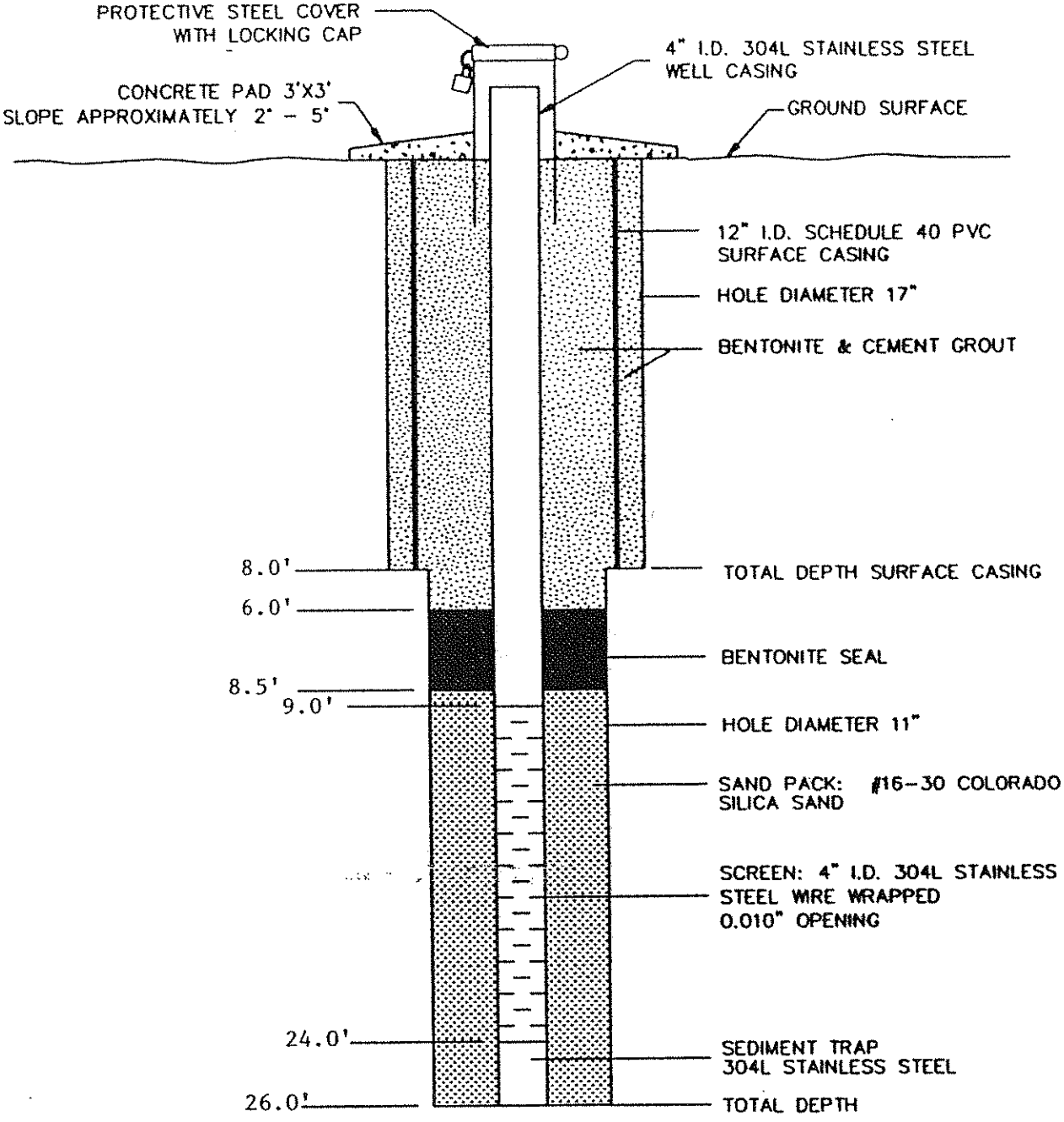
DATE INSTALLED: 2/16/90-2/19/90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 10.4' MSL

TOP WELL CASING ELEVATION: 13.70' MSL
(MEASUREMENT POINT)

LOCATION: N 708, 023 E 3, 197, 999



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER: 2970-011
CHK'D.BY:	REVISED:	

CE297016

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-25

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-25
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/16/90 Date Completed : 02/16/90
Method : HSA Total Depth : 27.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 12.5 FT

TOP OF CASING ELEVATION: 12.97 FT. MSL
SURFACE ELEVATION : 10.3 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL 0'–0.6' – Clay, intermixed with pockets of silty sand and gravel, soft, dark brown, with roots, medium plastic, very moist, no odor.	1	ST	1.1		0	
2	0.6'–4.2' – Sandy Channel Fill, loose to slightly compact, cream, tan and light brown, very silty, non-plastic, very moist to almost wet, no odor.	2	SS	0.3		0	
4	CLAYEY SAND/SANDY CLAY (SC/CL), compact to soft, homogeneously light gray with slight orange mottling, non-plastic, very moist, slight odor.	3	SS	1.5		10 10 100	
6	6.0'–7.0' – Stained black with strong benzene or gasoline odor.	4	ST	1.6		100 >1000 >1000	
8	SILTY CLAY (CL), firm to slightly stiff, medium gray with some orange mottling, occasional calcareous nodules, black mottled staining, medium plastic, strong benzene or gasoline odor.	5	ST	1.1		>1000	
10		6	ST	1.1		540 360 300	
12	CLAYEY SAND/SANDY CLAY (SC/CL), soft, homogeneously light gray with light green mottling, v.f. sand (15–18%), occasional lenses of firm, light gray clay with black stained mottling, slightly plastic, very moist, strong benzene odor.	7	ST	1.6		>1000 >1000 290	
14		8	ST	1.7		600 200 200	
16	CLAYEY SAND (SC), loose to compact, cream, tan and light gray with light green mottling, silty, v.f. and f. sand, occasional black stained mottling, non-plastic, wet, medium fuel oil and benzene odor.	9	ST	1.3		100 40 40	
18	18.0' – Wet.	10	ST	2.0		100 90 300	
20		11	ST	1.3		90 110 110	
22	22.0' – Alternating laminae of firm gray clay.	12	ST	1.5		300 200 500	

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL (02/23/90)

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-25

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-25
Logged By : J. BARRINGER
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/16/90 Date Completed : 02/16/90
Method : HSA Total Depth : 27.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 15.0 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 12.5 FT

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	TOP OF CASING ELEVATION: 12.97 FT. MSL SURFACE ELEVATION : 10.3 FT. MSL									
	CLAYEY SAND (SC) (Continued)									
26	CLAY/SILTY CLAY (CH/CL), very stiff to hard, dk. brwnish red w/gray mottling, very abundant calc. nodules & gravel (1-7 mm in diam.), blk carbonaceous material, flocculated appearance, w/occ. v.f.g. sandy pockets, hightly plastic, slt. moist, slt. odor.	13	ST	2.0		280 90 50				
28										
30										
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE
RC - ROCK CORE
CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

WELL NUMBER: MW-25

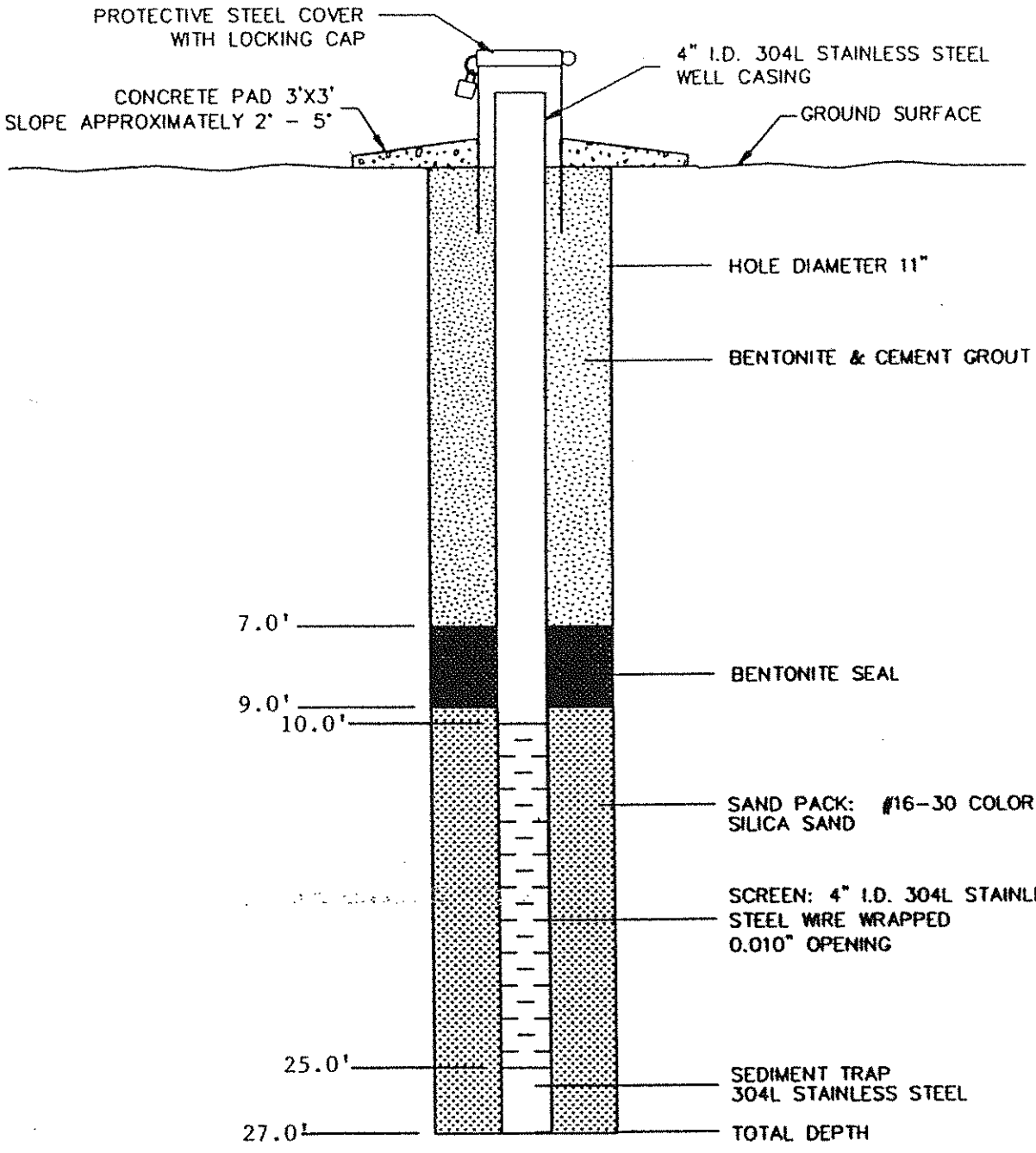
DATE INSTALLED: 2-16-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 10.3' MSL

TOP WELL CASING ELEVATION: 12.97' MSL
(MEASUREMENT POINT)

LOCATION: N 708, 190 E 3, 197, 904



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER: 2970-011
CHK'D.BY:	REVISED:	

CE297015

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-26

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-26
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/19/90 Date Completed : 02/20/90
Method : HSA Total Depth : 26.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

TOP OF CASING ELEVATION: 12.08 FT. MSL
SURFACE ELEVATION : 9.9 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
0	FILL 0'–0.9' – Clay intermixed with pockets of silty sand, soft, dark brown and tan, occasional rootlets, plastic, very moist.	1	ST	1.2		0				
2	0.9'–6.5' – Sandy Channel Fill – loose, dark brown, tan and cream, v.f. and f. sand, non-plastic, wet, no odor. 2.0'–2.5' – Black stained mottling.	2	ST	0.9		0 5 5				
4	4.0'–6.5' – Saturated.	3	SS	0.7		1				02/23/90
6	CLAYEY SAND (SC), compact and soft, homogeneously light gray with very occasional ferrous mottling, v.f.g. silty sand, non-plastic, no staining, very moist, no odor.	4	SS	1.6		0				
8	SILTY CLAY (CL), firm, homogeneously medium gray with occasional ferrous mottling, occasional v.f. sandy pockets, rootlets and bark, slight to medium plastic, no staining, no visible oil, slightly moist, no odor.	5	ST	1.1		0				
10		6	ST	1.3		0-2				
12	12.0'–14.0' – Grades to a v.f.g. very sandy clay.	7	ST	1.5		0-2				
14	CLAYEY SAND (SC), light gray with some tan ferrous staining and some ferrous nodules, with some app. cohesion, moist. 14.5'–15.0' – Very clayey seam. 15.2' – Clay decreases with depth.	8	ST	1.4		0-2				
16	16.0' – Becoming very moist to slightly wet.	9	ST	1.2		0-4 2-4 2				
18	18.0' – With some dark gray speckling, slightly wet, slight odor.	10	ST	1.7		80-14 20 60				
20	20.0' – Less clayey, grading to silty sand, wet.	11	ST	1.6		45 320 100				
22	SILTY SAND (SM), medium dense, light gray, v.f.g.–f.g., with some app. cohesion, wet. 22.0' – Occasional sandy clay pockets and thin seams.	12	ST	1.8		410 200 110				SS
	24.0' – Very wet to saturated.									

SAMPLER TYPE
SS – DRIVEN SPLIT SPOON RC – ROCK CORE
ST – PRESSED SHELBY TUBE CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER DC – DRIVING CASING
CFA – CONTINUOUS FLIGHT AUGERS MD – MUD DRILLING

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-26

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-26
Logged By : J. BARRINGER & J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

DRILLING AND SAMPLING INFORMATION
Date Started : 02/19/90 Date Completed : 02/20/90
Method : HSA Total Depth : 28.0 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 12.5 FT w/2.0' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 15.0 FT

TOP OF CASING ELEVATION: 12.08 FT. MSL
SURFACE ELEVATION : 9.9 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)	GRAPHIC LOG	WELL COMPLETION	WATER LEVEL
	SILTY SAND (SM) (Continued)	13	ST	2.0		40-60 150 20				
26	CLAY (CL/CH), very stiff, red brown mottled blue gray, with some olive mottles, slightly slickensided to flocculated, highly plastic, moist. 25.2'-27.0' - Silty.	14	ST	1.9		0-2				
28	27.0' - Very stiff, calcareous, plastic.									
30										
32										
34										
36										
38										
40										
42										
44										
46										

SAMPLER TYPE
SS - DRIVEN SPLIT SPOON RC - ROCK CORE
ST - PRESSED SHELBY TUBE CT - CONTINUOUS TUBE

BORING METHOD
HSA - HOLLOW STEM AUGER DC - DRIVING CASING
CFA - CONTINUOUS FLIGHT AUGERS MD - MUD DRILLING

WELL NUMBER: MW-26

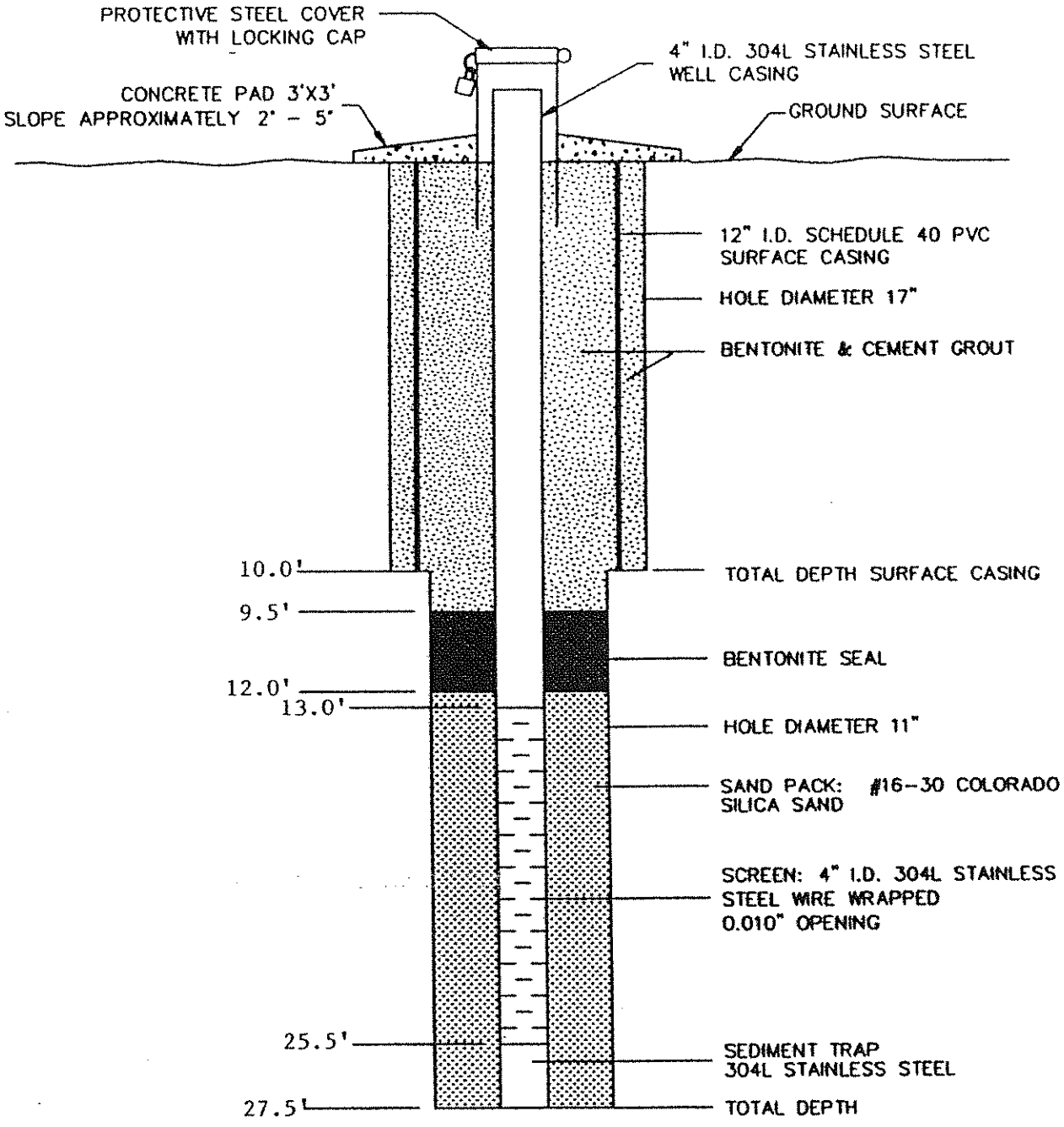
DATE INSTALLED: 2-19-90/2-20-90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 9.09' MSL

TOP WELL CASING ELEVATION: 12.08' MSL
(MEASUREMENT POINT)

LOCATION: N 708, 129 E 3, 197, 991



NOT TO SCALE

ENSR™
ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL

GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER:
CHK'D.BY:	REVISED:	2970-011

CE297016

ENSR CONSULTING & ENGINEERING

SUBSURFACE EXPLORATION — LITHOLOGIC LOG OF MW-27

Client : GATX TERMINALS CORPORATION
Project Name : GROUNDWATER QUALITY ASSESSMENT INVEST.
Project Location : GALENA PARK, TEXAS
Job Number : 2970-011-350 Boring No : MW-27
Logged By : J. SIMPSON
Approved By : B. NELSON
Drilled By : FUGRO GEOSCIENCES, HOUSTON, TX

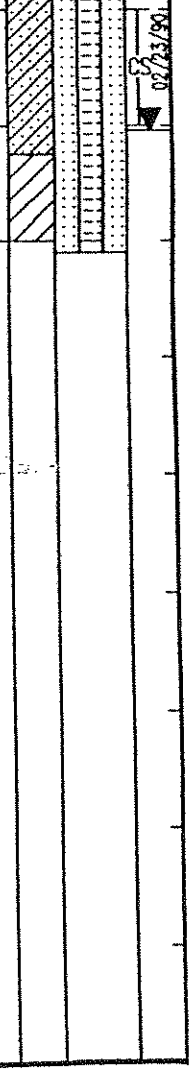
DRILLING AND SAMPLING INFORMATION
Date Started : 02/20/90 Date Completed : 02/20/90
Method : HSA Total Depth : 10.2 FT

WELL COMPLETION INFORMATION
Screen Dia : 4 IN I.D. Length : 5.0 FT w/.2' sump
Slot Size : 0.010 IN Type : SS TRILOC #304
Casing Dia : 4 IN I.D. Length : 7.5 FT

TOP OF CASING ELEVATION: 14.70 FT. MSL
SURFACE ELEVATION : 12.2 FT. MSL

DEPTH IN FEET	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	RECOVERY (FEET)	BLOW COUNT	OVA (ppm)	HNu (ppm)
0	FILL 0'–2.0' – Topsoil. silty sand with clay, dark brown with lime gravel and shell fragments, rootlets.						
2	2.0'–4.0' – Sandy Channel Fill – Silty Sand with clay, brown, dark gray and black, stained, moist.	1	ST	1.9		10 30-40 20	
4	CLAYEY SAND (SC), becomes light to medium gray with some dark gray, v.f.g.–f.g., moist.	2	SS	1.0		10 30 90	
6	6.0' – With dark gray and some ferrous tan mottling, oil sheen in pockets, moist to wet, with odor.	3	SS	1.7		>1000	
8	SILTY CLAY (CL), very firm, light to medium gray with olive and brick red mottles, with some ferrous nodules, very sandy to 9.0', slight to medium plasticity, moist.	4	ST	1.5		100 50 20	
10							
12							
14							
16							
18							
20							
22							

GRAPHIC LOG / WELL COMPLETION / WATER LEVEL



SAMPLER TYPE
SS – DRIVEN SPLIT SPOON
ST – PRESSED SHELBY TUBE
RC – ROCK CORE
CT – CONTINUOUS TUBE

BORING METHOD
HSA – HOLLOW STEM AUGER
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

WELL NUMBER: MW-27

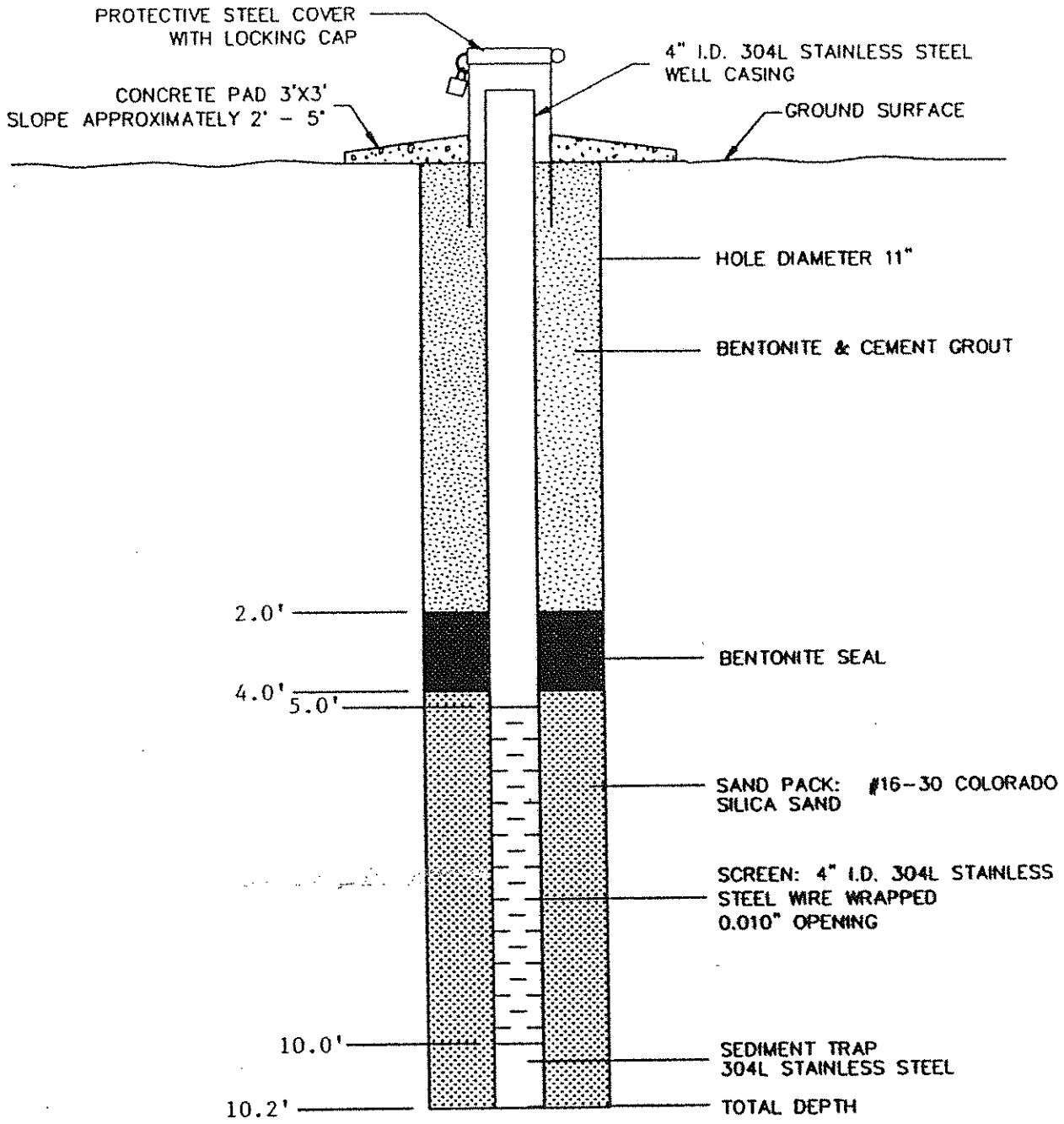
DATE INSTALLED: 2/20/90

TYPE COMPLETION: Above Grade

GROUND SURFACE ELEVATION: 12.2' MSL

TOP WELL CASING ELEVATION: 14.70' MSL
(MEASUREMENT POINT)

LOCATION: N 708, 190 E 3, 197, 904



NOT TO SCALE

ENSR™

ENSR CONSULTING AND ENGINEERING

GROUNDWATER QUALITY ASSESSMENT
MONITOR WELL COMPLETION DETAIL
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

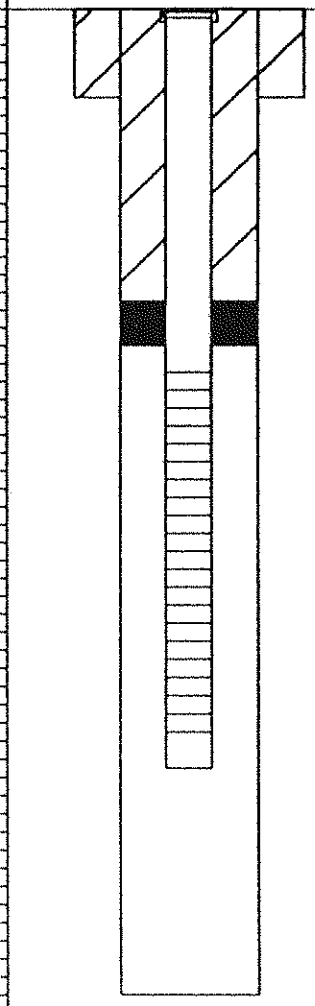
DRAWN BY: S.JACKSON	DATE: 3/8/90	PROJECT NUMBER: 2970-011
CHK'D.BY:	REVISED:	

CE297015

CAMU/Former NHB Boring Logs

ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 42.50'	
Total Depth: 55.00'	
Site Id: NHBMW01	Measuring Point: 15.21'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 8.00in
Date Started: 02/12/90	Elevation: 0.00'
Date Completed: 02/12/90	Logged By: J. Simpson
Contractor: Fugro Geosciences	Drilling Method: Hollow Stem Auger
Remarks: sand pack is #16-30 Colorado silica sand	Screens: type: Wire-wrap size: 0.010in dia: 4.00in fm: 20.50' to: 40.50'
	Annular Fill: type: Grout fm: 0.00' to: 16.50'
	type: Bentonite Pellets fm: 16.50' to: 19.00'
	type: Sand Filter fm: 19.00' to: 55.00'



Material Description

Fill
0"-3" - Asphalt.
3"-1.0' - Beige/tan clayey sand.
1' - Dk brown olive gray silt and clay.

SILTY CLAY (CL), red brown with med. gray.

SILTY SAND (SM), medium brown, beige, slightly red brown, clayey to 4.7', moist.

6.0' - Compact to slightly dense, v.f.g.-f.g.
6.7' - Becomes wet.

SILTY CLAY (CL), firm, red brown and medium dark brown, plastic, grades to very sandy clay.
10-11' - Calcareous.

CLAYEY SAND (SC/CL), light gray, v.f.g., very moist, grades to sandy clay.
SANDY CLAY (CL), firm, light gray with beige ferrous oxide staining with some buff mottles, v.f.g., calcareous, slightly plastic, moist.

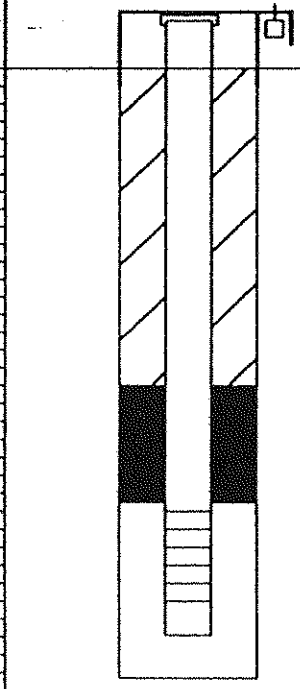
18.0' - With numerous sandy silt and sand pockets.
19.0' - Grading to very sandy.

SILTY SAND (SM), v.f.g.-f.g., clayey to 22.0', light gray, red brown and buff.
22.0' - Becomes wet.

24.0' - Less compact to loose, very wet, light gray with red brown, with occasional clay laminae.

ARCADIS
GERAGHTY & MILLER

	Project Number: HT000297.0001
	Project Name: GATX
	Completed Depth: 31.90'
	Total Depth: 34.30'
Site Id: NHBMW02	Measuring Point: 11.71'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 8.00in
Date Started: 02/13/90	Elevation: 0.00'
Date Completed: 02/13/90	Logged By: J. Simpson
Contractor: Fugro Geosciences	Drilling Method: Hollow Stem Auger
Remarks: sand pack is #16-30 colorado silica sand	Screens: type: Wire-wrap size: 0.010in dia: 4.00in fm: 25.00' to: 30.00'
	Annular Fill: type: Grout fm: 0.00' to: 18.00' type: Bentonite Pellets fm: 18.00' to: 24.50' type: Sand Filter fm: 24.50' to: 34.30'



Material Description

Fill
0'-3.0' - Silty clay, red brown, with minor gravel and sand, some root material, very moist.

3.0'-4.0' - Red brown light gray and brown silty clay with black staining.

SILTY SAND (SM), medium brown, fine silty sand, moist.

SILTY CLAY (CL/CH), very firm to stiff, dark brown, with some beige sand pockets and black organic stain, very plastic, moist.

SILTY CLAY/SILTY SAND/CLAYEY SILT (CL w/SM/ML), red brown SICL thinly interbedded with red brown clayey silt seams and silty sand seams. Plastic very moist to wet.
SILTY CLAY (CL/OL), dk brn/gray, very silty, organic clay, low to medium, plastic, gummy, very moist to wet.
10.0'-10.5' - Very clayey, becoming light gray, wet.
CLAYEY SAND (SC), soft, medium gray to light gray, with organic material, f.-v.f.g., very clayey, wet to saturated.
12.0' - Soft, very silty, wet to saturated.

13.0' - Becomes firmer, very clayey, with some cohesion, very slightly plastic, very moist to wet.
14.0' - Loose to soft, wet.

CLAYEY SILT (ML/OL), dark gray to black/gray, with v.f.-f. sand pockets, high organic content, very moist to slightly wet.
16.0' - Charcoal gray with light gray, v.f.g. sand pockets numerous, high organic content.

CLAYEY SAND (SC), Becomes firmer, light to medium gray, clayey, v.f.g.-f.g., with less organic material, very moist.

20.0' - Soft, light to medium gray, with minor to some organic material, slifhtly cohesive, very moist to slightly wet.
21.0'-21.5' - Very loose, soft, less clayey, saturated.
21.5' - Soft to very slightly dense, medium gray, with occasional small blue gray clay pockets (fragments), less clayey.

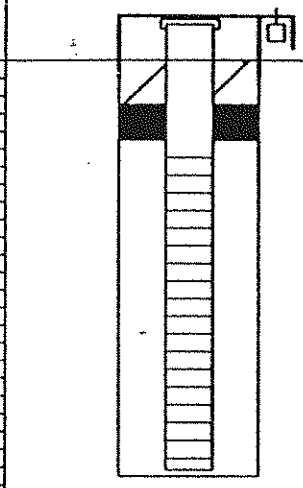
24.0' - Clay fragments more numerous.

SILTY SAND (SM), slight red brown/buff, with interbedded light gray, silty sand with ferrous staining, v.f.g.-f.g., wet to saturated.
26.0' - Dense to very dense, buff and ferrous brown with light gray seams, with indurated calcareous clay clasts.

29.7' - Becoming slightly clayey.

ARCADIS
GERAGHTY & MILLER

	Project Number: HT000297.0001
	Project Name: GATX
	Completed Depth: 23.15'
	Total Depth: 23.50'
Site Id: NHBMW03	Measuring Point: 11.12'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 8.00in
Date Started: 02/14/90	Elevation: 0.00'
Date Completed: 02/14/90	Logged By: J. Simpson
Contractor: Fugro Geosciences	Drilling Method: Hollow Stem Auger
Remarks: sand pack is #16-30 Colorado silica sand	Screens: type: Wire-wrap size: 0.010in dia: 4.00in fm: 5.50' to: 23.00'
	Annular Fill: type: Grout fm: 0.00' to: 2.50' type: Bentonite Pellets fm: 2.50' to: 4.50' type: Sand Filter fm: 4.50' to: 23.50'



Material Description

FILL
0'-3.0' - Red brown, silty clay with minor gravel and sand, some root material, very moist.

3.0'-4.0' - Red brown, light gray and brown silty clay with black staining.

SILTY SAND (SM), medium brown, fine silty sand, moist.

SILTY CLAY (CL/CH), very firm to stiff, dark brown, with some beige sand pockets and black organic stain, very plastic, moist.

SILTY CLAY/SILTY SAND/CLAYEY SILT (CL w/SM/ML), red brown SICL thinly interbedded with red brown clayey silt seams and silty sand seams. Plastic, very moist to wet.

SILTY CLAY (CL/OL), dk brn/gray, very silty, organic clay, low to medium plastic, gummy, very moist to wet.

CLAYEY SAND (SC), soft, medium gray to light gray, with organic material, f.-v.f.g., very clayey, wet to saturated.
12.0' - Soft, very silty, wet to saturated.

13.0' - Becomes firmer, very clayey, with some cohesion, very slightly plastic, very moist to wet.
14.0' - Loose to soft, wet.

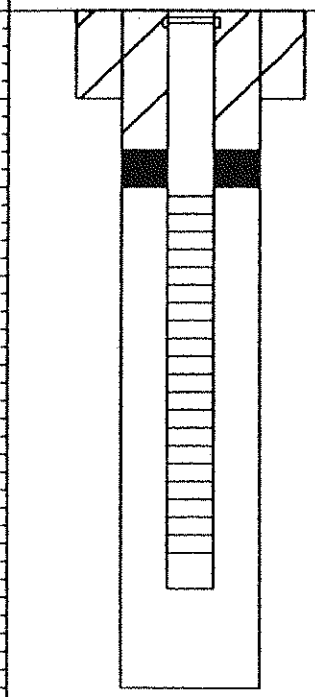
CLAYEY SILT (ML/OL), dark gray to black/gray, with v.f.-f. sand pockets, high organic content, very moist to slightly wet.
16.0' - Charcoal gray with light gray, v.f.g. sand pockets numerous, high organic content.

CLAYEY SAND (SC), Becomes firmer, light to medium gray, cleyey, v.f.g.-f.g., with minor organic material, very moist.

20.0' - Soft, light to medium gray, with minor to some organic material, slightly cohesive, very moist to slightly wet.
21.0'-21.5' - Very loose, soft, less cleyey, saturated.
21.5' - Soft to very slightly dense, medium gray, with occasional small blue gray clay pockets (fragments), less clayey.

ARCADIS
GERAGHTY&MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 32.50'	
Total Depth: 38.00'	
Site Id: NHBMW04	Measuring Point: 10.41'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 8.00in
Date Started: 02/14/90	Elevation: 0.00'
Date Completed: 02/14/90	Logged By: J. Simpson
Contractor: Fugro Geosciences	Drilling Method: Hollow Stem Auger
Remarks: sand pack is #16-30 Colorado silica sand	Screens: type: Wire-wrap size: 0.010in dia: 4.00in fm: 10.50' to: 30.50'
	Annular Fill: type: Grout fm: 0.00' to: 7.90'
	type: Bentonite Pellets fm: 7.90' to: 10.00'
	type: Sand Filter fm: 10.00' to: 38.00'



Material Description

FILL
0'-2.0' - Asphalt and road base.
2.0'-4.0' - Silty clay, black brown with sand and gravel (minor).

SILTY CLAY (CL), very firm, light gray to slightly olive gray, with black organic material, medium plastic, with v.f.g. sandy seams and pockets.

SANDY CLAY (CL), firm, light gray, some ferrous staining, slightly plastic.
7.0' - Becomes very ferrous stained, minor calcareous nodules.

10.0' - Becomes very sandy, grading to clayey sand, very moist.

CLAYEY SAND (SC), light gray with ferrous stain, v.f.g.-f.g. and silty, with app. cohesion, very moist to 12', v. moist/wet below 12'.
12.0' - Very ferrous stained along seams, breaks, and pockets, less clayey with depth, very silty.

SILTY SAND (SM), medium dense, light gray with ferrous stain, slight buff beige, trace to minor clay, very moist/wet.

16.0' - with occasional sandy clay breaks, saturated.

17.0'-19.0' - Dense, less ferrous staining.

20.0' - Dense, light gray, buff, with some red brown, v.f.g.-f.g.

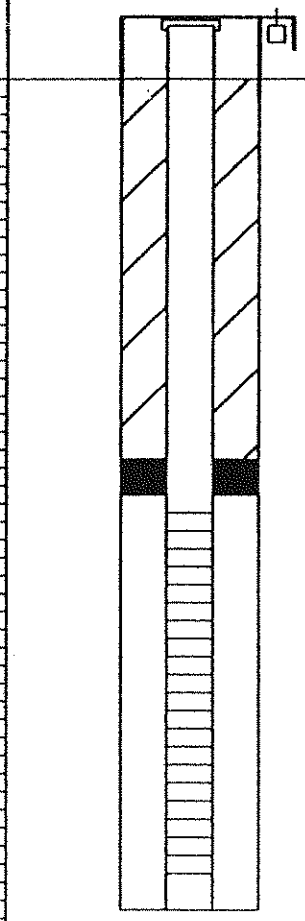
CLAY (CL/CH), very stiff to hard, red brown and light gray mottled, highly slickensided, blocky, with minor calcareous nodules, very plastic.

SILTY SAND (SM), slightly dense, light gray with buff, v.f.g.-f.g.

26.0' - Very dense, v.f.g.-f.g., with occasional silty clay pockets and seams.

ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 46.50'	
Total Depth: 47.00'	
Site Id: NHBMW05	Measuring Point: 23.88'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 8.00in
Date Started: 02/15/90	Elevation: 0.00'
Date Completed: 02/15/90	Logged By: J. Simpson
Contractor: Fugro Geosciences	Drilling Method: Hollow Stem Auger
Remarks: sand pack is #16-30 Colorado silica sand	Screens: type: Wire-wrap size: 0.010in dia: 4.00in fm: 24.50' to: 44.50'
	Annular Fill: type: Grout fm: 0.00' to: 21.50'
	type: Bentonite Pellets fm: 21.50' to: 23.50'
	type: Sand Filter fm: 23.50' to: 46.50'



Material Description

FILL, dark brown to light brown beige, sandy clay with limestone gravel and sand.

4.0'-8.0' - Silty clay, reddish brown, light gray, reworked.
4.5'-5.5' - Stained black, slight odor.

8.0'-14.5' - Some dry sand seams and pockets, with slight to moderate odor, to 14' with some black stain.

SILTY SAND (SM), loose to compact, dk to med brn, tr. clay, moist.
SILTY CLAY (CL), dark brown, plastic, very moist.
SILTY CLAY (CL/OL), black/gray, very silty, organic clay.

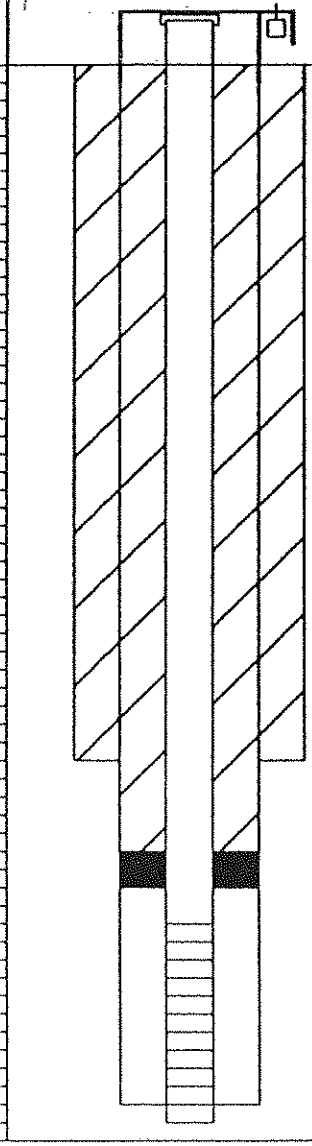
CLAYEY SILT (OL), organic, with v.f.g. sand, very clayey with organic material and decaying roots, wet.
19.5 - With ferrousnodes, less organic material, becoming very clayey, less wet.
CLAYEY SAND (SC/CL), medium gray, very clayey, v.f.g. to silty, non-plastic to v. slightly plastic, very moist.

SANDY CLAY (CL), firm, medium to light gray, with olive ferrous mottling and some nodules, v.f.g. & v. sandy, slightly plastic, very moist, sand increases with depth. Grades to silty sand with clay, light gray with red brown.

SILTY SAND (SM), medium dense, light gray, 30' - becomes beige, ferrous stained, with some app. cohesion, very moist/wet.

ARCADIS
GERAGHTY & MILLER

	Project Number: HT000297.0001
	Project Name: CATX
	Completed Depth: 59.00'
	Total Depth: 60.00'
Site Id: NHBMW06	Measuring Point: 11.88'
Location: CATX Terminal, Galena Park, TX	Borehole Dia.: 10.00in
Date Started: 11/18/91	Elevation: 0.00'
Date Completed: 11/22/91	Logged By: M. Shawn
Contractor: Scot Environmental	Drilling Method: Hollow Stem Auger
Remarks: sand pack (NO.1 sand)	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 48.00' to: 58.00'
	Annular Fill: type: Grout fm: 0.00' to: 44.00' / type: Bentonite Pellets fm: 44.00' to: 46.00' / type: Sand Filter fm: 46.00' to: 58.00'



Material Description

CLAY: Red-brown, silty, slightly to mod. plastic, damp, bioturbation. no odor, no stain

CLAY: Red-brown as above with increasing silt, moderately plastic, damp no odor, no stain

SAND: Gray, very fine grained, well sorted, silty, wet, some black stain no odor

SILT: Gray to brown, clayey, moderately plastic

CLAY: Black, dense, plastic, no odor, no stain

SILT: Black, clayey, moderately plastic, no odor, possible sheen.
CLAY: Black, organics, peaty, interbedded silt, no odor

CLAY: Black, as above

SILT: Black, clayey, possible sheen, organics, no odor
CLAY: Black, increasing sand content, silty, no odor

CLAY: Black, as above
SILT: Black to gray, sandy, moderately plastic, medium dense, no odor

SAND: Gray, occasionally buff, fine grain, well sorted, silty, wet, no odor

SAND: Gray, fine grained, well sorted, decreasing clay and silt, no odor

SAND: As above

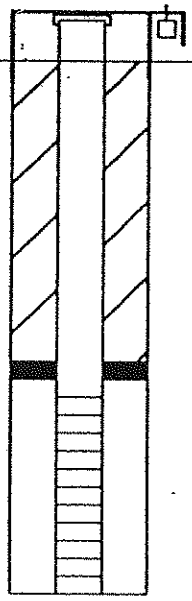
SAND: As above with increasing clay content

SAND: As above

SAND: As above
CLAY: Red, orange, some black, dense, plastic, no odor

ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 30.00'	
Total Depth: 30.00'	
Site Id: NHBMW07	Measuring Point: 12.88'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 10.00in
Date Started: 11/22/91	Elevation: 0.00'
Date Completed: 11/22/91	Logged By: M. Shawn
Contractor: Scot Environmental	Drilling Method: Hollow Stem Auger
Remarks: sand pack (NO. 1 sand)	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 19.00' to: 29.00'
	Annular Fill: type: Grout fm: 0.00' to: 17.00'; type: Bentonite Pellets fm: 17.00' to: 18.00'; type: Sand Filter fm: 18.00' to: 30.00'

Depth (ft)	Well Construction	Water Level	Material Description
10		▽	CLAY: Brown, tan, oxidized, silty, was some interbedded sand, no odor
			SAND: Gray, fine grained, well sorted CLAY: Black, peaty, organics, dense, plastic, no odor
20			CLAY: Brown, red, dense, stiff, no odor
30			CLAY: Brown, as above with increasing silt content, no odor SILT: Gray-green, clayey, moderately plastic, no odor
40			SAND: Gray, fine grained, well sorted, grading to SILT: Gray, moderately dense, clayey in part, no odor
50			SAND: Gray, fine grained, well sorted, silty in part, no odor
			SAND: As above
			CLAY: Brown, dense, plastic, no odor

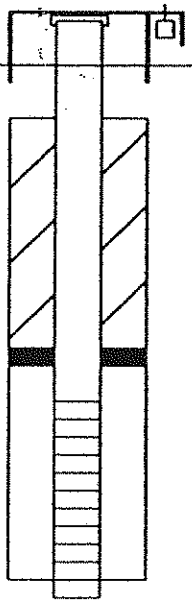
ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 39.00'	
Total Depth: 40.00'	
Site Id: NHBMW08	Measuring Point: 16.73'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 10.00in
Date Started: 11/21/91	Elevation: 0.00'
Date Completed: 11/22/91	Logged By: M. Shawn
Contractor: Scot Environmental	Drilling Method: Hollow Stem Auger
Remarks: sand pack (NO.1 sand)	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 28.00' to: 38.00'
	Annular Fill: type: Grout fm: 1.00' to: 22.00'
	type: Bentonite Pellets fm: 22.00' to: 24.00'
	type: Sand Filter fm: 24.00' to: 40.00'

Depth (ft)	Well Construction	Water Level	Material Description
10			CLAY: Black, dense, plastic, mottled oxidation zones, no stain
20		▼	CLAY: Tan, brown, dense, plastic, no odor SILT: Tan, buff, clayey, moderately dense
30			SILT: Gray, sandy in part, some clay streaks
40			SAND: Gray-brown, fine grained, well sorted, clay clasts, pebbles of caliche, no odor, wet
50			SAND: Gray-brown, as above, clayey in part, wet

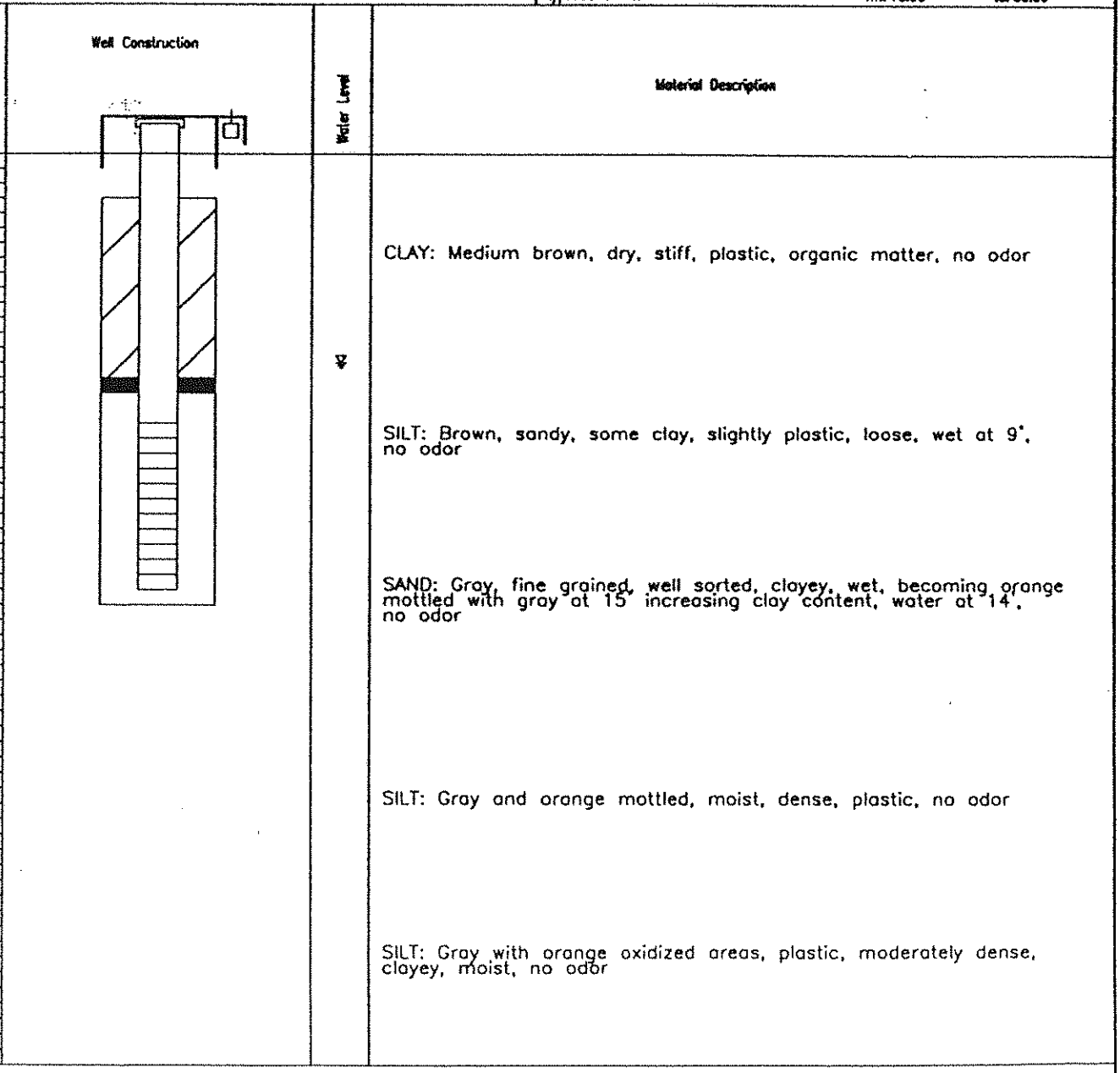
ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 30.00'	
Total Depth: 30.00'	
Site Id: NHBMW09	Measuring Point: 12.38'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 10.00in
Date Started: 11/22/91	Elevation: 0.00'
Date Completed: 11/22/91	Logged By: M. Shawn
Contractor: Scot Environmental	Drilling Method: Hollow Stem Auger
Remarks:	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 19.00' to: 29.00'
	Annular Fill: type: Grout fm: 3.00' to: 16.00' type: Bentonite Pellets fm: 16.00' to: 17.00' type: Sand Filter fm: 17.00' to: 29.00'

Depth (ft)	Well Construction	Water Level	Material Description
10			CLAY: Medium to dark brown, dry, plastic, organic material, no odor
20		▼	SILT: Tan, brown, clayey, wet, soft CLAY: Greenish brown, moist, dense, plastic
30			SAND: Gray, clayey, fine-grained, well sorted, clay clasts, oxidized areas, no odor
40			SAND: Gray, as above with decreasing clay content, orange oxidation zones, becoming brown at 20.5', no odor
50			SAND: As above CLAY (at 24.5'): Brown with gray caliche, blocky, stiff, moderately plastic, no odor
			CLAY: Brown, red, dense, plastic, no odor

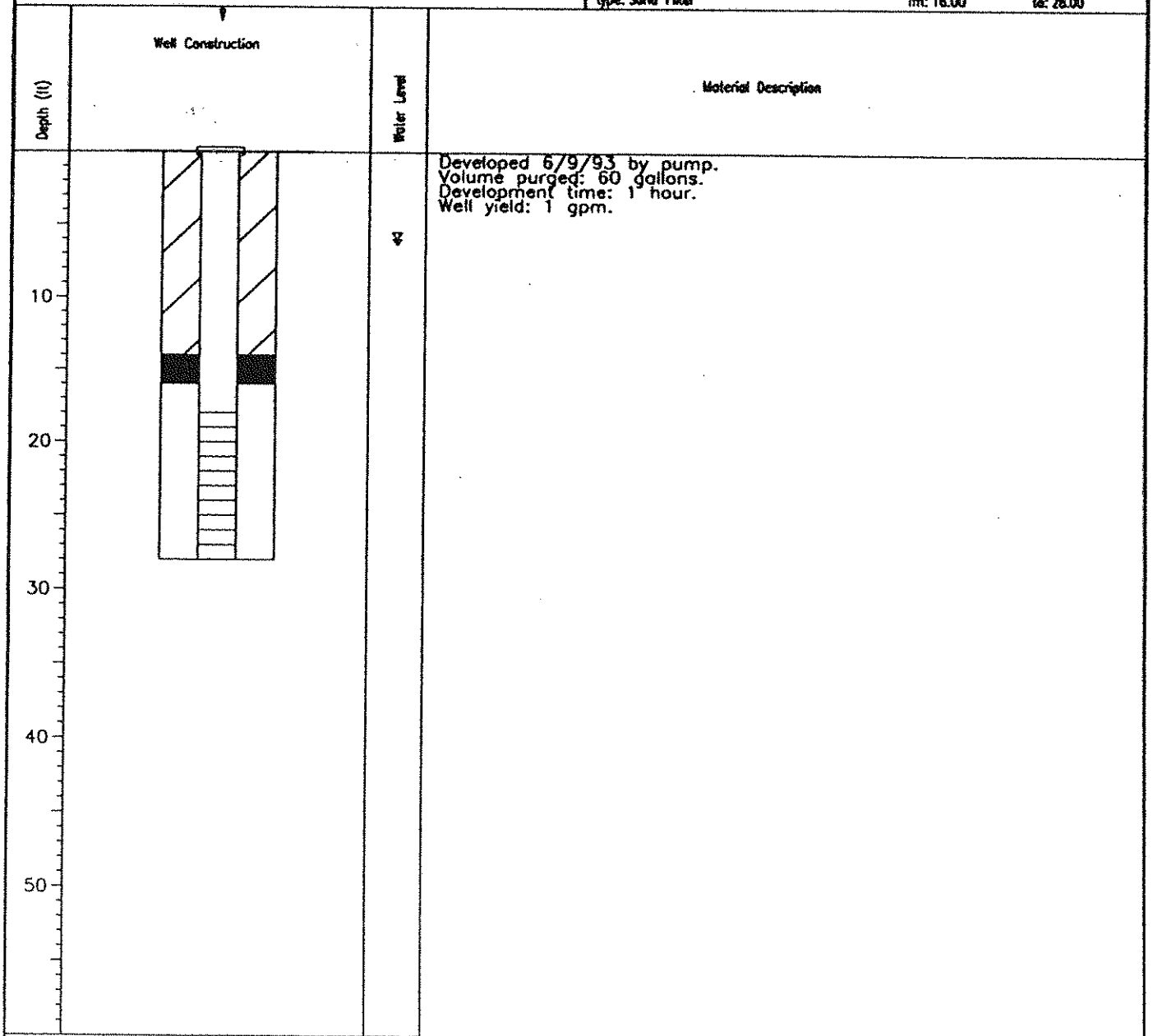
ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 29.00'	
Total Depth: 30.00'	
Site Id: NHBMW10	Measuring Point: 19.64'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 10.00in
Date Started: 11/25/91	Elevation: 0.00'
Date Completed: 11/25/91	Logged By: M. Shawn
Contractor: Scot Environmental	Drilling Method: Hollow Stem Auger
Remarks:	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 18.00' to: 28.00'
	Annular Fill: type: Grout fm: 3.00' to: 15.00'
	type: Bentonite Pellets fm: 15.00' to: 16.00'
	type: Sand Filter fm: 16.00' to: 30.00'



ARCADIS
GERAGHTY & MILLER

Site Id: NHBMW11	Project Number: HT000297.0001
Location: CATX Terminal, Galena Park, TX	Project Name: CATX
Date Started: 06/03/93	Completed Depth: 28.00'
Date Completed: 06/03/93	Total Depth: 28.00'
Contractor: SESI	Measuring Point: 8.98'
Remarks: Sand is 20/40 mesh	Borehole Dia.: 11.00in
	Elevation: 0.00'
	Logged By: D. Sweeten
	Drilling Method: Hollow Stem Auger
	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 18.00' to: 28.00'
	Annular Fill: type: Grout fm: 0.00' to: 14.00'
	type: Bentonite Pellets fm: 14.00' to: 16.00'
	type: Sand Filter fm: 16.00' to: 28.00'



ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001

Project Name: GATX

Completed Depth: 82.00'

Total Depth: 100.00'

Site Id: NHBMW12

Measuring Point: 10.76'

Location: GATX Terminal, Galena Park, TX

Borehole Dia.: 11.00in

Date Started: 05/28/93

Elevation: 16.70'

Date Completed: 06/04/93

Logged By: M. Forienza

Contractor: SESI

Drilling Method: Hollow Stem Auger

Remarks: No samples collected from surface to 65 feet.
For lithology see boring log from MW-6.

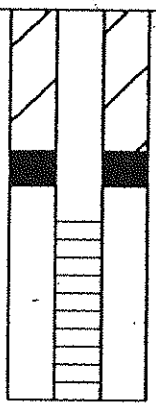
Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 72.00' to: 82.00'

Annular Fill:
type: Grout fm: 0.00' to: 68.00'
type: Bentonite Pellets fm: 68.00' to: 70.00'
type: Sand Filter fm: 70.00' to: 82.00'

Depth (ft)	Well Construction	Water Level	Material Description
	MP. EL. 10.76		Development data: 6/9/93 Development time: 2 hrs. Well yield: <1 gpm
10			
20			
30			
40		▽	
50			

ARCADIS
GERAGHTY & MILLER

Site Id: NHBMW12	Project Number: HT000297.0001
Location: GATX Terminal, Galena Park, TX	Project Name: GATX
Date Started: 05/28/93	Completed Depth: 82.00'
Date Completed: 06/04/93	Total Depth: 100.00'
Contractor: SESI	Measuring Point: 10.76'
Remarks: No samples collected from surface to 65 feet. For lithology see boring log from MW-6.	Borehole Dia.: 11.00in
	Elevation: 16.70'
	Logged By: M. Forlenza
	Drilling Method: Hollow Stem Auger
	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 72.00' to: 82.00'
	Annular Fill: type: Grout fm: 0.00' to: 68.00'
	type: Bentonite Pellets fm: 68.00' to: 70.00'
	type: Sand Filter fm: 70.00' to: 82.00'

Depth (ft)	Well Construction	Water Level	Material Description
70			
80			
90			
100			
110			

ARCADIS
GERAGHTY&MILLER

Project Number: HT000297.0001
Project Name: GATX
Completed Depth: 30.00'
Total Depth: 31.00'
Measuring Point: 13.41'
Borehole Dia.: 11.00in
Elevation: 0.00'
Logged By: M. Forlenza
Drilling Method: Hollow Stem Auger

Site Id: NHBMW13
Location: GATX Terminal, Galena Park, TX
Date Started: 05/27/93
Date Completed: 05/27/93
Contractor: SESI
Remarks: No samples collected.
For lithology see boring log of MW-14.

Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 20.00' to: 30.00'

Annular Fill:
type: Grout fm: 0.00' to: 16.00'
type: Bentonite Pellets fm: 16.00' to: 18.00'
type: Sand Filter fm: 18.00' to: 31.00'

Depth (ft)	Well Construction	Water Level	Material Description
10			Development date: 6/9/93 Development technique: pump Volume purged: 60 gallons Development time: 1 hr. Well yield: 1 gpm
20			
30			
40			
50			

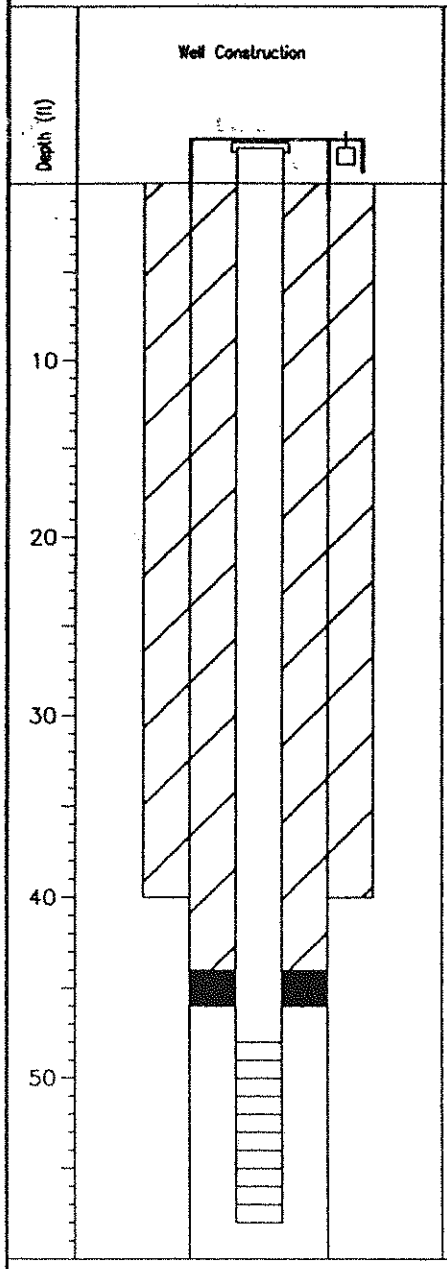
ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001
Project Name: GATX
Completed Depth: 58.00'
Total Depth: 61.00'
Measuring Point: 13.86'
Borehole Dia.: 11.00in
Elevation: 0.00'
Logged By: M. Forlenza
Drilling Method: Hollow Stem Auger

Site Id: NHBMW14
Location: GATX Terminal, Galena Park, TX
Date Started: 05/26/93
Date Completed: 06/02/93
Contractor: SESI
Remarks:

Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 48.00' to: 58.00'

Annular Fill:
type: Grout fm: 0.00' to: 44.00'
type: Bentonite Pellets fm: 44.00' to: 46.00'
type: Sand Filter fm: 46.00' to: 61.00'



Material Description

Development date: 6/9/93
Development technique: pump
Volume purged: 60 gallons
Development time: 1 hr.
Well yield: 1 gpm

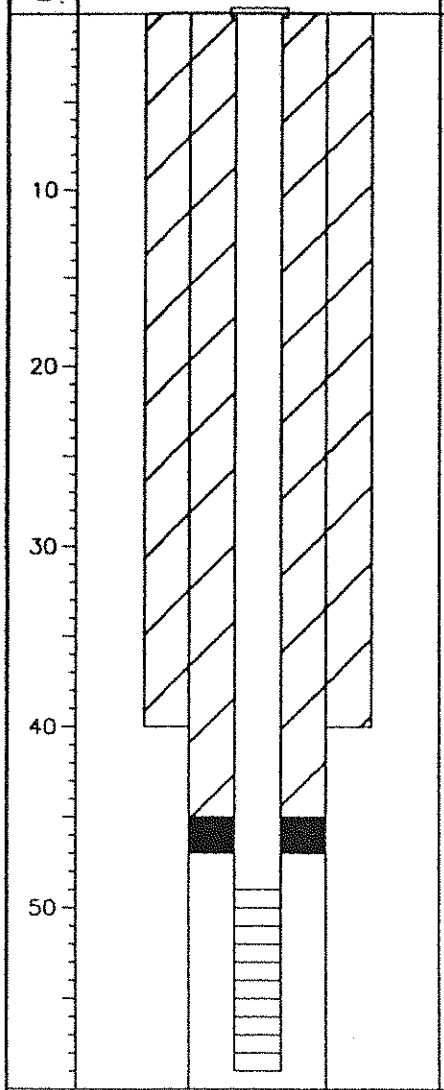
ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 58.00'	
Total Depth: 61.00'	
Site Id: NHBMW14	Measuring Point: 13.86'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 11.00in
Date Started: 05/26/93	Elevation: 0.00'
Date Completed: 06/02/93	Logged By: M. Forlenza
Contractor: SESI	Drilling Method: Hollow Stem Auger
Remarks:	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 48.00' to: 58.00'
	Annular Fill: type: Grout fm: 0.00' to: 44.00' type: Bentonite Pellets fm: 44.00' to: 46.00' type: Sand Filter fm: 46.00' to: 61.00'

Depth (ft)	Well Construction	Water Level	Material Description
70			
80			
90			
100			
110			

ARCADIS
GERAGHTY & MILLER

Project Number: HT000297.0001	
Project Name: GATX	
Completed Depth: 59.00'	
Total Depth: 61.00'	
Site Id: NHBMW15	Measuring Point: 11.56'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 11.00in
Date Started: 06/01/93	Elevation: 0.00'
Date Completed: 06/07/93	Logged By: M. Fortenza
Contractor: SESI	Drilling Method: Hollow Stem Auger
Remarks:	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 49.00' to: 59.00'
	Annular Fill: type: Grout fm: 0.00' to: 45.00'
	type: Bentonite Pellets fm: 45.00' to: 47.00'
	type: Sand Filter fm: 47.00' to: 61.00'



Development date: 6/9/93
Development technique: pump
Volume purged: 60 gallons
Development time: 1 hr.
Well yield: 1 gpm

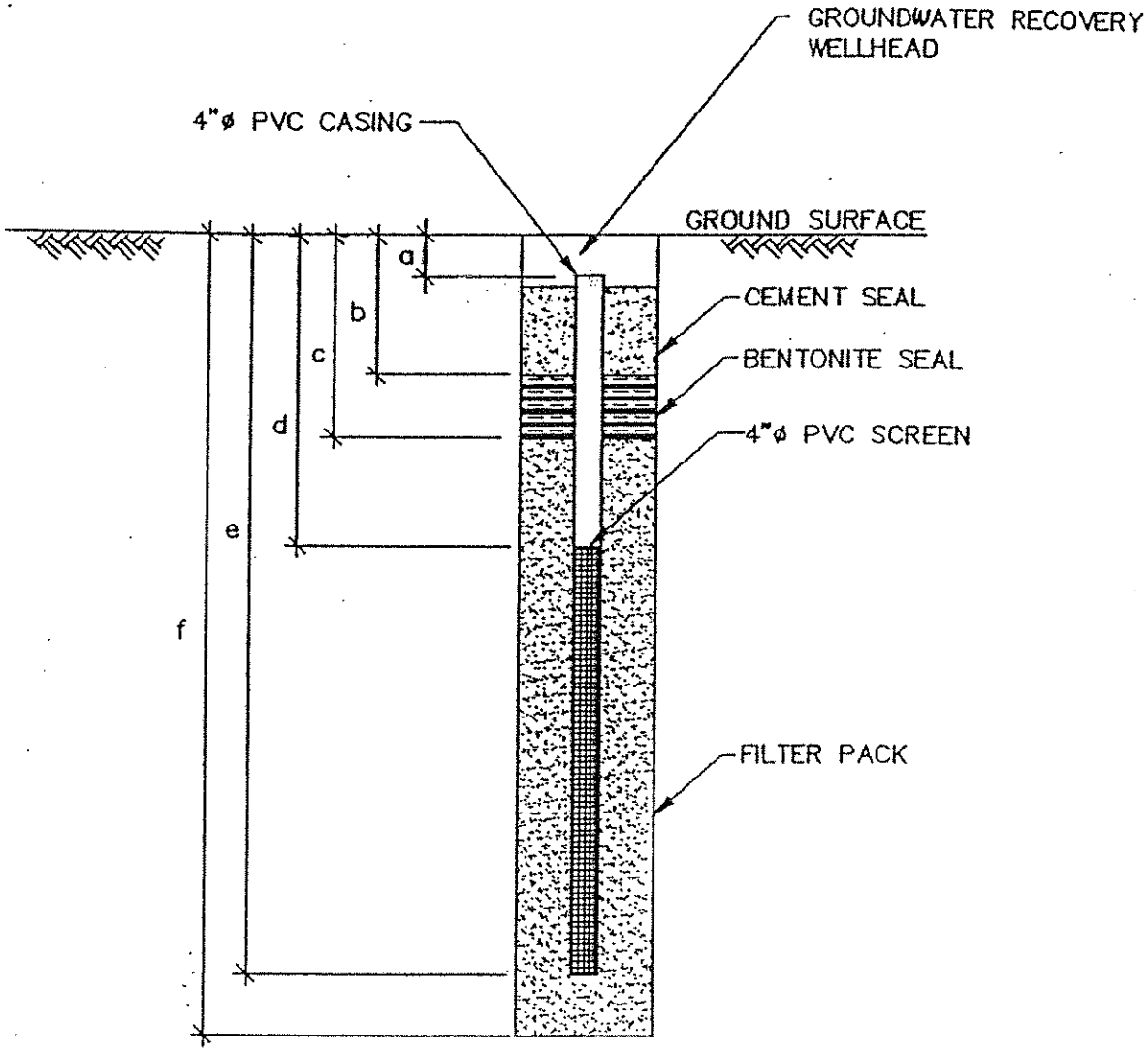
ARCADIS
GERAGHTY & MILLER

	Project Number: HT000297.0001
	Project Name: GATX
	Completed Depth: 59.00'
	Total Depth: 61.00'
Site Id: NHBMW15	Measuring Point: 11.56'
Location: GATX Terminal, Galena Park, TX	Borehole Dia.: 11.00in
Date Started: 06/01/93	Elevation: 0.00'
Date Completed: 06/07/93	Logged By: M. Forlenza
Contractor: SESI	Drilling Method: Hollow Stem Auger
Remarks:	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 49.00' to: 59.00'
	Annular Fill: type: Grout fm: 0.00' to: 45.00' type: Bentonite Pellets fm: 45.00' to: 47.00' type: Sand Filter fm: 47.00' to: 61.00'

Depth (ft)	Well Construction	Water Level	Material Description
70			
80			
90			
100			
110			

GROUNDWATER RECOVERY WELL DETAILS

RECOVERY WELL No.	COMMENTS	a TOP OF CASING	b TOP OF SEAL	c TOP OF FILTER PACK	d TOP OF SCREEN	e BOTTOM OF SCREEN	SCREEN LENGTH	f BOREHOLE DEPTH
RW-16	ZONE III	---	18.0'	20.0'	22.0'	32.0'	10.0'	33.0'
RW-17	ZONE IV	---	38.0'	42.0'	45.0'	55.0'	10.0'	57.0'



TYPICAL RECOVERY WELL DETAIL

NOT TO SCALE

V:\ACAD\PROJ\1665121\1665210S SCALE: 1:1 06/15, 1994 .7
3761 : 1665

MALCOLM PIRNIE

CORRECTIVE ACTION PLAN
NORTH HOLDING BASIN
GATX – GALENA PARK, TEXAS

COPYRIGHT © 1994
MALCOLM PIRNIE, INC.

FIGURE 4-4

Appendix M2

Table 1

GROUNDWATER ELEVATION DATA
2023

North Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

North Holding Basin								
Monitor Well	**Date Measured**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)***	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
MW-1	31-Jan-23	Zone III	15.33	4.58	--	0.00	10.75	40.70
	21-Jul-23		15.33	6.39	--	0.00	8.94	40.70
MW-4	31-Jan-23	Zone III	10.59	2.08	--	0.00	8.51	NM (RW)
	21-Jul-23		10.59	3.54	--	0.00	7.05	NM (RW)
MW-5 **	31-Jan-23	Zone III	20.25	11.56	--	0.00	8.69	40.28
	21-Jul-23		20.25	12.92	--	0.00	7.33	40.28
MW-6	31-Jan-23	Zone IV	8.92	25.51	--	0.00	-16.59	NM (RW)
	21-Jul-23		8.92	5.26	--	0.00	3.66	NM (RW)
MW-7	31-Jan-23	Zone III	10.40	17.12	--	0.00	-6.72	NM (RW)
	21-Jul-23		10.40	17.12	--	0.00	-6.72	NM (RW)
MW-8	31-Jan-23	Zone III	16.67	6.70	--	0.00	9.97	36.12
	21-Jul-23		16.67	8.19	--	0.00	8.48	36.23
MW-9	31-Jan-23	Zone III	12.59	6.55	--	0.00	6.04	31.53
	21-Jul-23		12.59	7.90	--	0.00	4.69	31.53
MW-10	31-Jan-23	Zone III	19.75	7.10	--	0.00	12.65	30.08
	21-Jul-23		19.75	9.62	--	0.00	10.13	30.08
MW-11	31-Jan-23	Zone III	11.74	13.94	--	0.00	-2.20	NM (RW)
	21-Jul-23		11.74	12.97	--	0.00	-1.23	NM (RW)
MW-12	31-Jan-23	Zone V	9.59	> 75.51	--	0.00	***	NM
	21-Jul-23		9.59	76.77	--	0.00	-67.18	NM
MW-13	31-Jan-23	Zone III	13.47	6.57	--	0.00	6.90	32.53
	21-Jul-23		13.47	7.73	--	0.00	5.74	32.53
MW-14	31-Jan-23	Zone IV	14.00	7.43	--	0.00	6.57	60.64
	21-Jul-23		14.00	8.52	--	0.00	5.48	60.64
MW-15	31-Jan-23	Zone IV	10.41	2.08	--	0.00	8.33	NM (RW)
	21-Jul-23		10.41	21.38	--	0.00	-10.97	NM (RW)
RW-16	31-Jan-23	Zone III	9.26	4.97	--	0.00	4.29	NM (RW)
	21-Jul-23		9.26	6.11	--	0.00	3.15	NM (RW)
RW-17	31-Jan-23	Zone IV	8.57	18.92	--	0.00	-10.35	NM (RW)
	21-Jul-23		8.57	19.03	--	0.00	-10.46	NM (RW)

Notes:
MSL - Mean Sea Level
TOC - Top-of-casing
NAPL - Non-aqueous phase liquid
-- - NAPL not observed
ft. - Feet
* - May 2019 well Survey
Corrected Groundwater Elevation = (NAPL Thickness X 0.87) + Depth to Groundwater
NM (RW) - not measured, recovery wells are only measured when the pump is removed for maintenance
** - The MW-5 well pad was reconstructed on July 2, 2019. To accommodate the new well pad, 6.65" (0.55') of the top of the well casing was removed yielding an approximate new TOC measurement of 20.88'-0.55' = 20.25'. 20.25' is the assumed TOC until surveyed again.
*** - the groundwater level was below the pump assembly, making it inaccessible to be measured.

Table 2

GROUNDWATER ELEVATION DATA
2023
Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Southeast Holding Basin								
Monitor Well	**Date**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)**	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
P-1	30-Jan-23	SCF	20.55	11.41	11.40	0.01	9.15	17.72
	20-Jul-23		20.55	11.30	11.29	0.01	9.26	17.72
MW-1	30-Jan-23	UNTU	21.49	11.12	- -	0.00	10.37	28.55
	20-Jul-23		21.49	11.64	- -	0.00	9.85	28.55
MW-2R	30-Jan-23	SCF/UNTU	11.89	3.94	- -	0.00	7.95	21.78
	20-Jul-23		11.89	4.11	- -	0.00	7.78	21.78
MW-3R	30-Jan-23	SCF/UNTU	12.08	5.93	- -	0.00	6.15	26.34
	20-Jul-23		12.08	5.22	- -	0.00	6.86	26.34
MW-4R	30-Jan-23	UNTU	12.51	5.61	- -	0.00	6.90	25.60
	20-Jul-23		12.51	5.53	- -	0.00	6.98	25.60
RW-5 Former (MW-5) *	30-Jan-23	SCF/UNTU	10.59	3.09	- -	0.00	7.50	NM (RW)
	20-Jul-23		10.59	4.38	- -	trace	6.21	NM (RW)
MW-6 **	30-Jan-23	UNTU	24.06	14.31	- -	0.00	9.75	17.42
	20-Jul-23		24.06	14.34	- -	0.00	9.72	17.42
MW-7	30-Jan-23	SCF/UNTU	13.98	17.72	- -	0.00	-3.74	NM (RW)
	20-Jul-23		13.98	17.63	- -	0.00	-3.65	NM (RW)
MW-8	30-Jan-23	UNTU	15.37	6.22	- -	0.00	9.15	28.20
	20-Jul-23		15.37	8.87	- -	0.00	6.50	28.20
MW-9	30-Jan-23	UNTU	14.26	2.95	- -	0.00	11.31	35.34
	20-Jul-23		14.26	5.73	- -	0.00	8.53	35.34
MW-10	30-Jan-23	UNTU	13.61	18.02	- -	0.00	-4.41	NM (RW)
	20-Jul-23		13.61	17.83	- -	0.00	-4.22	NM (RW)
MW-11	30-Jan-23	SCF/UNTU	18.58	15.43	- -	0.00	3.15	32.40
	20-Jul-23		18.58	15.59	- -	0.00	2.99	32.40
MW-12	30-Jan-23	UNTU	19.89	10.88	- -	0.00	9.01	33.87
	20-Jul-23		19.89	11.12	- -	0.00	8.77	33.87
MW-13	30-Jan-23	SCF/UNTU	10.03	17.70	- -	0.00	-7.67	NM (RW)
	20-Jul-23		17.82	17.70	- -	0.00	0.12	NM (RW)
MW-14	30-Jan-23	SCF/UNTU	10.50	2.31	- -	0.00	8.19	25.85
	20-Jul-23		10.50	3.03	- -	0.00	7.47	25.85
MW-15	30-Jan-23	SCF	20.85	5.93	- -	0.00	14.92	19.25
	20-Jul-23		20.85	7.78	- -	0.00	13.07	19.25
MW-16	30-Jan-23	UNTU	19.99	5.09	- -	0.00	14.90	32.25
	20-Jul-23		19.99	6.82	- -	0.00	13.17	32.25
MW-17	30-Jan-23	SCF/UNTU	18.69	4.94	- -	0.00	13.75	21.10
	20-Jul-23		18.69	7.10	- -	0.00	11.59	21.10
MW-18	30-Jan-23	SCF	13.89	6.72	6.69	0.03	7.20	9.41
	20-Jul-23		13.89	7.02	6.85	0.17	7.02	9.41
MW-19	30-Jan-23	UNTU	19.41	11.36	- -	0.00	8.05	32.30
	20-Jul-23		19.41	10.75	- -	0.00	8.66	32.30
MW-20	30-Jan-23	SCF	22.08	13.16	12.84	0.32	9.20	17.13
	20-Jul-23		22.08	13.84	12.86	0.98	9.09	17.13
MW-21	30-Jan-23	UNTU	14.92	7.49	- -	0.00	7.43	31.32
	20-Jul-23		14.92	7.55	- -	0.00	7.37	31.22
MW-22	30-Jan-23	SCF	21.42	12.08	- -	0.00	9.34	16.58
	20-Jul-23		21.42	11.47	- -	0.00	9.95	16.58
MW-23	30-Jan-23	UNTU	16.05	9.99	9.97	0.02	6.08	32.13
	20-Jul-23		16.05	10.73	10.67	0.06	5.37	32.13
MW-24R	30-Jan-23	UNTU	12.70	17.94	- -	0.00	-5.24	NM (RW)
	20-Jul-23		12.70	15.70	- -	0.00	-3.00	NM (RW)
MW-25	30-Jan-23	SCF/UNTU	8.40	0.00	- -	0.00	8.40	NM (RW)
	20-Jul-23		8.40	4.48	- -	0.00	3.92	NM (RW)
MW-26***	30-Jan-23	UNTU	8.91	NM	- -	0.00	NM	NM (RW)
	20-Jul-23		8.91	> 17.60	- -	0.00	****	NM (RW)
MW-27 **	30-Jan-23	SCF	15.00	4.16	4.11	0.05	10.88	13.02
	20-Jul-23		15.00	7.47	7.45	0.02	7.55	13.02

Table 2

GROUNDWATER ELEVATION DATA
2023
Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Southeast Holding Basin								
Monitor Well	**Date**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)**	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
MW-29	30-Jan-23	SCF	15.39	6.40	- -	0.00	8.99	13.83
	20-Jul-23		15.39	9.08	- -	0.00	6.31	13.83
MW-30	30-Jan-23	UNTU	9.24	> 20.93	- -	0.00	****	NM (RW)
	20-Jul-23		9.24	21.37	- -	0.00	-12.13	NM (RW)
MW-31	30-Jan-23	UNTU	13.47	6.25	- -	0.00	7.22	33.55
	20-Jul-23		13.47	8.63	- -	0.00	4.84	33.55
MW-32	30-Jan-23	SCF	13.40	5.65	- -	0.00	7.75	17.16
	20-Jul-23		13.40	8.32	- -	0.00	5.08	17.16
MW-33	30-Jan-23	SCF/UNTU	10.28	16.39	- -	0.00	-6.11	NM (RW)
	20-Jul-23		10.28	15.93	- -	0.00	-5.65	NM (RW)
MW-34	30-Jan-23	SCF/UNTU	8.47	16.54	- -	0.00	-8.07	NM (RW)
	20-Jul-23		8.47	28.12	- -	0.00	-19.65	NM (RW)
RW-1	30-Jan-23	UNTU	13.13	6.42	- -	0.00	6.71	NM (RW)
	20-Jul-23		13.13	5.94	- -	0.00	7.19	NM (RW)
RW-2	30-Jan-23	UNTU	12.34	17.92	- -	0.00	-5.58	NM (RW)
	20-Jul-23		12.34	17.43	- -	0.00	-5.09	NM (RW)
N. Trench	30-Jan-23	SCF	8.59	8.87	8.76	0.11	-0.18	NM
	20-Jul-23		8.59	8.91	8.80	0.11	-0.22	NM
S. Trench	30-Jan-23	SCF	8.79	9.91	9.90	0.01	-1.11	NM
	20-Jul-23		8.79	9.90	9.84	0.06	-1.06	NM

Notes:
MSL - Mean Sea Level
TOC - Top-of-casing
NAPL - Non-aqueous phase liquid
-- - NAPL not observed
NM- Not measured
ft. - Feet
Corrected Groundwater Elevation = (NAPL Thickness X 0.87) + Depth to Groundwater
NM (RW) - not measured, recovery wells are only measured when the pump is removed for maintenance
* - May 2019 well Survey
** - December 2021 well survey
*** - well not gauged January 2023 - no access. July water level was top of pump.
**** - the groundwater level was below the pump assembly, making it inaccessible to be measured.

Section M3 – Tabulated Geological/Hydrogeological Information

TABLE II.2a
MAJOR GEOLOGIC FORMATIONS
CAMU/Former (NHB) Area (Page 1 of 2)

NAMES OF MAJOR GEOLOGIC FORMATION(S) BENEATH THE FACILITY[1]	LITHOLOGY OF THE MAJOR GEOLOGIC FORMATION	FORMATION THICKNESS (in feet)	DEPTH TO TOP OF FORMATION		NAMES OF STRATIGRAPHIC UNITS OF THE MAJOR GEOLOGIC FORMATION[4]
			(Feet/MSL[2])	(Feet/BGS[3])	
1. Formation: Beaumont Series: Pleistocene System: Quaternary Era: Cenozoic	Mostly clay and silt with discontinuous sand layers or lenses (channel sands, point bar deposits or reworked barrier islands)	~ 160	20	0	1.1. Zone 1
					1.2. Zone II
					1.3. Zone III
					1.4. Zone IV
					1.5. Below Zone IV
2. Formation: Montgomery Series: Pleistocene System: Quaternary Era: Cenozoic	Fluvial clay, silt, sand and gravel (minor amounts), locally calcareous.	~ 200; not differentiated	~ -140	~ 160	2.1. Montgomery Formation (Lower Chicot Aquifer)
3.Formation: Bentley Series: Pleistocene System: Quaternary Era: Cenozoic	Fluvial clay, silt, sand and gravel (minor amounts), non-calcareous.		~ -140	~ 160	3.1. Bentley Formation (Lower Chicot Aquifer)

1) Major geologic formations from the ground surface to a depth of 1,000 feet below the deepest known depth of contamination. Identify Formation, Group, Series, System and Geologic Era.
2) MSL = Mean Sea Level
3) BGS = Below Ground Surface
4) The name may be a "local" or "regional" stratigraphic unit name. This column will be the first column in Table II.3.
~ Approximate depth.

TABLE II.2a
MAJOR GEOLOGIC FORMATIONS
CAMU/Former (NHB) Area (Page 2 of 2)

NAMES OF MAJOR GEOLOGIC FORMATION(S) BENEATH THE FACILITY[1]	LITHOLOGY OF THE MAJOR GEOLOGIC FORMATION	FORMATION THICKNESS (in feet)	DEPTH TO TOP OF FORMATION		NAMES OF STRATIGRAPHIC UNITS OF THE MAJOR GEOLOGIC FORMATION[4]
			(Feet/MSL[2])	(Feet/BGS[3])	
4. Formation: Willis Series: Pleistocene System: Quaternary Era: Cenozoic	Fluvial clay, silt and fine gravel, locally cemented with iron oxide, non-calcareous.	Approximately 75 ft.	~ -340	~ 360	4.1. Willis Sand (Lower Chicot Aquifer) (Base of Lower Chicot Aquifer)
5. Formation: Goliad Sand Series: Pliocene System: Tertiary Era: Cenozoic	Coarse sand interbedded with siliceous gravel and silty or clayey zones.	~ 1300; not differentiated	~ -415	~ 435	5.1. Goliad Sand (Evangeline Aquifer).
6. Formation: Upper Fleming Series: Miocene System: Tertiary Era: Cenozoic	Fine to coarse sand, silt and calcareous clay.		~ -415	~ 435	6.1. Upper Fleming Formation (Evangeline Aquifer); Lower Fleming Formation (Burkeville Aquiclude) is the base of the Evangeline Aquifer.

1) Major geologic formations from the ground surface to a depth of 1,000 feet below the deepest known depth of contamination. Identify Formation, Group, Series, System and Geologic Era.
2) MSL = Mean Sea Level
3) BGS = Below Ground Surface
4) The name may be a "local" or "regional" stratigraphic unit name. This column will be the first column in Table II.3.
~ Approximate depth.

TABLE II.2b
MAJOR GEOLOGIC FORMATIONS
Southeast Holding Basin Area (Page 1 of 2)

NAMES OF MAJOR GEOLOGIC FORMATION(S) BENEATH THE FACILITY[1]	LITHOLOGY OF THE MAJOR GEOLOGIC FORMATION	FORMATION THICKNESS (in feet)	DEPTH TO TOP OF FORMATION		NAMES OF STRATIGRAPHIC UNITS OF THE MAJOR GEOLOGIC FORMATION[4]
			(Feet/MSL[2])	(Feet/BGS[3])	
1. Formation: Beaumont Series: Pleistocene System: Quaternary Era: Cenozoic	Mostly clay and silt with discontinuous sand layers or lenses (channel sands, point bar deposits or reworked barrier islands)	~ 160	15	0	1.1. Unit 1 Upper Recent Fill (URF)
					1.2. Unit II Sandy Channel Fill (SCF)
					1.3. Unit III Uppermost Clayey Sand/Sandy Clay Unit (USC/SCU)
					1.4. Unit IV First Silty Clay/Clay Unit (FSCU)
					1.5. Unit V Uppermost Natural Transmissive Unit (UNTU)
					1.6. Unit VI Second Silty Clay/Clay Unit (SSC/CU)
					1.7. Unit VI Lowermost Natural Transmissive Unit (LNTU)
					1.8. Unit VII Third Silty Clay/Clay Unit (TSC/CU)
2. Formation: Montgomery Series: Pleistocene System: Quaternary Era: Cenozoic	Fluvial clay, silt, sand and gravel (minor amounts), locally calcareous.	~ 200; not differentiated	~ -145	~ 160	2.1. Montgomery Formation (Lower Chicot Aquifer)
3.Formation: Bentley Series: Pleistocene System: Quaternary Era: Cenozoic	Fluvial clay, silt, sand and gravel (minor amounts), non-calcareous.		~ -145	~ 160	3.1. Bentley Formation (Lower Chicot Aquifer)

TABLE II.2b
MAJOR GEOLOGIC FORMATIONS
Southeast Holding Basin Area (Page 2 of 2)

NAMES OF MAJOR GEOLOGIC FORMATION(S) BENEATH THE FACILITY[1]	LITHOLOGY OF THE MAJOR GEOLOGIC FORMATION	FORMATION THICKNESS (in feet)	DEPTH TO TOP OF FORMATION		NAMES OF STRATIGRAPHIC UNITS OF THE MAJOR GEOLOGIC FORMATION[4]
			(Feet/MSL[2])	(Feet/BGS[3])	
4. Formation: Willis Series: Pleistocene System: Quaternary Era: Cenozoic	Fluvial clay, silt and fine gravel, locally cemented with iron oxide, non-calcareous.	Approximately 75 ft.	~ -345	~ 360	4.1. Willis Sand (Lower Chicot Aquifer) (Base of Lower Chicot Aquifer)
5. Formation: Goliad Sand Series: Pliocene System: Tertiary Era: Cenozoic	Coarse sand interbedded with siliceous gravel and silty or clayey zones.	~1300; not differentiated	~ -420	~ 435	5.1. Goliad Sand (Evangeline Aquifer).
6. Formation: Upper Fleming Series: Miocene System: Tertiary Era: Cenozoic	Fine to coarse sand, silt and calcareous clay.		~ -420	~ 435	6.1. Upper Fleming Formation (Evangeline Aquifer); Lower Fleming Formation (Burkeville Aquiclude) is the base of the Evangeline Aquifer.

1) Major geologic formations from the ground surface to a depth of 1,000 feet below the deepest known depth of contamination. Identify Formation, Group, Series, System and Geologic Era.
2) MSL = Mean Sea Level
3) BGS = Below Ground Surface
4) The name may be a "local" or "regional" stratigraphic unit name. This column will be the first column in Table II.3.
~ Approximate depth.

TABLE II.3a
STRATIGRAPHIC UNIT CHARACTERISTICS
CAMU/Former (NHB) Area (Page 1 of 2)

STRATIGRAPHIC UNITS FROM LAST COLUMN OF TABLE II.2	STRATIGRAPHIC UNIT THICKNESS (in Feet)	DEPTH TO TOP OF STRATIGRAPHIC UNIT		LITHOLOGY CLASSIFICATION (e.g., sand, silt, clay, etc.)	AVERAGE PERCENT CLAY OF THE STRATIGRAPHIC UNIT	HYDROGEOLOGIC UNIT?[3] (YES OR NO)
		(Feet/MSL[1])	(Feet/BGS[2])			
1.1 Zone I	~ 2 to 15	~ 15	0	Fill & silty sand	Minimal to none	No
1.2 Zone II	~ 15 to 25	~ -5	~ 20	Silty & sandy clay	High discontinuous	No
1.3 Zone III	~ 7 to 25	~ -25	~ 40	Silty & clayey sands	low	Yes
1.4 Zone IV	~ 25 to 28	~ -50	~ 60	Silty & sandy clay	High	Yes
1.5 Below Zone IV	>40	~ -75	~ 80 to 100	Silty & sandy clay	High	No

1) MSL = Mean Sea Level
2) BGS = Below Ground Surface
3) HYDROGEOLOGIC UNIT = A stratigraphic unit which meets the definition of an aquifer. As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formations, or part of a formation, capable of yielding a significant amount of ground water to wells or springs.

As further defined in U.S. EPA RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986, an uppermost aquifer is a "geologic formation, group of formations, or part of a formation that is the aquifer nearest to the ground surface and is capable of yielding a significant amount of ground water to wells or springs and may include fill material that is saturated. The identification of the confining layer or lower boundary is an essential facet of the definition of uppermost aquifer. There should be very limited interconnection, based upon pumping tests, between the uppermost aquifer and lower aquifers. If the lower zones of saturation capable of yielding significant amounts of water are interconnected with the uppermost aquifer within the facility's property boundary, they all comprise the uppermost aquifer. Quality and use of ground water are not factors in the definition. Even though a saturated formation may not be presently in use, or may contain water not suitable for human consumption, it may deserve protection because contaminating it may threaten human health or the environment. Identification of formations capable of significant yield must be made on a case-by-case basis." The hydrogeologic units of this column will be listed in the first column of Table II.4.

~ Approximate depth.

TABLE II.3a
STRATIGRAPHIC UNIT CHARACTERISTICS
CAMU/Former (NHB) Area (Page 2 of 2)

STRATIGRAPHIC UNITS FROM LAST COLUMN OF TABLE II.2	STRATIGRAPHIC UNIT THICKNESS (in Feet)	DEPTH TO TOP OF STRATIGRAPHIC UNIT		LITHOLOGY CLASSIFICATION (e.g., sand, silt, clay, etc.)	AVERAGE PERCENT CLAY OF THE STRATIGRAPHIC UNIT	HYDROGEOLOGIC UNIT?[3] (YES OR NO)
		(Feet/MSL[1])	(Feet/BGS[2])			
2.1 Montgomery Formation (Lower Chicot Aquifer)	~200; not differentiated	~ -140	~ 160	Clay, silt and sand layers	Unknown	Yes,; major regional aquifer
3.1 Bentley Formation (Lower Chicot Aquifer)		~ -140	~ 160	Clay, silt and sand layers	Unknown	Yes,; major regional aquifer
4.1 Willis Sand (Lower Chicot Aquifer)	Approximately 75 ft.	~ -340	~ 360	Coarse sand and siliceous gravel with silty or clayey zone	Unknown	Yes
5.1 Goliad Sand (Evangeline Aquifer)	~1300; not differentiated	~ -435	~ 435	Sand with silty or clayey zones	Unknown	Yes,; major regional aquifer
6.1 Upper Fleming Formation (Evangeline Aquifer)		~ -435	~ 435	Fine to coarse sand, silt and calcareous clay	Unknown	Yes

1) MSL = Mean Sea Level
2) BGS = Below Ground Surface
3) HYDROGEOLOGIC UNIT = A stratigraphic unit which meets the definition of an aquifer. As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formations, or part of a formation, capable of yielding a significant amount of ground water to wells or springs.

As further defined in U.S. EPA RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986, an uppermost aquifer is a "geologic formation, group of formations, or part of a formation that is the aquifer nearest to the ground surface and is capable of yielding a significant amount of ground water to wells or springs and may include fill material that is saturated. The identification of the confining layer or lower boundary is an essential facet of the definition of uppermost aquifer. There should be very limited interconnection, based upon pumping tests, between the uppermost aquifer and lower aquifers. If the lower zones of saturation capable of yielding significant amounts of water are interconnected with the uppermost aquifer within the facility's property boundary, they all comprise the uppermost aquifer. Quality and use of ground water are not factors in the definition. Even though a saturated formation may not be presently in use, or may contain water not suitable for human consumption, it may deserve protection because contaminating it may threaten human health or the environment. Identification of formations capable of significant yield must be made on a case-by-case basis." The hydrogeologic units of this column will be listed in the first column of Table II.4. Approximate depth.

TABLE II.3b
STRATIGRAPHIC UNIT CHARACTERISTICS
Southeast Holding Basin Area (Page 1 of 2)

STRATIGRAPHIC UNITS FROM LAST COLUMN OF TABLE II.2	STRATIGRAPHIC UNIT THICKNESS (in Feet)	DEPTH TO TOP OF STRATIGRAPHIC UNIT		LITHOLOGY CLASSIFICATION (e.g., sand, silt, clay, etc.)	AVERAGE PERCENT CLAY OF THE STRATIGRAPHIC UNIT	HYDROGEOLOGIC UNIT?[3] (YES OR NO)
		(Feet/MSL[1])	(Feet/BGS[2])			
1.1 Unit 1 Upper Recent Fill (URF)	~ 7	~ 15	0	Asphalt, limestone, shell & gravel	Minimal to none	No
1.2 Unit II Sandy Channel Fill (SCF)	~ 10	~ 10	5	Very fine grained clayey sands & clayey silts	Minimal to none	Yes
1.3 Unit II Uppermost Clayey Sand/Sandy Clay Unit (UCS/SCU)	~ 5	5	10	Very fine grained clayey sands & clayey silts	high, discontinuous distribution	No
1.4 Unit IV First Silty Clay/Clay Unit (FSCU)	~ 15	0	15	Very plastic clay with little sand or silt to sandy clay or silty clay.	high, discontinuous	No
1.5 Unit V Uppermost Natural Transmissive Unit (UNTU)	~ 15	-5	20	Clayey sands, silts, sandy silts, silty sands and clays	Low	Yes
1.6 Unit VI Second Silty Clay/Clay Unit SSC/CU	~ 20	-15	30	Clay with moderate to high plasticity	characteristic Beaumont Formation	No
1.7 Unit VII Lowermost Natural Transmissive Unit (LNTU)	~ 10	-35	50	Very fine grained clayey silts, sandy silts and silty sands with a trace of clay	Low	Yes
1.8 Unit VII third Silty Clay/Clay Unit (TSC/CU)	~ 88	-45	80	Very silty clay of medium to high plasticity with minor amounts of silt	High	No

TABLE II.3b
STRATIGRAPHIC UNIT CHARACTERISTICS
Southeast Holding Basin Area (Page 2 of 2)

STRATIGRAPHIC UNITS FROM LAST COLUMN OF TABLE II.2	STRATIGRAPHIC UNIT THICKNESS (in Feet)	DEPTH TO TOP OF STRATIGRAPHIC UNIT		LITHOLOGY CLASSIFICATION (e.g., sand, silt, clay, etc.)	AVERAGE PERCENT CLAY OF THE STRATIGRAPHIC UNIT	HYDROGEOLOGIC UNIT?[3] (YES OR NO)
		(Feet/MSL[1])	(Feet/BGS[2])			
2.1 Montgomery Formation (Lower Chicot Aquifer)	~200; not differentiated	~ -145	~ 160	Clay, silt and sand layers	Unknown	Yes,; major regional aquifer
3.1 Bentley Formation (Lower Chicot Aquifer)		~ -145	~ 160	Clay, silt and sand layers	Unknown	Yes,; major regional aquifer
4.1 Willis Sand (Lower Chicot Aquifer)	Approximately 75 ft.	~ -345	~ 360	Coarse sand and siliceous gravel with silty or clayey zone	Unknown	Yes
5.1 Goliad Sand (Evangeline Aquifer)	~1300; not differentiated	~ -415	~ 435	Sand with silty or clayey zones	Unknown	Yes,; major regional aquifer
6.1 Upper Fleming Formation (Evangeline Aquifer)		~ -415	~ 435	Fine to coarse sand, silt and calcareous clay	Unknown	Yes

1) MSL = Mean Sea Level
2) BGS = Below Ground Surface
3) HYDROGEOLOGIC UNIT = A stratigraphic unit which meets the definition of an aquifer. As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formations, or part of a formation, capable of yielding a significant amount of ground water to wells or springs.

As further defined in U.S. EPA RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986, an uppermost aquifer is a "geologic formation, group of formations, or part of a formation that is the aquifer nearest to the ground surface and is capable of yielding a significant amount of ground water to wells or springs and may include fill material that is saturated. The identification of the confining layer or lower boundary is an essential facet of the definition of uppermost aquifer. The identification of interconnection, based upon pumping tests, between the uppermost aquifer and lower aquifers. If the lower zones of saturation capable of yielding significant amounts of water are interconnected with the uppermost aquifer within the facility's property boundary, they all comprise the uppermost aquifer. Quality and use of ground water are not factors in the definition. Even though a saturated formation may not be presently in use, or may contain water not suitable for human consumption, it may deserve protection because contaminating it may threaten human health or the environment. Identification of formations capable of significant yield must be made on a case-by-case basis." The hydrogeologic units of this column will be listed in the first column of Table II.4.

Approximate depth.

TABLE II.4a
AQUIFER CHARACTERISTIC INFORMATION

CAMU/Former (NHB) Area (Page 1 of 1)

NAMES OF HYDROGEOLOGIC UNITS INDICATED IN LAST COLUMN OF TABLE II.3	HYDROGEOLOGIC UNIT PART OF UPPERMOST AQUIFER?[1] (YES, NO OR UNKNOWN)	TYPE OF AQUIFER/ HYDROGEOLOGIC UNIT: (PERCHED, UNCONFINED, CONFINED)	HYDROGEOLOGIC UNIT CONTAMINATED WITH HAZARDOUS CONSTITUENTS? (YES, NO OR UNKNOWN)[2]	GROUND WATER FLOW DIRECTION AND VELOCITY[3] (cm/sec & ft/day)	HYDRAULIC[3] CONDUCTIVITY (cm/sec & ft/day)	TRANSMISSIVITY[3] (cm²/sec & ft²/day)	STORATIVITY	EFFECTIVE POROSITY
1. Zone III	Yes	Unconfined	Yes	0.009 ft/day or 3.17E-06 cm/s E to NE	1.67 ft/day or 5.59E-04 cm/s	17.535 ft²/day or 6.18E-03 cm²/s	0.16	0.3
2. Zone IV	Yes	Unconfined	Yes	0.006 ft/day or 2.12E-06 cm/s E to NE	0.000104 ft/day or 3.67E-08 cm/s (Vertical)	1.61 ft²/day or 5.69E-07 cm²/s	0.16	0.25
3. Montgomery Formation (Lower Chicot Aquifer)	No	Confined	No	West-southwest at approximately 0.55 ft/day or 1.9E-04 cm/s	14 to 220 ft/day or 5.0E-03 to 7.8E-02 cm/s	700 to 54,000 ft²/day or 7.5 to 581 cm²/s	0.004 to 0.0037	Unknown
4. Bentley Formation (Lower Chicot Aquifer)								
5. Willis Sand (Lower Chicot Aquifer)								
6. Goliad Sand (Evangeline Aquifer	No	Confined	No	West at approximately 0.55 ft/day or 2.4E-04 cm/s	33 to 44 ft/day or 1.2E-02 to 1.5E-02 cm/s	4,300 to 4,800 ft²/day or 46 to 52 cm²/s	0.00003	Unknown
7. Upper Fleming (Evalngeline Aquifer)								

TABLE II.4b
AQUIFER CHARACTERISTIC INFORMATION

Southeast Holding Basin Area (Page 1 of 2)

NAMES OF HYDROGEOLOGIC UNITS INDICATED IN LAST COLUMN OF TABLE II.3	HYDROGEOLOGIC UNIT PART OF UPPERMOST AQUIFER?(1) (YES, NO OR UNKNOWN)	TYPE OF AQUIFER/ HYDROGEOLOGIC UNIT (PERCHED, UNCONFINED, CONFINED)	HYDROGEOLOGIC UNIT CONTAMINATED WITH HAZARDOUS CONSTITUENTS? (YES, NO OR UNKNOWN)(2)	GROUND WATER FLOW DIRECTION AND VELOCITY(3) (cm/sec & ft/day)	HYDRAULIC(3) CONDUCTIVITY (cm/sec & ft/day)	TRANSMISSIVITY(3) (cm²/sec & ft²/day)	STORATIVITY	EFFECTIVE POROSITY
1. SCF	Yes	Perched	Yes	0.005 ft/day or 1.76E-06 cm/s S to SE	0.077 ft/day or 2.72E-05 cm/s (obtained from slug test data)	0.616 ft²/day or 2.17E-04 cm²/s	0.16	0.2 to 0.3 [estimated from combination of grain size and empirical graphs of Scott and Scalmanini (1978)]
2. UNTU	Yes	Unconfined	Yes	0.15 ft/day or 5.29E-05 cm/s S to SE	0.077 ft/day or 5.89E-04 cm/s (Kxy max; obtained from slug test data)	17.535 ft²/day or 6.18E-03 cm²/s	0.16	0.3
3. LNTU	No	Confined	No	Unknown	Unknown	Unknown	Unknown	Unknown

(1) Hydrogeologic Unit = A stratigraphic unit which meets the definition of an aquifer at the bottom of Table II.3.
(2) Hazardous constituents are listed in Appendix IX of 40 CFR Part 264. Applicant will list contaminated hydrogeologic units in the first column of Table II.5.
(3) The Applicant should indicate both the SI Metric System and the English System in the Table.

TABLE II.4b
AQUIFER CHARACTERISTIC INFORMATION

Southeast Holding Basin Area (Page 2 of 2)

NAMES OF HYDROGEOLOGIC UNITS INDICATED IN LAST COLUMN OF TABLE II.3	HYDROGEOLOGIC UNIT PART OF UPPERMOST AQUIFER?[1] (YES, NO OR UNKNOWN)	TYPE OF AQUIFER/ HYDROGEOLOGIC UNIT: (PERCHED, UNCONFINED, CONFINED)	HYDROGEOLOGIC UNIT CONTAMINATED WITH HAZARDOUS CONSTITUENTS? (YES, NO OR UNKNOWN)[2]	GROUND WATER FLOW DIRECTION AND VELOCITY[3] (cm/sec & ft/day)	HYDRAULIC[3] CONDUCTIVITY (cm/sec & ft/day)	TRANSMISSIVITY[3] (cm²/sec & ft²/day)	STORATIVITY	EFFECTIVE POROSITY
4. Montgomery Formation (Lower Chicot Aquifer) 5. Bentley Formation (Lower Chicot Aquifer) 6. Willis Sand (Lower Chicot Aquifer)	No	Confined	No	West-southwest at approximately 0.55 ft/day or 1.9E-04 cm/s	14 to 220 ft/day or 5.0E-03 to 7.8E-02 cm/s	700 to 54,000 ft²/day or 7.5 to 581 cm²/s	0.004 to 0.0037	Unknown
7. Goliad Sand (Evangeline Aquifer 8. Upper Fleming (Evalngeline Aquifer)	No	Confined	No	West at approximately 0.55 ft/day or 2.4E-04 cm/s	33 to 44 ft/day or 1.2E-02 to 1.5E-02 cm/s	4,300 to 4,800 ft²/day or 46 to 52 cm²/s	0.00003	Unknown

(1) Hydrogeologic Unit = A stratigraphic unit which meets the definition of an aquifer at the bottom of Table II.3.
(2) Hazardous constituents are listed in Appendix IX of 40 CFR Part 264. Applicant will list contaminated hydrogeologic units in the first column of Table II.5.
(3) The Applicant should indicate both the SI Metric System and the English System in the Table.

ATTACHMENT N

Financial Assurance

KINDER MORGAN
KM Liquids Terminals LLC

August 8, 2024

Ms. Gulay Aki
Manager, Industrial and Hazardous Waste Permits Section
Texas Commission on Environmental Quality
Building F, MC 130
12100 Park 35 Circle
Austin, Texas 78753

Re: Financial Disclosure Letter for KM Liquids Terminals LLC

Permit Renewal
Hazardous Waste Permit No. 50054 / Compliance Plan No. 50054
Industrial Solid Waste Registration No. 30573
EPA ID No. TXD026481523
RN100237452/CN603254707

Dear Ms. Aki:

This letter is furnished to you in response to financial disclosure requirements as applicable under Texas Health and Safety Code Section 361.085 and Title 30, Texas Administrative Code (30 TAC), Section 305.50 to provide assurance that KM Liquid Terminals has sufficient financial resources.

In keeping with the above law and rule requirements I hereby certify that KM Liquids Terminals LLC is adequately capitalized and has sufficient financial resources to operate, close, provide post-closure care for and perform corrective action for the above-referenced facility in a safe manner, and in compliance with the permit and all applicable rules.

KM Liquids Terminals LLC currently provides a letter of credit financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet KM Liquid Terminal's financial assurance obligations.

I am authorized to make these statements on behalf of KM Liquids Terminals LLC. I understand that the TCEQ may request additional information as part of their review.

Sincerely,

Chris Graeter

Vice President and Treasurer

CRÉDIT AGRICOLE
CORPORATE & INVESTMENT BANK

April 09, 2024

EXECUTIVE DIRECTOR
TEXAS COMMISSION ON ENVIRONMENTAL
QUALITY
ATTN: FINANCIAL ASSURANCE UNIT
MARK STOEBNER, MC-184
12100 PARK 35 CIRCLE
AUSTIN, TX 78753

Our reference	:	834038040
Applicant	:	KINDER MORGAN INC ON BEHALF OF KM LIQUIDS TERMINALS LLC 1001 LOUISIANA, SUITE 1000 HOUSTON, TX 77005
Amendment Number	:	6
Amendment date	:	April 08, 2024
Amount	:	USD 8,692,754.00
New amount	:	USD 9,005,693.00
Issue Date	:	December 06, 2018
Expiry Date	:	December 13, 2024

Dear Sir/Madam,

The above Letter of Credit is amended as follows:

Amount increased by:	USD 312,939.00
New available amount:	USD 9,005,693.00

All other terms and conditions remain unchanged.

Yours faithfully,

CRÉDIT AGRICOLE CORPORATE AND INVESTMENT BANK
CA CIB NEW YORK BRANCH

AUTHORIZED SIGNATURE

ATTACHMENT O

Preliminary Review Checklists

ATTACHMENT O

PRELIMINARY REVIEW CHECKLISTS
KM Liquids Terminals LLC – Galena Park Terminal

TABLE OF CONTENTS

STATUS AND HISTORY OF PRELIMINARY REVIEW TO DATA 1

PRELIMINARY REVIEW FACILITY CHECKLIST 3

PRELIMINARY REVIEW UNIT CHECKLIST 9

LIST OF TABLES

Table 1 – Wastes Managed at NOR 021 – Container Storage Area
Table 2 – Wastes Managed at NOR 022 – Container Storage Area
Table 3 – Wastes Managed at NOR 023 – Miscellaneous Storage Containers
Table 4 – Wastes Managed at NOR 024 – Tank 3-10 (Recovered Groundwater)
Table 5 – Wastes Managed at NOR 025 – Tank (Aboveground 250 Gallon Tank Behind Lab)
Table 6 – Wastes Managed at NOR 026 – Distillation/Solvent Recovery Unit (Safety-Kleen)
Table 7 – Wastes Managed at NOR 027 – WWTP (Building Housing Groundwater Units)
Table 8 – Wastes Managed at NOR 028 – Miscellaneous Storage Containers
Table 9 – Wastes Managed at NOR 029 – Container Storage Area (East Plant Turn Around)

LIST OF APPENDICES

Appendix I – Facility and SWMU Location Map
Appendix II – Wastes Managed
Appendix III – Evidence of a Release
Appendix IV – Pollutant Dispersal Pathways

LIST OF ATTACHMENTS

Attachment I – NOR 025 TCEQ No Further Action Letter

STATUS AND HISTORY OF PRELIMINARY REVIEW TO DATE

The original RCRA Facility Assessment (RFA) was completed and a report of findings was issued May 26, 1992. The units included in the 1992 RFA are listed below and RCRA Facility Investigations (RFIs) or the equivalent began in 1993 to address these units. The preliminary review checklists for the RFA units listed below was updated during the 2002-2004 Part B renewal and nine (9) additional units were added. These units are listed below. This submittal updates the information provided in the 2002-2004 renewal. Managed waste information for NOR Unit Nos. 021 through 029 is included in Tables 1 through 9. Discussions related to evidence of release and pollutant dispersal pathways for Units 021 through 029 are included in Appendix III and IV, respectively.

UNITS INCLUDED IN ORIGINAL RFA	
NOR No.	**Description**
NOR001	Drum Storage Building
NOR002	Tank 29
NOR003	Tank 10-12
NOR004	North Holding Basin (CAMU)
NOR005	Tank 100-5
NOR006	Tank 100-6
NOR007	Tank 50 WW Treatment Tank
NOR008	Tank 51 WW Treatment Tank
NOR009	Tank 116 WW Treatment Tank
NOR010	Tank 117 WW Treatment Tank
NOR011	Tank 25-1 WW Treatment Tank
NOR012	Tank 32 WW Treatment Tank
NOR013	Tank 3-9 Product Recovery
NOR014	Tank (Surface) Above Ground Oil/Water Separator
NOR015	Tank Below Ground Oil/Water Separator
NOR016	North Pit - Tract A
NOR017	Southeast Holding Basin (SEHB)
NOR018	Tank 5-20 Wastewater Tank
NOR019	DAF Tank
NOR020	Equalization Tank
No NOR #	Impoundment #3
No NOR #	T/TR Storm Water Drainage
No NOR #	Lift Station #4
No NOR #	SEHB Sump
No NOR #	Tract B
No NOR #	North Spoils Area
No NOR #	Texaco Impoundment #4
No NOR #	Impoundment #2
No NOR #	Tank 82

UNITS INCLUDED IN ORIGINAL RFA	
NOR No.	**Description**
No NOR #	Impoundment #1
No NOR #	East Plant Tank Car Rack
No NOR #	WPWMA Groundwater Plume
No NOR #	Tract C
No NOR #	Tank 28
No NOR #	EPWMA Benzene Release
No NOR #	Texaco Landfill #3
No NOR #	Tank 26
UNITS ADDED SINCE THE RFA WAS COMPLETED	
NOR No.	**Description**
NOR021	Container Storage Area (Rolloffs used to store hazardous and nonhazardous wastes)
NOR022	Container Storage Area (Rolloffs, vacuum boxes used to manage hazardous and nonhazardous wastes)
NOR023	Miscellaneous Storage Containers (including drums, roll-offs, and vacuum boxes)
NOR024	Tank 3-10 (Recovered Groundwater Tank)
NOR025	Tank (Surface) (Aboveground 250-gallon storage tank behind laboratory)
NOR026	Distill/Solvent Recovery (Safety-Kleen parts cleaner)
NOR027	WWTP (Building which houses the groundwater treatment units)
NOR028	Miscellaneous Storage Containers (9-yard trash dumpsters used to manage non-hazardous plant trash)
NOR029	East Plant Turn Around Container Storage
NOR030	Wastewater/product recovery tank 31

PRELIMINARY REVIEW FACILITY CHECKLIST

Preliminary Review Facility Checklist

Facility: KM Liquid Terminals, LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Units:

1. RCRA Regulated Units:

NOR No.	**Description**	**Status**
NOR001	Drum Storage Building	Active. Part of SWMU Group C4. Response action implemented
NOR003	Tank 10-12	Closed. Part of SWMU Group W3. Response action implemented
NOR004	North Holding Basin (CAMU)	Active. Part of SWMU Group W1. Corrective Action Program in place
NOR013	Tank 3-9 Product Recovery	Active. Part of SWMU Group C3. Response action implemented
NOR014	Tank (Surface) Above Ground Oil/Water Separator	Inactive. Part of SWMU Group C3. Response action implemented
NOR015	Tank Below Ground Oil/Water Separator	Inactive. Part of SWMU Group C1. Response action implemented
NOR016	North Pit - Tract A	Closed. Part of North Plant Waste Management Area. Affected Property Assessment pending approval
NOR017	Southeast Holding Basin (SEHB)	Closed. Part of SWMU Group C2. Corrective Action Program in place.
NOR018	Tank 5-20 Wastewater Tank	Inactive. Part of West Plant Waste Management Area. Response action implemented
NOR021	Container Storage Area (Rolloffs used to store hazardous and nonhazardous wastes)	Inactive.
NOR022	Container Storage Area (Rolloffs, vacuum boxes used to manage hazardous and nonhazardous wastes)	Inactive.
NOR023	Miscellaneous Storage Containers (including drums, roll-offs, and vacuum boxes)	Active.
NOR024	Tank 3-10 (Recovered Groundwater Tank)	Active.
NOR025	Tank (Surface) (Aboveground 250 gallon storage tank behind laboratory)	Closed. TCEQ NFA letter dated 3/26/24.
NOR026	Distill/Solvent Recovery (Safety-Kleen parts cleaner)	Inactive.

Preliminary Review Facility Checklist

Facility: KM Liquid Terminals, LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

1. RCRA Regulated Units:

NOR No.	Description	Status
NOR027	WWTP (Building which houses the groundwater treatment units)	Inactive.
NOR029	East Plant Turn Around Container Storage	Closed. Approved 10/21/10

2. Solid Waste Management Units:

NOR No.	Description	Status
NOR002	Tank 29	No longer exists. Part of SWMU Group C1. Response action implemented
NOR005	Tank 100-5	Removed from waste service. Part of SWMU Group W2. Response action implemented.
NOR006	Tank 100-6	Removed from waste service. Part of SMWU Group W2. Response action implemented.
NOR007	Tank 50 WW Treatment Tank	No longer exists. Part of SWMU Group C1. Response action implemented
NOR008	Tank 51 WW Treatment Tank	No longer exists. Part of SWMU Group C1. Response action implemented
NOR009	Tank 116 WW Treatment Tank	No longer exists. Part of SWMU Group C1. Response action implemented
NOR010	Tank 117 WW Treatment Tank	No longer exists. Part of SWMU Group C1. Response action implemented
NOR011	Tank 25-1 WW Treatment Tank	Removed from waste service. Part of SWMU Group C4. Response action implemented
NOR012	Tank 32 WW Treatment Tank	Active. Part of SWMU Group C3. Response action implemented
NOR019	DAF Tank	No longer exists. Part of SWMU Group W1. Response action

Preliminary Review Facility Checklist

Facility: KM Liquid Terminals, LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

2. Solid Waste Management Units:

NOR No.	**Description**	**Status**
		implemented.
NOR020	Equalization Tank	No longer exists. Part of SWMU Group W1. Response action implemented.
NOR028	Miscellaneous Storage Containers (9 yard trash dumpsters used to manage non-hazardous plant trash)	Active
No NOR #	Impoundment #3	Inactive. Part of East Plant Waste Management Area. Response action implemented
No NOR #	T/TR Storm Water Drainage	Inactive. Part of SWMU Group C2. Response action implemented.
No NOR #	Lift Station #4	Inactive. Part of SWMU Group C2. Response action implemented
No NOR #	SEHB Sump	Removed. Part of SWMU Group C2. Response action implemented.
No NOR #	Tract B	Closed. Part of North Plant Waste Management Area
No NOR #	North Spoils Area	Approved no release 6/14/99
No NOR #	Texaco Impoundment #4	Approved no release 6/14/99
No NOR #	Impoundment #2	Removed. Part of Texmark Chemical (TCI) Group. Response action implemented
No NOR #	Tank 82	Removed. Part of SWMU Group C2. Response action implemented
No NOR #	Impoundment #1	Closed. Part of SWMU Group C4. Response action implemented
No NOR #	East Plant Tank Car Rack	Closed. Closure under RR2 approved 2002. Part of East Plant Waste Management Area. Response action implemented.
No NOR #	WPWMA Groundwater Plume	Inactive. Part of SWMU Group W3. Response action implemented
No NOR #	Tract C	Closed. Part of North Plant Waste Management Area

Preliminary Review Facility Checklist

Facility: KM Liquid Terminals, LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

2. Solid Waste Management Units:

NOR No.	**Description**	**Status**
No NOR #	Tank 28	Removed. Part of Texmark Chemical (TCI) Group. Response action implemented
No NOR #	EPWMA Benzene Release	Inactive. Part of East Plant Waste Management Area. Response action implemented
No NOR #	Texaco Landfill #3	Approved no release 12/8/00
No NOR #	Tank 26	Removed. Part of SWMU Group C2. Response action implemented
NOR030	Wastewater/product recovery tank 31	Active

B. Reviewed Documents:

RCRA: Part A X
Part B X
Permit X

CERCLA: None

Inspection Reports:

a. Solid Waste Inspection Report, April 26, 1991. Inspection date: March 28, 1991
b. Operation and Maintenance (O&M) Report of the Comprehensive Groundwater Monitoring Evaluation (CME) dated June 15th, 1990. Inspection date: April 13th, 1989
c. Compliance Schedule Evaluation Report dated July 19, 1990
d. Solid Waste Inspection Report dated April 25th, 1990
e. CME dated June 2nd, 1989. Inspection Date: April 13th, 1989
f. Solid Waste Inspection Report dated April 25th, 1990. Inspection date: March 25th, 1990.
g. Solid Waste Compliance Monitoring Inspection Report approved November 2, 1987. Inspection date: October 22, 1987.
h. Compliance Evaluation Inspection Report approved March 10, 1987. Inspection date: February 26th, 1987.
i. RCRA Facility Assessment (RFA), 1992
j. RCRA Facility Investigation Report Phase 1 (RFI Phase 1), GATX Galena Park Terminal, Galena Park, TX, Volume 1-3, April 15, 1997

k. RCRA Facility Investigation Report Phase 2 (RFI Phase 2), GATX Terminals Corp., Galena Park, TX, Arcadis Geraghty & Miller, Volumes 1-6, July 31, 1998
l. RCRA Facility Investigation Report Addendum, ARCADIS Geraghty & Miller, March 2000
m. RCRA Facility Investigation Report Addendum (2) , ARCA DIS Geraghty & Miller, June 2000
n. RCRA Facility Investigation Addendum Report - East Plant Tank Car Rack, ARCADIS Geraghty & Miller April 2000
o. RCRA Facility Investigation Addendum Report - West Plant, ARCADIS Geraghty & Miller, July 2000
p. RCRA Facility Investigation Addendum Report - North Plant, ARCADIS Geraghty & Miller, September 2000
q. RCRA Facility Investigation Addendum Report - TCI Group, ARCADIS Geraghty & Miller, April 2001
r. Baseline Risk Assessment Report, Arcadis Geraghty & Miller, September 1998
s. Affected Property Assessment Report, dated October 7, 2004, Kinder Morgan Liquid Terminals, LLC Galena Park, RFI Units: Group C1, C2, C3, C4, W1, W2, W3, Impoundment 3, and East Plant Benzene Plume
t. Affected Property Assessment Report, dated April 4, 2005, Kinder Morgan Liquid Terminals, LLC Galena Park Texmark Chemical
u. Response Action Plan (West Plant, Central Plant, and East Plant), dated July 20, 2007, Kinder Morgan Liquid Terminals, LLC Galena Park, RFI Units: Group C1, C2, C3, C4, W1, W2, W3, Impoundment 3, and East Plant Benzene Plume
v. Revised Response Action Plan – Texmark Chemical, Inc., dated January 24, 2006, Kinder Morgan Liquid Terminals, L.P., Galena Park

Enforcement Actions: None
Exposure Information: None
Other Information: None

C. Summary: See Reviewed Documents for summary (except for NOR021-029)
D. Recommended Action: See Reviewed Documents for summary (except for NOR021-029)

PRELIMINARY REVIEW UNIT CHECKLIST

Preliminary Review Unit Checklist

Facility: KM Liquid Terminals, LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Container Storage Area

B. NoR No: 001

C. Description: Drum Storage Building, S06

D. Dates of Operation: 1981 - current

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Storage, bulking, and/or transfer off site – no treatment/recovery, fuel blending or disposal at this site, 11,200 gallon capacity, <90 day storage.

I. Recommended Action: In 2000, the unit was added to the SWMU Group C4. A response action under the TRRP has been implemented for the SMWU Group C4.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 29

B. NoR No: 002

C. Description: Wastewater Tank

D. Dates of Operation: 1938-1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 1,095,730 gallon capacity, Inactive

I. Recommended Action: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. This workplan was submitted September 13, 1990, revised July 18, 1991, and was approved on December 18, 1991. In 1999, Tank 29 was included in SWMU Group C1. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 10-12

B. NoR No: 003

C. Description: Wastewater Tank (RCRA Exempt) , S02

D. Dates of Operation: 1968-1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 420,000 gallon capacity, Inactive

I. Recommended Action: In 2000, Tank 10-12 was added to SWMU Group W3. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: North Holding Basin

B. NoR No: 004

C. Description: Surface Impoundment, Corrective Action Management Unit (CAMU), Completed 1996 (GATX North Basin CAMU Remediation Report November 9, 2001)

D. Dates of Operation: 1974-1988

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: CAMU with capacity of 6000 CY

I. Recommended Action: In 1999, CAMU (North Holding Basin) was added to SWMU Group W1. The CAMU remains active. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 100-5

B. NoR No: 005

C. Description: Product Service Tank – S02, Prior storage of storm water (RCRA Exempt), Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment)

D. Dates of Operation: 1988-Current

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Product Service Tank 4,200,000 gallon capacity

I. Recommended Action: In 2000, Tank 100-5 was added to SWMU Group W2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 100-6

B. NoR No: 006

C. Description: Product Service Tank – So2, Prior storage of storm water (RCRA Exempt), Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment)

D. Dates of Operation: 1988-Current

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Product Service Tank 4,200,000 gallon capacity

I. Recommended Action: In 2000, Tank 100-6 was added to SWMU Group W2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 50

B. NoR No: 007

C. Description: Wastewater Treatment Tank (RCRA Exempt), Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1938 – 1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 30,080 gallon capacity, Inactive

I. Recommended Action: In 1999, Tank 50 was added to SWMU Group C1. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 51

B. NoR No: 008

C. Description: Wastewater Treatment Tank (RCRA Exempt), Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1938 – 1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 22,560 gallon capacity, Inactive

I. Recommended Action: In 1999, Tank 51 was added to SWMU Group C1. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 116

B. NoR No: 009

C. Description: Wastewater Treatment Tank (RCRA Exempt) , Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1938 – 1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 15,227 gallon capacity, Inactive

I. Recommended Action: In 1999, Tank 116 was added to SWMU Group C1. A response action under the TRRP has been implemented for this SWMU group. No further action..

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 117

B. NoR No: 010

C. Description: Wastewater Treatment Tank (RCRA Exempt) , Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1938 – 1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 15,250 gallon capacity, Inactive

I. Recommended Action: In 1999, Tank 117 was added to SWMU Group C1. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 25-1

B. NoR No: 011

C. Description: Wastewater Treatment Tank (RCRA Exempt) , Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1938 – 1990

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 1,076,982 gallon capacity, Inactive

I. Recommended Action: In 2000, Tank 25-1 was added to SWMU Group C4. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 32

B. NoR No: 012

C. Description: Wastewater Tank (RCRA Exempt), S02

D. Dates of Operation: 1938 – Present

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 1,050,000 gallon capacity

I. Recommended Action: In 2000, Tank 32 was added to SWMU Group C3. Tank 32 is currently active. A response action under the TRRP has been implemented for SWMU Group C3. No further action is recommended at this time.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 3-9

B. NoR No: 013

C. Description: Product Recovery Tank, Un-recoverable water is discharged to GCWD A (POTW), S02

D. Dates of Operation: 1989 – Present

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: Wastewater Tank 126,000 gallon capacity

I. Recommended Action: In 2000, Tank 3-9 was added to SWMU Group C3. Tank3-9 is currently active receiving groundwater from the groundwater recovery system. A response action under the TRRP has been implemented for SWMU Group C3. No further action is recommended at this time.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Above-Ground Oil/Water Separator

B. NoR No: 014

C. Description: Above-Ground Oil/Water Separator, Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1989 – 1994

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 10,180 gallon capacity

I. Recommended Action: In 2000, the above-ground oil/water separator was added to SWMU Group C3. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Belowground Oil/Water Separator

B. NoR No: 015

C. Description: Belowground Oil/Water Separator, Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1938 – 1989

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 12,000 gallon capacity

I. Recommended Action: In 1999, the belowground oil/water separator was added to SWMU Group C1. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tract A (North Pit)

B. NoR No: 016

C. Description: Subsurface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization), D83

D. Dates of Operation: 1945 – 1981. Unit closed and capped after 1991.

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 6,400 CY (est.)

I. Recommended Action: The RFI for this SWMU was approved by TCEQ in 1999. This unit is expected to close under RRS3. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Southeast Holding Basin

B. NoR No: 017

C. Description: Subsurface impoundment that formerly received stormwater from the southeast part of the Central Plant. All liquids and sludges were removed in 1987. D83

D. Dates of Operation: 1975 – 1985. The SEHB has been closed in accordance with the closure plan filed with the Texas Water Commission in September 1986 and in accordance with the letter of approval from the TWC dated December 15, 1986. The site meets all requirements for a Class II landfill and has been deed recorded in accordance with 31 Texas Administrative Code 335.5.

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 3,110 CY capacity

I. Recommended Action: This unit is currently in "Post Closure Care." No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 5-20

B. NoR No: 018

C. Description: Wastewater Tank, Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1975 – 2010

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 210,000 gallon capacity

I. Recommended Action: Tank 5-20 was incorporated in the West Plant Waste Management Area. A response action under the TRRP has been implemented for SWMU in this area. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: DAF (Dissolved Air Floatation) Tank

B. NoR No: 019

C. Description: Wastewater Treatment Tank, Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1980 – 1988

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 18,500 gallon capacity

I. Recommended Action: The DAF Tank was added to SWMU Group W1 in 1999. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Equalization (EQ) Tank / EQ Basin

B. NoR No: 020

C. Description: Wastewater Treatment Tank, Discharge to sewer/POTW or NPDES (with prior storage – with or without treatment), S02

D. Dates of Operation: 1980 – 1988

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992 and the facility NOR (dated June 13, 2012) included in Appendix II of this report.*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: 18,500 gallon capacity

I. Recommended Action: The EQ Tank was added to SWMU Group W1 in 1999. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Container Storage Area

B. NoR No: 021

C. Description: Rolloffs used to store hazardous and non-hazardous wastes, S06

D. Dates of Operation: approximately 1993 – 2010 (from June 12, 2012 NOR, Inactive Status 2/26/2010)

E. Wastes Managed: *See Table 1*

F. Evidence of Release: *No evidence or knowledge of release.*

G. Pollutant Dispersal Pathways: *Not applicable*

H. Summary: No applicable

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Container Storage Area

B. NoR No: 022

C. Description: Rolloffs, Vacuum boxes used to manage haz and non-hazardous wastes, S06.

D. Dates of Operation: approximately 1993 – 2010 (from June 12, 2012 NOR, Inactive Status 2/26/2010)

E. Wastes Managed: *See Table 2*

F. Evidence of Release: *No knowledge or evidence of release.*

G. Pollutant Dispersal Pathways: *Not applicable*

H. Summary: Not applicable

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Miscellaneous storage containers

B. NoR No: 023

C. Description: Miscellaneous containers including drums, rolloffs, and vacuum boxes, S06

D. Dates of Operation: 1994 – Present

E. Wastes Managed: See Table 3

F. Evidence of Release: No knowledge or evidence of release.

G. Pollutant Dispersal Pathways: Not applicable

H. Summary: Not applicable

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 3-10

B. NoR No: 024

C. Description: Recovered groundwater storage tank, S02

D. Dates of Operation: 1994 – Present

E. Wastes Managed: See Table 4

F. Evidence of Release: No knowledge or evidence of release.

G. Pollutant Dispersal Pathways: Not applicable

H. Summary: Not applicable

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank

B. NoR No: 025

C. Description: Above ground 250 gallon storage tank behind laboratory. Receives lab waste streams 00592191, 0060219H, 0061205H. Generates stream 0058205H, which is transferred to tank 32(NOR-12), S02

D. Dates of Operation: 1997- 2022

E. Wastes Managed: See Table 5

F. Evidence of Release: No knowledge or direct evidence of release.

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Not applicable

I. Recommended Action: WMU is closed. TCEQ issued No Further Action letter dated 3/26/2024.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Distillation/Solvent recovery unit

B. NoR No: 026

C. Description: Safety-Kleen solvent parts cleaner. Now part of the Continuous Use Program (CUP) and no longer considered a waste management unit, T04

D. Dates of Operation: 1994 – 2003

E. Wastes Managed: See Table 6

F. Evidence of Release: No knowledge or direct evidence of release.

G. Pollutant Dispersal Pathways: Not applicable

H. Summary: Not applicable

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Waste Water Treatment Plant

B. NoR No: 027

C. Description: Building which houses the groundwater treatment units, T04

D. Dates of Operation: 1995 - 2010 (from June 12, 2012 NOR, Inactive Status 3/3/2010)

E. Wastes Managed: See Table 7

F. Evidence of Release: No direct evidence of release was observed.

G. Pollutant Dispersal Pathways: See Attachment A

H. Summary: Not applicable

I. Recommended Action: No further action recommended at this time.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Miscellaneous storage containers

B. NoR No: 028

C. Description: 9-yard plant trash dumpsters located throughout the plant to manage non-hazardous plant trash. S99

D. Dates of Operation: 2000 – Present

E. Wastes Managed: See Table 8

F. Evidence of Release: No knowledge or direct evidence of release.

G. Pollutant Dispersal Pathways: Not applicable

H. Summary: Not applicable

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Container Storage Area

B. NoR No: 029

C. Description: East Plant Turnaround Container Storage Area, S99

D. Dates of Operation: 1997 - 2010

E. Wastes Managed: See Table 9

F. Evidence of Release: No evidence of release from the activities associated with the unit. Documented in Closure Report, East Plant Turnaround Container Storage Aare, TCEQ Permit Unit # 3, dated May 3, 2010.

G. Pollutant Dispersal Pathways: Not applicable

H. Summary: Unit closed in accordance with an approved closure plan.

I. Recommended Action: Closed. Closure approved by TCEQ 10/21/10. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Impoundment #3

B. NoR No: No NOR number

C. Description: Surface Impoundment/Landfill – Disposal - D8

D. Dates of Operation: 1918 – 1981. Waste removed by Texaco in 1980.

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 39*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to East Plant Waste Management Area. A response action under the TRRP has been implemented for this SWMU. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Stormwater Drainage System

B. NoR No: No NOR number

C. Description: Drainage system associated with SEHB

D. Dates of Operation: 1945 - Current

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 41*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to SWMU Group C2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Lift Station #4

B. NoR No: No NOR number

C. Description: T04 – other treatment

D. Dates of Operation: 1985 - Current

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 42*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to SWMU Group C2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Southeast Holding Basin Sump

B. NoR No: No NOR number

C. Description: T04 – Other Treatment - Sump

D. Dates of Operation: 1985 - 1987

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 43*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to SWMU Group C2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: North Plant Tract B Landfill

B. NoR No: No NOR number

C. Description: D80 – Landfill

D. Dates of Operation: Pre 1920s, Excavated in 1998 and placed in CAMU

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 45*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: North Spoils Area

B. NoR No: No NOR number

C. Description: Dredge spoil placement area

D. Dates of Operation: Begin late 1980 or Jan. 1981. Kinder Morgan no longer owns the land at which this unit is located.

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 45*

F. Evidence of Release: *No evidence of a release.*

G. Pollutant Dispersal Pathways: *Not applicable*

H. Summary: *Unit granted NFA status on June 14, 1999*

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: North Texaco Impoundment #4

B. NoR No: No NOR number

C. Description: Surface Impoundment – S04 – Storage, Impoundment for oily wastewater

D. Dates of Operation: 1952 – 1980/1981

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 45*

F. Evidence of Release: *No evidence of release*

G. Pollutant Dispersal Pathways: *Not Applicable*

H. Summary: *Unit granted NFA status on June 14, 1999*.

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Impoundment No. 2

B. NoR No: No NOR number

C. Description: SO4 – Surface Impoundment – Storage – Impoundment for oily wastewater

D. Dates of Operation: 1920 – 1981. Texmark presently operates its wastewater impoundment within the foot print of this SWMU.

E. Wastes Managed: *See Galena Park Terminal RCRA Facility Assessment, 1992, Page 47*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR. Impoundment #2 was excavated and removed.*

I. Recommended Action: This SWMU was added to the Texmark Chemical Inc. (TCI) SWMU Group. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 82

B. NoR No: No NOR number

C. Description: So2 – Product Storage

D. Dates of Operation: Unknown - 1990

See *Southeast Holding Basin and, SWMU Group* C2 *in RFI Addendum Report, Arcadis Geraghty* & *Miller, March 2000* for the following requested unit information

E. Wastes Managed: *Not Known*

F. Evidence of Release: *See RFI Report*

G. Pollutant Dispersal Pathways: *See RFI Report*

H. Summary: See RFI Report

I. Recommended Action: This SWMU was added to SWMU Group C2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Impoundment No. 1 (Central Plant)

B. NoR No: No NOR number

C. Description: Surface Impoundment

D. Dates of Operation: Before 1920 – unknown (closed)

E. Wastes Managed: *See RFI Addendum Report (2), June 2000*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to SWMU Group C4. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: East Plant Tank Car Rack

B. NoR No: No NOR number

C. Description: X99 Tank Car Rack

D. Dates of Operation: Unknown – 2002

E. Wastes Managed: *See RFI Addendum Report, TCI Group, April 2000*

F. Evidence of Release: *See RFI Report*

G. Pollutant Dispersal Pathways: *See RFI Report*

H. Summary: *Unit granted closure under Risk Reduction Standard 2 on August 9, 2002*

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: WPWMA Groundwater Plume

B. NoR No: No NOR number

C. Description: S99 – Large area with soil and groundwater impacts

D. Dates of Operation: Unknown

E. Wastes Managed: *See RFI Report*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to SWMU Group W3. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: North Plant Tract C

B. NoR No: No NOR number

C. Description: D80 - Landfill

D. Dates of Operation: Unknown – 1998

E. Wastes Managed: *See RFI Report*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR. Also see North Plant Report, GATX Terminals Corp., Galena Park, TX, September 2000; RCRA Facility Investigation Report Phase I, Final Report, GATX Terminals Corp., July 31, 1998.*

I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 28

B. NoR No: No NOR number

C. Description: S02 Tank

D. Dates of Operation:

E. Wastes Managed: *See RFI Report*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR. This tank has been removed and impacted soil in the area has been excavated and removed.*

I. Recommended Action: This SWMU was added to the Texmark Chemical Inc. (TCI) SWMU Group. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: EPWMA Benzene Release

B. NoR No: No NOR number

C. Description: The East Plant Waste Management Area was identified during the RFA. It was noted in the RFA that the area had been part of a former Texaco refinery. Benzene impacted groundwater was discovered during the Phase II RFI. The impact was observed over a broad area. The area was designated at the EPWMA Benzene Release in 1999.

D. Dates of Operation: *1920's – 1950's (approximate Texaco Refinery operational dates)*

E. Wastes Managed: *Unknown*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to East Plant Waste Management Area SWMU group. A response action under the TRRP has been implemented for this SWMU group. TCEQ approved No Further Action in letter dated April 11, 2013.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Texaco Landfill No. 3
B. NoR No: No NOR number
C. Description: D80 Waste Management Area
D. Dates of Operation: Unknown – 1980 (NFA status on 12/08/2000)
E. Wastes Managed: *See RFI Addendum Report, March 2000*
F. Evidence of Release: *No evidence of a release*
G. Pollutant Dispersal Pathways: *Not applicable*
H. Summary: *Approved no release 12/8/00*
I. Recommended Action: No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 26

B. NoR No: No NOR number

C. Description: S02 – Product Storage

D. Dates of Operation: Unknown – Prior to 1990

E. Wastes Managed: *See RFI Addendum Report, March 2000*

F. Evidence of Release: *Evidence of a release in documented in the site-wide RFIs and the site-wide affected property assessment report (APAR)*

G. Pollutant Dispersal Pathways: *See RFIs and APAR*

H. Summary: *See RFIs and APAR*

I. Recommended Action: This SWMU was added to SWMU Group C2. A response action under the TRRP has been implemented for this SWMU group. No further action.

Preliminary Review Unit Checklist

Facility: KM Liquids Terminals LLC City: Galena Park

ISW Reg No: 30573 Date: 7/24/2024

Permit No: HW-50054 Reviewer: _____

EPA ID No: TXD026481523

A. Waste Management Unit: Tank 31

B. NoR No: 030

C. Description: Wastewater/product recovery tank 31. Un-recoverable water is discharged to GCWDA (POTW)via hard pipe.

D. Dates of Operation: 2012 – Present.

E. Wastes Managed: Wastewater generated from pipelining flushings, tank cleaning, spills, water coming in contact with product, docks, tank car and tank truck racks, and groundwater.

F. Evidence of Release: *No evidence of a release*

G. Pollutant Dispersal Pathways: Not applicable.

H. Summary: Not applicable.

I. Recommended Action: No further action recommended at this time.

TABLES

Table 1 – Wastes Managed at NOR 021 – Container Storage Area
Table 2 – Wastes Managed at NOR 022 – Container Storage Area
Table 3 – Wastes Managed at NOR 023 – Miscellaneous Storage Containers
Table 4 – Wastes Managed at NOR 024 – Tank 3-10 (Recovered Groundwater)
Table 5 – Wastes Managed at NOR 025 – Tank (Aboveground 250 Gallon Tank Behind Lab)
Table 6 – Wastes Managed at NOR 026 – Distillation/Solvent Recovery Unit (Safety-Kleen)
Table 7 – Wastes Managed at NOR 027 – WWTP (Building Housing Groundwater Units)
Table 8 – Wastes Managed at NOR 028 – Miscellaneous Storage Containers
Table 9 – Wastes Managed at NOR 029 – Container Storage Area (East Plant Turn Around)

Table 1
II. Waste Managed: NOR 021 - Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed: Insulation-removal of tank, manifold and/or pipe insulation	1	na	00144891	na	na
tank and/or pipeline insulation, removal of tank insulation	2	na	00213192	na	na
Soils, sorbents, and/or PPE	H	D002	0033319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Contalminated soil from remedial activities in West Plant	H	D018, D028, U002, U019, U042, U120, U159, U165, U220, U227, U229	0039301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Nonhazardous concrete/cement/construction debris from demolition		na	00503902	na	na
Soil contaminated with organics, contaminated soil from remedial activities	1	na	00173021	na	na
Soil contaminated with caustic material	1	na	00263191	na	na
Waste salt used in water softening for boiler	2	na	00343192	na	na

Table 1
II. Waste Managed: NOR 021 - Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Fluorescent lamps containing mercury	H	D009	0042391H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Tank bottoms, tank bottom sludges generated from tank cleaning operations	1	na	00186091	na	na
nNonhazardous sand blasting waste	2	na	00283892	na	na
Petroleum tank bottoms generated from tank cleaning	H	D018, D038	0035609H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Polyinsulation/lead	H	D008	0044409H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Rust and scale generated from tank cleaning	1	na	00192191	na	na
Nonhazardous concrete/cement/construction debris from demolition	1	na	00303901	na	na
Plant trash and debris	1	na	00363191	na	na
Cleanup of mineral oil spill	1	na	00452051	na	na
Plant debris including but not limited to PPE, soil, sorbent	2	na	00203192	na	na

Table 1
II. Waste Managed: NOR 021 - Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Nonhardous plant debris and PPE	1	na	00313191	na	na
Plant trash contaminated with petroleum general 11/395	1	na	00374891	na	na
Nonfriable asbestos		na	00453112	na	na
Previously Managed:					
			00273192	na	na

Table 2
II. Waste Managed: NOR 22 Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently Managed:					
Contaminanted soil, sludge, protective clothing	H	D002, D008, D016,D018,D023,D024, D025, D026, D035, D039, U002, U012, U019, U019, U031,U051, U031, Uo51, U052, U111,U112, u125, U140, U154, U159, U161	0001319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Nonhazardous concrete/cement	1	na	00303901	na	na
Nonhazardous plant debris	1	na	00363191	na	na
Nonhazardous concrete/cement		na	00503902	na	na
Disposal of contaminated plant debris	H	D001, D002, D016, D022, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U055, U056, U112, U120, U125, U140, U154, U159, U161, U177, U188, U191, U210, U220, U239, U240	0008319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Non hazardous plant debris	1	na	00313191	na	na
Plant Trash contaminated with petroleum	1	na	00374891	na	na
Clothing, rags, etc. contaminated	H	U031, U051, U052, U055, U056, U077, U177, U120, U125, U154, U159, U161	977990	na	na

Table 2
II. Waste Managed: NOR 22 Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Soils and sorbent material	H	D001, D002, D004, D008, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U056, U077, U112, u120, U125, U140, U154, U161, U177, U188, U191, U210, U220, U227, U239, U240	0010301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Soils, sorbents and or PPE	H	D002	0033319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Contaminated soil from remedial	H	D018, D028, U002, U019, U043, U120, U159, U165; U220, U226, U227, U239	0039301H		
Soil contaminated with caustic chemical	1	na	00263191	na	na
Waste Salt used in waster softening	2	na	00343192	na	na
Contaminated soil from remdial	H	D023, D024, D025, D026, U052	0042301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Nonhazardous sand blasting	2	na	00283892	none	none

Table 2
II. Waste Managed: NOR 22 Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Petroleum tank bottoms	H	D018, D038	0035609H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Polyinsulation/lead	H	D008	0044409H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Previously managed:					
			273192		

Table 3
II. Waste Managed: NOR 023 - Mis. Storage Container/Pit 2
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed:					
Contaminanted soil, sludge, protective clothing	H	D002, D008, D016,D018,D023,D024, D025, D026, D035, D039, U002, U012, U019, U019, U031,U051, U031, Uo51, U052, U111,U112, u125, U140, U154, U159, U161	0001319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Soils and sorbent material	H	D001, D002, D004, D008, D016, D018, D022, D023, D024, D025, D026, D028, D035, D043, U002, U003, U009, U031, U043, U051, U052, U055, U056, U077, U112, U120, U125, U140, U154, u159, u161, U165, U177, U168, U191, U220, U226, U239, U240	0010301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Plant debris, including but not limited to PPE	2	na	00203192	na	na
Nonhazardous concrete/cement	1	na	00303901	na	na
petroleum tank bottoms generated from Tank cleaning 10/25/95	H	D018, D036	0035609H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, Isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Spent MEA/#2 oil in aqueous solution	1	na	00412071	na	na

Table 3
II. Waste Managed: NOR 023 - Mis. Storage Container/Pit 2
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Unused paints and solvents	H	D001, D035, F003	0048209H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Storage Tank poly from insulation	H	D018, U019, U220, U239	0004319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Sand contaminated with Phenol from sand blasting	H	U188	0016319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picollne, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
tank or pipeline insultation	2	na	00213192	na	na
Non hazardous plant debris	1	na	00313191	na	na
Plant Trash and Debris	1	na	00363191	na	na

Table 3
II. Waste Managed: NOR 023 - Mis. Storage Container/Pit 2
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Contaminated soils from remedial activities in Central Plant	H	D023, D024, D025, D026, U052	0042301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Spent filters and debris from load wax	1	na	00513101	na	na
Separation of water and oil in wastewater tanks	H	D001, D002, D016, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U012, U019, U031, U051, U052, U055, U056, U077, U112, U120, U125, U140, U154, U159, U161, U165, U177, U189, U191, U210, U226, U227, U239, U240	0006205H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Soil contaminated with organics	1	na	00173021	na	na
Soil contaminated with caustic chemical	1	na	00263191	na	na
Soils, sorbents and or PPE	H	D002	0033319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Plant Trash contaminated with petroleum	1	na	00374891	na	na

Table 3
II. Waste Managed: NOR 023 - Mls. Storage Container/Pit 2
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Fluorsecent lamps containing mercury	H	D009	0043319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Plant trash non contaminated which includes paper, cardboard, plastic, wrappings, wood	2	na	00529992	na	na
Waste oil and waste from separation of water and oil tanks from pipeline	H	D001, D002, D016, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U012, U019, U031, U051, U052, U055, U056, U077, U112, U120, U125, U140, U154, U159, U161, U165, U177, U189, U191, U210, U226, U227, U239, U240	0007206H		
Tank Bottoms, tank bottom sludges generated from tank cleaning operations	1	na	00186091	na	na
Nonharzardous sand blasting waste	2	na	00283892	na	na
Soils, sorbents and/or PPE, corrosive	H	D002	0033319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Empty glass jars which have previously held hazardous waste	2	na	00383192	na	na

Table 3
II. Waste Managed: NOR 023 - Mls. Storage Container/Pit 2
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Polyinsulation/lead	H	D008	0044409H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
PCB Solids>50ppm<500ppm	1	na	00533941	na	na
Disposal of contaminated plant debris	H	D001, D002, D016, D022, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U055, U056, U112, U120, U125, U140, U154, U159, U161, U177, U188, U191, U210, U220, U239, U240	0008319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Rust and scale	1	na	00192191	na	na
Asbestos, removal of tank and or pipeline asbestos	1	na	00293111	na	na
waste salt used in water softening for boiler	2	na	00343192	na	na
Contaminated soils from remedial activities in West Plant	H	D018, D028, U002, U043, U120, U159, U165, U220, U226, U227, U229	0039301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Nonfriable asbestos	2	na	00463112	na	na
PCB oil>50 ppm<500 ppm	1	na	00542971	na	na
Previously Managed:					
			00273192		

Table 4
II. Waste Managed: NOR 024 - Tank 3-10 (Recovered Groundwater Tank)
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed:					
Recovered Groundwater	H	D001, D002, D016, D022, D023, D024, D025, D028, D035, U002, U003, U009, U012, U019, U031, U051, U052, U)55, U077, U112, U120, U125, U140, U159, U161, U177, U188, U191, U210, U220, U226, U227, U240	0003101H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Separation of water and oil or mixture	H	D001, D002, D016, D022, D023, D024, D025, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U051, U052, U055, U056, U077, U112, U120, U125, U140, U154, U159, U161, U177, U188, U191, U210, U220, U226, U227,U239 U240	0006205H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Waste oil from separation of water and oil in wastewater tanks from pipeline	H	D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U031, U043, U051, U052, U055, U056, U077, U112, u120, U125, U140, U154, U159, U161, U177, U188, U191, u210, U220, U226, U227, U239, U240	0007206H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Wastewater generated from pipelining flushings, tank cleaning, spills, water, etc.	H	D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U031, U043, U051, U052, U055, U056, U077, U112, u120, U125, U140, U154, U159, U161, U177, U188, U191, u210, U220, U226, U227, U239, U240	0015119H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D

Table 5
II. Waste Managed: NOR 025 - Tank (Surface) (Above ground 250 gallon storage tank behind laboratory
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed:					
Waste oil from separation of water and oil in wastewater tanks from pipeline	H	D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U031, U043, U051, U052, U055, U056, U077, U112, u120, U125, U140, U154, U159, U161, U177, U188, U191, u210, U220, U226, U227, U239, U240	0007206H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Wastewater generated from pipelining flushings, tank cleaning, spills, water, etc.	H	D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U031, U043, U051, U052, U055, U056, U077, U112, u120, U125, U140, U154, U159, U161, U177, U188, U191, u210, U220, U226, U227, U239, U240	0015119H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D

Table 6
II. Waste Managed: NOR 026 - Distill/Solvent Recovery (Safety-Kleen Parts Cleaner)
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Previously managed:					
Spent safety Kleen solvent	H	D001, D006, D008, D018, D027, D039, D040	0501203H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D

Table 7
II. Waste Managed: NOR 027 - WWTP - Building that houses groundwater treatment units
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed:					
Recovered Groundwater	H	D001, D002, D016, D022, D023, D024, D025, D028, D035, U002, U003, U009, U012, U019, U031, U051, U052, U)55, U077, U112, U120, U125, U140, U159, U161, U177, U188, U191, U210, U220, U226, U227, U240	0003101H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Wastewater generated from pipelining flushings, tank cleaning, spills, water, etc.	H	D001, D002, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U031, U043, U051, U052, U055, U056, U077, U112, u120, U125, U140, U154, U159, U161, U177, U188, U191, u210, U220, U226, U227, U239, U240	0015119H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D

Table 8
II. Waste Managed: NOR 028- Misc. Store Container
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed:					
Plant Trash non contaminated which includes paper, cardboard, plastic, wrapping, wood	2	na	00529992	na	na

Table 9
II. Waste Managed: NOR 029 - East Plant Turn Around Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Currently managed:					
Contaminanted soil, sludge, protective clothing	H	D002, D008, D016,D018,D023,D024, D025, D026, D035, D039, U002, U012, U019, U019, U031,U051, U031, Uo51, U052, U111,U112, u125, U140, U154, U159, U161	0001319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Nonhazardous concrete/cement	1	na	00303901	na	na
Nonhazardous plant debris	1	na	00363191	na	na
Nonhazardous concrete/cement		na	00503902	na	na
Disposal of contaminated plant debris	H	D001, D002, D016, D022, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U055, U056, U112, U120, U125, U140, U154, U159, U161, U177, U188, U191, U210, U220, U239, U240	0008319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Non hazardous plant debris	1	na	00313191	na	na
Plant Trash contaminated with petroleum	1	na	00374891	na	na
Clothing, rags, etc. contaminated	H	U031, U051, U052, U055, U056, U077, U177, U120, U125, U154, U159, U161	977990	na	na

Table 9
II. Waste Managed: NOR 029 - East Plant Turn Around Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Soils and sorbent material	H	D001, D002, D004, D008, D016, D018, D022, D023, D024, D025, D026, D028, D035, D039, D043, U002, U003, U009, U012, U019, U031, U043, U051, U052, U056, U077, U112, u120, U125, U140, U154, U161, U177, U188, U191, U210, U220, U227, U239, U240	0010301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Soils, sorbents and or PPE	H	D002	0033319H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Contaminated soil from remedial	H	D018, D028, U002, U019, U043, U120, U159, U165, U220, U226, U227, U239	0039301H		
Soil contaminated with caustic chemical	1	na	00263191	na	na
Waste Salt used in waster softening	2	na	00343192	na	na

Table 9
II. Waste Managed: NOR 029 - East Plant Turn Around Container Storage Area
Kinder Morgan Liquid Terminals LLC
Galena Park, TX

Solid waste Managed in Unit	Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituent listed in 40 CFR 261 Appendix VIII	Hazard Constituent listed in 40 CFR 261 Appendix IX
Contaminated soil from remdial	H	D023, D024, D025, D026, U052	0042301H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Nonhazardous sand blasting	2	na	00283892	none	none
Petroleum tank bottoms	H	D018, D038	0035609H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Polyinsulation/lead	H	D008	0044409H	benzene, methyl ethyl ketone, toluene, acetonitrile, acrylonitrile, chloroform, cyclohexane, naphthalene, tetrachloroethylene, 1,1,2-Trichloroethane, o,m, & p-cresol, creosote, phenol, picoline, isobutyl alcohol, 2,4-D	benzene, methyl ethyl ketone, toluene, o,m, & p-xylene, acetone, acetonitrile, acrylonitrile, chloroform, 1,2-Dichloroethane, cyclohexane, ethylbenzene, naphthalene, tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, o,m, & p-cresol, phenol, picoline, isobutyl alcohol, 2,4-D
Previously managed:					
			273192		

APPENDICES

Appendix I – Facility and SWMU Location Map
Appendix II – Wastes Managed
Appendix III – Evidence of a Release
Appendix IV – Pollutant Dispersal Pathways

APPENDIX I
Facility and SWMU Location Maps

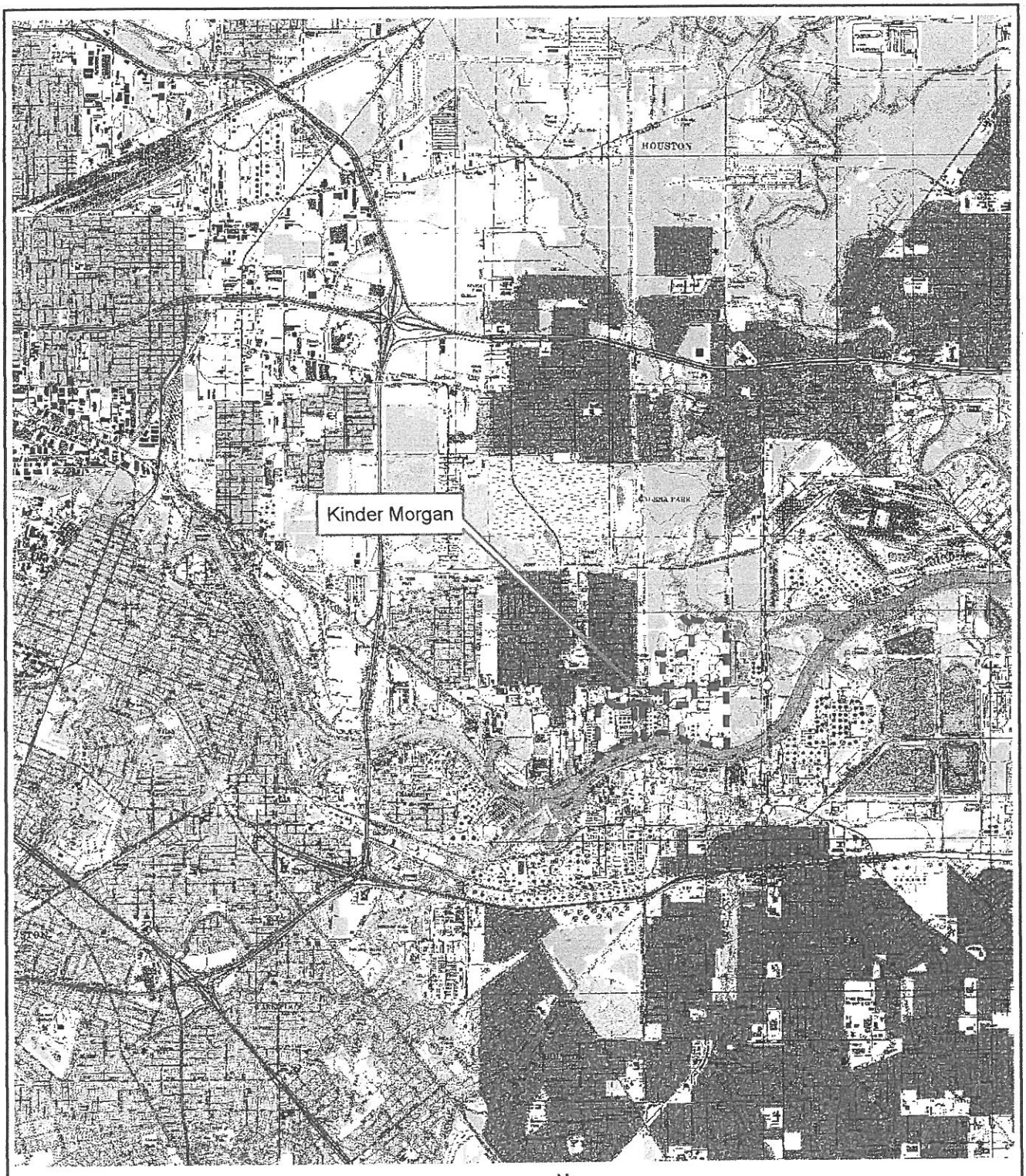
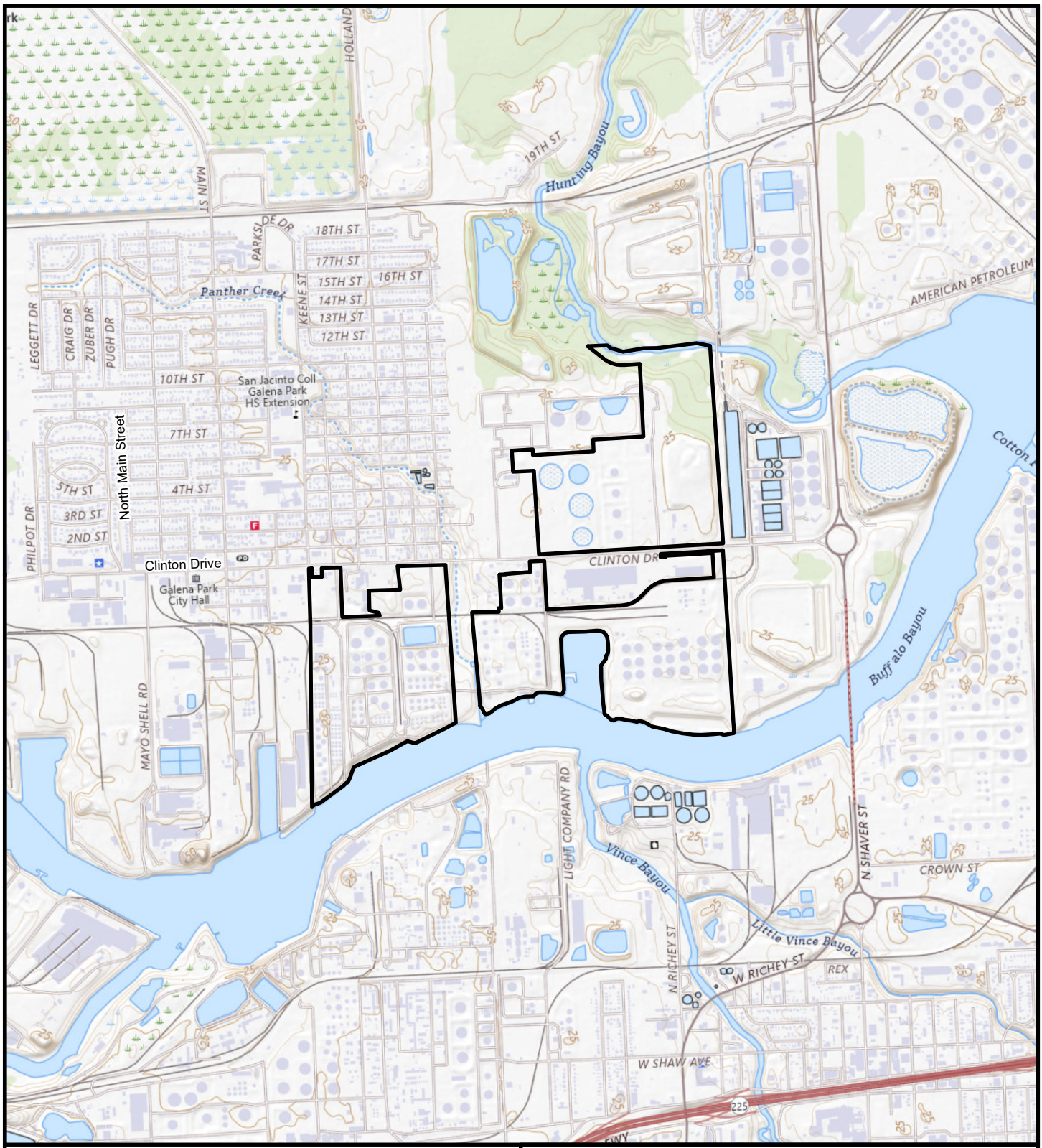


Figure I-1
Regional Location Map

Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

CH2MHILL

Regional Map-Section8(8x11).mxd



Approximate Terminal Boundary

N
W E
S

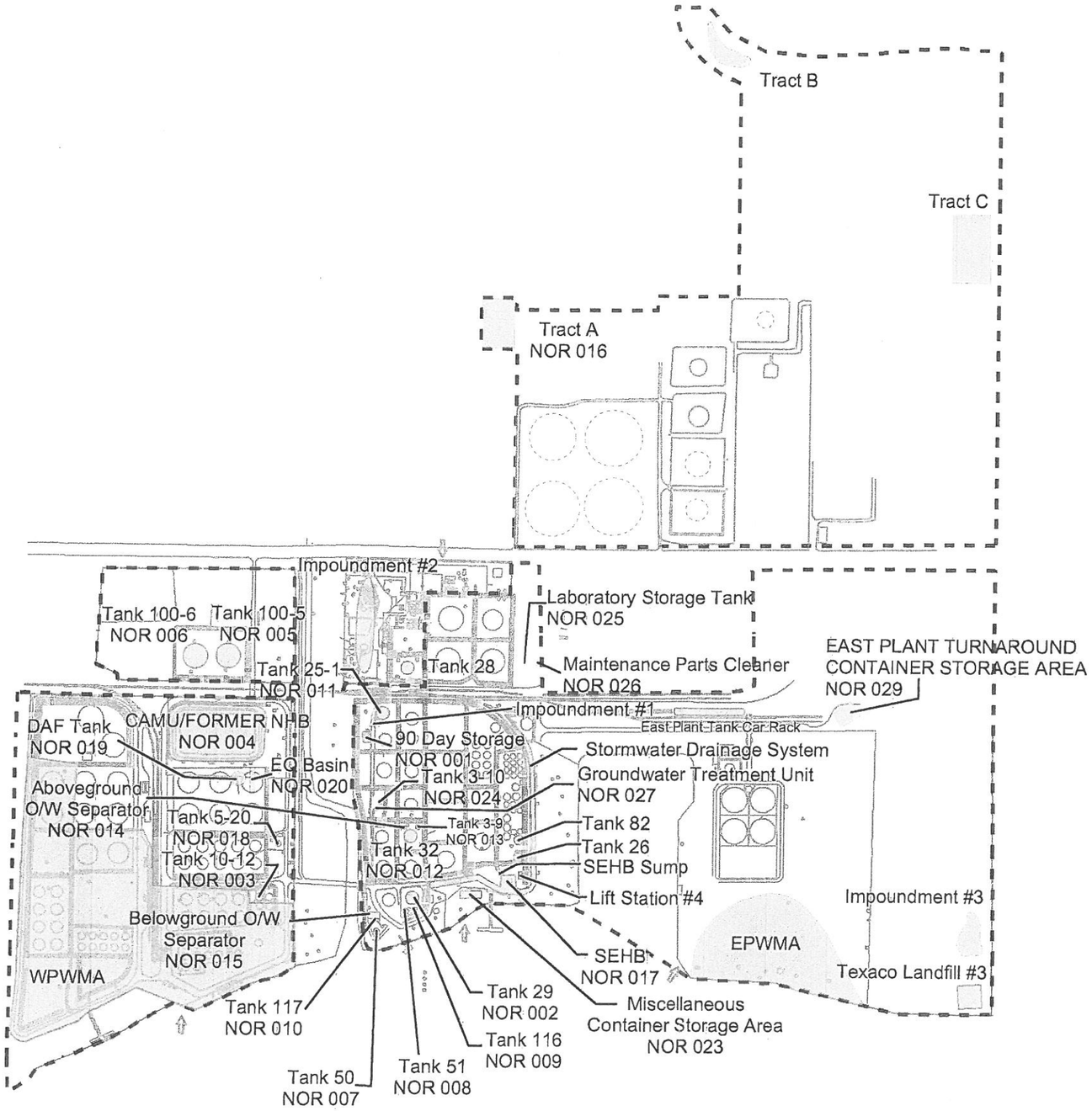
0 1,000 2,000
Approximate Scale in Feet

Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

Figure I-2
Site Location Map



LEGEND

- SWMUs
- Kinder Morgan Facility Boundary
- Kinder Morgan Facility Basemap

NOTE: NOR UNITS 021, 022 & 028 NOT SHOWN

N

700 350 0 700

Feet

Figure I-3
SWMU Location Map
Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

SWMUs-Section9.mxd

CH2MHILL

APPENDIX II
Wastes Managed

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX[1]	benzene	**EYE CONTACT:** Causes mild eye irritation. **SKIN CONTACT:** Causes mild skin irritation. Causes skin irritation on prolonged or repeated contact. Harmful when absorbed through the skin. **INHALATION:** Cancer hazard. Can cause blood disorders. Inhalation causes headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. See "Toxicological Information" section (Section 11.0). **INGESTION:** Harmful or fatal if liquid is aspirated into lungs. See "Toxicological Information" section (Section 11.0).	**FLASHPOINT:** 12°F(-11°C) **UEL:** 8.0% **LEL:** 1.5% **AUTOIGNITION TEMPERATURE:** 928°F (498°C) **FLAMMABILITY CLASSIFICATION:** Extremely Flammable Liquid. **EXTINGUISHING MEDIA:** Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog. **UNUSUAL FIRE AND EXPLOSION HAZARDS:** Extremely flammable liquid. Vapor may explode if ignited in enclosed area. **FIRE-FIGHTING EQUIPMENT:** Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus. **PRECAUTIONS:** Keep away from sources of ignition (e.g., heat and open flames). Keep container closed. Use with adequate ventilation. **HAZARDOUS COMBUSTION PRODUCTS:** Incomplete burning can produce carbon	See Baseline Risk Assessment (Arcadis, 1998)

[1] COC from 40 CFR Part 261 Appendix VIII and Part 264 Appendix IX

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	methyl ethyl ketone	**Inhalation:** Causes irritation to the nose and throat. Concentrations above the TLV may cause headache, dizziness, nausea, shortness of breath, and vomiting. Higher concentrations may cause central nervous system depression and unconsciousness. **Ingestion:** May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation. **Skin Contact:** Causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin with possible systemic effects. **Eye Contact:** Vapors are irritating to the eyes. Splashes can produce painful irritation and eye damage. **Chronic Exposure:** Prolonged skin contact may defat the skin and produce dermatitis. Chronic exposure may cause central nervous system effects. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.	**Flash point:** -9C (16F) CC **Autoignition temperature:** 404C (759F) Flammable limits in air % by volume: **LEL:** 1.4; **UEL:** 11.4 **Flammability Classification:** Extremely Flammable. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. This highly flammable liquid must be kept from sparks, open flame, hot surfaces, and all sources of heat and ignition.	See Baseline Risk Assessment (Arcadis, 1998)
COC[2]	methyl isobutyl ketone	**Inhalation:** Causes irritation to the nose and throat. Concentrations above the TLV may cause headache, dizziness, nausea, shortness of breath, and vomiting. Higher concentrations may cause central nervous system depression and unconsciousness. **Ingestion:** May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation. **Skin Contact:** Causes irritation to skin. Symptoms include redness, itching, and pain. **Eye Contact:** Vapors can irritate the eyes. Splashes cause severe pain and irritation. **Chronic Exposure:** Prolonged skin contact may defat the skin and produce dermatitis. Based on animal studies, chronic exposure may affect liver and kidneys. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders, eye problems, impaired respiratory function or central nervous system conditions may be more susceptible to the effects of this substance.	**Fire:** Flash point: 14C (57F) CC Autoignition temperature: 448C (838F) Flammable limits in air % by volume: lel: 1.2; uel: 8.0 Flammable Liquid **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Sensitivity to mechanical impact: Yes, if peroxides are formed. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.	See Baseline Risk Assessment (Arcadis, 1998)

[2] Contaminant of Concern (COC) obtained from CAMU Management Plan Table 1: Commodities Stored at Galena Park Terminal

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
COC	methyl t-butyl ether	**Eyes:** May cause irritation, experienced as mild discomfort and seen as slight excess redness of the eye. **Skin:** Brief contact may cause slight irritation. Prolonged contact, as with clothing wetted with material, may cause more severe irritation and discomfort, seen as local redness and swelling. Other than the potential skin irritation effects noted above, acute (short-term) adverse effects are not expected from brief skin contact; **Inhalation:** Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea, and drowsiness. Inhalation may cause dizziness, drowsiness, euphoria, loss of coordination, disorientation, headache, nausea, and vomiting. In poorly ventilated areas or confined spaces, unconsciousness and asphyxiation may result. **Ingestion:** May cause abdominal discomfort, nausea, and diarrhea. Aspiration may occur during swallowing or vomiting, resulting in lung damage. **Sensitization Properties:** Unknown. **Chronic:** No adverse effects have been documented in humans as a result of chronic exposure. **Medical Conditions Aggravated by Exposure:** Because of its irritating properties, repeated skin contact may aggravate an existing dermatitis (skin condition).	**Ignition Temperature** - AIT (degrees F): 815 **Flash Point (degrees F):** -43.6 (TCC) **Flammable Limits (%):** Lower: .9 Upper: 9.5 **Recommended Fire Extinguishing Agents And Special Procedures:** Water may be ineffective on flames but should be used to cool fire-exposed containers and provide protection for persons atempting to stop the leak. Use water spray, dry chemical, alcohol resistant foam or carbon dioxide to extinguish fire. **Unusual or Explosive Hazards:** Danger! Extremely flammable materials may release vapors that travel long distances, ignite, and flash back. Containers may explode in a fire. Do not expose to heat, sparks, flame, static, or other sources of ignition. When handling, use non-sparking tool, ground and bond all containers. Explosive air-vapor mixtures may form. **Special Protective Equipment for Firefighters:** Wear full protective clothing and positive pressure breathing apparatus.	See Baseline Risk Assessment (Arcadis, 1998)
VIII, IX	toluene	**EYE CONTACT:** Causes mild eye irritation. **SKIN CONTACT:** Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. Harmful when absorbed through the skin. Cancer hazard. Can cause blood disorders. **INHALATION:** Inhalation causes headaches, dizziness, drowsiness, nausea, and respiratory irritation. See "Toxicological Information" section (Section 11.0). **INGESTION:** If swallowed, causes headaches, dizziness, drowsiness and nausea, and may lead to unconsciousness. Harmful or fatal if liquid is aspirated into lungs.	**AUTOIGNITION TEMPERATURE:** 997°F (536°C) **FLAMMABILITY CLASSIFICATION:** Flammable Liquid. **EXTINGUISHING MEDIA:** Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog. **UNUSUAL FIRE AND EXPLOSION HAZARDS:** Flammable liquid. Vapor may explode if ignited in enclosed area. **FIRE-FIGHTING EQUIPMENT:** Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus. **PRECAUTIONS:** Keep away from sources of ignition (e.g., heat and open flames). Use with adequate ventilation. Keep container closed. **HAZARDOUS COMBUSTION PRODUCTS:** Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.	See Baseline Risk Assessment (Arcadis, 1998)

Source	Parameter	Health	Safety	Risk
IX	o-xylene	**Inhalation:** Inhalation of vapors may be irritating to the nose and throat. Inhalation of high concentrations may result in nausea, vomiting, headache, ringing in the ears, and severe breathing difficulties which may be delayed in onset. Substernal pain, cough, and hoarseness are also reported. High vapor concentrations are anesthetic and central nervous system depressants. **Ingestion:** Ingestion causes burning sensation in mouth and stomach, nausea, vomiting and salivation. Minute amounts aspirated into the lungs can produce a severe hemorrhagic pneumonitis with severe pulmonary injury or death. **Skin Contact:** Skin contact results in loss of natural oils and often results in a characteristic dermatitis. May be absorbed through the skin. **Eye Contact:** Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage. **Chronic Exposure:** Chronic inhalation can cause headache, loss of appetite, nervousness and pale skin. Repeated or prolonged skin contact may cause a skin rash. Repeated exposure of the eyes to high concentrations of vapor may cause reversible eye damage. Repeated exposure can damage bone marrow, causing low blood cell count. May damage the liver and kidneys. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney, blood, or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 32C (90F) CC Autoignition temperature: ca. 463C (ca. 865F) Flammable limits in air % by volume: lel: 1.0; uel: 7.0 Flammable. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Contact with strong oxidizers may cause fire. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)

Source	Parameter	Health	Safety	Risk
IX	m+p xylene	**Inhalation:** Inhalation of vapors may be irritating to the nose and throat. Inhalation of high concentrations may result in nausea, vomiting, headache, ringing in the ears, and severe breathing difficulties which may be delayed in onset. Substernal pain, cough, and hoarseness are also reported. High vapor concentrations are anesthetic and central nervous system depressants. **Ingestion:** Ingestion causes burning sensation in mouth and stomach, nausea, vomiting and salivation. Minute amounts aspirated into the lungs can produce a severe hemorrhagic pneumonitis with severe pulmonary injury or death. **Skin Contact:** Skin contact results in loss of natural oils and often results in a characteristic dermatitis. May be absorbed through the skin. **Eye Contact:** Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage. **Chronic Exposure:** Chronic inhalation can cause headache, loss of appetite, nervousness and pale skin. Repeated or prolonged skin contact may cause a skin rash. Repeated exposure of the eyes to high concentrations of vapor may cause reversible eye damage. Repeated exposure can damage bone marrow, causing low blood cell count. May damage the liver and kidneys. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney, blood, or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 27.2C (81F) CC Autoignition temperature: ca. 528C (ca. 982F) Flammable limits in air % by volume: lel: 1.1; uel: 7.0 Flammable. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Contact with strong oxidizers may cause fire. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)
COC	ethyl acetate	**Inhalation:** Inhalation can cause severe irritation of mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. High concentrations may cause lung damage. An irritant to the nose, throat, and upper respiratory tract. Exposure to high concentrations have a narcotic effect and may cause liver and kidney damage. **Ingestion:** Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. **Skin Contact:** Causes irritation to skin. Symptoms include redness, itching, and pain. Repeated or prolonged contact with the skin has a defatting effect and may cause dryness, cracking, and possibly dermatitis. **Eye Contact:** Causes irritation, redness, and pain. **Chronic Exposure:** Chronic overexposure may cause anemia with leukocytosis (transient increase in the white blood cell count) and damage to the liver and kidneys. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: -4C (25F) CC Autoignition temperature: 426C (799F) Flammable limits in air % by volume: lel: 2.0; uel: 11.5 Flammable Liquid and Vapor! Contact with strong oxidizers may cause fire. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. Sensitive to static discharge. **Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
IX	acetone	**Inhalation:** Inhalation of vapors irritates the respiratory tract. May cause coughing, dizziness, dullness, and headache. Higher concentrations can produce central nervous system depression, narcosis, and unconsciousness. **Ingestion:** Swallowing small amounts is not likely to produce harmful effects. Ingestion of larger amounts may produce abdominal pain, nausea and vomiting. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms are expected to parallel inhalation. **Skin Contact:** Irritating due to defatting action on skin. Causes redness, pain, drying and cracking of the skin. **Eye Contact:** Vapors are irritating to the eyes. Splashes may cause severe irritation, with stinging, tearing, redness and pain. **Chronic Exposure:** Prolonged or repeated skin contact may produce severe irritation or dermatitis. **Aggravation of Pre-existing Conditions:** Use of alcoholic beverages enhances toxic effects. Exposure may increase the toxic potential of chlorinated hydrocarbons, such as chloroform, trichloroethane.	**Fire:** Flash point: -20C (-4F) CC Autoignition temperature: 465C (869F) Flammable limits in air % by volume: lel: 2.5; uel: 12.8 Extremely Flammable Liquid and Vapor! Vapor may cause flash fire. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. This material may produce a floating fire hazard. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.	See Baseline Risk Assessment (Arcadis, 1998)
VIII, IX	acetonitrile	**Inhalation:** Effects of overexposure are often delayed, possibly due to the slow formation of cyanide anions in the body. These cyanide anions prevent the body from using oxygen and can lead to internal asphyxiation. Early symptoms may include nose and throat irritation, flushing of the face, and chest tightness. Higher concentrations may produce headache, nausea, vomiting, respiratory depression, weakness, blood changes, thyroid changes, irregular heart beat, abdominal pain, convulsions, shock, unconsciousness and death, depending on concentration and time of exposure. This highly toxic material has insufficient warning properties to prevent personnel from working in contaminated atmospheres. **Ingestion:** Gastric irritation may occur. Other symptoms parallel those from inhalation exposure. **Skin Contact:** May cause irritation. May be absorbed through skin with health effects to parallel those of inhalation. **Eye Contact:** Splashes may cause eye irritation with redness and pain. **Chronic Exposure:** Long term exposures may affect liver, kidneys, and central nervous system. **Aggravation of Pre-existing Conditions:** Workers using cyanide should have preplacement and periodic medical exams. Those with history of central nervous system, heart or lung diseases, or liver, kidney, or thyroid problems may be more susceptible to the effects of this substance.	**Fire:** Flash point: 2C (36F) CC Autoignition temperature: 524C (975F) Flammable limits in air % by volume: lel: 4.4; uel: 16.0 Flammable Liquid and Vapor! Contact with strong oxidizers may cause fire. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sealed containers may rupture when heated. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. May emit toxic and flammable fumes of cyanide if involved in a fire.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	acrylonitrile	**INHALATION:** Dizziness. Headache. Nausea. Vomiting. Weakness. Tremor and uncoordinated movements. Closed system and ventilation. Fresh air, rest. Refer for medical attention. **SKIN :** MAY BE ABSORBED! Redness. Pain. Blisters (Further see Inhalation). Protective gloves. Protective clothing. First rinse with plenty of water, then remove contaminated clothes and rinse again. Refer for medical attention. **EYES :** Redness. Pain. Blurred vision. Safety goggles or eye protection in combination with breathing protection. First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. **INGESTION:** Abdominal pain. Headache. Nausea. Shortness of breath. Vomiting. Weakness (further see Inhalation). Do not eat, drink, or smoke during work. Rinse mouth. Give a slurry of activated charcoal in water to drink. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.	**FIRE;** Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire. NO open flames, NO sparks, and NO smoking. NO contact with strong oxidants, strong bases. Powder, alcohol-resistant foam, water spray, carbon dioxide. **EXPLOSION:** Vapour/air mixtures are explosive. Risk of fire and explosion upon polymerization on contact with strong bases and strong oxidants. Closed system, ventilation, explosion-proof electrical equipment and lighting. In case of fire: keep drums, etc., cool by spraying with water.	See Baseline Risk Assessment (Arcadis, 1998)
VIII, IX	chloroform	**Inhalation:** Acts as a relatively potent anesthetic. Irritates respiratory tract and causes central nervous system effects, including headache, drowsiness, dizziness. Exposure to higher concentrations may result in unconsciousness and even death. May cause liver injury and blood disorders. Prolonged exposure may lead to death due to irregular heart beat and kidney and liver disorders. **Ingestion:** Causes severe burning in mouth and throat, pain in the chest and vomiting. Large quantities may cause symptoms similar to inhalation. **Skin Contact:** Causes skin irritation resulting in redness and pain. Removes natural oils. May be absorbed through skin. **Eye Contact:** Vapors causes pain and irritation to eyes. Splashes may cause severe irritation and possible eye damage. **Chronic Exposure:** Prolonged or repeated exposure to vapors may cause damage to the nervous system, the heart and the liver and kidneys. Contact with liquid has defatting effect and may cause chronic irritation of skin with cracking and drying, and corresponding dermatitis. Chloroform is a suspected human carcinogen. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Slight fire hazard when exposed to high heat; otherwise, practically not flammable. **Explosion:** Sealed containers may rupture when heated. **Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
IX	1,2-dichloroethane	**Inhalation:** Inhalation of vapors irritates the respiratory tract. May cause headache, weakness, cyanosis, nausea, vomiting, and diarrhea. These symptoms may be followed by central nervous system effects, liver damage, kidney damage, adrenal gland damage, cyanosis, weak and rapid pulse and unconsciousness. Death can occur from respiratory and circulatory failure. **Ingestion:** Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. Toxic effects parallel those of inhalation. Doses of 0.5 - 1.0 g/kg can be fatal. **Skin Contact:** Causes irritation, rash and blister formation. Prolonged contact can cause skin burns. Can be absorbed through skin with toxic effects. **Eye Contact:** Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage. **Chronic Exposure:** Repeated or prolonged exposure may cause weight loss, low blood pressure, jaundice, reduced urinary output, dermatitis, eye damage and anemia. Dichloroethane is a suspected human carcinogen based on animal data. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney, cardiovascular, neurological or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 13C (55F) CC Autoignition temperature: 413C (775F) Flammable limits in air % by volume: lel: 6.2; uel: 15.9 Flammable. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. Contact with strong oxidizers may cause fire. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Combustion by-products include phosgene and hydrogen chloride gases.	See Baseline Risk Assessment (Arcadis, 1998)
COC	cumene	**Inhalation:** Vapors or mist irritates the mucous membranes and upper respiratory tract. Affects the central nervous system; symptoms may include dizziness, drowsiness, slight incoordination and unconsciousness. **Ingestion:** Swallowing can cause symptoms of sore throat, coughing, abdominal pain, and vomiting. Central nervous system effects may occur; see inhalation. Swallowing may cause droplets to enter the lungs (aspiration) with the risk of pneumonia. Aspiration can be fatal. **Skin Contact:** May cause skin irritation with redness. Skin absorption can occur; absorption through the skin proceeds slowly. **Eye Contact:** Vapor or mist irritates the eyes. **Chronic Exposure:** Prolonged or repeated exposure may cause skin rash. Damage to the lungs, liver, and kidneys may occur. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance. The use of alcoholic beverages enhances the toxic effects.	**Fire:** Flash point: 36C (97F) CC Autoignition temperature: 424C (795F) Flammable limits in air % by volume: lel: 0.9; uel: 6.5 Flammable Liquid and Vapor! **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Closed containers exposed to heat may explode. Sensitive to static discharge. **Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective. Use water spray to cool fire-exposed containers, to dilute liquid, and control vapor. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	cyclohexane	**Inhalation:** Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. High concentrations have a narcotic effect. **Ingestion:** May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation. **Skin Contact:** Causes irritation to skin. Symptoms include redness, itching, and pain. **Eye Contact:** Causes irritation, redness, and pain. **Chronic Exposure:** Chronic exposure may cause skin effects. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: -18C (0F) CC Autoignition temperature: 245C (473F) Flammable limits in air % by volume: lel: 1.3; uel: 8.0 Extremely Flammable. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sealed containers may rupture when heated. Contact with strong oxidizers may cause fire. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. This highly flammable liquid must be kept from sparks, open flame, hot surfaces, and all sources of heat and ignition.	See Baseline Risk Assessment (Arcadis, 1998)
IX	ethylbenzene	**INHALATION:** Cough. Dizziness. Drowsiness. Headache. Ventilation, local exhaust, or breathing protection. Fresh air, rest. Refer for medical attention. **SKIN:** Dry skin. Redness. Protective gloves. Remove contaminated clothes. Rinse and then wash skin with water and soap. **EYES:** Redness. Pain. Blurred vision. Face shield or eye protection in combination with breathing protection. First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. **INGESTION:** (further see Inhalation). Do not eat, drink, or smoke during work. Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention.	**FIRE:** Highly flammable. NO open flames, NO sparks, and NO smoking. Powder, AFFF, foam, carbon dioxide. **EXPLOSION:** Vapor / air mixtures are explosive. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. In case of fire: keep drums, etc., cool by spraying with water.	See Baseline Risk Assessment (Arcadis, 1998)

Source	Parameter	Health	Safety	Risk
VIII, IX	naphthalene	**Inhalation:** Inhalation of dust or vapors can cause headache, nausea, vomiting, extensive sweating, and disorientation. The predominant reaction is delayed intravascular hemolysis with symptoms of anemia, fever, jaundice, and kidney or liver damage. **Ingestion:** Toxic. Can cause headache, profuse perspiration, listlessness, dark urine, nausea, vomiting and disorientation. Intravascular hemolysis may also occur with symptoms similar to those noted for inhalation. Severe cases may produce coma with or without convulsions. Death may result from renal failure. **Skin Contact:** Can irritate the skin and, on prolonged contact, may cause rashes and allergy. "Sensitized" individuals may suffer a severe dermatitis. **Eye Contact:** Vapors and solid causes irritation, redness and pain. Very high exposures can damage the nerves of the eye. **Chronic Exposure:** Has led to cataract formation in eyes. May cause skin allergy. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin, blood or vascular disorders or impaired respiratory function may be more susceptible to the effects of the substance. Particularly susceptible individuals are found in the general population, most commonly in dark skinned races.	**Fire:** Flash point: 87C (189F) CC Autoignition temperature: 526C (979F) Combustible. May be ignited by heat, sparks or flame. May burn rapidly with flare-burning effect. Fire may produce irritating or poisonous gases. **Explosion:** Explosive limits, volume % in air: lel: 0.9; uel: 5.9. Above flashpoint, vapor-air mixtures are explosive within flammable limits noted above. Closed containers exposed to heat may explode. Contact with strong oxidizers may cause fire or explosion. **Fire Extinguishing Media:** Dry chemical, foam, water or carbon dioxide. Foam or direct water spray on molten naphthalene may cause extensive foaming. Molten napthalene spatters in contact with water; apply water from as far a distance as possible. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)
COC	ethyl ether	**Inhalation:** Irritant. General anesthesia by inhalation can occur. Continued exposure may lead to respiratory failure or death. Early symptoms include irritation of nose and throat, vomiting, and irregular respiration, followed by dizziness, drowsiness, and unconsciousness. **Ingestion:** Irritating to the mucous membranes. Ingestion of 1 or 2 ounces may be fatal. Because of volatility the stomach becomes distended, which may cause belching. Other symptoms can include vomiting, unconsciousness, and coma. **Skin Contact:** Irritating to the skin and mucous membranes by drying effect. Can cause dermatitis on prolonged exposure. May be absorbed through skin. **Eye Contact:** May cause irritation, redness and pain. Prolonged exposures to high concentrations of vapor can cause eye damage. **Chronic Exposure:** Repeated exposures may be habit forming. Prolonged exposures may result in headache, drowsiness, excitation, and psychic disturbances. Teratogenic effects are possible. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired liver, kidney or respiratory function may be more susceptible to the effects of this substance. Alcoholic beverage consumption can enhance the toxic effects of this substance.	**Fire:** Flash point: -45C (-49F) CC Autoignition temperature: 160C (320F) Flammable limits in air % by volume: lel: 1.9; uel: 36.0 Dangerous highly flammable liquid. **Explosion:** Containers may explode when involved in a fire. Above flash point, vapor-air mixtures are explosive within flammable limits noted above. May form explosive peroxides on long standing or after exposure to air or light. May explode when brought in contact with nitric acid. Sensitivity to mechanical impact: Yes, if peroxides are formed. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Treat as a flammable gas in a fire situation. Water spray may be used to keep fire exposed containers cool. Water is ineffective as an extinguishing agent. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. This highly flammable liquid must be kept from sparks, open flame, hot surfaces, and all sources of heat and ignition. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	tetrachloroethylene	**Inhalation:** Irritating to the upper respiratory tract. Giddiness, headache, intoxication, nausea and vomiting may follow the inhalation of large amounts while massive amounts can cause breathing arrest, liver and kidney damage, and death. Concentrations of 600 ppm and more can affect the central nervous system after a few minutes. **Ingestion:** Not highly toxic by this route because of low water solubility. Used as an oral dosage for hookworm (1 to 4 ml). Causes abdominal pain, nausea, diarrhea, headache, and dizziness. **Skin Contact:** Causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin with possible systemic effects. **Eye Contact:** Causes irritation, redness, and pain. **Chronic Exposure:** May cause liver, kidney or central nervous system damage after repeated or prolonged exposures. Suspected cancer risk from animal studies. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance. The use of alcoholic beverages enhances the toxic effects.	**Fire:** Not considered to be a fire hazard but becomes hazardous in a fire situation because of vapor generation and possible degradation to phosgene (highly toxic) and hydrogen chloride (corrosive). Vapors are heavier than air and collect in low-lying areas. **Explosion:** Not considered to be an explosion hazard. Containers may explode when involved in a fire. **Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.	See Baseline Risk Assessment (Arcadis, 1998)
IX	1,1,1-trichloroethane	**INHALATION:** Ataxia. Dizziness. Drowsiness. Headache. Nausea. Unconsciousness. Ventilation, local exhaust, or breathing protection. Fresh air, rest. Artificial respiration if indicated. Refer for medical attention. **SKIN:** Dry skin. Redness. Protective gloves. Remove contaminated clothes. Rinse and then wash skin with water and soap. **EYES:** Redness. Safety goggles, or eye protection in combination with breathing protection. First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. **INGESTION:** Diarrhoea. Nausea. Vomiting (further see Inhalation). Do not eat, drink, or smoke during work. Rinse mouth. Give a slurry of activated charcoal in water to drink. Do NOT induce vomiting. Refer for medical attention.	**FIRE:** Combustible under specific conditions. Heating will cause rise in pressure with risk of bursting. See Notes. Gives off irritating or toxic fumes (or gases) in a fire. In case of fire in the surroundings: all extinguishing agents allowed. **EXPLOSION:** In case of fire: keep drums, etc., cool by spraying with water.	See Baseline Risk Assessment (Arcadis, 1998)
VIII, IX	1,1,2-trichloroethane	**EXPOSURE:** PREVENT GENERATION OF MISTS! **INHALATION:** Dizziness. Drowsiness. Headache. Nausea. Shortness of breath. Unconsciousness. Ventilation, local exhaust, or breathing protection. Fresh air, rest. Refer for medical attention. **SKIN:** MAY BE ABSORBED! Dry skin. Protective gloves. Protective clothing. Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention. **EYES:** Safety spectacles, or face shield. First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. **INGESTION:** (Further see Inhalation). Do not eat, drink, or smoke during work. Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.	**FIRE:** Combustible under specific conditions. Heating will cause rise in pressure with risk of bursting. NO open flames. NO contact with hot surfaces. Powder, water spray, foam, carbon dioxide. In case of fire: cool drums, etc., by spraying with water but avoid contact of the substance with water.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	O – cresol	**Eye:** Contact with eyes may cause severe irritation, and possible eye burns. May cause conjunctivitis and keratitis. **Skin:** May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Causes severe skin irritation and burns. **Ingestion:** Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause hemorrhaging of the digestive tract. Cresols may cause abnormalities of the central nervous system, respiratory system, spleen, and **Inhalation:** Causes respiratory tract irritation. May cause breathing difficulty, headache, nausea, muscle weakness, and possible respiratory tract abnormalities. **Chronic:** May cause liver and kidney damage. May cause appetite loss, diarrhea, skin abnormalities, and digestive tract disturbances.	**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. **Extinguishing Media:** Use water spray, dry chemical, or foam. **Auto-ignition Temperature:** 1038 deg F (558.89 deg C) **Flash Point:** 187 deg F (86.11 deg C) **Explosion Limits, lower:** Not available. **Explosion Limits, upper:** Not available.	See Baseline Risk Assessment (Arcadis, 1998)
VIII, IX	M & P – cresol	**Inhalation:** Breathing vapor, dust or mist results in digestive disturbances (vomiting, difficulty in swallowing, diarrhea, loss of appetite). Will irritate, possibly burn respiratory tract. Other symptoms listed under ingestion may also occur. **Ingestion:** Poison. Symptoms may include burning pain in mouth and throat, abdominal pain, headache, dizziness, muscular weakness, irregular breathing, weak pulse, lung damage, liver damage, pancreas damage, kidney damage, coma, and possibly death from circulatory or cardiac failure. **Skin Contact:** Corrosive. Causes severe pain followed by numbness. May be absorbed through the skin with systemic poisoning effects to follow. Discoloration and severe burns may occur. **Eye Contact:** Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage. **Chronic Exposure:** Repeated exposure may cause symptoms described for acute poisoning as well as liver damage. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 86C (187F) CC **Autoignition temperature:** 559C (1038F) **Flammable limits in air % by volume:** **LEL:** 1.1 Combustible Liquid and Vapor! Contact with strong oxidizers may cause fire. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. **Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.	See Baseline Risk Assessment (Arcadis, 1998)
COC	analine	**Route Of Entry** Inhalation: YES Skin: YES Ingestion: YES Carcinogenicity NTP: NO **Effects of Exposure:** ACUTE EFFECTS: MAY BE HARMFUL BY INHALATION, INGESTION OR SKIN ABSORPTION. MAY CAUSE IRRITATION. THE TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.	**Extinguishing Media:** WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM. **Fire Fighting Procedures:** USE NIOSH APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N) TO PREVENT CONTACT WITH SKIN AND EYES. **Unusual Fire/Explosion Hazard:** EMITS TOXIC FUMES UNDER FIRE CONDITIONS.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII	creosote	LD50 LC50 Mixture: LD50 (ORAL RAT) IS 1,700 MG/KG **Route Of Entry** Inhalation: YES Skin: YES Ingestion: NO Carcinogenicity - NTP: YES **Effects of Exposure:** ACUTE: MODERATE EYE IRRITATION. SEVERE SKIN IRRITATION. PHOTOTOXIC REACTION. THERMAL BURNS. RESPIRATORY TRACT IRRITATION. GASTROINTESTINAL DISTURBANCES. CHRONIC: RESPIRATORY DIFFICULTIES, CENTRAL NERV OUS SYSTEM EFFECTS, CIRCULATORY COLLAPSE, COMA, DEATH. MAY CAUSE CANCER. **Explanation Of Carcinogenicity:** BENZENE IS LISTED BY NTP, IARC AND OSHA. CREOSOTE IS LISTED BY IARC. **Signs And Symptoms Of Overexposure:** EYES: MODERATE IRRITATION. SKIN: SEVERE IRRITATION, SKIN REACTION, BURNS. INHALATION: RESPIRATORY IRRITATION, RESPIRATORY DIFFICULTIES, HEADACHE, DROWSINESS, DIZZINESS, WEAKNESS, INCOORDINATION, COMA, DEATH. INGESTION: IRRITATION, NAUSEA, VOMITING, ABDOMINAL PAIN. **Medical Cond Aggravated By Exposure:** PERSONS WITH PRE-EXISTING DISEASE IN OR A HISTORY OF AILMENTS INVOLVING THE SKIN OR BLOOD-FORMING ORGANS MAY BE AT A GREATER RISK OF DEVELOPING ADVERSE HEALTH EFFECTS WHEN EXPOSED TO THIS MATERIAL.	**Flash Point Text:** >200F,>93C **Lower Limits:** UNKNOWN **Upper Limits:** UNKNOWN **Extinguishing Media:** USE WATER FOG, CARBON DIOXIDE, FOAM, OR DRY CHEMICAL. WATER OR FOAM MAY CAUSE FROTHING, IF MOLTEN. **Fire Fighting Procedures:** WEAR COMPLETE FIRE SERVICE PROTECTIVE EQUIPMENT,INCLUDING FULL-FACE MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS.USE WATER TO COOL CONTAINERS BY FIRE. **Unusual Fire/Explosion Hazard:** TOXIC VAPORS/DECOMPOSITION PRODUCTS MAY BE RELEASED FORMING FLAMMABLE/EXPLOSIVE MIXTURES IN AIR. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	phenol	The major hazard of phenol is its ability to penetrate the skin rapidly, particularly when liquid, causing severe injury which can be fatal. Phenol also has a strong corrosive effect on body tissue causing severe chemical burns. Due to its local anesthetizing properties, skin burns may be painless. **Inhalation:** Breathing vapor, dust or mist results in digestive disturbances (vomiting, difficulty in swallowing, diarrhea, loss of appetite). Will irritate, possibly burn respiratory tract. Other symptoms listed under ingestion may also occur. **Ingestion:** Poison. Symptoms may include burning pain in mouth and throat, abdominal pain, nausea, vomiting, headache, dizziness, muscular weakness, central nervous system effects, increase in heart rate, irregular breathing, coma, and possibly death. Acute exposure is also associated with kidney and liver damage. Ingestion of 1 gram has been lethal to humans. **Skin Contact:** Corrosive. Rapidly absorbed through the skin with systemic poisoning effects to follow. Discoloration and severe burns may occur, but may be disguised by a loss in pain sensation. **Eye Contact:** Corrosive. Eye burns with redness, pain, blurred vision may occur. May cause severe damage and blindness. **Chronic Exposure:** Repeated exposure may cause symptoms described for acute poisoning as well as eye and skin discoloration. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin, eye or central nervous system disorders, or impaired liver, kidney, or pulmonary function may be more susceptible to the effects of this substance.	**Fire:** Flash point: 79C (174F) CC Autoignition temperature: 715C (1319F) Flammable limits in air % by volume: lel: 1.3; uel: 8.6 Combustible. Contact with strong oxidizers may cause fire. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. **Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving this material. Stay away from sealed containers.	See Baseline Risk Assessment (Arcadis, 1998)
VIII, IX	picoline	**Eye:** Causes eye irritation. **Skin:** Causes skin irritation. Harmful if absorbed through the skin. **Ingestion:** May cause irritation of the digestive tract. May be harmful if swallowed. Intoxication may include weight loss, diarrhea, weakness, ataxia, and unconsciousness. **Inhalation:** Causes irritation of mucous membrane. Vapors may cause dizziness or suffocation. Exposure may give rise to flushing of face, skin rash, an increase in heart and respiration rates, headaches, giddiness, nausea, and vomiting. **Chronic:** No information found.	**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. **Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water. **Autoignition Temperature:** Not available. **Flash Point:** 40 deg C (104.00 deg F) **Explosion Limits,** lower:1.40 vol % **Explosion Limits,** upper:8.60 vol % **NFPA Rating:** (estimated) Health: 2; Flammability: 2; Reactivity: 0	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
COC	Furfural	**Inhalation:** Causes irritation to the mucous membranes and upper respiratory tract. Symptoms may include sore throat, labored breathing, and headache. Higher concentrations act on the central nervous system and may cause lung congestion. Inhalation may be fatal. **Ingestion:** Highly toxic. May cause gastrointestinal disorders. Can cause nerve depression and severe headache. May be fatal. Other effects are not well known. **Skin Contact:** Irritant to skin. May cause dermatitis and possibly eczema, allergic sensitization and photosensitization. May be absorbed through the skin with possible systemic effects. **Eye Contact:** Vapors irritate the eyes, causing tearing, itching, and redness. Splashes may cause severe irritation or eye damage. **Chronic Exposure:** Can cause numbness of the tongue, loss of sense of taste, headache. Other effects are not well-known. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 60C (140F) CC Autoignition temperature: 316C (601F) Flammable limits in air % by volume: lel: 2.1; uel: 19.3 Flammable Liquid and Vapor! **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Reacts violently with oxidants. Reacts violently with strong acids and bases causing fire and explosion hazards. Sealed containers may rupture when heated. Sensitive to static discharge. **Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.	See Baseline Risk Assessment (Arcadis, 1998)
COC	methanol	**Inhalation:** A slight irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better but then worse again up to 30 hours later. **Ingestion:** Toxic. Symptoms parallel inhalation. Can intoxicate and cause blindness. Usual fatal dose: 100-125 milliliters. **Skin Contact:** Methyl alcohol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur; symptoms may parallel inhalation exposure. **Eye Contact:** Irritant. Continued exposure may cause eye lesions. **Chronic Exposure:** Marked impairment of vision has been reported. Repeated or prolonged exposure may cause skin irritation. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 12C (54F) CC Autoignition temperature: 464C (867F) Flammable limits in air % by volume: lel: 6.0; uel: 36 Flammable Liquid and Vapor! **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Moderate explosion hazard and dangerous fire hazard when exposed to heat, sparks or flames. Sensitive to static discharge. **Fire Extinguishing Media:** Use alcohol foam, dry chemical or carbon dioxide. (Water may be ineffective.) **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	isobutyl alcohol	**Inhalation:** Causes irritation to respiratory tract. Effects from overexposure include headache, dizziness, muscle weakness, drowsiness, incoordination, confusion, and coma. High concentrations can cause central nervous system damage, pulmonary edema, and liver damage. Death may occur from respiratory failure. **Ingestion:** Ingestion may cause nausea, vomiting, and diarrhea. Large doses may cause central nervous system damage, pulmonary edema, and liver damage. Death may occur from respiratory failure. **Skin Contact:** Skin contact causes irritation, redness, and pain. May be absorbed through the skin; symptoms of absorption may be similar to those from ingestion exposure. **Eye Contact:** Vapors cause irritation, redness, and blurred vision. Splashes may cause severe irritation or eye damage. **Chronic Exposure:** Prolonged or repeated skin exposure may cause dermatitis. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 28C (82F) CC Autoignition temperature: 415C (779F) Flammable limits in air % by volume: lel: 1.7; uel: 10.6 Flammable Liquid and Vapor! **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode in heat or fire. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Do not use a solid stream of water, since the stream will scatter and spread the fire. Water spray may be used to keep fire exposed containers cool. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.	See Baseline Risk Assessment (Arcadis, 1998)
COC	n-butyl alcohol	**Inhalation:** Butyl alcohols have produced few cases of poisoning in industry because of their low volatility. Causes irritation to upper respiratory tract. Difficult breathing, coughing, headache, dizziness, and drowsiness may occur. May be absorbed into the bloodstream with symptoms similar to ingestion. **Ingestion:** May have narcotic effect. May cause abdominal pain, nausea, headache, dizziness, and diarrhea. Large doses may affect kidneys and liver. May affect hearing. Estimated mean lethal dose is 3 - 7 ounces. **Skin Contact:** An irritant to the skin, causing a loss of natural oils. Can be absorbed through skin with symptoms paralleling those from ingestion. **Eye Contact:** Vapors can be irritating, causing tearing and pain. Splashes cause inflammation and blurred vision. **Chronic Exposure:** Prolonged skin contact may cause drying and cracking of skin. Hearing loss has been reported in workers chronically exposed to butyl alcohol. May affect sense of balance, liver and kidneys. **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.	**Fire:** Flash point: 37C (99F) CC Autoignition temperature: 343C (649F) Flammable limits in air % by volume: lel: 1.4; uel: 11.2 Flammable. Dangerous fire hazard when exposed to heat or flame. **Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge. **Fire Extinguishing Media:** Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
VIII, IX	2,4-D	**EXPOSURE:** PREVENT DISPERSION OF DUST! STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN! **INHALATION:** Headache. Nausea. Weakness. Local exhaust or breathing protection. Fresh air, rest. Refer for medical attention. **SKIN:** Redness. Protective gloves. Protective clothing. Remove contaminated clothes. Rinse and then wash skin with water and soap. **EYES:** Redness. Safety goggles or eye protection in combination with breathing protection. First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. **INGESTION:** Abdominal pain. Burning sensation. Diarrhea. Headache. Nausea. Unconsciousness. Vomiting. Weakness. Do not eat, drink, or smoke during work. Wash hands before eating. Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention.	**FIRE** Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire. NO contact with oxidants. In case of fire in the surroundings: all extinguishing agents allowed. **EXPLOSION** Risk of fire and explosion if formulations contain flammable/explosive solvents.	See Baseline Risk Assessment (Arcadis, 1998)
COC	Total Petroleum Hydrocarbons (TPH)	**LD50 LC50 Mixture:** NONE SPECIFIED BY MANUFACTURER. **Route Of Entry** Inhalation: YES Skin: YES Ingestion: YES Carcinogenicity - NTP: NO **Effects of Exposure:** PRIMARY IRRITANT. IRRITATES & DEFATS THE SKIN. BURNS & IRRITATES THE EYES. MAY CAUSE COUGH, UPPER AIR WAY IRRITATION. **Signs And Symptoms Of Overexposure:** IRRITATION & BURNING & REDNESS IN EYES. IRRITATION & DEFATS THE SKIN. COUGH & CHEST PAIN. **Medical Condition Aggravated By Exposure:** DERMATITIS, BRONCHITIS.	**Flash Point Text:** NOT IGNITABLE **Extinguishing Media:** MEDIA SUITABLE FOR SURROUNDING FIRE (FP N). **Fire Fighting Procedures:** USE NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N). **Unusual Fire/Explosion Hazard:** NONE.	See Baseline Risk Assessment (Arcadis, 1998)

APPENDIX II - WASTES MANAGED
HW-50054 Permit Renewal Application
Part B, Section IX

Source	Parameter	Health	Safety	Risk
COC	Lead (total)	**Inhalation:** Lead can be absorbed through the respiratory system. Local irritation of bronchia and lungs can occur and, in cases of acute exposure, symptoms such as metallic taste, chest and abdominal pain, and increased lead blood levels may follow. See also Ingestion. **Ingestion:** POISON! The symptoms of lead poisoning include abdominal pain and spasms, nausea, vomiting, headache. Acute poisoning can lead to muscle weakness, "lead line" on the gums, metallic taste, definite loss of appetite, insomnia, dizziness, high lead levels in blood and urine with shock, coma and death in extreme cases. **Skin Contact:** Lead and lead compounds may be absorbed through the skin on prolonged exposure; the symptoms of lead poisoning described for ingestion exposure may occur. Contact over short periods may cause local irritation, redness and pain. **Eye Contact:** Absorption can occur through eye tissues but the more common hazards are local irritation or abrasion. **Chronic Exposure:** Lead is a cumulative poison and exposure even to small amounts can raise the body's content to toxic levels. The symptoms of chronic exposure are like those of ingestion poisoning; restlessness, irritability, visual disturbances, hypertension and gray facial color may also be noted. **Aggravation of Pre-existing Conditions:** Persons with pre-existing kidney, nerve or circulatory disorders or with skin or eye problems may be more susceptible to the effects of this substance.	**Fire:** Not considered to be a fire hazard. Powder/dust is flammable when heated or exposed to flame. **Explosion:** Not considered to be an explosion hazard. **Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. Do not allow water runoff to enter sewers or waterways. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Can produce toxic lead fumes at elevated temperatures and demand or other positive pressure	e.□See Baseline Risk Assessment (Arcadis,

Chemicals of concern that have been stored at the Kinder Morgan Liquid Terminals, LLC facility in Galena Park, Texas are listed in Appendix II of Section IX of this permit application to renew permit number HW-50054. Currently permitted treatment standards for disposal within the former NHB/CAMU (NOR 004) can be found in Table 1 of the CAMU Management Plan (Malcolm Pirnie, Inc., 1998) (See **Attachment N**). Chemical concentrations in waste or affected soils must be reduced to these concentrations in order to meet current CAMU permitting requirements. Section 3.3 of the Engineering Report (See **Attachment J**) provides additional treatment standards. The current treatment standard for TPH is <1,000 mg/kg. The combined treatment standard for leachable benzene, touluene, ethylbenzene, and xylenes (BTEX)) in <100 mg/L. The treatment standard for leachable benzene is <0.5 mg/L. A treatment standard for lead concentrations in soil placed in the CAMU had not been developed at the time the CAMU Management Plan was written. Based on permit conditions, characteristic hazardous waste that exceeds lead levels of 5 mg/L, as per the toxicity characteristic leaching potential (TCLP) test, is authorized for disposal in the CAMU. A treatment standard of 1.5 mg/L, as measured by the Synthetic Precipitation Leaching Procedure (SPLP) was selected by the facility as the treatment standard for lead disposal in the CAMU.

This application proposes to amend these treatment standards to reflect current risk-based standards in the Texas Risk Reduction Program (TRRP). The proposed treatment standards are provided in Revised Tables 2 and 3 in the Addendum to the Engineering Report (**Attachment J**). These standards represent values that are protective of human health and the environment using TRRP, Universal Treatment Standards (UTS), Risk Reduction Standards (RRS) for groundwater protection calculated using equilibrium partition theore or equations in Risk Reduction Standards (30 TAC 335.559).

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

30573 GALENA PARK TERMINAL

Solid Waste Registration Number: 30573 **EPA Id:** TXD026481523

Company Name: KM Liquids Terminals LLC
Site Name: GALENA PARK TERMINAL
Site Location: 906 CLINTON DR TERMINAL A GALENA PARK TX
Primary Contact: EADY, SCOTT
Mailing Address: 300 BELTWAY GREEN BLVD
PASADENA, TX 77503-1370

Region: 12
County: 101 HARRIS
Land Type: Private
Title: REGIONAL EHS MANAGER
Site Street Address: 906 CLINTON DR # A
GALENA PARK, TX 77547

Initial Registration Date: 05/18/1976
Last Amendment Date: 05/07/2024
Last Date NOR Computer update: 05/07/2024
Phone: 281-216-7451

Registration Status: Active
Registration Type: Generator
Generator Type: Industrial
Receiver Type:
Transporter Type:
Transport Wst Class:

Reporting Method: STEERS
Hazardous Waste Generation Status: Large Quantity Generator

Universal Waste Activity:
Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more):
Type(s) Managed:
Destination Facility for Universal Waste:

NAICS Code: 49319
Tax Identification #: 12604497227
Handler Status:

Operator Information

Name: KM Liquids Terminals LLC
Phone: 713-455-1231
Address: 906 CLINTON DR
GALENA PARK, TX 77547-3461

Owner Information:

Name: KM Liquids Terminals LLC
Phone: 713-455-1231
Address: 906 CLINTON DR
GALENA PARK, TX 77547-3461

Billing Contact:
Billing Address:
906 CLINTON DR
GALENA PARK, TX 77547-3461

Title:

Phone: 713-455-1231

Other Contact: Manager, Environmental
Mailing Address: 906 CLINTON DR
GALENA PARK, TX 77547-3461

Role: IHW: Owner Contact

Phone: 713-455-1231

As of 05/07/2024 - The next unassigned sequence number for WASTES is 6093 and
The next unassigned sequence number for UNITS is 031

30573 GALENA PARK TERMINAL

**** WASTE INFORMATION ****

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

****** Active Wastes ******

0001319H H Active 05/07/2024 On & Off No No

Description from Generator: Contaminated soil, sludge, protective clothing & rags, & fabric tank seals fromspills, tank cleanings, tank seal repair/replacement & remediation projects.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G49 Other remediation
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D002	D008	D016	D018	D023	D024	D025	D026	D028	D035	D039
U002	U012	U019	U031	U051	U052	U111	U112	U120	U125	U140
U154	U159	U161	U165	U210	U220	U239	U240			

Current Management Units:

Container storage area	001
Miscellaneous storage containers	023

0003101H H Active 05/07/2024 On & Off No No

Description from Generator: Recovered groundwater. Groundwater is pumped via recovery wells.
Texas Form Code: 101 Aqueous waste with low solvents
EPA Form Code: W101 Very dilute aqueous waste containing more than 99% water
Origin Code: 7 From a corrective action or closure
Source Code: G49 Other remediation
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D016	D022	D023	D024	D025	D028	D035	U002	U003
U009	U012	U019	U031	U051	U052	U055	U056	U077	U112	U120
U125	U140	U154	U159	U161	U165	U177	U188	U191	U210	U220
U226	U227	U240								

Current Management Units:

Tank	024

0013609H H Active 05/07/2024 On & Off No No

Description from Generator: Sludges; removal of sludge, sediments, or slag from tanks, piping and sumps
Texas Form Code: 609 Other organic sludges
EPA Form Code: W609 Other organic sludge
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D004	D008	D016	D018	D022	D023	D024	D025	D026
D028	D035	D039	D043	U002	U003	U009	U012	U019	U031	U043
U051	U052	U055	U056	U077	U120	U125	U140	U154	U159	U161
U165	U177	U188	U191	U210	U213	U220	U226	U227	U239	U240

Current Management Units:

Container storage area	001
Miscellaneous storage containers	023

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

0015119H H Active 05/07/2024 On-site No No

Description from Generator: Wastewater generated from pipelining flushings, tank cleaning, spills, water coming in contact with product, docks, tank car and tank truck racks, and groundwater. Wastewater is shipped to Gulf Coast Waste Disposal Authority (a POTW).
Texas Form Code: 119 Other inorganic liquids
EPA Form Code: W119 Other inorganic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G23 Wastewater treatment (sludge, filter cake, etc.)
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D002 D016 D018 D022 D023 D024 D025 D026 D028 D035 D039 D043
Current Management Units: Tank (surface) 013 012 030

00173021 1 Active 05/07/2024 On & Off No No

Description from Generator: Soil contaminated with organics, contaminated soil from remedial activities. Waste will be recycled off site into TxDOT Spec items. jds 11-18-99.
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00253011 1 Active 05/07/2024 On & Off No No

Description from Generator: Non-Hazardous soil contaminated with organics. Waste generated fromcorrective action at RCRA SWMU's.
Texas Form Code: 301 Soil contaminated with organics
Origin Code: 7 From a corrective action or closure
Current Management Units: Container storage area 001
Surface impoundment 004

00283892 2 Active 05/07/2024 On & Off No No

Description from Generator: Nonhazardous soil and Sand Blasting Waste. Per anotification from the generator, this waste will be recycled by being used to make TxDOT Spec Items 247 and 276.
Texas Form Code: 389 Nonhazardous sandblasting waste
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00293111 1 Active 05/07/2024 On & Off No No

Description from Generator: Asbestos, removal of tank and/or pipeline asbestos; 5/26/95
Texas Form Code: 311 Asbestos solids and debris
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

00313191 1 Active 05/07/2024 On & Off No No

Description from Generator: Non-hazardous tank/sump bottoms and debris from the cleaning of petroleum storage tanks and terminal operations.including spill clean up
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00363191 1 Active 05/07/2024 On & Off No No

Description from Generator: PLANT TRASH AND DEBRIS
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00374891 1 Active 05/07/2024 On & Off No No

Description from Generator: PLANT TRASH, PPE, ROCKS AND SOIL CONTAMINATED WITH PETROLEUM PRODUCTS FROMCLEAN UP ACTIVITIES
Texas Form Code: 489 Petroleum contaminated solids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

0039301H H Active 05/07/2024 On & Off No No

Description from Generator: contaminated soil from remedial activities in the West Plant.
Texas Form Code: 301 Soil contaminated with organics
EPA Form Code: W301 Contaminated Soil
Origin Code: 7 From a corrective action or closure
Source Code: G49 Other remediation
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D018 D028 U002 U019 U043 U120 U159 U165 U220 U226 U227 U239
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

****** Active Wastes ******

0042301H H Active 05/07/2024 On & Off No No

Description from Generator: Contaminated soils from remedial activities in the Central Plant.
Texas Form Code: 301 Soil contaminated with organics
EPA Form Code: W301 Contaminated Soil
Origin Code: 7 From a corrective action or closure
Source Code: G42 Corrective action at a solid waste management unit under RCRA
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D018 D023 D024 D025 D026 U052
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00463112 2 Active 05/07/2024 On & Off No No

Description from Generator: Nonfriable asbestos. Associated with the demolition or maintenance of equipment coated with or containing non-friable asbestos material.
Texas Form Code: 311 Asbestos solids and debris
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Miscellaneous storage containers 023

00503902 2 Active 05/07/2024 On & Off No No

Description from Generator: Nonhazardous concrete/cement/construction debris ie wood,plastic,rubber,styrofoam/weathered rail road ties; from demolition and construction activities
Texas Form Code: 390 Nonhazardous concrete/cement/construction debris
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00529992 2 Active 05/07/2024 On & Off No No

Description from Generator: Plant Trash non-contaminated which includes paper, cardboard, plastic, wrappings, wood, aluminum cans, and scrap metal.
Texas Form Code: 999 Class 2 plant trash
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Miscellaneous storage containers 023 028

0055119H H Active 05/07/2024 On & Off No No

Description from Generator: Tank bottoms such as rust,scale,sediments and sludge. Generated from the cleaning of storage tanks and lines.
Texas Form Code: 119 Other inorganic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D002 D018
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
****** Active Wastes ******						
00632191	1	Active	05/07/2024	On & Off	No	No

Description from Generator: Glycols containing up to 25% water.493
Texas Form Code: 219 Other organic liquids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): GLYCOL SOLUTION
Current Management Units: Miscellaneous storage containers 023

00641131 1 Active 05/07/2024 On & Off No No

Description from Generator: Non-Hazardous tank/sump bottoms and wash water generated from cleaning product storage tanks and/or sumps.
Texas Form Code: 113 Other aqueous waste with high dissolved solids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): TANK BOTTOMS WATER
Current Management Units: Container storage area 022

0065310H H Active 05/07/2024 On & Off No No

Description from Generator: Spent activated carbon from vapor scrubbing operations.
Texas Form Code: 310 Spent solid filters or adsorbents
EPA Form Code: W310 Filters, solid adsorbents, ion exchange resins and spent carbon
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): SPENT CARBON
EPA Hazardous Waste Numbers: D018 U019
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

00673191 1 Active 05/07/2024 On & Off No No

Description from Generator: Soil Contaminated with Fire Fighting Foam.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Company's Internal Code(s): FIRE FOAM SOIL
Current Management Units: Container storage area 001

00682191 1 Active 05/07/2024 On & Off No No

Description from Generator: Old or expired Fire Foam
Texas Form Code: 219 Other organic liquids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): OLD FIRE FOAM
Current Management Units: Container storage area 001

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
****** Active Wastes ******						
05042971	1	Active	05/07/2024	On & Off	No	No

Description from Generator: Electrical Transformers/Rectifiers being Decommissioned which contained >50 ppm-<500 ppm PCB's
Texas Form Code: 297 Nonhazardous liquids with >= 50 ppm and < 500 ppm PCBs
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Company's Internal Code(s): PCB OIL 50 PPM 500
Current Management Units: Miscellaneous storage containers 023

05085142 2 Active 05/07/2024 On & Off No No

Description from Generator: Spoils Generated by means of Hydroexcavation/drilling activities through out facility
Texas Form Code: 514 Drilling mud
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Company's Internal Code(s): DRILLING HYDROEX
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

05119022 2 Active 05/07/2024 Off-site No No

Description from Generator: debris generated during demolition projects.
Texas Form Code: 902 Class 2 supplemental plant production refuse
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): DEMOLITION DEBRIS
Current Management Units: None

60912101 1 Active 05/07/2024 On & Off No No

Description from Generator: waste generated from the removal of storage tank adhesives or epoxies liners
Texas Form Code: 210 Adhesives or epoxies
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): TANK LINER
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

6092609H H Active 05/07/2024 On & Off No No

Description from Generator: Tank bottoms from the cleaning of storage tanks and piping.
Texas Form Code: 609 Other organic sludges
EPA Form Code: W609 Other organic sludge
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): TANK BOTTOMS
EPA Hazardous Waste Numbers: D001 D018
Current Management Units: Container storage area 001
Miscellaneous storage containers 023

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

As of 05/07/2024, The next unassigned sequence number for WASTES is 6093

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

00024932 2 Inactive 05/07/2024 On-site No No

Description from Generator: Used as a catalyst in a stream generating process. Waste inactivated due to source reduction.
Texas Form Code: 493 Catalyst waste
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

0004319H H Inactive 05/07/2024 On & Off No No

Description from Generator: Storage tank poly foam insulation; 11/93; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D018 U019 U220 U239
Current Management Units: None

00054092 2 Inactive 05/07/2024 On & Off No No

Description from Generator: Contaminated soils generated from corrective action; 8/93 Waste inactivated due to source reduction.
Texas Form Code: 409 Other non-halogenated organic solids
Origin Code: 7 From a corrective action or closure
Current Management Units: None

0006205H H Inactive 05/07/2024 On & Off No No

Description from Generator: Separation of water and oil in wastewater tanks; Due to waste minimization,ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 205 Oil-water emulsion or mixture
EPA Form Code: W205 Oil-water emulsion or mixture
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G23 Wastewater treatment (sludge, filter cake, etc.)
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D002 D016 D018 D022 D023 D024 D025 D026 D028 D035 D039 D043
Current Management Units: None

0007206H H Inactive 05/07/2024 On & Off No No

Description from Generator: Waste oil and waste from separation of water and oil in wastewater tanks from pipeline flushings, tank washings, contaminated stormwater, compressor oil and mixed orgainic liquid wastestreams; Material has been excluded frombeing a solid waste or hazardous waste.
Texas Form Code: 206 Waste oil
EPA Form Code: W206 Waste oil
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G23 Wastewater treatment (sludge, filter cake, etc.)
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D002 D016 D018 D022 D023 D024 D025 D026 D028 D035 D039 D043
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

0008319H H Inactive 05/07/2024 On & Off No No

Description from Generator: Disposal of contaminated plant debris; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D016	D018	D022	D023	D024	D025	D026	D028	D035
D039	D043	U002	U003	U009	U012	U019	U031	U043	U051	U052
U055	U056	U077	U112	U120	U125	U140	U154	U159	U161	U165
U177	U188	U191	U210	U220	U226	U227	U239	U240		

Current Management Units: None

0009319H H Inactive 05/07/2024 On & Off No No

Description from Generator: Glass jars; Due to change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G11 Discarding off-specification or out-of-date chemicals or products
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D016	D018	D022	D023	D024	D025	D026	D028	D035
D039	D043	U002	U003	U009	U012	U019	U031	U043	U051	U052
U055	U056	U077	U112	U120	U125	U140	U154	U159	U161	U165
U177	U188	U191	U210	U220	U226	U227	U239	U240		

Current Management Units: None

0010301H H Inactive 05/07/2024 On & Off No No

Description from Generator: Soils and sorbent material; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 301 Soil contaminated with organics
EPA Form Code: W301 Contaminated Soil
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Source Code: G32 Cleanup of spill residues
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D004	D008	D016	D018	D022	D023	D024	D025	D026
D028	D035	D039	D043	U002	U003	U009	U012	U019	U031	U043
U051	U052	U055	U056	U077	U112	U120	U125	U140	U154	U159
U161	U165	U177	U188	U191	U210	U220	U226	U227	U239	U240

Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

0011404H H Inactive 05/07/2024 On & Off No No

Description from Generator: Spent carbon; The waste is exempted from regulation due to a new exemptionfrom the definition of solid waste.
Texas Form Code: 404 Spent carbon
EPA Form Code: W310 Filters, solid adsorbents, ion exchange resins and spent carbon
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G23 Wastewater treatment (sludge, filter cake, etc.)
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D016	D018	D022	D023	D024	D025	D026	D028	D035
D039	D043	U002	U003	U009	U012	U019	U031	U043	U051	U052
U055	U056	U077	U112	U120	U125	U140	U154	U159	U161	U165
U177	U188	U191	U210	U220	U226	U227	U239	U240		

Current Management Units: None

0012219H H Inactive 05/07/2024 On & Off No No

Description from Generator: Rust, scale, chemical constituents and water; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 219 Other organic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers:

D001	D002	D016	D018	D022	D023	D024	D025	D026	D028	D035
D039	D043	U002	U003	U009	U012	U019	U031	U043	U051	U052
U055	U056	U077	U112	U120	U125	U140	U154	U159	U161	U165
U177	U188	U191	U210	U220	U226	U227	U239	U240		

Current Management Units: None

00144891 1 Inactive 05/07/2024 No No

Description from Generator: Insulation - removal of tank, manifold and/or pipe insulation; 4/94; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 489 Petroleum contaminated solids
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Current Management Units: None

0016319H H Inactive 05/07/2024 On & Off No No

Description from Generator: Sand-contaminated with Phenol from sand blasting of storage tanks, initialdateof generation - 5/11/94.; One time shipment.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: U188
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
**** No Longer Generated Wastes ****						
00186091	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Tank bottoms, tank bottom sludges generated from tank cleaning operations.;Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 609 Other organic sludges
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

00192191	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Rust and scale, rust and scale generated from tank cleaning operations.; One time shipment.
Texas Form Code: 219 Other organic liquids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

00203192	2	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Plant debris, including but not limited to, personal protective equipment,soil,sorbent, and tank seals, generated from plant cleanup and general plantoperations.; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Current Management Units: None

00213192	2	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Tank and/or pipeline insulation, removal of tank insulation on tanks and/orpipelines.; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Current Management Units: None

00220091	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Lab packs, lab packs generated from lab waste, out-of-date chemicals and/oroff-spec chemicals.; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 009 Other lab packs
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

0023009H	H	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Lab packs, lab packs generated from lab waste, out-of-date chemicals and/oroff-spec chemicals.; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 009 Other lab packs
EPA Form Code: W001 Lab packs with no acute hazardous waste
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G11 Discarding off-specification or out-of-date chemicals or products
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: F005
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
**** No Longer Generated Wastes ****						
00263191	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Soil contaminated with caustic chemical (S); Spill Clean-up; 09/19/94.; Dueto change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Current Management Units: None

00273192	2	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Alumina, discontinued use of chemical; 12-05-94. Waste inactivated due tosource reduction.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

00303901	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Nonhazardous concrete/cement/construction debris; demolision and construction activities.; Material has been excluded from being a solid waste or hazardous waste.
Texas Form Code: 390 Nonhazardous concrete/cement/construction debris
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

0032319H	H	Inactive	05/07/2024		No	No

Description from Generator: Tank bottoms; generated from tank cleaning and straining operations; 6/15/95; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D002
Current Management Units: None

0033319H	H	Inactive	05/07/2024		No	No

Description from Generator: Soils, sorbents and/or PPE; corrosive (D002) wastes generated from spill/remediation; 08/31/95; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Source Code: G32 Cleanup of spill residues
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): 30573
EPA Hazardous Waste Numbers: D002
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

00343192 2 Inactive 05/07/2024 No No

Description from Generator: WASTE SALT USED IN WATER SOFTENING FOR BOILER. INITIAL DATE OF GENERATION09/25/95.; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

0035609H H Inactive 05/07/2024 On & Off No No

Description from Generator: PETROLEUM TANK BOTTOMS GENERATED FROM TANK CLEANING 10/25/95.; Due to change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 609 Other organic sludges
EPA Form Code: W609 Other organic sludge
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D018 D038
Current Management Units: None

00383192 2 Inactive 05/07/2024 No No

Description from Generator: EMPTY GLASS JARS WHICH HAVE PREVIOUSLY HELD HAZARDOUS WASTE; DATE OF GENERATION2/20/96.; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

00412071 1 Inactive 05/07/2024 On & Off No No

Description from Generator: Spent MEA/#2 oil in aquesous solution.; One time shipment.
Texas Form Code: 207 Concentrated aqueous solution of other organics
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

0043319H H Inactive 05/07/2024 On & Off No No

Description from Generator: Fluorescent lamps containing mercury.; Change to rule or policy resulted inwaste code becoming invalid and needing to be inactivated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D009
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

0044409H H Inactive 05/07/2024 On & Off No No

Description from Generator: Polyinsulation/lead; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 409 Other non-halogenated organic solids
EPA Form Code: W409 Other organic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D008
Current Management Units: None

00452051 1 Inactive 05/07/2024 No No

Description from Generator: Cleanup of mineral oil spill. Organic liquids.; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 205 Oil-water emulsion or mixture
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Current Management Units: None

00472061 1 Inactive 05/07/2024 On & Off No No

Description from Generator: Oil generated by tank cleaning, line flushes, equip maint, or excess inventory.; Material has been excluded from being a solid waste or hazardous waste.
Texas Form Code: 206 Waste oil
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

0048209H H Inactive 05/07/2024 On & Off No No

Description from Generator: Unused paints and solvents; Change to rule or policy resulted in waste codebecoming invalid and needing to be inactivated.
Texas Form Code: 209 Organic paint, ink, lacquer, or varnish
EPA Form Code: W209 Paint, ink, lacquer, or varnish
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G06 Painting and coating
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D035 F003
Current Management Units: None

0049319H H Inactive 05/07/2024 On & Off No No

Description from Generator: Aerosol cans generated by painting, lubricating, or solvent use.; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D003
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
**** No Longer Generated Wastes ****						
00513101	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: Spent filters and debris from loading wax.; Due to change(s) in the productproduced, this waste is no longer generated.
Texas Form Code: 310 Spent solid filters or adsorbents
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: None

00533941	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: PCB Solids >50 PPM <500 PPM; Due to waste minimization, ingredient changesor process changes this waste is no longer generated.
Texas Form Code: 394 Nonhazardous solids with >= 50 ppm and < 500 ppm PCBs
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Current Management Units: None

00542971	1	Inactive	05/07/2024	On & Off	No	No

Description from Generator: PCB Oil >50 PPM <500 PPM; Due to waste minimization, ingredient changes orprocess changes this waste is no longer generated.
Texas Form Code: 297 Nonhazardous liquids with >= 50 ppm and < 500 ppm PCBs
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Current Management Units: None

00561022	2	Inactive	05/07/2024	On-site	No	No

Description from Generator: Non-hazardous Class II stormwater; Initial waste code determination used inincorrect form and/or classification code or other mistake.
Texas Form Code: 102 Aqueous waste with low other toxic organics
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Company's Internal Code(s): STORMWATER
Current Management Units: None

00571022	2	Inactive	05/07/2024	On-site	No	No

Description from Generator: Non-Hazardous Class II waste city water from the flushdown of product fromloading areas, docks , tanks.,and lines.; Initial waste code determination used in incorrect form and/or classification code or other mistake.
Texas Form Code: 102 Aqueous waste with low other toxic organics
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Company's Internal Code(s): WASTE CITY WATER
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

0058205H H Inactive 05/07/2024 No No

Description from Generator: Stream from lab tank to tank 32(NOR-12). Testing of various products managed at the terminal. Reagents used in analytical procedures. Cleaning solvents for laboratory glassware and calibration. This stream is less than 1%of the total flow into tank 32 thus exempting the mixed stream in tank 32 from being an F005 waste.; Inactivated for Unknown Reason. Waste no longer generated at facility.
Texas Form Code: 205 Oil-water emulsion or mixture
EPA Form Code: W205 Oil-water emulsion or mixture
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G22 Laboratory analytical wastes (used chemicals)
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): LAB TANK STREAM
EPA Hazardous Waste Numbers: D001 D018 F005
Current Management Units: None

00592191 1 Inactive 05/07/2024 On-site No No

Description from Generator: Waste from analysis of organic liquids such as lubeoils,diesel,kerosene,andblendstocks managed at the terminal and reagents used in lab.; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 219 Other organic liquids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): LAB NON-HAZ STREAM
Current Management Units: None

0060219H H Inactive 05/07/2024 No No

Description from Generator: Waste from solvent use of toluene for rinsing lab glassware. Waste stream mixeswith other lab streams in unit 025; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 219 Other organic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G22 Laboratory analytical wastes (used chemicals)
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): LAB SOLVENT TOLUENE
EPA Hazardous Waste Numbers: F005
Current Management Units: None

0061205H H Inactive 05/07/2024 No No

Description from Generator: Waste from analysis of gasoline furfural petroleum blendstocks,and reagents usedin lab; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 205 Oil-water emulsion or mixture
EPA Form Code: W205 Oil-water emulsion or mixture
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G22 Laboratory analytical wastes (used chemicals)
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): LAB HAZ STREAM
EPA Hazardous Waste Numbers: D001 D018 U031 U057 U125 U213
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

0062219H H Inactive 05/07/2024 No No

Description from Generator: Removal of product heel from product storage tanks. Chlorinated Aromatic (Ortho-Dichlorobenzene).; Due to change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 219 Other organic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): CHLORINATED AROMATIC
EPA Hazardous Waste Numbers: U070
Current Management Units: None

0066119H H Inactive 05/07/2024 No No

Description from Generator: Unused muriatic acid; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.
Texas Form Code: 119 Other inorganic liquids
EPA Form Code: W119 Other inorganic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G06 Painting and coating
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): UNUSED MURIATIC ACID
EPA Hazardous Waste Numbers: D002
Current Management Units: None

0501203H H Inactive 05/07/2024 On & Off No No

Description from Generator: Spent Safety Kleen solvent. Waste inactivated due to source reduction.
Texas Form Code: 203 Non-halogenated solvent
EPA Form Code: W203 Concentrated non-halogenated (e.g., non-chlorinated) solvent
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G01 Dip, flush or spray rinsing
NAICS Code: 493190 Other Warehousing and Storage
EPA Hazardous Waste Numbers: D001 D006 D008 D018 D027 D039 D040
Current Management Units: None

0502219H H Inactive 05/07/2024 No No

Description from Generator: ORGANIC FLAMMABLE LIQUIDS GENERATED FROM CLEANING OF PRODUCT STORAGE TANKS,PIPING,AND EQUIPMENT; Due to change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 219 Other organic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): PRODUCT HEALS
EPA Hazardous Waste Numbers: D001 D008 D018
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

05036061 1 Inactive 05/07/2024 On & Off No No

Description from Generator: Cashew Nutshell Liquid (CNSL)tank bottoms generated via tank cleaning of productstorage tank; One time shipment.
Texas Form Code: 606 Resins, tars or tarry sludge
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): CNSL TANK BOTTOMS
Current Management Units: None

0505609H H Inactive 05/07/2024 No No

Description from Generator: Tank Bottoms Generated from the cleaning of storage tanks; Due to change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 609 Other organic sludges
EPA Form Code: W609 Other organic sludge
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): TANK BOTTOMS
EPA Hazardous Waste Numbers: D007 D008 D018
Current Management Units: None

05064092 2 Inactive 05/07/2024 No No

Description from Generator: Contaminated soils generated from corrective action.
Texas Form Code: 409 Other non-halogenated organic solids
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): SOIL
Current Management Units: None

0507301H H Inactive 05/07/2024 No No

Description from Generator: Toluene impacted soil from spill clean up.; Due to change(s) in the product produced, this waste is no longer generated.
Texas Form Code: 301 Soil contaminated with organics
EPA Form Code: W301 Contaminated Soil
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Source Code: G32 Cleanup of spill residues
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): TOLUENE SOIL
EPA Hazardous Waste Numbers: U220
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

0509109H H Inactive 05/07/2024 No No

Description from Generator: Inorganic sludge generated via tank cleaning of sodium sulfide storage tank.; Initial waste code determination used in incorrect form and/or classification code or other mistake.
Texas Form Code: 109 Spent caustic
EPA Form Code: W519 Other inorganic sludges
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): TANK BOTTOMS
EPA Hazardous Waste Numbers: D002 D003 D018
Current Management Units: None

0510319H H Inactive 05/07/2024 No No

Description from Generator: Inorganic sludge generated via tank cleaning of sodium sulfide storage tank; Initial waste code determination used in incorrect form and/or classification code or other mistake.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): TANK BOTTOMS
EPA Hazardous Waste Numbers: D002 D003 D018
Current Management Units: None

0512519H H Inactive 05/07/2024 No No

Description from Generator: Sludge removed from tanks that last contained sodium sulfide; Due to waste minimization, ingredient changes or process changes this waste is no longer generated.; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 519 Other inorganic sludges
EPA Form Code: W519 Other inorganic sludges
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G14 Removal of tank sludge, sediments or slag
NAICS Code: 493190 Other Warehousing and Storage
Company's Internal Code(s): SODIUM SULFIDE SLUDG
EPA Hazardous Waste Numbers: D002
Current Management Units: None

48905042 2 Inactive 05/07/2024 On & Off No No

Description from Generator: Non-Hazardous soil contaminated with petroleum products.
Texas Form Code: 504 Other wastewater treatment sludge
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Company's Internal Code(s): IMPACTED SOIL
Current Management Units: None

30573 GALENA PARK TERMINAL

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
**** No Longer Generated Wastes ****						
60905032	2	Inactive	05/07/2024	On & Off	No	No

Description from Generator: generated by the cleaning of product storage tanks,piping,and equipment,as wellas any spill clean up activities associated with Tallow
Texas Form Code: 503 Wastewater treatment sludge with toxic organics
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): TALLOW ANIMAL FATS
Current Management Units: None

As of 05/07/2024, The next unassigned sequence number for WASTES is 6093

30573 GALENA PARK TERMINAL

**** UNITS AT THIS SITE MANAGING WASTE ****

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
014	Tank (surface)	INACTIVE	01/05/1994	NA / NA	NA	NA	06	YES /
	Description from Company:	ABOVE-GROUND OIL/WATER SEPARATOR WW TREATMENT TANK (RCRA EXEMPT)						
	System Types:	135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)						
015	Tank	INACTIVE		NA / NA	NA	NA	06	YES /
	Description from Company:	IN-GROUND OIL/WATER SEPARATOR WW TREATMENT TANK (RCRA EXEMPT)						
	System Types:	135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)						
016	Landfill	CLOSED		NA / NA	NA	NA	06	YES /
	Description from Company:	NORTH PIT						
	System Types:	132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)						
017	Landfill	POST CLOSE CARE	09/30/1992	NA / NA	001	NA	01 RCRA permitted unit	YES /
	Description from Company:	Southeast Holding Basin						
018	Tank	INACTIVE	02/26/2010	H / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /
	Description from Company:	Tank 5-20 wastewater tank.						
	System Types:	135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)						
	Wastes Previously Managed at Unit:	0003101H 0006205H 0007206H 0015119H						
019	Tank	INACTIVE		NA / NA	NA	NA	06	YES /
	Description from Company:	DAF TANK/WW TREATMENT TANK (RCRA EXEMPT)						
	System Types:	135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)						
020	Tank	INACTIVE	01/05/1994	NA / NA	NA	NA	06	YES /
	Description from Company:	DAF TANK/WW TREATMENT TANK (RCRA EXEMPT)						
	System Types:	135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)						
021	Container storage area	INACTIVE	02/26/2010	NA / H1	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /
	Description from Company:	Rolloffs used to store haz and non-hazardous wastes.						
	System Types:	141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.						
	Wastes Previously Managed at Unit:	00144891 00173021 00186091 00192191 00203192 00213192 00263191 00273192 00283892 00303901 00313191 0033319H 00343192 0035609H 00363191 00374891 0039301H 0042301H 0044409H 00452051 00463112 00503902						

30573 GALENA PARK TERMINAL

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
022	Container storage area	INACTIVE	02/26/2010	NA / H1	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: Rolloffs, vacuum boxes used to manage haz and non-hazardous wastes

System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.

Wastes Currently Managed at Unit: 00641131 Non-Hazardous tank/sump bottoms and wash water generated from cleaning product storage tanks and/or sumps.

Wastes Previously Managed at Unit: 0001319H 0008319H 0010301H 00263191 00273192 00283892 00303901 00313191 0033319H 00343192 0035609H 00363191 00374891 0039301H 0042301H 0044409H 00503902 0512519H

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
023	Miscellaneous storage containers	ACTIVE	05/25/1994	1 / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: Miscellaneous containers including drums, rolloffsl, and vacuum boxes.

System Types: 050 Energy recovery at this site - use as fuel (includes on-site fuel blending) 061 Fuel blending prior to energy recovery at another site 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.

Wastes Currently Managed at Unit:
0001319H Contaminated soil, sludge, protective clothing & rags, & fabric tank seals fromspills, tank cleanings, tank seal repair/replacement & remediation projects.
0013609H Sludges; removal of sludge, sediments, or slag from tanks, piping and sumps
00173021 Soil contaminated with organics, contaminated soil from remedial activities. Waste will be recycled off site into TxDOT Spec items. jds 11-18-99.
00283892 Nonhazardous soil and Sand Blasting Waste. Per anotification from the generator, this waste will be recycled by being used to make TxDOT Spec Items 247 and 276.
00293111 Asbestos, removal of tank and/or pipeline asbestos; 5/26/95
00313191 Non-hazardous tank/sump bottoms and debris from the cleaning of petroleum storage tanks and terminal operations.including spill clean up
00363191 PLANT TRASH AND DEBRIS
00374891 PLANT TRASH, PPE, ROCKS AND SOIL CONTAMINATED WITH PETROLEUM PRODUCTS FROMCLEAN UP ACTIVITIES
0039301H contaminated soil from remedial activities in the West Plant.
0042301H Contaminated soils from remedial activities in the Central Plant.
00463112 Nonfriable asbestos. Associated with the demolition or maintenance of equipment coated with or containing non-friable asbestos material.
00503902 Nonhazardous concrete/cement/construction debris ie wood,plastic,rubber,styrofoam/weathered rail road ties; from demolition and construction activities
00529992 Plant Trash non-contaminated which includes paper, cardboard, plastic, wrappings, wood, aluminum cans, and scrap metal.
0055119H Tank bottoms such as rust,scale,sediments and sludge. Generated from the cleaning of storage tanks and lines.
00632191 Glycols containing up to 25% water.493
0065310H Spent activated carbon from vapor scrubbing operations.
05042971 Electrical Transformers/Rectifiers being Decommissioned which contained >50 ppm-<500 ppm PCB's
05085142 Spoils Generated by means of Hydroexcavation/drilling activities through out facility
60912101 waste generated from the removal of storage tank adhesives or epoxies liners
6092609H Tank bottoms from the cleaning of storage tanks and piping.

Wastes Previously Managed at Unit: 0004319H 0006205H 0007206H 0008319H 0010301H 00144891 0016319H 00186091 00192191 00203192 00213192 00263191 00273192 00303901 0032319H 0033319H 00343192 0035609H 00383192 00412071 0043319H 0044409H 00452051 0048209H 00513101 00533941 00542971 0502219H 05036061 0505609H 05064092 0507301H 0509109H 0510319H 48905042 60905032

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
024	Tank	ACTIVE	01/05/1994	H / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Tank 3-10 Recovered groudwater storage tank.

System Types: 120 Combination of chemical, biological, and/or physical treatment 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment) 141 Storage, bulking, and/or transfer of site - no treatment/recovery, fuel blending or disposal at this site.

Wastes Currently Managed at Unit: 0003101H Recovered groundwater. Groundwater is pumped via recovery wells.

Wastes Previously Managed at Unit: 0006205H 0007206H 0015119H

30573 GALENA PARK TERMINAL

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
025	Tank (surface)	ACTIVE	01/21/1997	12H / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Above ground 250 gallon storage tank behind laboratory. Receives lab waste streams 00592191, 0060219H, and 0061205H. Generates stream 0058205H which is transfered to tank 32(NOR-012).
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Previously Managed at Unit: 0007206H 0015119H 00571022 0058205H 00592191 0060219H 0061205H

026	Distillation/Solvent recovery unit	INACTIVE	11/20/2003	H / NA	NA	NA	06	YES /

Description from Company: Safety-Kleen solvent parts cleaner. Now part of the Continuous Use Program (CUP) and no longer considered a waste management unit
System Types: 020 Solvents recovery
Wastes Previously Managed at Unit: 0501203H

027	Waste water treatment plant	INACTIVE	03/03/2010	H / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Building which houses the groundwater treatment units.
System Types: 129 Other treatment
Wastes Previously Managed at Unit: 0003101H 0015119H

028	Miscellaneous storage containers	ACTIVE	11/10/2000	2 / NA	NA	NA	05 Non-Hazardous Regulated	YES /

Description from Company: 9 yrd plant trash dumpsters located throughout the plant to manage non-haz ardous plant trash.
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Currently Managed at Unit: 00529992 Plant Trash non-contaminated which includes paper, cardboard, plastic, wrappings, wood, aluminum cans, and scrap metal.

029	Container storage area	CLOSED	10/21/2010	NA / H1	003	NA	01 RCRA permitted unit	YES /

Description from Company: East Plant Turnaround Container Storage Area
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.

30573 GALENA PARK TERMINAL

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
001	Container storage area	ACTIVE		1 / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: Drum Storage Building.
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit:
0001319H Contaminated soil, sludge, protective clothing & rags, & fabric tank seals fromspills, tank cleanings, tank seal repair/replacement & remediation projects.
0013609H Sludges; removal of sludge, sediments, or slag from tanks, piping and sumps
00173021 Soil contaminated with organics, contaminated soil from remedial activities. Waste will be recycled off site into TxDOT Spec items. jds 11-18-99.
00253011 Non-Hazardous soil contaminated with organics. Waste generated fromcorrective action at RCRA SWMU's.
00283892 Nonhazardous soil and Sand Blasting Waste. Per anotification from the generator, this waste will be recycled by being used to make TxDOT Spec Items 247 and 276.
00293111 Asbestos, removal of tank and/or pipeline asbestos; 5/26/95
00313191 Non-hazardous tank/sump bottoms and debris from the cleaning of petroleum storage tanks and terminal operations.including spill clean up
00363191 PLANT TRASH AND DEBRIS
00374891 PLANT TRASH, PPE, ROCKS AND SOIL CONTAMINATED WITH PETROLEUM PRODUCTS FROMCLEAN UP ACTIVITIES
0039301H contaminated soil from remedial activities in the West Plant.
0042301H Contaminated soils from remedial activities in the Central Plant.
00503902 Nonhazardous concrete/cement/construction debris ie wood,plastic,rubber,styrofoam/weathered rail road ties; from demolition and construction activities
0055119H Tank bottoms such as rust,scale,sediments and sludge. Generated from the cleaning of storage tanks and lines.
0065310H Spent activated carbon from vapor scrubbing operations.
00673191 Soil Contaminated with Fire Fighting Foam.
00682191 Old or expired Fire Foam
05085142 Spoils Generated by means of Hydroexcavation/drilling activities through out facility
60912101 waste generated from the removal of storage tank adhesives or epoxies liners
6092609H Tank bottoms from the cleaning of storage tanks and piping.
Wastes Previously Managed at Unit:
0008319H 0009319H 0010301H 0011404H 0012219H 00144891 00186091 00192191 00203192 00213192 00220091 0023009H 00263191
00273192 00303901 0032319H 0033319H 00343192 0035609H 00383192 00412071 0043319H 0044409H 00452051 00472061 0048209H
0049319H 00513101 0062219H 0066119H 0502219H 05036061 0505609H 05064092 0507301H 0509109H 0510319H 48905042 60905032

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
002	Tank (surface)	INACTIVE	02/19/1993	NA / NA	NA	NA	06	YES /

Description from Company: TANK 29 WASTEWATER TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
003	Tank (surface)	CLOSED	02/19/1993	NA / NA	NA	NA	06	YES /

Description from Company: TANK 10-12; TANK NO LONGER IN WASTE SERVICE WASTEWATER TREATMENT TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
004	Surface impoundment	ACTIVE	04/06/2015	1 / NA	002	NA	01 RCRA permitted unit	YES /

Description from Company: North Holding Basis. Corrective Action Management Unit (CAMU).
Wastes Currently Managed at Unit: 00253011 Non-Hazardous soil contaminated with organics. Waste generated fromcorrective action at RCRA SWMU's.

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
005	Tank (surface)	INACTIVE	03/19/2002	1H / NA	NA	NA	06	YES /

Description from Company: Tank 100-5 in product service. Used to be a wastewater RCRA exempt tank.
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)
Wastes Previously Managed at Unit: 0006205H 0007206H 0015119H 00253011

30573 GALENA PARK TERMINAL

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
006	Tank (surface)	INACTIVE	03/19/2002	H / NA	NA	NA	06	YES /

Description from Company: TK 100-6 in product service. Used to be a stormwater storage tank.
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)
Wastes Previously Managed at Unit: 0006205H 0007206H 0015119H

007	Tank (surface)	INACTIVE		NA / NA	NA	NA	06	YES /

Description from Company: TANK 50 WW TREATMENT TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

008	Tank (surface)	INACTIVE		NA / NA	NA	NA	06	YES /

Description from Company: TANK 51 WW TREATMENT TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

009	Tank (surface)	INACTIVE		NA / NA	NA	NA	06	YES /

Description from Company: TANK 116 WW TREATMENT TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

010	Tank (surface)	INACTIVE		NA / NA	NA	NA	06	YES /

Description from Company: TANK 117/WW TREATMENT TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

011	Tank (surface)	INACTIVE		NA / NA	NA	NA	06	YES /

Description from Company: TANK 25-1/WW TREATMENT TANK (RCRA EXEMPT)
System Types: 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)

012	Tank (surface)	ACTIVE		2 / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Wastewater Tank 32 (RCRA Exempt)receives several terminal streams including lab tank stream 0058205H that has F005 code. However the tank meets the l aboratory 1% headworks exemption found in 40 CFR 261.3(a)(2)(iv)(E); There fore neither contents of tank 32 nor sludges carry any F codes.
System Types: 120 Combination of chemical, biological, and/or physical treatment 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment) 141 Storage, bulking, and/or transfer of site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0015119H Wastewater generated from pipelining flushings, tank cleaning, spills, water coming in contact with product, docks, tank car and tank truck racks, and groundwater. Wastewater is shipped
Wastes Previously Managed at Unit: 0006205H 0007206H 00561022 00571022 0058205H

30573 GALENA PARK TERMINAL

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
013	Tank (surface)	ACTIVE		2 / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Tank 3-9 product recovery tank. Un-recoverable water is discharged to GCWD A (POTW).
System Types: 039 Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc. 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)
Wastes Currently Managed at Unit: 0015119H Wastewater generated from pipelining flushings, tank cleaning, spills, water coming in contact with product, docks, tank car and tank truck racks, and groundwater. Wastewater is shippe
Wastes Previously Managed at Unit: 0006205H 0007206H 00561022 00571022

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
030	Tank (surface)	ACTIVE	05/07/2013	H / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Wastewater/product recovery tank 31. Un-recoverable water is discharged to GCWDA (POTW)via hard pipe.
System Types: 120 Combination of chemical, biological, and/or physical treatment 135 Discharge to sewer/POTW or NPDES (with prior storage - with or without treatment)
Wastes Currently Managed at Unit: 0015119H Wastewater generated from pipelining flushings, tank cleaning, spills, water coming in contact with product, docks, tank car and tank truck racks, and groundwater. Wastewater is shippe
Wastes Previously Managed at Unit: 0058205H

As of 05/07/2024, The next unassigned sequence number for UNITS is 031

APPENDIX III
Evidence of Release

Evidences of releases for the SWMUs documented in the 1992 RFA effort can be found in the RFA (Attachment M to the Part B Permit renewal) or the subsequent RFI/APA deliverables as referenced on the checklists for these units. At this time, there are no known releases, nor evidence of release at the SWMUs identified on the Kinder Morgan NOR as NOR Units 021 through 029. Additionally, SWMUs Nor 021 through 029 are located in areas currently being addressed under the TRRP and/or the current Corrective Action Program and a release from the these units, if present, would be captured by an ongoing response action.

APPENDIX IV
Pollutant Dispersal Pathways

Pollutant dispersal pathways for the SWMUs documented in the 1992 RFA effort can be found in the RFA (Attachment M to the Part B Permit renewal) or the subsequent RFI/APA deliverables as referenced on the checklists for these units. At this time, there are no known releases, nor evidence of release and thus no defined pollutant dispersal pathways at the SWMUs identified on the Kinder Morgan NOR as NOR Units 021 through 029.

ATTACHMENTS

Attachment I – NOR 025 TCEQ No Further Action Letter

ATTACHMENT I
NOR 025 TCEQ No Further Action Letter

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 26, 2024

Via email

Mr. Johnny Salinas
Senior EHS Specialist
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Approval of Closure Report – No Further Action
Closure Report, Waste Management Unit Numbers 025, January 30, 2024
Kinder Morgan Liquids Terminals, LLC – Galena Park
906 Clinton Drive, Galena Park, Harris County
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054;
EPA ID No. TXD026481523; CN601545940; RN100237452

Dear Mr. Salinas:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced submittal requesting the closure of the following waste management unit (WMU) listed on the facility's Notice of Registration (NOR) for SWR No. 30573:

- NOR Unit 025 – 250-gallon Above Ground Storage Tank.

The TCEQ understands that the tank was taken out of service in October 2023, cleaned out and triple rinsed, and the wastes and tank were disposed of at an off-site authorized facility. The above-referenced report stated that no spills or releases occurred from the WMU. ***Therefore, the TCEQ accepts the closure of the above-referenced NOR Unit such that no further action is required under Title 30 Texas Administrative Code (TAC) §335.8.***

A copy of this letter has been forwarded to the TCEQ's Registration and Reporting Section to update your NOR. For questions regarding the NOR, please contact the Registration and Reporting Section at (512) 239-6833 or at [redacted]

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the activities described in the report fail to comply with these requirements, please take any necessary and

authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of the site to determine compliance with the report.

Questions concerning this letter should be directed to me at (512) 239-2034. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,



Maureen M. Hatfield, P.G., Project Manager
VCP-CA Section, Remediation Division
Texas Commission on Environmental Quality

MMH/mmh

cc: Ms. Karina Rocha, TCEQ, Waste Section Manager, Houston Office, MC-R12 (email)
TCEQ Registration and Reporting Section MC- 129 (email)

ATTACHMENT P

RCRA Facility Assessment

GALENA PARK TERMINAL

RCRA FACILITY ASSESSMENT

1992

Table of Contents

Container Storage Area 8
Tank 29 10
Tank 10-12 12
North Holding Basin 14
Tank 100-5 16
Tank 100-6 17
Tank 50 18
Tank 51 20
Tank 116 22
Tank 117 24
Tank 25-1 26
Tank 32 28
Tank 3-9 29
Above Ground Oil/Water Separator 30
Below Ground Oil/Water Separator 31
Southeast Holding Basin 33
Tank 5-20 35
DAF Tank 36
Equalization Tank 37
Tract A 38
Tract B 39
Texaco Impoundment #3 40
Texaco Impoundment #4 41
Stormwater Drainage System 42
Lift Station #4 43
SEHB Sump 44
East Plant 45
North Plant 46
Impoundment No.1 47
Impoundment No. 2 48
Impoundment No. 3 49
T/TR #4 50
T/TR #6 51
Tank 26 52
Tank 82 53

ATTACHMENT A 54
I. Pollutant Dispersal Pathways: 54
II. Target Populations of Concern 55

ATTACHMENT B 56

ATTACHMENT C 59

ATTACHMENT D 60

ATTACHMENT E 76

ATTACHMENT F 77

- See Smell yellow tab

Table 3. Recommended RFI status for SWMUs at the GATX Galena Park Terminal.

Solid Waste Management Unit	Recommendation
CENTRAL PLANT	
Southeast Holding Basin	Data
Lift Station #4	Included
Tank 32	Data
Tank 3-9	NFA
Tank 29	Included
Tank 50	Included
Tank 51	Included
Tank 116	Included
Tank 117	Included
Tank 25-1	Included
Aboveground O/W Separator	Included
Belowground O/W Separator	Included
Stormwater Drainage System (including TC/TR #3, #4, and TR #6)	Included
SEHB Sump	Included
Container Storage Building	NFA
Impoundment No. 1	Included
Tank 26	Data
Tank 82	Data
Impoundment No. 2	NFA
Central Plant Waste Management Area	RFI
EAST PLANT	
Texaco Landfill #3	Data
Impoundment No. 3	Included
East Plant Tank Car Rack	Data
East Plant Waste Management Area	RFI
WEST PLANT	
North Holding Basin	Data
Tank 10-12	NFA
Tank 5-20	NFA
Equalization Basin	Data
DAF Tank	Data
Tank 100-5	NFA
Tank 100-6	NFA
NORTH PLANT	
Tract A (North Pit)	Data
Tract B	RFI
Texaco Landfill #4	NFA
North Spoils Area	NFA
North Plant Waste Management Area	Data

Recommendation codes: NFA = no further action; RFI = investigate under RFI; Data = existing data satisfy RFI objectives; Included = situated within broad-based area unit for which RFI will be performed.

the RFI activities planned for the Central Plant WMA are designed to characterize release conditions associated with this unit, further action at this unit will be addressed as part of the final, approved RFI Workplan for the Central Plant WMA, as described in Section 4.0.

GATX

GATX TERMINALS CORPORATION
206 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

May 26, 1992

SENT VIA FEDERAL EXPRESS

Mr. Minor Brooks Hibbs
Texas Water Commission
P. O. Box 13087
1700 N. Congress
Austin, TX 78711-3087

Re: RCRA Facility Assessment (RFA) GATX Terminals
Solid Waste No. 30573

Dear Mr. Hibbs:

Enclosed are preliminary comments to the RCRA Facility Assessment dated April 13, 1992.

I have made changes and included the specific pages in which the correction should be made.

If you need any additional information do not hesitate to contact me.

Sincerely,

Tom Rigg
Terminal Manager

TJR/nro
Enclosure

cc: Texas Water Commission
District 7
5144 E. Sam Houston Parkway N.
Houston, TX 77015

Mr. Bob Brydson
Texas Water Commission
P. O. Box 13087
1700 N. Congress Avenue
Austin, TX 78711-3087

Ms. Laurie King
U.S. Environmental Protection Agency
Region VI
First Interstate Tower at Fountain Place
1445 Ross Ave., Suite 1200
Dallas, TX 75202-2733

File

DRAFT

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Units

N.O.R.	RCRA Regulated Units	Type	Status
01	Container Storage Area	Storage	<90 Day
02	Tank 29	WW Tmt	Inactive
03	Tank 10-12	WW Tmt	Inactive*
04	North Holding Basin	Disposal	Inactive
05	Tank 100-5 (Stormwater)	WW Tmt	Active
06	Tank 100-6 (Stormwater)	WW Tmt	Active
07	Tank 50	WW Tmt	Inactive
08	Tank 51	WW Tmt	Inactive
09	Tank 116	WW Tmt	Inactive
10	Tank 117	WW Tmt	Inactive
11	Tank 25-1	WW Tmt	~~Active~~ Inactive**
12	Tank 32 (RCRA exempt)	WW Tmt	Active
13	Tank 3-2 (RCRA exempt)	WW Tmt	Active
14	Above Ground Oil/Water Separator (RCRA exempt)	WW Tmt	Active
15	Below Ground Oil/Water Separator	WW Tmt	Inactive
16	North Pit (Tract A)	Disposal	Inactive
17	Southeast Holding Basin	Disposal	~~Inactive~~ Closed
18	Tank 5-20 (RCRA exempt)	WW Tmt	Active
19	DAF Tank	WW Tmt	Inactive
20	Equalization Tank	WW Tmt	Inactive

* Tank 10-12 is currently used as a product storage tank.

N.O.R.	Solid Waste Management Units	Type	Status
~~A~~ 16	Tract A	Disposal	Inactive
B^	Tract B	Disposal	Inactive
C^	Texaco Impoundment #3	Disposal	Closed
D^	Texaco Impoundment #4	Disposal	Closed
E^	Stormwater Drainage System		Active
F^	Lift Station #4	Storage	~~Inactive~~ Active
G^	SEHB Sump	Storage	Inactive
H^	East Plant	Disposal	Inactive
I^	North Plant	Disposal	Inactive
J^	Impoundment No. 1	Disposal	Inactive
K^	Impoundment No. 2	Disposal	Inactive
L^	Impoundment No. 3	Disposal	Inactive

** Product storage only. No waste Storage

M^	T/R No. 4	Disposal	Active
N^	T/R No. 6	Disposal	Active
O^	Tank 26	Disposal	Inactive
P^	Tank 82	Disposal	Inactive

II. Documents Reviewed:

A. RCRA - North Holding Basin Groundwater Monitoring System Installation Report dated July, 1990; Part A and Part B Permit Applications for Proposed Hazardous and Solid Waste Permit HW-50054-000, dated September 14, 1990; Groundwater Compliance Plan Application, Part 1, dated September 14, 1990; Remedial Facility Investigation Workplan - Tanks 29, 50, 51, 116, 117, Oil/Water Separator, and 25-1 dated September 14, 1990; 1990 Annual Groundwater Monitoring Report for the North Holding Basin dated February 1991; 1990 Annual Groundwater Monitoring Report for the Southeast Holding Basin dated February 1991; North Holding Basin Closure and Post-closure Plan dated March 1991; and Groundwater Compliance Plan Application Part III - Investigation Report - Corrective Action Program, Southeast Holding Basin dated February, 1992.

B. CERCLA - None

C. Inspection Reports

1. Solid Waste Inspection Report, April 26, 1991. Inspection date: March 28, 1991

2. Operation and Maintenance (O&M) Report of the Comprehensive Groundwater Monitoring Evaluation (CME) dated June 15, 1990. Inspection date: April 13, 1989.

3. Compliance Schedule Evaluation Report dated July 19, 1990.

4. Solid Waste Inspection Report dated April 25, 1990. Inspection date: March 25, 1990.

5. CME dated June 2, 1989. Inspection Date: April 13, 1989.

6. Solid Waste Inspection Report approved June 20, 1989. Inspection Date: May 9, 1989.

7. Solid Waste Compliance Monitoring Inspection Report approved November 2, 1987. Inspection Date: October 22, 1987.

8. Compliance Evaluation Inspection Report approved March 10, 1987. Inspection Date: February 26, 1987.

D. Texas Water Commission Orders

1. Agreed Order Dated January 31, 1990.

2. Order dated May 20, 1986.

E. Correspondence File Number 30573.

F. Aerial Photographs Dated 1944, 1945, 1953, 1972 and 1990.

III. Summary:

GATX Terminals Inc. (GATX) has been required to apply for a Post-Closure Permit as a result of an Agreed Final Order dated January 31, 1990. GATX was found to have two hazardous waste surface impoundments that did not have Interim Status nor an Industrial and Hazardous Waste permit, and therefore GATX was required by TWC to close the units as hazardous waste landfills. During the required monitoring of the impoundments, GATX discovered groundwater contamination underneath the Southeast Holding Basin and the North Holding Basin. It has been determined that the contaminants may be discharging into the Houston Ship Channel from a perched, near-surface groundwater source at the southeast corner of the facility. A Compliance Plan application has been filed with the TWC as a result of this Agreed Final Order. Also addressed in the Agreed Order of January 31, 1990 was the wastewater treatment system connected with Tank 29, for which a Remedial Facility Investigation workplan was required. Additionally, a Supplemental Soils Investigation for T/R No. 4, and Tanks 26 and 82 was required, with results to be included in the final report for the Expanded Groundwater Quality Assessment Plan submitted in August, 1989. Part of the site currently owned and operated by GATX was previously owned and operated by Texaco as a refinery. Several previously undocumented industrial solid waste management units have been discovered at the site.

IV. Recommended Actions

Possible releases from GATX solid and hazardous waste management units were discovered between 1986 and 1990. Two Texas Water Commission Orders have been issued regarding known groundwater contamination at the site. The Orders specifically address the North Holding Basin (NHB), Southeast Holding Basin (SEHB), and tanks 29, 50, 51, 116, 117, the oil/water separator and 25-1. Investigations are currently being performed for the NHB and the SEHB. A Remedial Facility Investigation workplan for tanks 29, 50, 51, 116, 117, the oil/water separator and 25-1, required by Provision 3.d of the January 31, 1990 Order as part of a facility wide Remedial Facility Investigation, was approved by letter dated December 18, 1991. Investigation plans have been submitted and remediations have began for the T/R No.4 and T/R No. 6. Tracts A and B are also currently undergoing preliminary studies to determine the contaminant types and levels at those sites. This action can be considered equivalent to the draft Corrective Action Process (CAP) developed by EPA in response to HSWA. The draft guidance currently describes RCRA Facility Assessment (RFA) reports, RCRA Facility Investigations (RFI), Corrective Measures Studies (CMS) and Corrective Measures Implementations (CMI) for SWMUs

which have had a release of hazardous waste or hazardous constituents. Given the previous work at GATX to date, the following are recommended to formally implement HSWA for the units and waste management areas of concern.

1. Tract A - Initial investigations have indicated that this unit is a source of groundwater and soil contamination. An investigation should be performed to determine the lateral extent and the depth of soil and groundwater contamination emanating from this unit in conjunction with the actions recommended below for the North Plant Area.

2. Tract B - preliminary investigations have indicated that this unit may be a source of soil contamination and possibly a source of groundwater contamination. An investigation should be performed to determine the lateral extent and the depth of soil and groundwater contamination which may emanate from this unit in conjunction with the actions recommended below for the North Plant Area.

3. Central Plant Area - This area includes the SEHB, tanks 32, 3-9, 29, 50, 51, 116, 117, the oil/water separator, 25-1, Lift Station No.4, the SEHB sump, the container storage area, all tank car loading racks and secondary containment areas in the central plant, and all areas between the T/TR #4 Rail Right of Way and Clinton Drive, including area currently leased to CXI. This unit is shown in Attachment B. Aerial photos from 1944 and 1945 show what may have been two surface impoundments on the northwest corner of this area. These impoundments did not appear in later photographs. Groundwater and soil contamination is documented to exist in this area. Compliance Plan CP-50054, written in response to the application submitted by GATX, and the RFI workplan approved on December 18, 1991, will require the investigation and remediation of much of this area. GATX has proposed an expansion of the approved RFI workplan by letter dated February 26, 1992 to include part of the Central Plant Area, not including the segment between the T/TR #4 area and Clinton Drive. An investigation into the degree of soil and groundwater contamination should be performed to determine the volume, lateral and vertical extent and the types of contaminants present in soils and groundwater in this area. The Compliance Plan will address groundwater contamination and corrective action as a direct result of activities at the Southeast Holding Basin.

4. North Holding Basin - The NHB is a documented source of groundwater and soil contamination. Currently, this unit is undergoing closure. This unit is scheduled to be addressed in Compliance Plan CP-50054, and all remediation plans for groundwater contaminated by this unit should be addressed through the Compliance Plan. The final report on the Groundwater Quality Assessment for the North Holding Basin is to be submitted to TWC prior to September 1, 1992. Within 180 days of the submittal of the Groundwater Quality Assessment for the North Holding Basin, GATX shall submit an amendment to Compliance Plan CP-50054.

why ?

5. East Plant Area - The East Plant was the site of a Texaco refinery and tank farm from before 1920 until the 1950's. This area is shown in Attachment B. It appears that an unknown surface impoundment appears on old aerial photographs just north of the known Texaco Impoundment. An investigation should be performed to determine the presence of any undocumented waste disposal units, and if found, then the contaminant type and the lateral and vertical extent of soil and/or groundwater contamination should be determined. When this determination is completed, a CMS/CMI program that is appropriate to remediate any contamination found should be instituted.

= swmus inactive — or active are part of CERCLA

6. North Plant Area - The North Plant was the site of a Texaco tank nfarm from pre - 1920 until the 1950's. The tanks currently in the area were constructed by Texaco. Tracts A and B are within this area. This area is shown in Attachment B. An investigation should be performed to determine the presence of any undocumented waste disposal units, and if found, then the contaminant type and the lateral and vertical extent of contamination should be determined. When this determination is completed, a CMS/CMI program that is appropriate to remediate any contamination found should be instituted.

- ?

The TWC did not have the room in the computer to include all the waste codes requested for each waste stream. Therefore the Notice of Registration (NOR) only contained the first 24 waste codes from the following list previously submitted. Table 1 is an all inclusive list for waste streams generated at GATX Galena Park as identified.

TABLE 1

D001	U001	U017	U062	U081	U042	U142	U167	U194	U153
D002	U034	U233	U215	U082	U078	U143	U168	U111	U244
D003	U187	U239	U033	U084	U079	U144	U026	U110	U219
D004	U005	U201	U156	U085	U210	U146	U165	U066	U244
D005	U240	U127	U033	U108	U228	U145	U047	U083	U220
D006	U112	U056	U211	U028	U112	U146	U166	U149	U221
D007	U144	U220	U034	U086	U113	U129	U167	U171	U223
D008	U214	U105	U035	U087	U238	U163	U168	U027	U328
D009	U002	U106	U036	U088	U117	U147	U217	U193	U353
D010	U003	U055	U026	U089	U114	U148	U169	U235	U222
D011	U004	U169	U037	U090	U067	U149	U170	U140	U011
D012	U005	U183	U038	U091	U077	U150	U171	U002	U227
D013	U006	U185	U039	U092	U359	U151	U172	U007	U228
D014	U007	U020	U042	U093	U115	U152	U173	U084	U121
D015	U008	U020	U044	U094	U116	U092	U174	U243	U234
D016	U009	U207	U046	U095	U076	U029	U176	U009	U182
D017	U011	U061	U047	U096	U118	U045	U177	U152	U235
D018	U012	U247	U048	U097	U119	U046	U178	U008	U236
D019	U136	U023	U049	U098	U120	U068	U179	U113	U237
D020	U014	U234	U032	U099	U122	U080	U180	U118	U176
D021	U015	U021	U050	U101	U123	U075	U181	U162	U177
D022	U010	U202	U051	U102	U124	U138	U193	U194	U043
D023	U157	U203	U052	U103	U125	U119	U058	U083	U248
D024	U016	U141	U053	U104	U147	U211	U115	U148	U239
D025	U017	U090	U055	U105	U213	U153	U126	U196	U200
D026	U192	U064	U246	U106	U125	U225	U041	U191	U249
D027	U018	U248	U197	U107	U124	U044	U182	U237	
D028	U094	U022	U056	U108	U206	U121	U183	U164	
D029	U012	U197	U129	U109	U206	U036	U184	U180	
D030	U014	U023	U057	U110	U126	U154	U185	U200	
D031	U049	U085	U130	U111	U163	U155	U236	U201	
D032	U093	U021	U058	U041	U127	U142	U166	U202	
D033	U328	U073	U240	U001	U128	U247	U161	U203	
D034	U353	U091	U059	U174	U130	U154	U186	U204	
D035	U158	U095	U060	U155	U131	U029	U187	U204	
D036	U222	U225	U061	U067	U132	U186	U188	U205	
D037	U181	U030	U062	U076	U243	U045	U048	U205	
D038	U019	U128	U063	U077	U133	U156	U039	U015	
D039	U038	U172	U064	U131	U086	U226	U081	U206	
D040	U030	U031	U066	U024	U098	U157	U082	U103	
D041	U035	U159	U069	U117	U099	U158	U089	U189	
D042	U037	U160	U070	U025	U109	U068	U101	U207	
D043	U221	U053	U071	U184	U134	U080	U052	U208	
	U028	U074	U072	U208	U134	U159	U132	U209	
	U069	U143	U073	U209	U135	U160	U170	U210	
	U088	U031	U074	U218	U135	U138	U150	U213	
	U102	U136	U075	U226	U096	U161	U145	U214	
	U107	U032	U078	U227	U116	U162	U087	U215	
	U070	U238	U079	U359	U137	U161	U189	U216	
	U071	U178	U025	U173	U190	U164	U190	U216	
	U072	U097	U027	U004	U140	U010	U191	U217	
	U060	U114	U024	U043	U141	U059	U192	U218	

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 01, Container Storage Area, RCRA, Active
Service: 1981 - current
Type : <90-Day Storage
I. D. No.: Container Storage Area
Status : Storage
Capacity : 11,220 gallons

II. Evidence of Release: No evidence of release was observed or reported.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
002	Oil Trappings/ Oil Skimmings	II	210690	--
003	Tank Bottoms	I	152180	--
004	Tank Bottoms	IH	952180	D0(01-24)*
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
007	Absorbent, Hydro-carbon Contaminated	IH	981510	D0(01-24)*
013	Soil, Creosote Contaminated	IH	978980	U051
015	Stryene Monomer	IH	919470	D001

V. Target Populations of Concern: See Attachment A

* Waste codes on NOR are not inclusive of all submitted to TWC see attached list. (See Table 1)

VI. Summary: This unit is a less than 90 day storage unit. No evidence of release was reported or observed.

VII. Recommended Action: This unit will be included in the Central Plant Waste Management Area RFI by proximity.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 02, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 29
Status : WW tank
Capacity : 1,095,730 gallons

II. Evidence of Release: No direct evidence of release was observed, however, some remediation and closure activities have occurred at this unit.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. This workplan was submitted September 13, 1990, revised July 18, 1991, and was approved on December 18, 1991. This unit is undergoing closure under a TWC approved closure plan.

* See table 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

Should be Taken out of RFI

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 03, Wastewater Tank RCRA, Inactive
Service: 1958 - 1990
Type : Tank (Surface)
I. D. No.: Tank 10-12
Status : WW tank
Capacity : 420,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. This workplan was submitted September 13, 1990, revised July 18, 1991, and was approved on December 18, 1991. This unit is undergoing closure under a TWC approved closure plan. **

* See Table 1

** This tank was not included in the workplan

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 04, North Holding Basin, RCRA, Inactive
Service: 1974 - 1988
Type : Surface Impoundment
I. D. No.: North Holding Basin
Status : Storage/Disposal
Capacity : 6000 CY

II. Evidence of Release: The groundwater below this unit is documented to contain Appendix VIII constituents. ~~GATX is currently preparing a Groundwater Compliance Plan application to address this unit.~~ **

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is currently undergoing closure. ~~GATX is currently preparing a Groundwater Compliance Plan for this unit.~~ ** Appendix VIII constituents have been discovered in groundwater plumes emanating from this unit.

* A groundwater assessment is currently being implemented. A compliance plan application is not being prepared

* See TABLE 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990, and remediation of contaminated groundwaters as proscribed by Compliance Plan CP-50054.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: RCRA Exempt Stormwater

N.O.R. Facility No.: 05, Wastewater Tank RCRA, Active Service: 1988 - Current

Type : Tank (Surface) I. D. No.: Tank 100-5

Status : WW tank Capacity : 4,200,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of release was found in documentation or at the facility.

VII. Recommended Action: No further action is required.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: RCRA Exempt Stormwater

N.O.R. Facility No.: 06, Wastewater Tank RCRA, Active Service: 1988 - Current

Type : Tank (Surface) I. D. No.: Tank 100-6

Status : WW tank Capacity : 4,200,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of release was observed in documentation or at the facility.

VII. Recommended Action: No further action is required at this time.

* Does not routinely manage waste unless catastrophic spill event were to occur.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 07, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 50
Status : WW tank
Capacity : 30,080 gallons

II. Evidence of Release: Direct evidence of release was observed, as the tank had apparently leaked liquids between its bolted panels.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 08, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 51
Status : WW tank
Capacity : 22,560 gallons

II. Evidence of Release: The tank appeared to be heavily corroded.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(C1-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 09, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 116
Status : WW tank
Capacity : 15,227 gallons

II. Evidence of Release: Direct evidence of release was observed, as this tank had apparently leaked liquids between its bolted panels and from around its blind flanges.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 10, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 117
Status : WW tank
Capacity : 15,250 gallons

II. Evidence of Release: Direct evidence of release was observed as this unit evidently leaked liquids between its bolted panels.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 11, Wastewater Tank ** Service: 1938 - 1990
RCRA, Inactive
Type : Tank (Surface) I. D. No.: Tank 25-1

Status : WW tank * Capacity : 1,076,982 gallons

II. Evidence of Release: No direct evidence of release was observed, However, this tank was awaiting full closure certification at the time of the VSI.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan. This tank is currently used as a product tank.

* See Table 1

** Product Storage No waste

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: (RCRA Exempt) Built 1938 modified late 1980's for wastewater service

N.O.R. Facility No.: 12, Wastewater Tank RCRA, ~~Active~~ Service: ~~1938~~ - Current

Type : Tank (Surface) I. D. No.: Tank 32

Status : WW tank Capacity : 1,050,000 gallons

II. Evidence of Release: No direct evidence of release was observed at this unit.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of releases has been documented or observed at this unit.

VII. Recommended Action: This unit will be included in the RFI for the Central Plant.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: (RCRA Exempt)

N.O.R. Facility No.: 13, Wastewater Tank RCRA, Active
Service: 1938 - Current * *
Type : Tank (Surface)
I. D. No.: Tank 3-9
Status : WW tank
Capacity : 126,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of release has been documented or observed at this unit.

VII. Recommended Action: This unit will be included in the RFI for the Central Plant.

* See Table 1

** Built Operated

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 14, Oil/water Separator, RCRA, Active
Type : Tank (Surface)
Status : WW tank

Service: 1989 - Current
I. D. No.: * Above Ground Oil/Water Separa
Capacity : 10,180 gallons

Below not above

II. Evidence of Release:

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

V. Target Populations of Concern: See Attachment A

** VI. Summary: ~~A Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990.~~

VII. Recommended Action: Continued investigative work ~~as prescribed in the Agreed Order dated January 31, 1990 and~~ the approved Remedial Facility Investigation Workplan.

* Table 1

** This unit was not included in the Jan 1991 order. The inactive oil/water sep [below grou

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 15, Oil/water Separator, RCRA, Inactive
Service: 1980 - Current
Type : Tank (Surface)
I. D. No.: Below Ground Oil/Water Separator
Status : WW tank
Capacity : 12,000 gallons

II. Evidence of Release: No Evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: Remedial Facility Investigation workplan required by the Agreed Order between GATX and TWC issued January 31, 1990.

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: North Spoils *

~~N.O.R. Facility No.~~ : ~~16, North Pit~~ SWMU, Inactive
Service: Unknown
Type : Landfill
Status : Disposal
I. D. No.: North Spoils Area
Capacity : Unknown

II. Evidence of Release: No evidence of release was observed

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
--	Dredge Spoils	__	--	--

V. Target Populations of Concern: See Attachment A

VI. Summary: This land disposal unit was used to dispose of dredge spoils from the Ship Channel.

VII. Recommended Action: This unit will be included in the North Plant Waste Management Area investigation by proximity.

* Change. NOR #16 (North Pit) is "Tract A". Need to choose New name for this new unit. Perhaps "North spoils".

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 17, Southeast Holding Basin, RCRA, Inactive
Service: 1975 - 1985
Type : Surface Impoundment
I. D. No.: Southeast Holding Basin
Status : Storage/Disposal
Capacity : 640 CY

II. Evidence of Release: The groundwater below this unit is documented to contain Appendix VIII constituents. A Groundwater Compliance Plan is currently being prepared.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	DO(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	DO(01-24) *
009	Stormwater, Contaminated	IH	906330	DO(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	DO(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is currently undergoing closure. A Groundwater Compliance Plan is being written for this unit. Appendix VIII constituents have been discovered in plumes emanating from this unit. This unit is located in the 100 year floodplain.

* See Table 1

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and Compliance Plan No. CP-50054.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: (RCRA Exempt)

N.O.R. Facility No.: 18, Wastewater Tank RCRA Active
Service: 1938 - Current
Type : Tank (Surface)
I. D. No.: Tank 5-20**
Status : WW tank
Capacity : 210,000 g

II. Evidence of Release: ?

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	
005	Pipeline Flushings	IH	906110	
006	Pipeline Flushings	I	106110	
008	Tank Washings	IH	906330	
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

5-20 is West Plant not Central

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is currently used in the facility wastewater treatment system. No releases were observed or reported.

VII. Recommended Action: This unit should be included in the Central Plant ? RFI.

* See Table 1

** 5-20 is not included in the Central Plant. It is located in the west plant

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 19, Wastewater Tank RCRA, Inactive
Service: 1980 - 1988
Type : Tank (Surface)
I. D. No.: DAF Tank
Status : WW tank
Capacity : 18,500 gallons

II. Evidence of Release:

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was part of the North Holding Basin wastewater treatment system. The unit is inactive, and closure has been proposed to occur concurrently with NHB closure.

VII. Recommended Action: This unit should be included in the Compliance Plan for the North Holding Basin by proximity.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 20, Wastewater Tank RCRA, Inactive
Service: 1980 - 1988
Type : Tank (Surface)
I. D. No.: Equalization Tank
Status : WW tank
Capacity : 10,000 gallons

II. Evidence of Release: No direct evidence of release was observed or noted.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was part of the North Holding Basin wastewater treatment system. The unit is inactive, and closure has been proposed to occur concurrently with NHB closure.

VII. Recommended Action: This unit should be included in the Compliance Plan for the North Holding Basin by proximity.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: A^, Tract A, SWMU Closed
Service: 1945-1981
Type : Landfill
I. D. No.: Tract A
Status : Disposal
Capacity : 6,400 CY (est.)

II. Evidence of Release: A preliminary Site Characterization Report dated May, 1990 documents soil and groundwater contamination at this unit. Analyses of samples taken from this area turned up several Appendix VIII constituents, such as Trichloroethylene, vinyl chloride, benzene, naphthalene, and dibenzofuran. Elevated levels of metals were also found. See Attachment F.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Wastes unknown at this time			

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was apparently used over a long period as a disposal pit. Aerial photographs showed this unit in operation in 1944 and 1945, but the area appeared closed in a photo from 1953. Extensive contamination appears to be present at this unit, with contamination consisting of VOA's, semi-volatiles, and possibly metals. No recovery system or remediation plan has yet been proposed. The unit was not presented as a permittable unit in the Part B permit application, and was not mentioned as a Compliance Plan unit.

VII. Recommended Action: This unit should be assessed in an RFI. A plan for remediation of soil and groundwater should be proposed as part of a CMS plan upon completion of the RFI phase of the CAP at this unit. The RFI for groundwater beneath this unit should be addressed in the Groundwater Compliance Plan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: B^, Tract B
SWMU, Inactive
Type : Landfill/Pit

Service: Unknown
I. D. No.: Tract B

Status : Disposal

Capacity : Unknown

II. Evidence of Release: During excavations for a fence, construction debris and what appeared to be tank bottoms were encountered. A preliminary investigation by the facility has begun, but no results have yet been reported.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown at this time			

V. Target Populations of Concern: See Attachment A

VI. Summary: Apparently, this area was used as a disposal site for construction debris and tank bottoms, and may have been used to dispose of other wastes which are as yet unknown. A preliminary facility investigation has began, but no results have yet been reported.

VII. Recommended Action: The preliminary investigations should continue, and the unit should be addressed in an RFI. A groundwater RFI should be required by Compliance Plan CP-50054.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: C^, Texaco Impoundment #3, SWMU, Closed
Service: 1918-1981
Type : Surface Impoundment
I. D. No.: Texaco Impoundment #3
Status : Disposal
Capacity : 400 CY

II. Evidence of Release: No evidence of release was observed

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
N/A	Wastewaters with Various Organics	--	--	--

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was certified closed in 1958. The Post-Closure period was ended in 1981.. No evidence of any release was found or observed.

VII. Recommended Action: This area will be included in the RFI recommended for ~~A~~ the ~~North Plant by~~ proximity.

* This impoundment is in the east plant

argue in

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: D^, Texaco Impoundment #4, SWMU, Closed
Service: Pre 1920 - 1981
Type : Surface Impoundment
I. D. No.: Texaco Impoundment #4
Status : Disposal
Capacity : 117,800 CY

II. Evidence of Release: No evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
N/A	Wastewater with Various Organics	--	--	--

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was inactivated in the 1950's, and post-closure was terminated in 1981. No evidence of release was found or observed.

VII. Recommended Action: This unit will be included in the RFI recommended for the East Plant by proximity.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: E^, Stormwater Drainage System, SWMU Active

Service: 1945 - Current

Type :

I. D. No.: Stormwater Drainage System

Status : Disposal

Capacity : Unknown

II. Evidence of Release: Dead and distressed vegetation was noted directly adjacent to several drainage ditches. Soil in the Drainage Ditches appeared oil-stained. A sheen was noticed on the surface of water within the ditch. The Drainage facilities for T/T Racks No. 3 and No. 4 have been established as possible contributing sources for the subsurface soil and groundwater contamination in the southeast portion of the GATX facility

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
009	Stormwater, Contaminated	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is used to convey stormwater to an NPDES outfall or to stormwater processing units prior to discharge to a POTW. Possible evidence of waste or waste constituents was present at the time of inspection. This unit has been used for a very long time.

VII. Recommended Action: This unit should be included in the Central Plant RFI. The plan should address soil and groundwater contamination from this unit. The groundwater compliance plan should require a groundwater investigation for this unit.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: Active

N.O.R. Facility No.: F^, Lift Station #4 SWMU, ~~Inactive~~ Service: 1985 - ~~1987~~ Current

Type : Tank, Inground I. D. No.: Lift Station #4

Status : WW Tmt Capacity : Unknown

II. Evidence of Release: No release may be directly attributed to this unit. However, this unit is constructed adjacent to the former SEHB.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
009	Stormwater, Contaminated	IH	906330	D0(01-24) ✓

V. Target Populations of Concern: See Attachment A

VI. Summary: No direct evidence of release was observed or found. However, heavy groundwater contamination is present beneath this unit. This unit is constructed adjacent to and replaced the SEHB, and handles the same wastes.

VII. Recommended Action: This unit is included by proximity in the compliance monitoring for the southeast portion of the GATX facility. No further action is required at this time.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: G^, Southeast Holding Basin Sump, SWMU, Inactive
Service: 1985 - 1987
Type : Lift Station
I. D. No.: SEHB Sump
Status : Inactive
Capacity : Unknown

II. Evidence of Release: No evidence of release was observed at this unit. This unit was used after the SEHB was inactivated, but before Lift Station #4 was constructed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
009	Stormwater, Contaminated	IH	906330	D0(01-24) X

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was used as an interim unit to replace the SEHB. No visible evidence of contamination was observed at this unit. This unit is included in the facility compliance monitoring by its proximity to the SEHB.

VII. Recommended Action: No further action is required at this time.

See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: H^, East Plant Area
Type : Waste Management Area
Status : Disposal

Service: Pre - 1920's - 1950's
I. D. No.: East Plant
Capacity : Unknown

II. Evidence of Release: No evidence has been discovered concerning releases in this area. The area was used as a Texaco refinery for a long period of time. A closed impoundment, Texaco Impoundment #4, is located within this area at the far eastern edge. It appears that another impoundment was present just north of Texaco Impoundment #4.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
Unknown				

V. Target Populations of Concern: See Attachment A

VI. Summary: This area may be contaminated by years of refinery and tank farm operations. No known survey of possible contamination has been performed. The refinery appeared to have been removed from the site prior to 1953, as shown by an aerial photograph.

VII. Recommended Action: An investigation should be performed to determine whether or not soil and/or groundwater contamination is present beneath the area. If contamination is discovered, then the lateral and vertical limits of the contamination should be determined, and an appropriate CMS/CMI program instigated.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

AREA 7.

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William
Hazsit # : None
Section : H&SW Per

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: I^, North Plant Area
Type : Waste Management Area
Status : Disposal

Service: Pre - 1920's
I. D. No.: North Plant
Capacity : Unknown

II. Evidence of Release: Evidence has been discovered concerning releases in this area at Tract A. The area was used as a Texaco refinery and/or GATX tankfarm over a long period of time. A closed impoundment, Texaco Impoundment #3, has a corner located within this area. Tract B is also located within this area, as is the north spoils area.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
Unknown				

V. Target Populations of Concern: See Attachment A

VI. Summary: This area may be contaminated by years of refinery and tank farm operations. Tracts A and B are known SWMU's. A topographic map shown in Attachment B shows several areas that could be fill areas, and these are circled on the map. No other known survey of possible contamination has been performed.

VII. Recommended Action: An investigation should be performed to determine whether or not soil and/or groundwater contamination is present beneath the area. If contamination is discovered, then the lateral and vertical limits of the contamination should be determined, and an appropriate CMS/CMI program instigated.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: J^, Impoundment No. 1 Service: Pre 1920 - 1981
Inactive
Type : Surface Impoundment I. D. No.: Impoundment No.1

Status : Disposal Capacity : Unknown

II. Evidence of Release: No evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit appeared on aerial photographs dating from 1944 and 1945. The apparent unit was a small triangular impoundment in what is now the Northwest corner of the Central Plant. No evidence of release was found or observed.

VII. Recommended Action: This unit will be included in the RFI recommended for the Central Plant by proximity.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: K^, Impoundment No. 2 Inactive
Service: Pre 1920 - 1981
Type : Surface Impoundment
I. D. No.: Impoundment No. 2
Status : Disposal
Capacity : Unknown

II. Evidence of Release: No evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit appeared on aerial photographs dating from 1944 and 1945. The unit appeared to be an impoundment on the west side of what is now the CXI leased-area of the Central Plant. No evidence of release was found or observed.

VII. Recommended Action: This unit will be included in the RFI recommended for the Central Plant by proximity. Should be eliminated

This area is currently leased to TXI & is being investigated by TXI under an approved RFI with TWC. GATX is not the operator of the property & will rely on TXI to implement further actions.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: L^, Impoundment No. 3 Service: Pre 1920 - 1981 Inactive
Type : Surface Impoundment I. D. No.: Impoundment No. 3

Status : Disposal Capacity : Unknown

II. Evidence of Release: No evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit appeared on aerial photographs dating from 1945 and 1953. The unit appeared to be an impoundment on the east side of the Texaco refinery. No evidence of release was found or observed.

VII. Recommended Action: This unit will be included in the RFI recommended for the East Plant by proximity.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: M^, T/TR #4, SWMU, Active
Service: 1945 - Current
Type : Product Loading Area
I. D. No.: T/TR #4

Status : Disposal
Capacity : Unknown

II. Evidence of Release: The soil and track areas at this unit appeared to be stained. Various constituents were reported from samples taken in conjunction with the Supplemental Soils investigation for T/TR #4, Tank 29 and Tank 82.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: Apparently, spills over the years from this loading area have caused contamination. A remedial investigation was ordered as a result of the Agreed Order dated January 31, 1990.

VII. Recommended Action: This unit should be included in the RFI for the Central Plant Waste Management Area.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: N^,T/TR #6 SWMU, Active
Service: 1945 - current
Type : Product Loading Area
I. D. No.: T/TR #6

Status : Disposal
Capacity : Unknown

II. Evidence of Release: Stained soils were noted at this unit. A remedial investigation has begun.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: Contamination has been discovered at this unit.

VII. Recommended Action: This unit should be included in the Central Plant Waste Management Area RFI.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: O^, Tank 26, SWMU, inactive
Service: 1930's - 1980's
Type : Product Storage Tank
I. D. No.: Tank 26

Status : Disposal
Capacity : Unknown leak amount

II. Evidence of Release: Groundwater contaminants were found under this former product storage tank.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: Hazardous constituents have been found under this unit during the Supplemental Soils Assessment for T/TR #4, Tank 26 and Tank 82.

VII. Recommended Action: This unit should be included in the Central Plant Waste Management Area RFI.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: P^, Tank 82, SWMU, inactive
Service: 1930's - 1980's
Type : Product Storage Tank
I. D. No.: Tank 82

Status : Disposal
Capacity : Unknown leak amount

II. Evidence of Release: Groundwater contaminants were found under this former product storage tank.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: Hazardous constituents have been found under this unit during the Supplemental Soils Assessment for T/TR #4, Tank 26 and Tank 82.

VII. Recommended Action: This unit should be included in the Central Plant Waste Management Area RFI.

ATTACHMENT A

I. Pollutant Dispersal Pathways:

Three pathways exist for the transport of waste or waste constituents from the GATX - Galena Park facility. Wastes may be transported via groundwater, air or surface water. Groundwater contaminant transport is the primary waste transport mechanism because of known groundwater contamination at the facility, and discharge of contaminated groundwater to the Houston Ship Channel. Air contaminant transport is the secondary concern, as strong chemical odors were noted during the VSI. Surface water transport is also a concern, as water with a sheen was noticed in a discharge ditch headed toward a facility outfall. ?

A. Groundwater

Releases to groundwater have been documented from the Southeast Holding Basin, the North Holding Basin and Tract A. A release to groundwater may have also occurred from Tract B, but no information exists on any release from this pre-RCRA SWMU at this time.

Contamination is known in two aquifers below the facility. One aquifer, denoted in the Groundwater Compliance Plan as the Sandy Channel Fill (SCF), is a shallow perched aquifer consisting primarily of dredge spoils from the Houston Ship Channel. Below this aquifer is a discontinuous clay unit denoted as the First Silty Clay Unit (FSCU), and below that is the Uppermost Natural Transmissive Unit (UNTU), consisting primarily of silty and clayey sands. The SCF and UNTU appear to be hydraulically connected. Below the UNTU lie thickly bedded clays of Second Silty Clay/Clay Unit (SSC/CU). Contamination is known in both the SCF and the UNTU. Waters in the SCF discharge to the Houston Ship Channel, as do waters in the UNTU in the area of the Expanded Groundwater Quality Assessment[1]. Groundwaters may also discharge to Hunting Bayou on the east side of the facility. Groundwater gradients generally tend to be toward the Houston Ship Channel, with some gradients trending toward Hunting Bayou.

North

B. Surface Water

Releases to surface water are believed to be occurring from groundwaters in the SCF and UNTU at the GATX facility. Possibly contaminated runoff was noted in a drainage ditch near Outfall 003, which discharges into the Houston Ship Channel.

C. Air

Releases to air of waste and waste constituents is also a possibility at the GATX facility. Vapors resulting from contamination of soil and groundwater by volatile organics may be released to the air through the soil. Air releases may also result from the storage areas through fugitive emissions, and from loading

emissions from tanks and containers. Prevailing winds are probably from the south and southeast.

II. Target Populations of Concern:

The GATX facility is not a critical wildlife habitat area, or an area designated state or federal wilderness. Parts of the GATX facility appear to qualify as wetlands.

yes if yes wh path

To the north of GATX is a tract of land owned by the ARCO Pipeline Company. ~~East~~ West of the facility is Pak - Tank. ~~East~~ East of the facility is the ~~Gulf Coast Waste Disposal Authority~~ Water Treatment Plant. South of the facility is the Houston Ship Channel. Across the Ship Channel is A City of Houston Power Generation Station. & Gulf Coast Waste Disposal Authority.

City of Houston

NOTES

1 Groundwater Compliance Plan Application, Part One, ENSR, 1989, Chapter 3.

According to the company hydrocarbon fractions are removed from tank 29 and sent offsite to a fuel blender. Ms. McFaddin stated that based on an EPA clarification of "Wastewater Treatment Unit" as stated in VOL. 53 No. 171, (Sept. 2, 1988) of the Federal Register it appears that tank no. 29 may be considered a RCRA regulated unit. GATX representatives indicated that they would review the cited EPA regulation and respond in writing concerning the regulatory status of tank no. 29. Ms. McFaddin also indicated that it appears that tank no. 10-12 is not a regulated unit based on use of the tank.

Michelle briefly reviewed the procedures involved concerning issuance of a commission order. The company was informed that all violations resolved prior to issuance of the order would not be included in the order. The company was also informed that administrative penalties would be proposed in the Petition.

TEXAS WATER COMMISSION

CONFERENCE ATTENDANCE

Project: GATX

Conference: Facts Meeting Place: Rm 1146 S.F. Austin Bldg.

Name	Representing	Title Function, or Position	Phone Number
Allan Posnick	TWC	S.W. Enforcement	(512) 463-1137
Marsha Hill	TWC	Field Investigator	713/479-5981
Arthur Talley	ECA	Engineer	512/346-097
Charles Mouk	HRSW permits	Unit Head	512/463-8192
Michelle A. McFaddin	TWC	Senior Attorney	(512) 463-80
LYNN JONES	GATX TERMINALS	ENV ENGINEER	713 455-123
Bruce Daniel	GATX - ENSR	Consultant	713-520-990
Richard Butler	GATX TERMINALS	TERMINAL Mgr	713.455.12
Molly Cagle	GATX	Vinson & Elkins	512-495-85

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman
Paul Hopkins, Commissioner
John O. Houchins, Commissioner

Allen Beinke, Executive Director
Michael E. Field, General Counsel
Brenda W. Foster, Chief Clerk

September 6, 1989

Allyn M. Davis, Ph.D, Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region VI
1445 Ross Avenue
Dallas , Texas 75202

Re: GATX Terminals Corporation
TWC Solid Waste Registration No. 30573
EPA I.D. No. TXD026481523

Dear Dr. Davis:

Pursuant to agreements between Texas Water Commission (TWC) representatives and Environmental Protection Agency (EPA) Region VI representatives during a conference held on May 4, 1989, the TWC has determined that an alternate schedule will be necessary for GATX Terminals, a high priority violator which was scheduled for formal action on September 21, 1989. The justification for the alternate schedule includes, but is not limited to, the fact that the current case load exceeds TWC's resources. As of August 31, 1989, the TWC has scheduled 62 petitions and 74 orders to be issued, and the staff is also involved in approximately 38 Attorney General cases.

Therefore, an alternate schedule has been established for this case. According to the alternate schedule, a petition will be filed by October 31, 1989. If you have any questions regarding this matter, please contact Anne Dobbs or Russell Kimble at 512/463-8425.

Sincerely,

Daniel J. Eden

Daniel J. Eden, Director
Hazardous and Solid Waste Division

DKW

cc: Linda Thompson, EPA, RCRA Enforcement Branch, Oversight Section (6H-PA)
Shirley Workman, EPA, RCRA Programs Branch, Project Officer, Grants and Authorization Section (6H-HS)
Michelle McFaddin, TWC Legal Division
Anne Dobbs, TWC H & SW Enforcement Unit
Cheryl Wilson, TWC Reports and Information Management Unit
TWC District 7 Deer Park Office

GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

September 29, 1989

Mr. Allen E. Posnick, Geologist
Hazardous and Solid Waste Enforcement Section
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087
Capitol Station
Austin, Texas 78711-3087

Re: GATX Terminals Corp. - Solid Waste Registration No. 30573
Wastewater System: Process Flow Description

Dear Mr. Posnick:

As we discussed at our meeting August 23, 1989, we are forwarding process flow sheets and summary sheets of the terminal wastewater system. Two scenarios are presented:

* Past Operating Practices
* Present (Future) Operating Practices -- After all new construction is complete.

Mixed Organic - Waste No. 913370 - Past Operating Practices

Additionally, concern was raised over the fate of the "mixed organic portion of the wastewater system", that the TWC identified as a hazardous waste in January, 1988.

The mixed organic is an emulsion of materials resulting from loading/unloading operations and water (i.e. line cleaning, hose cleaning, etc...). In the past, the wastewater was heated in Tk 29 and the water was separated out of the mixed organic and processed to GCWDA. The resulting neat organic was handled separately.

Recently, difficulties with the Tank 29 steam system contributed to inefficient emulsion breaking. Therefore, other tanks were used to accumulate the mixed organic for treatment at Tk 29. These tanks served as flow thru tanks. Table 1 is a data summary of the materials in these tanks.

Furthermore, the material in these tanks will be processed thru Tank 32, which contains a new steam heating system for emulsion breaking, with the water going to GCWDA and the neat organic being processed to Tank 3-9 for handling.

GATX

Finally, we are revising the handling procedures for the "mixed organic" in Tk 3-9 and will update the agency as soon as the revisions are complete. Please direct any questions or comments to my attention at 713-475-9235.

Sincerely,

R. E. Butler

R. E. Butler
Terminal Manager

REB/nro
Enclosures
cc: R. L. Commander
Ms. Marcia Hill, TWC - SE Region
~~Ms. Molly Cagle, Vinson & Elkins~~
Mr. Bruce Daniels, ENSR
Mr. Arthur Talley, E.C.A.
File

CERTIFIED MAIL NO. P 714 663 070
RETURN RECEIPT REQUESTED

GATX

TABLE I
ANALYTICAL SUMMARY - MIXED ORGANIC
WASTEWATER TANKS (PAST OPERATING PRACTICES)
9-01-89

Parameter	Tank 50	Tank 51	Tank 116	Tank 29	Tank 10-12	Tank 25-1	Tank 5-11	Tank 5-10
Gravity API @ 60° F	25.3	---	24.5	19.3	38.7	20.3	15.1	15.0
Gravity API "Cleaned"	25.3	25.9	24.6	25.8	38.7	12.4	12.4	15.4
BS & W (%)	0.4	95.0	6.0	75.0	40.0	80.0	95.0	95.0
Flash Point PMCC ° F	54	60	68	36	<20	86	>144	>152
Volume/ Gallons	77,000	16,000	18,000	1,090,000	140,000	105,000	98,000	10,000

Note: Tank 117 was empty.

GATX

9-14-89

WASTEWATER SYSTEM
OPERATING SUMMARY
COLLECTION SYSTEM

Lift Station 4

Collects water from Corkscrew Hill, "10's" Manifold, MTBE Manifold, Valve Manifold Pit 1, Central Plant T/C tracks #1 and #2, Central Plant T/T racks 1, 2, 3, and 4. Transfers all collected water to tank 32 by pipeline.

Line 8F

Collects water from West Plant T/T racks, West Plant gasoline manifold, T/C racks, Barge Dock #2, and Ship Dock #2, for transfer to tank 32.

Line GPC - GPE

Collects water from Ship Dock #1, Valve Manifold Pit 2, Ship Dock #3, East Plant gasoline manifold, Barge Dock #3 and East Plant T/C racks for transfer to tank 32.

Lubripac

6" line for transfer of fluid from Lubripac, Inc. manufacturing plant.

Tank S-11-300

Collects water and oil at West Plant fuel oil manifold.

Tank S-11-3500

Collects water and oil at East Plant fuel oil manifold.

GATX

9-14-89

WASTEWATER SYSTEM
FUTURE OPERATING PRACTICES
PROCESS SUMMARY

Tank 29 (Flow-through from Barge Dock #1)

Receives wastewater from Barge Dock #1 and transfers wastewater to tank 32.

Tank 32

Receives wastewater from plant loading, unloading, and manifolds (i.e. see attached Operating Summary - Collection System). Wastewater can be heated by steam coils, agitated with nitrogen, or treated with injected chemicals prior to transfer to oil/water separator.

Oil/Water Separator

Receives liquid from tank 32 for gravity separation and transfer of the wastewater to either tanks 5-20, 3-9, or 32 for reprocessing. Wastewater, lighter than water (i.e. less than 8.33#/gal.), flow thru to tank 3-9. Wastewater, equal to the weight of water, flow, thru to tank 5-20.

Tank 3-9

Receives wastewater from oil water separator and further treats the wastewater by steam treating, agitation, or chemical treatment. Waste water is transferred back to tank 32 for reprocessing and the recovered product is stored for less than 90 days.

Tank 5-20

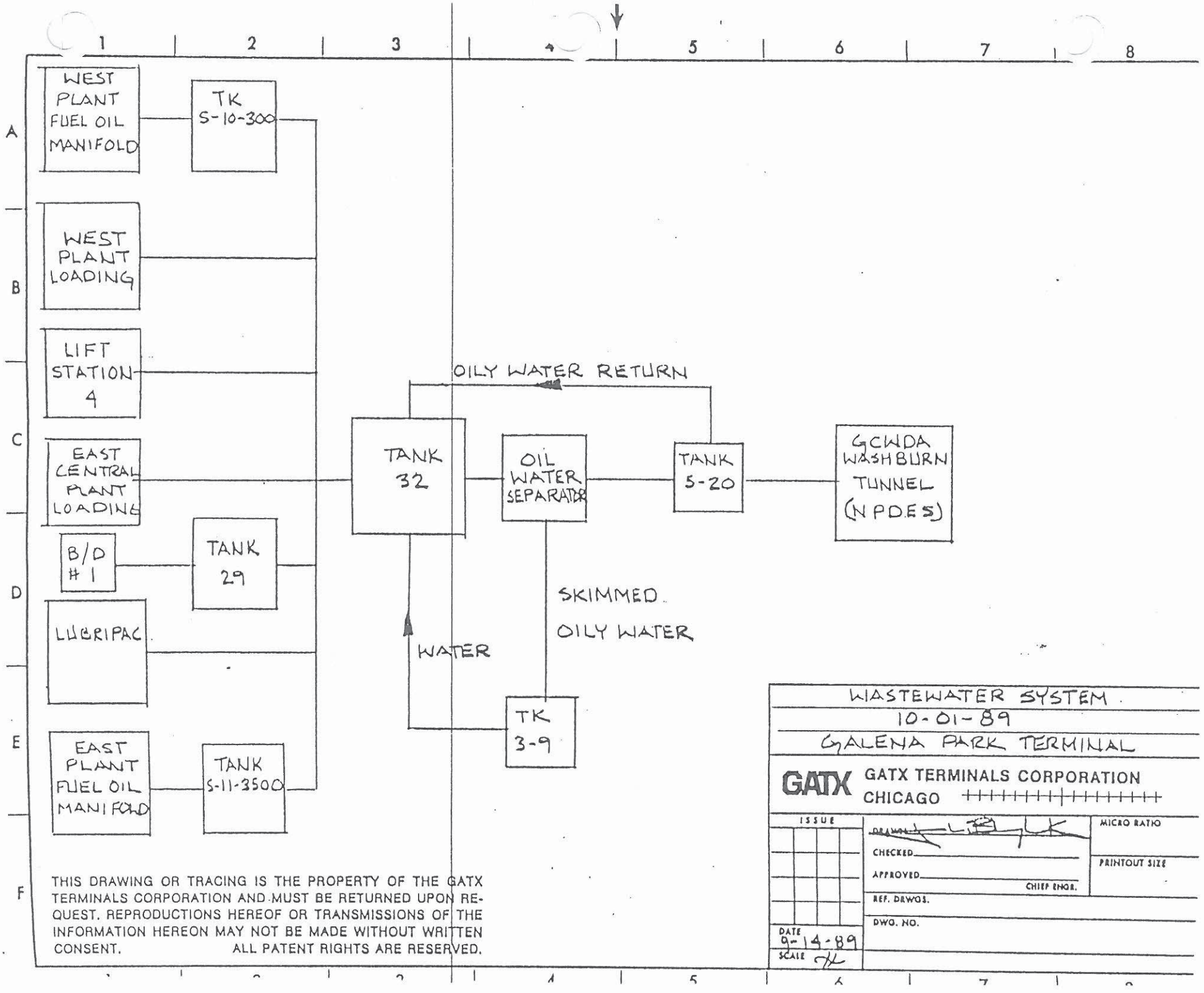
Receives wastewater from oil/water separator and transfers wastewater to GCWDA, a NPDES permitted outfall (POTW). Oil/water separator upsets can be returned to tank 32 for reprocessing.

Tank 100-5 and 100-6

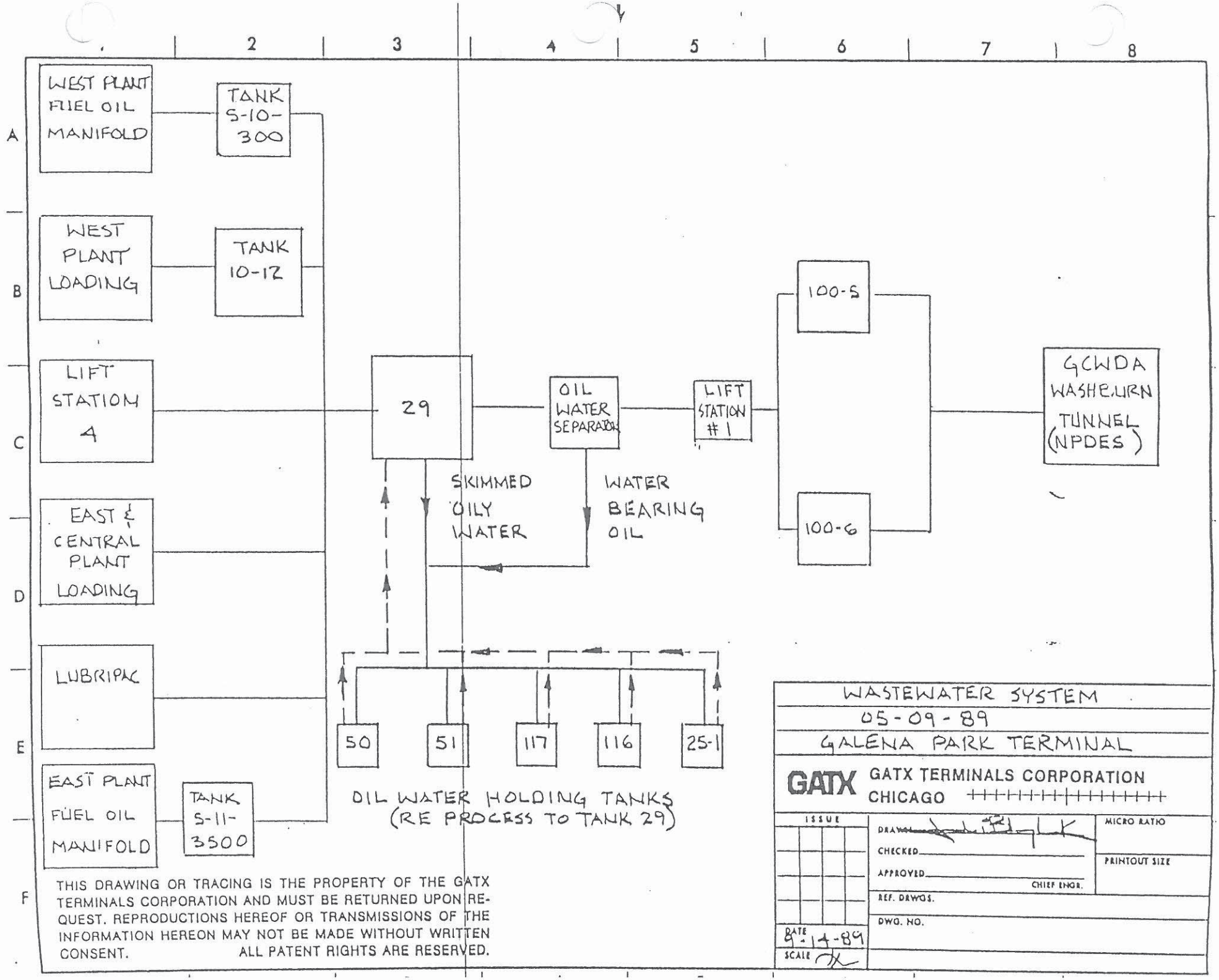
Removed from wastewater service and collect stormwater from lift station 1, 2, and 3 for the discharge through NPDES Outfall 006.

Tanks 117, 116, 50, 51 and 25-1

Removed from wastewater service and converted to product service.



THIS DRAWING OR TRACING IS THE PROPERTY OF THE GATX TERMINALS CORPORATION AND MUST BE RETURNED UPON REQUEST. REPRODUCTIONS HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.



WASTEWATER SYSTEM

05-09-89

GALENA PARK TERMINAL

GATX TERMINALS CORPORATION
CHICAGO

ISSUE

DRAWN

CHECKED

APPROVED

CHIEF ENGR.

REF. DRWGS.

DWG. NO.

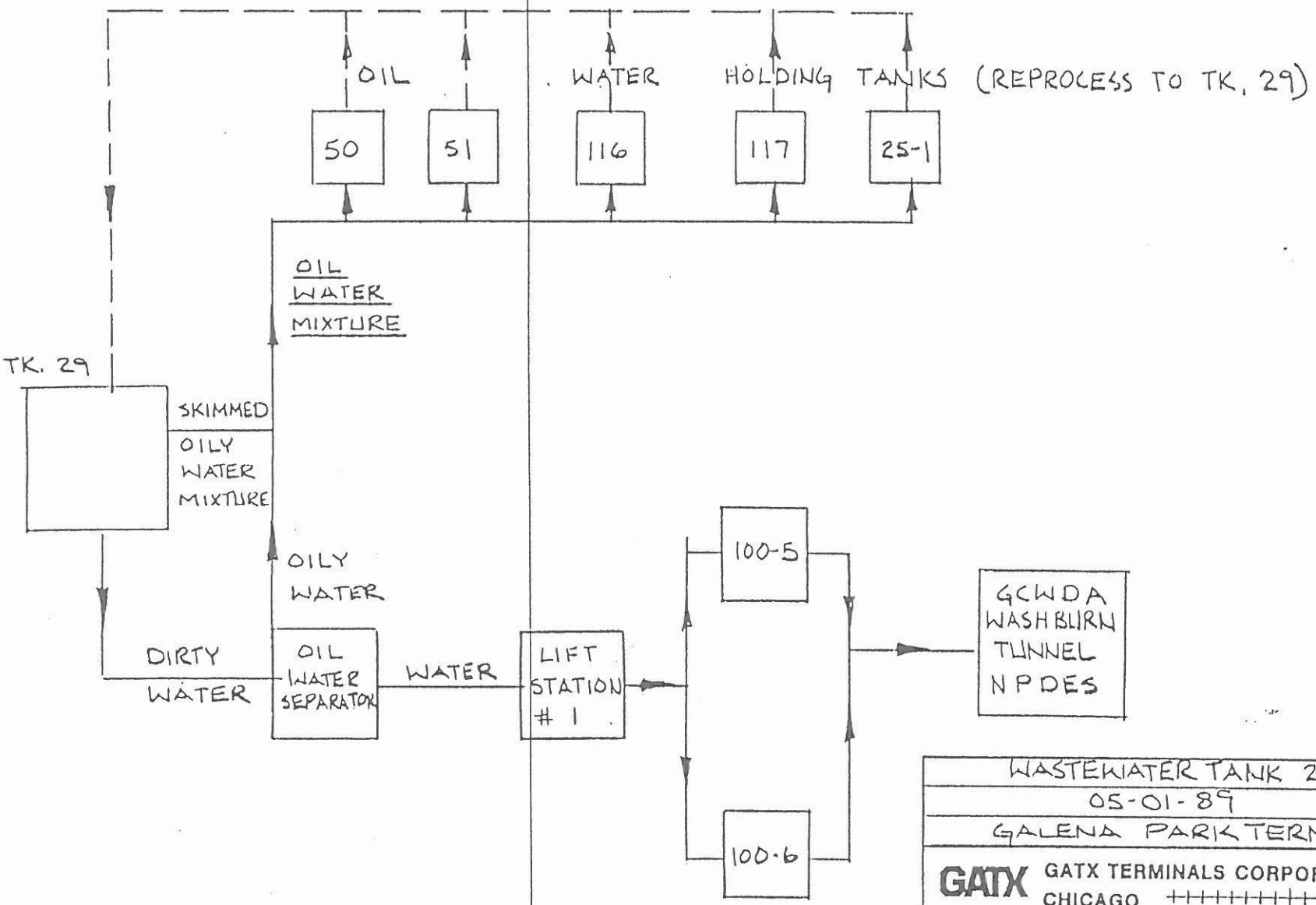
DATE 8-14-89

SCALE

MICRO RATIO

PRINTOUT SIZE

THIS DRAWING OR TRACING IS THE PROPERTY OF THE GATX TERMINALS CORPORATION AND MUST BE RETURNED UPON REQUEST. REPRODUCTIONS HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.



WASTEWATER TANK 29
05-01-89
GALENA PARK TERMINAL

GATX TERMINALS CORPORATION
CHICAGO

ISSUE			

DRAWN J. Black
CHECKED
APPROVED
CHIEF ENGR.
MICRO RATIO
PRINTOUT SIZE
REF. DRWGS.
DWG. NO.
DATE 9-14-89
SCALE 1X

THIS DRAWING OR TRACING IS THE PROPERTY OF THE GATX TERMINALS CORPORATION AND MUST BE RETURNED UPON REQUEST. REPRODUCTIONS HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GATX

9-14-89

WASTEWATER SYSTEM
PAST OPERATING PRACTICES
PROCESS SUMMARY 5-09-89

Tank 29

Received wastewater from all plant operations (i.e. contact water includes loading racks, barge docks, ship docks, pipeline manifolds, and laboratory samples).

Several years ago, the steam coil became inoperative. Therefore, separation (by heating the tank and breaking the emulsion) became very difficult. And, when necessary, wastewater was removed to Tanks 117, 116, 50, 51, 25-1, in addition to the oil/water gravity separator.

Additionally, since January 1988 no organic has been transferred offsite.

Tanks 117, 116, 50, 51, and 25-1

These tanks were storage tanks converted to wastewater surge capacity, due to operating difficulties in tank 29 and oil/water separator. Wastewater was received from the tank 29, plant operations, or the oil/water separator and transferred back to tank 29 or oil/water separator for treatment, as operating demands allowed.

Oil/Water Gravity Separator - Associated with Tank 29

Received wastewater from Tank 29 and surge tanks - 117, 116, 50, 51, and 25-1. Wastewater was separated into two fractions:

Oil/Wastewater -- lighter than 8.33#/gallon
Wastewater -- equal to 8.33#/gallon

The light fraction was pumped back to Tk 29 or surge tanks for reprocessing.

The wastewater fraction was pumped to Lift Station 1 for transfer to GCWDA, through 100-5 and 100-6.

Lift Station 1

Receives wastewater from oil/water separator and transfers wastewater to Tanks 100-5 and 100-6.

Tanks 100-5 and 100-6

Receives wastewater from Lift Station 1 and transfers wastewater to Gulf Coast Waste Disposal Authority, a permitted NPDES outfall.

GATX

TX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486, GALENA PARK, TX77547
713-455-1231

30573

October 31, 1989

Mr. Allen Beinke
Executive Director
Texas Water Commission
P. O. Box 13087
Capitol Station
Austin, Texas 78711

Attention: Mr. Allan Posnick

fac. # not tested

Re: Letter of Intention for Closure of Tank 29 Area GATX Terminals Corporation, Galena Park, Texas Harris Co.

Dear Mr. Beinke:

The purpose of this letter is to notify the Texas Water Commission (TWC) of GATX Terminals Corporation's intention of closing the Tank 29 area. As part of the closure, the following tanks will be closed: Tanks 29, 50, 51, 116, 117 and 25-1.

It appears from discussions with the TWC staff that an order will be written in the near future which will require GATX to close these units. GATX believes that it is in the best interest of the environment and of the company to not delay the initiation of these closure activities. The Tank 29 area was taken off-line, effective October 31, 1989.

A closure plan meeting the requirements of 40 Code of Federal Regulations (CFR) Part 265 Subpart G and 40 CFR Part 265.197 will be submitted for the above mentioned units by December 29, 1989.

If you have any questions regarding this letter, please feel free to contact Bernadette Johnson of Environmental Consulting Associates at (512) 346-0978 or myself at (713) 455-1231.

Sincerely,

Lynn R Jones

Lynn R. Jones
Environmental Engineer

LRJ/dms

cc: R. L. Commander
Linda Kuhn, Region 7 - TWC
Marcia Hill, Region 7 - TWC
Arthur Talley, ECA
Bruce Daniels, ENSR
Molly Cagle, Vinson & Elkins
File

RETURN RECEIPT REQUESTED
RECEIPT #714 663 080

RECEIVED
NOV 08 1989
TWC UST SECTION

CO 11-7-89
11-8-89 lett
D-SER Lon
removal/indic

KJD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1445 ROSS AVENUE
DALLAS, TEXAS 75202

JWR 30573

OCT 30 1989

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

WARNING LETTER

Mr. Lynn Jones
Environmental Coordinator
GATX Terminals Corporation
Post Office Box 486
Galena Park, Texas 77547-0486

Re: GATX Terminals Corporations
EPA I.D. No. TXD026481523

Dear Mr. Jones:

This Warning Letter is to notify you that your facility may be violating legal requirements of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901 et seq.

During the August 15, 1989, Environmental Protection Agency (EPA) inspection of your facility, several violations pertaining to the RCRA land disposal restrictions were noted. The regulations which set the prohibitions on management of hazardous wastes containing spent solvents (F001-F005) became effective on November 8, 1986 (51 Fed. Reg. 40636). The regulations which set the prohibitions on management of the California List wastes became effective on July 8, 1987 (52 Fed. Reg. 25787). The regulations which set the prohibitions on management of the First-Third of listed hazardous wastes became effective on August 17, 1988 (53 Fed. Reg. 31211). The regulations which set the prohibitions on management of the Second-Third of listed hazardous wastes became effective on June 23, 1989 (54 Fed. Reg. 26647). These regulations can be found at 40 CFR Part 268 and revisions to Parts 250-265 and 270.

The State of Texas is authorized by EPA to conduct a hazardous waste program under Section 3006 of RCRA, 42 U.S.C. §6926. However, the authorized State program does not include the provisions of Hazardous and Solid Waste Amendment (HSWA), Public Law No. 98-616., 98 Stat. 3221 (1984), and regulations promulgated thereunder. Therefore, EPA implements and enforces those regulations which are promulgated pursuant to HSWA, including the land disposal restrictions.

The EPA inspector noted that GATX Terminals Corporation made shipments of restricted wastes to Rollins Environmental Services, Inc., without attaching the proper notification form. Failure to attach notifications constitutes a violation of §268.7, which states in part:

(a) Except as specified in §268.32 or §268.43 of the part, the generator must test his waste, or test an extract developed using the test method described in Appendix I of this part, or use knowledge of the waste, to determine if the waste is restricted from land disposal under this part.

(1) If a generator determines that he is managing a restricted waste under this part and the waste does not meet the applicable treatment standards set forth in Subpart D of this part or exceeds the applicable prohibition levels set forth in §268.32 or RCRA §3004(d), with each shipment of waste the generator must notify the treatment or storage facility in writing of the appropriate treatment standards set forth in Subpart D of this part and any applicable prohibition levels set forth in §268.32 or RCRA §3004(d). The notice must include the following information:

(i) EPA Hazardous Waste Number;
(ii) the corresponding treatment standards and all applicable prohibitions set forth in §268.32 or RCRA §3004(d);
(iii) the manifest number associated with the shipment of waste; and
(iv) waste analysis data, where available.

The inspector also noted that GATX had one hazardous waste drum in storage without an accumulation start date. Failure to mark each container with the date accumulation began constitutes a violation of §268.50, which states in part:

(a) (2) An owner/operator of a hazardous waste treatment, storage, or disposal facility stores such waste in tanks or containers solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal; and

(i) each container is clearly marked to identify its contents and the date each period of accumulation begins; and

(ii) each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility. Regardless if whether the tank itself is marked, an owner/operator must comply with the operating record requirements specified in §264.73 or §265.73.

EPA requires adherence to the regulations found in 40 CFR §268. If you have not already done so, you must take immediate remedial action to implement the 40 CFR (§265 and §268) requirements. You must submit, within thirty (30) days of receipt of this letter, documentation, and a description of the actions you have taken to correct the violations noted above, and to implement the regulations of 40 CFR (§265 and §268). Failure to comply with the requirements of this Warning Letter may subject you to liability for the imposition of penalties of up to twenty-five thousand dollars ($25,000) for each day of continued non-compliance, in accordance with §3008 of RCRA, 42 U.S.C. §6928.

All information required by this Warning Letter should be submitted to:

Mr. Samuel J. Coleman, P.E., Chief
Texas Section (6H-CT)
RCRA Enforcement Branch
Hazardous Waste Management Division
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

If you have any questions regarding this Warning Letter, please contact Samuel Tates, U.S. Environmental Protection Agency, Region 6 (6H-CT), 1445 Ross Avenue, Dallas, Texas 75202-2733, (214) 655-6794.

Sincerely yours,

Allyn M. Davis
Director
Hazardous Waste Management Division (6H)

cc: Mr. Daniel J. Eden, Director
Hazardous and Solid Waste Division
Texas Water Commission

SWR 30573

GATX TERMINALS CORPORATION
906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

November 14, 1989

Mr. Samuel J. Coleman, P.E. Chief
Texas Section (6H-CT)
RCRA Enforcement Branch
Hazardous Waste Management Division
U. S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: GATX Terminals Corporation
EPA I.D. No. TXD026481523

Dear Mr. Coleman:

In response to the Warning Letter, dated October 30, 1989, GATX Terminals respectfully submits documentation and a description of actions that have been taken to correct the noted violations, and implementation of 40 CFR Parts 265 and 268.

GATX Terminals appreciates the opportunity to respond to the Warning Letter. If you have any additional questions or comments, please contact us at (713) 455-1231.

Sincerely,

Lynn R. Jones
Environmental Engineer

LRJ/nro
cc: R. E. Butler
Enclosures:
Response I
Attachment A
Attachment B
Response II
Attachment C
Attachment D

bcc: R. L. Commander
Daniel J. Eden, TWC - Austin
Marcia Hill, TWC - Region 7

CERTIFIED MAIL NO. P 714 663 083
RETURN RECEIPT REQUESTED

RECEIVED
MAR 30 90
TWC
CENTRAL RECORDS

GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

November 14, 1989

Mr. Samuel J. Coleman, P.E. Chief
Texas Section (6H-CT)
RCRA Enforcement Branch
Hazardous Waste Management Division
U. S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: GATX Terminals Corporation
EPA I.D. No. TXD026481523

Dear Mr. Coleman:

In response to the Warning Letter, dated October 30, 1989, GATX Terminals respectfully submits documentation and a description of actions that have been taken to correct the noted violations, and implementation of 40 CFR Parts 265 and 268.

GATX Terminals appreciates the opportunity to respond to the Warning Letter. If you have any additional questions or comments, please contact us at (713) 455-1231.

Sincerely,

Lynn R. Jones
Environmental Engineer

LRJ/nro
cc: R. E. Butler
Enclosures:
Response I
Attachment A
Attachment B
Response II
Attachment C
Attachment D

CERTIFIED MAIL NO. P 714 663 083
RETURN RECEIPT REQUESTED

GATX

U. S. Environmental Protection Agency
November 13, 1989

RESPONSE I

Violation: GATX Terminals Corporation made shipments of restricted wastes to Rollins Environmental Services, Inc. without attaching the proper notification as required in 268.7.

Response:

Restricted wastes are transported to Rollins Environmental Services and are accompanied by a Uniform Hazardous Waste Manifest and the form, "Land Disposal Restriction Information - Restricted Waste for Incineration".

The information form includes:

1) EPA Hazardous Waste Number;

2) Corresponding Treatment Standards and all applicable prohibitions set forth in 268.32 or RCRA 3004d;

3) The manifest number associated with the shipment of waste;

4) Waste analysis data.

Attachment "A" contains a blank form.

After the manifest and certification are completed, a copy of the certification is placed in the file and the original accompanies the manifest to the TSD facility (Rollins Environmental Services). Since the LDR inspection, GATX has processed two shipments of restricted waste. Copies of the manifest and LDR certification are in Attachment "B".

GATX

U. S. Environmental Protection Agency
November 13, 1989

RESPONSE II

Violation: GATX had one hazardous waste drum in storage without an accumulation start date.

Response:

Restricted hazardous wastes are stored in thirty (30) gallon and twenty (20) gallon fibre drums to facilitate incineration. Each drum has the label found in Attachment "C", and:

1) Each container is clearly marked to identify the contents and the date each period of accumulation begins.

2) The container labels provide the following information:

* WARNING: "HAZARDOUS"
WASTE
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.
IF FOUND, CONTACT THE NEAREST POLICE, OR
PUBLIC SAFETY AUTHORITY OR THE
U.S. ENVIRONMENTAL PROTECTION AGENCY

* Proper D.O.T. Name

* UN or NA #

* Generator Information:
  - Name
  - Address
  - City
  - State
  - Zip
  - EPA I.D. Number
  - EPA Waste Number
  - Accumulation Start Date
  - Manifest Document Number

* Warning: "HANDLE WITH CARE! CONTAINS HAZARDOUS OR TOXIC WASTE"

Attachment "D" contains completed labels typically used for the restricted waste stream. Additionally, photographs of drums in accumulation are presented.

ATTACHMENT "A"

LAND DISPOSAL RESTRICTION INFORMATION

RESTRICTED WASTE FOR INCINERATION

LAND DISPOSAL RESTRICTIONS INFORMATION
RESTRICTED WASTE FOR INCINERATION

Customer Name: _____
Customer EPA ID Number: _____
Customer Address: _____
_____
_____

Reference Number: BR/HO/L _____

Under manifest number _____ we are shipping to you for incineration, a waste stream classified by EPA Hazardous Waste Number(s) _____.

A. The EPA land disposal restriction regulations (40 CFR 268)

_____ Apply to this stream, under the following category or categories:

_____ Solvent/dioxin (see Attachment 1)
_____ California list, specifically (see Attachment 2): _____
_____ "First Third" list (see Attachment 3)
_____ "Second Third" list (see Attachment 3A)

_____ Do not apply to this stream. (Skip following questions. Sign on p. 2)

B. The stream must be incinerated because (check one):

_____ 1. Incineration is the treatment technology prescribed by 40 CFR 268.42. (PCBs*; wastes, except wastewaters, containing Halogenated Organic Compounds in total concentration of 1000 ppm or more; and specified first and second third wastes, per Attachments 3 and 3A.)

_____ 2. The stream is an F001-F005 solvent, or a "First Third" or "Second Third" waste with organic or other non-metal treatment standards (Attachment 3 or 3A, Item 1). The following constituents identified in Table CCW or Table CCWE (see Attachment 4) of 40 CFR 268, must be treated to at least the level specified below (use reverse side for additional constituents):

Constituent	Treatment Standard	Per Table CCW	Per Table CCWE

*Only RES (TX) accepts PCBs, for incineration.

_____ 3. The stream is a liquid hazardous waste that is primarily water and contains HOCs in total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs. It must be treated to less than 1,000 mg/l.

_____ 4. The stream is a "Soft Hammer" waste containing organics or other non-metals (Attachment 3 or 3A, Item 5) and must be treat by the best treatment practically available. Enclosed is a copy of the signed and dated demonstration and certification which we have submitted to the EPA Regional Administrator pursuant to 40 CFR 268.8(a)(2)(ii). (For subsequent shipments the same stream, only the certification below need be signed.)

Authorized Representative Signature _____

Print or type name _____

Title _____ Date _____

NOTE: There are limited exceptions to the requirement for incineration in some of the above cases; such as for contaminated soil from Superfund sites. RES representatives can advise you regarding these exceptions.

THIS SECTION MUST BE COMPLETED IF YOU ARE SENDING A SOFT HAMMER WASTE.

CERTIFICATION FOR "SOFT HAMMER" WASTE:

I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that I have contracted to treat my waste (or will otherwi provide treatment) by the practically available technology which yields t greatest environmental benefit, as indicated in my demonstration. I belie that the information submitted is true, accurate, and complete. I am awa that there are significant penalties for submitting false informatio including the possibility of fine and imprisonment.

_____ _____

Signature Date

Soft Hammer Code(s) _____

ATTACHMENT "B"

COMPLETED UNIFORM HAZARDOUS WASTE MANIFEST

AND LDR INFORMATION

LAND DISPOSAL RESTRICTIONS INFORMATION
RESTRICTED WASTE FOR INCINERATION

Customer Name: GATX TERMINALS
Customer EPA ID Number: TXD026481523
Customer Address: 906 E Clinton
P.O. Box 486
GALENA PARK TX

Reference Number: BR/HO/L HO-22428-20

Under manifest number OC 553036 (TX) we are shipping to yo for incineration, a waste stream classified by EPA Hazardous Waste Number(s) D001 AND VARIOUS U-LISTED WASTES

A. The EPA land disposal restriction regulations (40 CFR 268)

____ Apply to this stream, under the following category or categories:
- ____ Solvent/dioxin (see Attachment 1)
- ____ California list, specifically (see Attachment 2): ____
- X "First Third" list (see Attachment 3)
- X "Second Third" list (see Attachment 3A)

____ Do not apply to this stream. (Skip following questions. Sign on p. 2)

B. The stream must be incinerated because (check one):

____ 1. Incineration is the treatment technology prescribed by 40 CFR 268.42. (PCBs*; wastes, except wastewaters, containing Halogenated Organic Compounds in total concentration of 1000 ppm or more; and specified first and secc third wastes, per Attachments 3 and 3A.)

____ 2. The stream is an F001-F005 solvent, or a "First Third" or "Secc Third" waste with organic or other non-metal treatment standar (Attachment 3 or 3A, Item 1). The following constituents identified in Table CCW or Table CCWE (see Attachment 4) of 40 CFR 268, must be treated to at least the level specified below (use reverse side for additional constituents):

Constituent	Treatment Standard	Per Table CCW	Per Table CCWE

*Only RES (TX) accepts PCBs, for incineration.

FORM
LDR1 (6/89)

___ 3. The stream is a liquid hazardous waste that is primarily water and contains HOCs in total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs. It must be treated to less than 1,000 mg/l.

X 4. The stream is a "Soft Hammer" waste containing organics or other non-metals (Attachment 3 or 3A, Item 5) and must be trea by the best treatment practically available. Enclosed is a copy of the signed and dated demonstration and certification which we have submitted to the EPA Regional Administrator pursuant to 40 CFR 268.8(a)(2)(ii). (For subsequent shipments the same stream, only the certification below need be signed.)

Authorized Representative Signature L R Jones

Print or type name L R Jones

Title Environmental Engineer Date 8-29-89

NOTE: There are limited exceptions to the requirement for incineration in some of the above cases; such as for contaminated soil from Superfund sites. RES representatives can advise you regarding these exceptions.

THIS SECTION MUST BE COMPLETED IF YOU ARE SENDING A SOFT HAMMER WASTE.

CERTIFICATION FOR "SOFT HAMMER" WASTE:

I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that I have contracted to treat my waste (or will other provide treatment) by the practically available technology which yields greatest environmental benefit, as indicated in my demonstration. I beli that the information submitted is true, accurate, and complete. I am a that there are significant penalties for submitting false informati including the possibility of fine and imprisonment.

L R Jones 8-29-89

Signature Date

Soft Hammer Code(s) U165, U105, U066, U023, U050, U019, U022 etc.

FORM
LDR1 (6/89)

TEXAS WATER COMMISSION
P.O. Box 13087, Capitol Station
stin, Texas 78711-3087

ase print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039, expires 12-31-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: TXD026481523 — Manifest Document No.: 89829

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: GATX TERMINALS CORP, P.O. BOX 486, GALENA PARK TX 77373

4. Generator's Phone (713) 455 1231

A. State Manifest Document Number: No 00553036

B. State Generator's ID: 30573

5. Transporter 1 Company Name: CUSTOM ENV TRANS

6. US EPA ID Number: DED980918[illegible]

C. State Transporter's ID: 40706

D. Transporter's Phone: 713-930-4500

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address: ROLLINS ENVIRONMENTAL SERVICE, 2027 BATTLEGROUND ROAD, DEER PARK, TX 77536

10. US EPA ID Number: TXD055141378

G. State Facility's ID: 50089

H. Facility's Phone: 713 930-2300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
X	a. WASTE FLAMMABLE SOLID N.O.S., FLAMMABLE SOLID UN1325 D001, U105, U105 etc. RQ=10#	52	DF	2500	P	981510
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above: ROLLINS HO-22428-20 RQ=10# TWL CLASS I HAZARDOUS WASTE ABSORBANT 981510 EPA D001 - Ignitable Solid Waste

K. Handling Codes for Wastes Listed Above: T-07

15. Special Handling Instructions and Additional Information: Stay upwind / Do not Touch spilled material. In case of fire use dry chemical foam. In case of emergency contact GATX shift foreman 713 455 1231

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: LR JONES — Signature: [signature] — Month Day Year: 08 29 89

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name: ED DEININGER — Signature: [signature] — Month Day Year: 8 29 89

18. Transporter 2 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name: — Signature: — Month Day Year:

19. Discrepancy Indication Space

Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: JOE [illegible] — Signature: [signature] — Date: 08 29 89

LAND DISPOSAL RESTRICTIONS INFORMATION
RESTRICTED WASTE FOR INCINERATION

Customer Name: GATX TERMINALS
Customer EPA ID Number: TXD026981523
Customer Address: 906 E CLINTON
P.O. BOX 486
GALENA PARK TX

Reference Number: BR/HO/L HO-22428-20

Under manifest number 00159129 (TX1) we are shipping to yo for incineration, a waste stream classified by EPA Hazardous Waste Number(s) D001.

A. The EPA land disposal restriction regulations (40 CFR 268)

X Apply to this stream, under the following category or categories:

___ Solvent/dioxin (see Attachment 1)
___ California list, specifically (see Attachment 2): _____
X "First Third" list (see Attachment 3)
X "Second Third" list (see Attachment 3A)

___ Do not apply to this stream. (Skip following questions. Sign on p. 2)

B. The stream must be incinerated because (check one):

___ 1. Incineration is the treatment technology prescribed by 40 CFR 268.42. (PCBs*; wastes, except wastewaters, containing Halogenated Organic Compounds in total concentration of 1000 ppm or more; and specified first and seco third wastes, per Attachments 3 and 3A.)

___ 2. The stream is an F001-F005 solvent, or a "First Third" or "Seco Third" waste with organic or other non-metal treatment standar (Attachment 3 or 3A, Item 1). The following constituents identified in Table CCW or Table CCWE (see Attachment 4) of 40 CFR 268, must be treated to at least the level specified below (use reverse side for additional constituents):

Constituent	Treatment Standard	Per Table CCW	Per Table CCWE

*Only RES (TX) accepts PCBs, for incineration.

FORM
LDR1 (6/89)

____ 3. The stream is a liquid hazardous waste that is primarily water and contains HOCs in total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs. It must be treated to less than 1,000 mg/l.

Y 4. The stream is a "Soft Hammer" waste containing organics or other non-metals (Attachment 3 or 3A, Item 5) and must be trea by the best treatment practically available. Enclosed is a copy of the signed and dated demonstration and certification which we have submitted to the EPA Regional Administrator pursuant to 40 CFR 268.8(a)(2)(ii). (For subsequent shipment the same stream, only the certification below need be signed.

Authorized Representative Signature Wayne G. Simonds

Print or type name WAYNE G. SIMONDS

Title TERMINAL SUPERINTENDENT Date 10/27/89

NOTE: There are limited exceptions to the requirement for incineration in some of the above cases; such as for contaminated soil from Superfund sites. RES representatives can advise you regarding these exceptions.

THIS SECTION MUST BE COMPLETED IF YOU ARE SENDING A SOFT HAMMER WASTE.

CERTIFICATION FOR "SOFT HAMMER" WASTE:

I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that I have contracted to treat my waste (or will othe provide treatment) by the practically available technology which yield greatest environmental benefit, as indicated in my demonstration. I be that the information submitted is true, accurate, and complete. I am that there are significant penalties for submitting false informa including the possibility of fine and imprisonment.

Wayne G. Simonds 10/27/89

Signature Date

Soft Hammer Code(s) U019, U022, U165, U105, U069, U028, U050

FORM
LDR1 (6/8

LAND DISPOSAL RESTRICTIONS INFORMATION
RESTRICTED WASTE FOR INCINERATION

Customer Name: CATY TERMINALS
Customer EPA ID Number: TXD026481522
Customer Address: 906 E CLINTON
PO BOX 486
EAGLE PASS TX

Reference Number: BR/HO/L 40-26843-20

Under manifest number 00159124 TK we are shipping to y
for incineration, a waste stream classified by EPA Hazardous Waste Number(s
D001.

A. The EPA land disposal restriction regulations (40 CFR 268)

X Apply to this stream, under the following category or categories:
___ Solvent/dioxin (see Attachment 1)
___ California list, specifically
___ (see Attachment 2): _____
X "First Third" list (see Attachment 3)
___ "Second Third" list (see Attachment 3A)

___ Do not apply to this stream. (Skip following questions. Sign on p. 2)

B. The stream must be incinerated because (check one):

___ 1. Incineration is the treatment technology prescribed by 40 CFR 268.42. (PCBs*; wastes, except wastewaters, containing Halogenated Organic Compounds in total concentration of 1000 ppm or more; and specified first and sec third wastes, per Attachments 3 and 3A.)

___ 2. The stream is an F001-F005 solvent, or a "First Third" or "Sec Third" waste with organic or other non-metal treatment standa (Attachment 3 or 3A, Item 1). The following constituents identified in Table CCW or Table CCWE (see Attachment 4) of 40 CFR 268, must be treated to at least the level specified belov (use reverse side for additional constituents):

Constituent	Treatment Standard	Per Table CCW	Per Table CCWE

*Only RES (TX) accepts PCBs, for incineration.

FORM
LDR1 (6/89)

___ 3. The stream is a liquid hazardous waste that is primarily water and contains HOCs in total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs. It must be treated to less than 1,000 mg/l.

X 4. The stream is a "Soft Hammer" waste containing organics or other non-metals (Attachment 3 or 3A, Item 5) and must be tre by the best treatment practically available. Enclosed is a copy of the signed and dated demonstration and certification which we have submitted to the EPA Regional Administrator pursuant to 40 CFR 268.8(a)(2)(ii). (For subsequent shipment the same stream, only the certification below need be signed.

Authorized Representative Signature [signature]
Print or type name [illegible]
Title [illegible] Date 10/27/89

NOTE: There are limited exceptions to the requirement for incineration in some of the above cases; such as for contaminated soil from Superfund sites. RES representatives can advise you regarding these exceptions.

THIS SECTION MUST BE COMPLETED IF YOU ARE SENDING A SOFT HAMMER WASTE.

CERTIFICATION FOR "SOFT HAMMER" WASTE:

I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that I have contracted to treat my waste (or will othe provide treatment) by the practically available technology which yield greatest environmental benefit, as indicated in my demonstration. I be that the information submitted is true, accurate, and complete. I am that there are significant penalties for submitting false informa including the possibility of fine and imprisonment.

[signature]
Signature

10/27/89
Date

Soft Hammer Code(s) U051

FORM
LDR1 (6/89

TEXAS WATER COMMISSION
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039, expires 09-30

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: TX00 26 48 1 52 31 — Manifest Document No.: 1 03 0 9

2. Page 1 of 1 — Information in the shaded area is not required by Federal law

3. Generator's Name and Mailing Address: GATX Terminals, P.O. Box 486, Galena Park TX 77547

4. Generator's Phone: (713) 455 1231

A. State Manifest Document Number: № 00159124

B. State Generator's ID: 30573

5. Transporter 1 Company Name: CUSTOM ENVIRONMENTAL TRANSPORT

6. US EPA ID Number: D E D 9 5 0 9 1 8 8 5 8

C. State Transporter's ID: 40756

D. Transporter's Phone: 713 930 4500

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address: ROLLINS ENVIRONMENTAL SERVICE TX INC, 2027 Battleground Rd, Deer Park TX 77536

10. US EPA ID Number: T X 0 0 5 5 1 4 1 3 7 8

G. State Facility's ID: 50089

H. Facility's Phone: 713-930-2300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
X	a. ~~HAZARDOUS~~ WASTE SOLID, N.O.S. STABILIZED SOIL CONTAMINATED WITH CRESOTE N.A 9189 (EPA U051) RQ=1#	156	DF	36400 ~~25000~~	P	97898
X	b. WASTE FLAMMABLE SOLID, N.O.S. FLAMMABLE SOLID UN1325 D001 RQ=10#	40	DF	1000		98151
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above: ROLLINS HO-26843-20 U051 AND ROLLINS HO-22428-20 Ignitable D001 U105 U165

K. Handling Codes for Wastes Listed Above: T-07

15. Special Handling Instructions and Additional Information: STAY UPWIND. DO NOT TOUCH SPILLED. IN CASE OF FIRE USE DRY CHEMICAL FOAM. IN CASE OF EMERGENCY CONTACT GATX SHIFT FOREMAN 713 455 1231

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Wayne G. Simmons — Signature: Wayne G. Simmons — Month Day Year: 10 30 89

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Stelzer — Signature: Bill J. Stelzer — Month Day Year: 10 30 89

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: — Signature: — Month Day Year:

19. Discrepancy Indication Space

Per my phone conversation with Lynn Jones the above quantity has been changed to reflect the actual amount received by RES(TX) Inc. L. Milum 11/2/89

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

RES (TX) Inc.

Printed/Typed Name: Donald Moore — Signature: Donald Moore — Month Day Year: 10 30 89

White - original Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

ATTACHMENT "C"

HAZARDOUS WASTE LABELS

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T. SHIPPING NAME _____ UN OR NA# _____

GENERATOR INFORMATION:

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

EPA ID NO. _____ EPA WASTE NO. _____

ACCUMULATION START DATE _____ MANIFEST DOCUMENT NO. _____

HANDLE WITH CARE!

CONTAINS HAZARDOUS OR TOXIC WASTES

CARLTON INDUSTRIES INC. LA GRANGE, TEXAS STOCK NO. 1402

ATTACHMENT "D"

HAZARDOUS WASTE LABELS - COMPLETED
and
PHOTOGRAPHS

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T. SHIPPING NAME: HAZARDOUS WASTE SOLID, N.O.S. STABILIZED SOIL CONT. UN OR NA#: 9189

GENERATOR INFORMATION: W/L CREOSOTE

NAME: GATX TERMINALS

ADDRESS: 906 E. CLINTON

CITY: GALENA PARK STATE: TEXAS ZIP: 77547

EPA ID NO.: TXD026481523 EPA WASTE NO.: U051

ACCUMULATION START DATE: 10-24-89 MANIFEST DOCUMENT NO.: 00159124

HANDLE WITH CARE!

CONTAINS HAZARDOUS OR TOXIC WASTES

CARLTON INDUSTRIES INC. LA GRANGE, TEXAS STOCK NO. 1402

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T. SHIPPING NAME: WASTE FLAMMABLE SOLID, N.O.S. / FLAMMABLE SOLID — UN OR NA#: 1325

GENERATOR INFORMATION:

NAME: GATX TERMINALS

ADDRESS: 906 E. CLINTON

CITY: GALENA PARK — STATE: TEXAS — ZIP: 77547

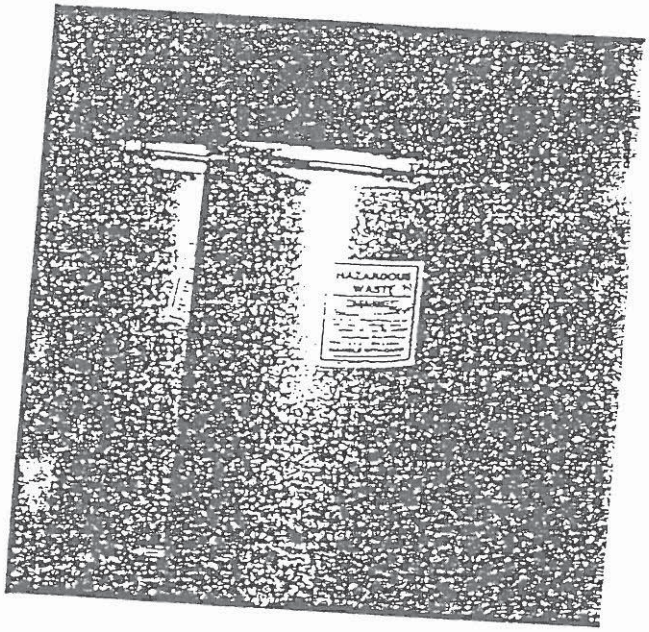
EPA ID NO.: TXD026481523 — EPA WASTE NO.: D001/U105/U165

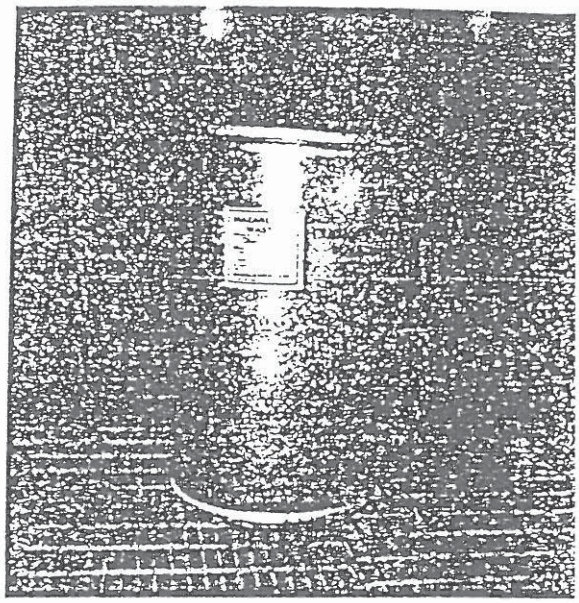
ACCUMULATION START DATE: 10-30-89 — MANIFEST DOCUMENT NO.: 00159124

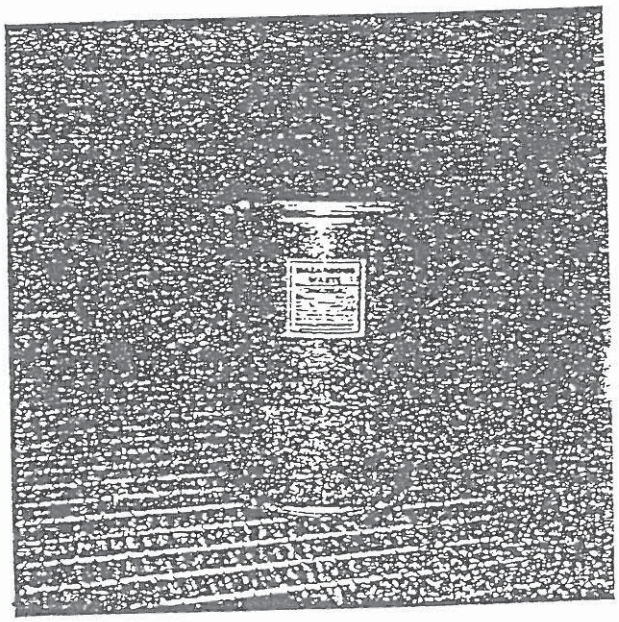
HANDLE WITH CARE!

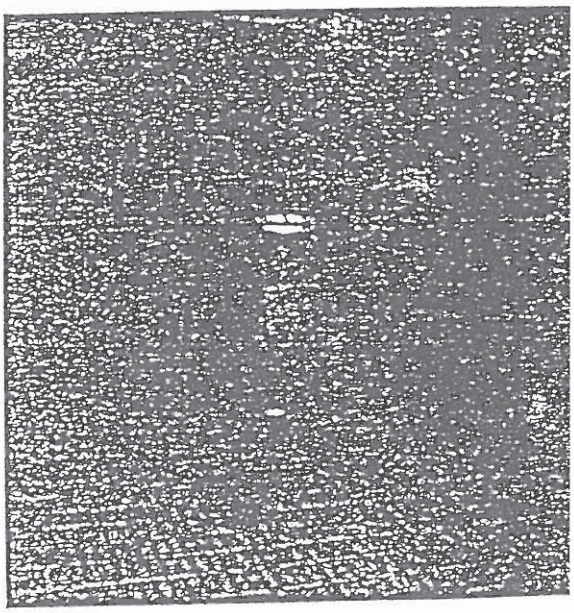
CONTAINS HAZARDOUS OR TOXIC WASTES

CARLTON INDUSTRIES INC. LA GRANGE, TEXAS STOCK NO. 1402


HAZARDOUS
WASTE







GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

November 20, 1989

CERTIFIED MAIL NO. P 714 663 087
RETURN RECEIPT REQUESTED

Mr. Allen P. Beinke, Jr.
Executive Director
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, Texas 78711-3087

Re: GATX Terminals Corporation: SWR 30573 -- Response to the Executive Director's Preliminary Report and Petition for Texas Water Commission Order Assessing Administrative Penalties and Requiring Certain Actions

Dear Mr. Beinke:

In accordance with § 8b(f) of the Texas Solid Waste Disposal Act, 26.136 of of the Texas Water Code, and 31 T.A.C. § 337.35, GATX Terminals Corporation hereby requests an evidentiary hearing before the Texas Water Commission on both the occurrence of certain violations alleged and the amount of the penalty recommended in the above-referenced matter. Each contested violation noticed in the TWC petition of October 31, 1989 is addressed separately below.

I. Violation of § 26.121 of the Texas Water Code.

GATX challenges the occurrence of a § 26.121 violation and the proposed fine for the alleged violation. Specifically, GATX contests the conclusion that the results of the Comprehensive Monitoring Evaluation (hereinafter "CME") on April 13, 1989 first revealed that the hydrocarbon plume at GATX's facility has reached the Houston Ship Channel.

GATX has complied with all applicable groundwater monitoring requirements and worked cooperatively with the Commission to establish an appropriate groundwater monitoring program. GATX began extensively monitoring the groundwater at its plant site in 1987 pursuant to a TWC approved program. Many modifications have been made since that time. On August 2, 1989, GATX submitted an Expanded Groundwater Quality Assessment Plan to help better define the source(s), rate, and extent of

GATX

groundwater contamination. This plan was approved by TWC on August 8, 1989 and is underway. Recent refinements to that plan, expanding the program, also have been incorporated into GATX's groundwater monitoring system. GATX strongly believes that, under the circumstances, it is inappropriate to impose a penalty on GATX for an alleged violation of § 26.121 of the Texas Water Code.

II. Violation of 31 T.A.C. § 335.43.

GATX contests the alleged occurrence of a violation of 31 T.A.C. § 335.43 and the amount of penalty recommended for the alleged violation. The violation and penalty arise out of the alleged operation of the North Holding Basin (hereinafter "NHB") and Tank No. 29.

Contrary to the allegations of the petition, the appropriate regulatory status of the NHB was not resolved in January of 1988. The TWC did not respond to GATX's brief of May 31, 1988 regarding the proper regulatory status of the NHB until May 17, 1989, and even then the staff provided only a verbal response. Meanwhile, on June 22, 1988, GATX submitted a closure plan for the NHB, but the Commission never formally commented on the proposal set forth in that document.

With respect to Tank 29, GATX contests the assertion that the tank is a RCRA unit. EPA cannot effect a regulatory change through references in a preamble as EPA may have attempted to do in its September 2, 1988 preamble to the Hazardous Waste Management System; Standards for Hazardous Waste Storage and Treatment Tank System, 53 Fed. Reg. 34079 (September 2, 1988). If TWC or any agency desires to modify a regulation, it must do so by rulemaking. It has not done so here.

GATX maintains that the penalty proposed for this item is grossly excessive.

GATX

GATX has always cooperated and has in the past worked successfully with the Commission to resolve differences. I believe this is reflected by our previous actions and our ongoing technical activities. Also, GATX has always been in technical accord with the TWC staff and has always responded promptly to TWC matters. In light of our past relationship with your agency and the successful facts meeting on August 23, 1989, GATX was shocked to learn that you were recommending a penalty against us in excess of $200,000. We are in the hope that further conferences may lead to agreement on any outstanding technical issues and the penalty question. If a compromise is reached prior to December 14, 1989, we will amend this answer and withdraw our request for a hearing.

GATX looks forward to working with you in an effort to reach an agreement on these matters.

Very truly yours,

GATX TERMINALS CORPORATION

By: R.E. Butler
R. E. Butler
Terminal Manager

BEFORE ME, the undersigned authority, on this day personally appeared R. E. Butler, who, after being duly sworn, did state upon his oath that he has read the foregoing answer and that each and every statement contained therein is true and correct to the best of his knowledge.

SUBSCRIBED and SWORN to before me on this 20th day of November, 1989.

NAOMI OBAYA
Notary Public
STATE OF TEXAS
My Comm. Exp. AUG 30, 1993

Naomi OBaya
Naomi OBaya
Notary Public in and for the
State of TEXAS

My Commission Expires:

August 30, 1993

GATX

cc: Shirley Workman,
State Program Section (6H-HS)
Hazardous Waste Management Division
Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202

Brenda W. Foster
Office of Chief Clerk
Texas Water Commission

John J. Vay
General Counsel
Texas Water Commission

Carroll Batterton
~~Director, Field Operations Division~~
Texas Water Commission

Daniel J. Eden
Director, Hazardous & Solid Waste Division
Texas Water Commission

Michelle A. McFaddin
Senior Attorney, Legal Division
Texas Water Commission

Cynthia G. Hayes
Public Interest Counsel
Texas Water Commission

William E. Colbert
Office of Public Information
Texas Water Commission

Sheryl Wilson
Information & Technical Services Section
Hazardous & Solid Waste Division
Texas Water Commission

Texas Water Commission
District 7
Deer Park Office

Bryan Dixon
Environmental Consulting Associates

Molly Cagle
Vinson & Elkins

R. C. Swift
GATX Terminals Corp. - Southern Region

File

Environmental
Consulting
Associates

Oakpointe, Suite 208
9111 Jollyville Road
Austin, Texas 78759
(512) 346-0978

December 12, 1989

Mr. Allan Posnick
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, Texas 78711-3087

Dear Mr. Posnick:

Please find enclosed a Supplemental Soils Investigation for Rail Car and Tank Truck Loading Station No. 4, Tank 26, and Tank 82. This investigation is a supplement to the Expanded Groundwater Quality Assessment Plan (August 1989).

If you have any questions with regard to this proposed scope of work, please feel free to contact me at 512/346-0978.

Sincerely,

David H. Sorrells, P.E.
Vice President

Enclosure

cc: Robert Hahn, Hazardous and Solid Waste Division, Texas Water Commission
Lynn Jones, GATX Terminals Corporation

SUPPLEMENTAL SOILS INVESTIGATION FOR T/R NO. 4, TANK 26, AND TANK 82

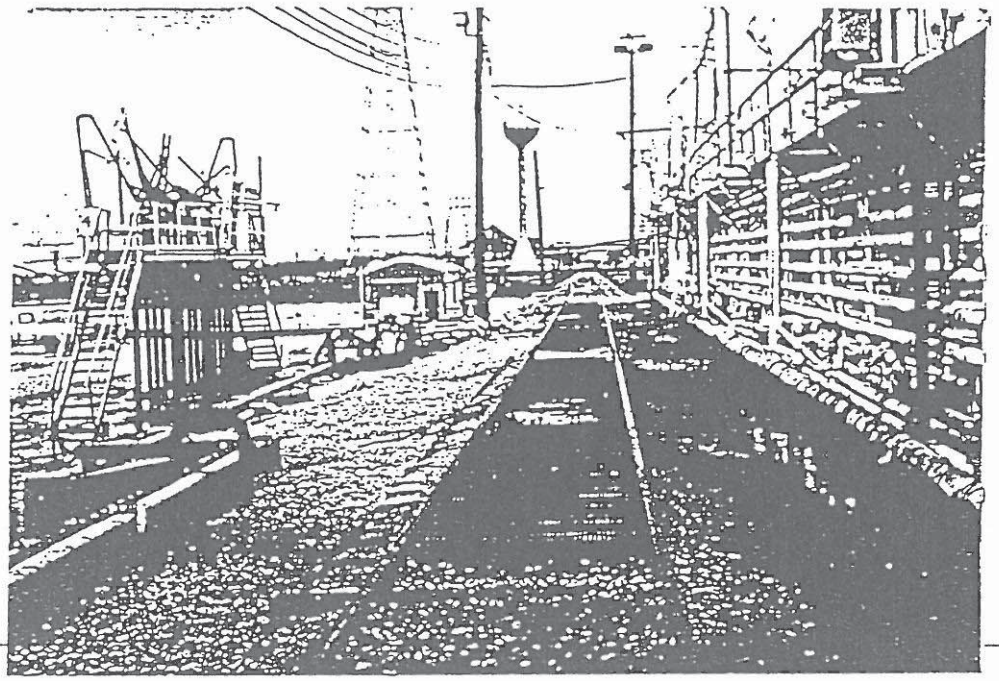
In accordance with the discussions in our December 6, 1989 meeting regarding the RFI scope of work for the GATX/Galena Park facility, it was agreed that a Soil Sampling and Analysis Plan would be submitted immediately for Rail Car and Tank Truck Loading Station No. 4 (T/R No. 4). It is our understanding that the primary area of concern at T/R No. 4 is the manifold area adjacent to the truck loading/unloading station where the soils are visually stained from spillage. This area is shown in Photographs No. 1 and No. 2.

1.0 Objectives and Proposed Scope of Work

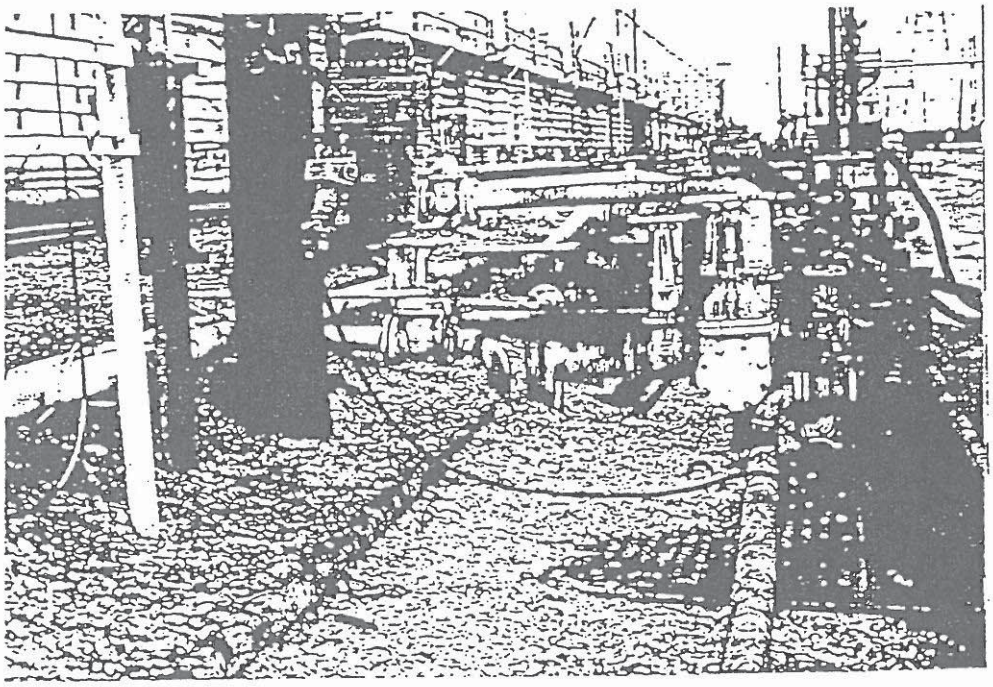
It is the intent of GATX to develop a soil sampling and analysis plan for the T/R No. 4 area and other areas that are of immediate concern to GATX. The activities for these tasks are to be incorporated into the Expanded Groundwater Quality Assessment Plan (EGQAP) which was submitted to the Texas Water Commission in August 1989.

1.1 T/R No. 4

In October 1989, 2 soil borings were advanced directly downgradient (south and east) from T/R No. 4 during the on-going EGQAP. Advancement of a boring directly upgradient (north) of T/R No. 4 was attempted. Drilling ceased at 18 inches when a concrete slab was encountered and was impassable with a conventional drill bit. As part of this supplemental soils investigation, the area around the manifold will be sampled in order to determine the environmental impacts posed at this location. The results of the sampling activities will be used to further characterize the site under the EGQAP and to assist in the decision making process regarding remediation.



Photograph No. 1- Photo of T/R No. 4 looking east. Truck loading/unloading area to left of picture; manifold is in the center of the picture.



Photograph No. 2- Closeup of T/R No. 4 manifold area

1.2 Tank No. 26/No. 82 Areas

GATX has removed Tank No. 26 and Tank No. 82 from the central plant. It is proposed that the soils beneath and in the vicinity will be investigated to determine the vertical and horizontal extent of contamination. In November 1989, 3 soil borings were advanced and one monitor well was installed in this area during activities associated with the on-going EGQAP. The borings were advanced to a depth where the soils, by field determination methods, appeared not to be contaminated. Approximately 30 soil samples were collected for chemical analysis.

To further identify the chemical constituents in the uppermost soils and define the horizontal extent of contamination, a supplemental soils investigation is proposed. Information from the investigation will be used to expand the base of knowledge of the EGQAP. This information may also have direct bearing upon the identification of sources of groundwater contamination observed in the Southeast Holding Basin (SEHB).

2.0 Groundwater Quality Assessment - Investigative Approach

Due to physical restraints at the areas to be investigated, different techniques will be employed to meet project objectives.

2.1 Methods

2.1.1 T/R No. 4

The T/R No. 4 area is not accessible with a conventional drilling rig in the manifold area. It will be necessary to perform borings with a hand auger or portable trailer mounted rig at this location. It is possible that the hand auger

method will preclude the ability to collect an undisturbed sample of the subsurface soils and may result in the loss of some volatile organics from the samples collected for analysis. The losses are not expected to be significant and since the levels of volatile organics are expected to be greatly in excess of detection limits, the use of the hand auger technique is deemed appropriate. Sampling using these methods is limited to approximately 15 feet below ground surface.

A conventional hollow-stem auger rig will be used to advance a boring directly upgradient or north of T/R No. 4. Prior to drilling, a special bit and saw for cutting concrete will be used to remove a portion of the concrete slab.

2.1.2 Tank No. 26/No. 82

The areas where Tanks No. 26 and No. 82 were formerly located are both accessible with a drilling rig. For these areas, it is proposed that the portable trailer mounted rig be used for boring and sampling to 15 feet below ground surface.

2.2 Proposed Soil Boring and Sampling Investigation

The soil boring and sampling activities for this investigation will be performed by ENSR as part of the on-going EGQAP. The tentative locations of proposed borings are shown in Figure 2-1. This figure also provides the location of existing borings in the area. Figure 2-2 shows the subject area of this investigation in relation to the comprehensive investigation map identified as Figure 4-1 in the EGQAP.

2.2.1 T/R No. 4 Area

A total of 3 borings are proposed for the T/R No. 4 area. One will be located directly north of the loading rack. Due

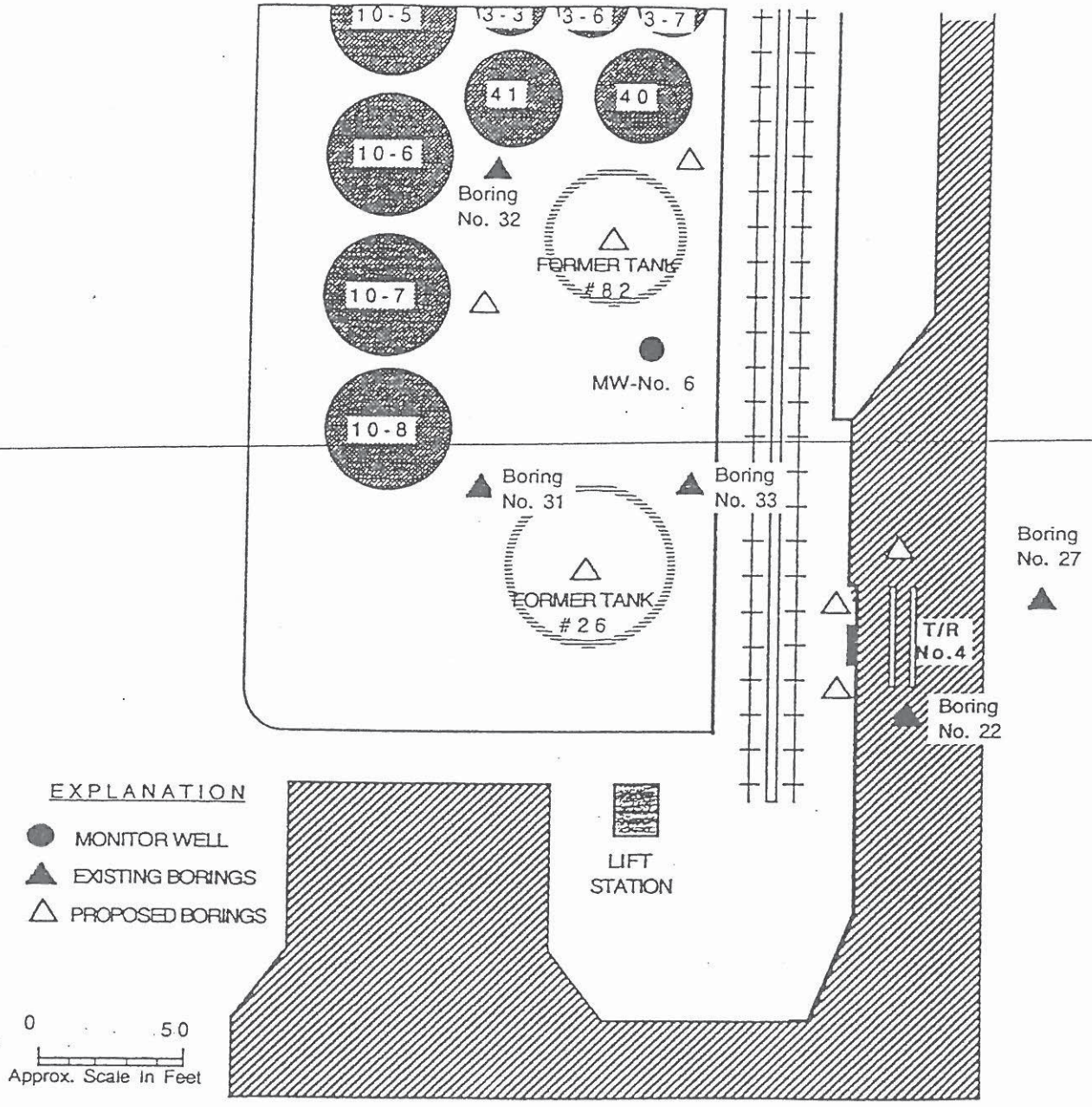


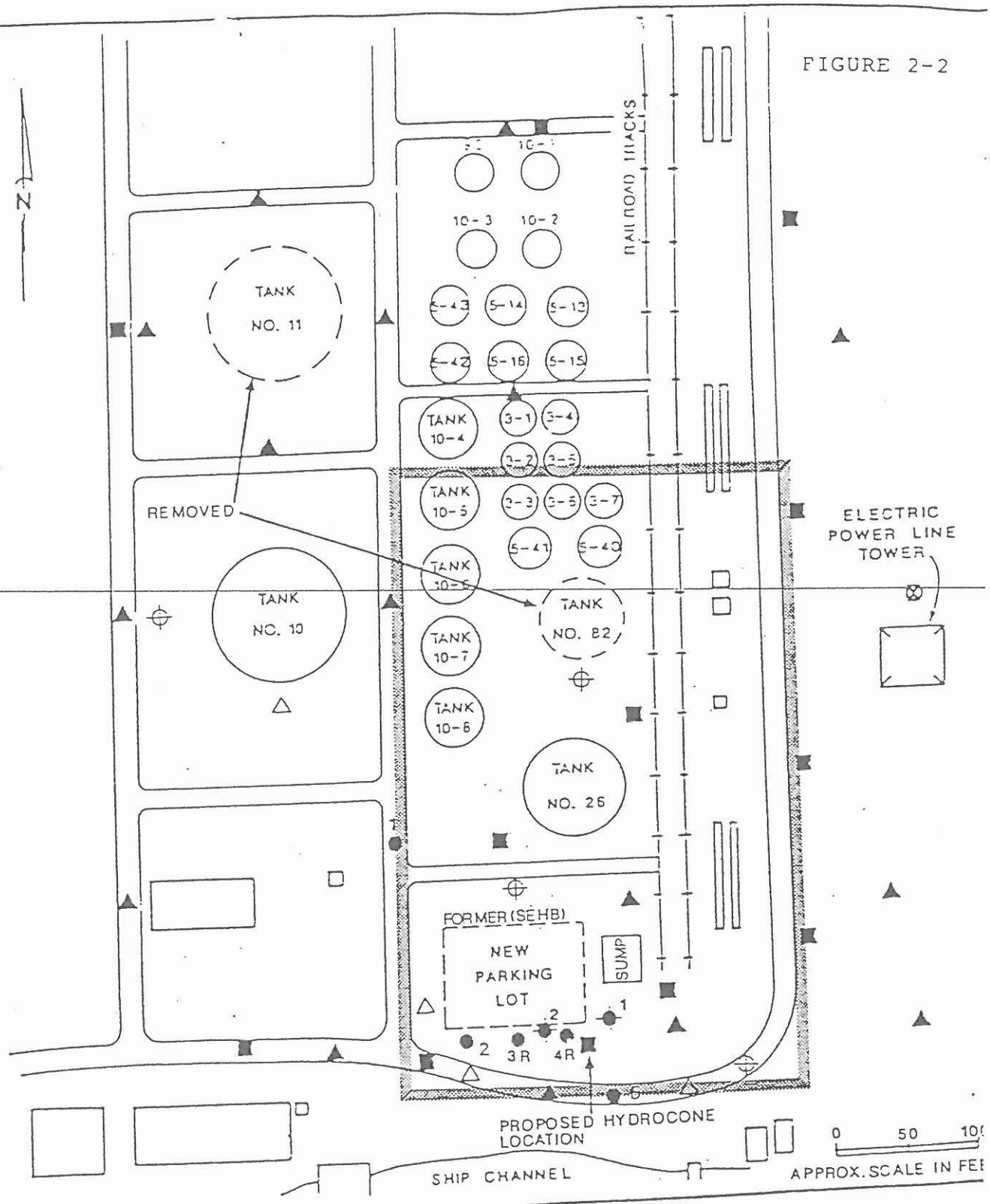
FIGURE 2-1

PROPOSED BORING LOCATIONS
FOR THE INVESTIGATION OF
T/R NO.4 ~ TANK NO.26 ~ TANK NO.82

ECA INC.
Austin, Texas

Enviromental
Consulting
Associates

FIGURE 2-2



EXPLANATION

- MONITOR WELL
- RECOVERY WELL (APPROXIMATE)
- PROPOSED SOIL BORING LOCATIONS (=30 FT. DEEP)
- PROPOSED SOIL BORING LOCATIONS (=60 FT. DEEP)
- PROPOSED CPT LOCATIONS
- PROPOSED PIEZOMETER LOCATIONS
- PROPOSED MONITOR WELL LOCATIONS

ENSR

ENSR CONSULTING AND ENGINEERING

FIGURE 4-1

PROPOSED CPT, SOIL BORING, MONITO WELL & PIEZOMETER LOCATIONS
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

DRAWN BY CS	DATE 5-30-89	PROJECT NO. 2870-0
CHKD BY	REVISED 6-1-89	DWG NO.

to impaired access in the manifold area, thus necessitating the need for hand augering or use of a portable drill rig, it is recommended that the soils investigation be limited to three borings.

Prior to commencing boring activities, it will be necessary at these locations to remove the large rocks that are part of the railway subgrade. It is not proposed that samples of the rinsate from these rocks be analyzed. From a point immediately below the subgrade, the borings will be advanced to an approximate depth of 15 feet. Continuous soil samples will be obtained for the entire depth of penetration.

Discrete samples for each one foot interval will be collected from the auger or from a Shelby tube if the portable drill rig is utilized. At a minimum, two soil samples will be selected for chemical analysis from specific depth intervals in each boring. In accordance with the sampling approach utilized in the EGQAP, samples selected for analysis will be determined by a combination of visual, olfactory, and high PID reading determinations. PID head space reading will be for each sample collected and the results of those readings will be recorded. Relative levels of contamination can be inferred by comparing PID readings to chemical analysis data.

2.2.2 Tanks No. 26 and 82 Areas

The soil investigation for these areas will be performed using a portable trailer mounted drill rig which utilizes solid flight augers. As the boring is advanced, a 4-inch PVC casing will be driven with the hydraulics of the portable rig to maintain an open hole during drilling. The casing is advanced to minimize the influence of cuttings or slough and undisturbed samples. Samples will be obtained in Shelby

tubes which are advanced ahead of the PVC casing. The tentative locations of soil borings are shown on Figure 2-1. It is proposed that four additional borings be placed in the former tank area. With the existing borings in this area, this will then be a total of 8 borings in the former tank area.

At a minimum, two or three soil samples for chemical analysis will be obtained from specific depth intervals in each of the 4 borings. The specific chemical analysis procedures will be the same as those described in Section 4.2 of the EGQAP.

All borings will be immediately grouted from the bottom of the hole to surface with a bentonite/cement grout mixture.

3.0 Soil Sampling and Analysis Plan

All soil samples selected for analysis will be submitted to the ENSR Houston laboratory. Procedures will be the same as those described in Section 6.0, Tables 6-1 and 6-2, and Appendix B of the EGQAP.

4.0 Procedures for Evaluating Soil Data

The evaluation and reporting procedures to be used for this investigation will be the same as those identified in Section 8.0 of the EGQAP.

Although it is intended for the information from this investigation to be incorporated into the EGQAP, a preliminary report of findings from the investigation of the T/R No. 4 area will be submitted within 6 weeks from the date of sample collection.

3C573

GATX

GATX TERMINALS CORPORATION
906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

February 28, 1990

Ms. Stennie Metters
Hazardous and Solid Waste Division
Texas Water Commission
Southeast Region Deer Park Office
4301 Center Street
Deer Park, Texas 77536-6299

Re: Spill Incident Report -
Tk 4 - Creosote Storage Tank
GATX Terminals Corporation
Galena Park, Texas 77547
Harris County

Dear Ms. Metters:

Pursuant to section 26.039 of the Texas Water Code, we are providing written notification of a spill of approximately 100 barrels of Creosote from Tank 4.

Discussion

On February 8, 1990, 100 barrels of Creosote was released accidentally from Tank 4. The spill was contained to the dike wall area and did not enter the stormwater system, lift station 1 or the state's waterways.

As the reportable quantity of Creosote is 1 pound, the spill was reported to the National Response Center. The incident report number is 7613 and the reporting officer was Jeff Grimes, United States Coast Guard. Following notification of the NRC, GATX Terminals notified Ms. Marcia Hill of your office.

Once the operational situation stabilized, GATX Terminals began remediation. Remediation included recovery of all flowable liquids and the removal of all affected soil sand solidified product. The liquids were recovered and the affected soils and solidified product are being packaged for incineration. The soil and solidified product are hazardous waste EPA No. U051), and hence fall under the First Third - Land Disposal Restrictions.

Enclosed is a plant plot which indicates the affected area and which remediation efforts are being directed.

If you have any questions or comments please do not hesitate to contact us at (713) 455-1231.

Sincerely,

Lynn R. Jones
Environmental Engineer

LRJ/dms
cc: R. Baker

Marcia Hill, TWC - Deer Park	Receipt #961 137 282
Robert Hahn, TWC - Austin	Receipt #961 137 283
Russ Kimble, TWC - Austin	Receipt #961 137 284
Mayor, Alvin Baggett - Galena Park	Receipt #961 137 285

File

RETURN RECEIPT REQUESTED

30573.

GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

March 13, 1990

Mr. Sam N. Sullivan, Manager
Land and Right-of-Way Department
Houston Lighting & Power
P. O. Box 1700
Houston, Texas 77251

Re: Request for As-Built Drawings
Expand Groundwater Quality Assessment Investigation Beneath
HL & P Tower
GATX Terminals Corporation - Galena Park, Texas

Dear Mr. Sullivan:

As a result of a phone conversation with Mr. Jim Spurgeon, GATX Terminals requests one complete set of as-built drawings for the HL & P transmission tower, that serves as channel crossing, directly across from the Deepwater Plant. We are particularly interested in all records and drawings of the foundations and underground support systems. We would provide reimbursement for technical services.

We believe that the transmission tower underground supports may serve as a conduit for the shallow groundwater contamination to proceed to other groundwater zones.

Again, this investigation is directed by an agreed administrative order with the Texas Water Commission, and GATX Terminals is making every effort to define the extent of the groundwater contamination at our facility.

We sincerely appreciate your consideration of our request. Please contact us at (713)455-1231 with any questions.

Sincerely,

Lynn R. Jones
Environmental Engineer

LRJ/dms

cc: R. Baker
R. Commander
Robert Hahn, TWC-Austin #961 137 216
Marcia Hill, TWC-Deer Park #961 137 217
File

RETURN RECEIPT REQUESTED

30573

GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

March 23, 1990

CERTIFIED MAIL NO. P 961 136 843
RETURN RECEIPT REQUESTED

Ms. Stennie Metters
Hazardous and Solid Waste Division
Texas Water Commission
Southeast Region - Deer Park Office
4301 Center Street
Deer Park, Texas 77536-6299

Re: Spill Incident Report
Tank 10-4: DMA-6 (2,4,Dichloro-phenoxyacetic acid, dimethylamine salt)
Storage Tank
GATX Terminals Corporation
Galena Park, Texas 77547
Harris County

Dear Ms. Metters:

Pursuant to Section 26.039 of the Texas Water Code, GATX Terminals is providing written notification of a spill of approximately 500 pounds of DMA-6 (2,4,Dichloro-phenoxyacetic acid, dimethylamine salt).

Discussion:

On February 28, 1990, 500 pounds of DMA-6 was released accidentally from Tank 10-4. The spill was contained to the dike wall and did not enter the stormwater system or the State's waterways.

As the reportable quantity of 2,4,Dichloro-phenoxyacetic acid, dimethylamine salt is 100 pounds, the spill was reported to The National Response Center. The Incident Report Number is 10218 and the reporting officer was James Heard, United States Coast Guard. Following notification of the NRC, GATX Terminals notified Mr. Ata Rahman of your office.

Once the operational situation stabilized, GATX Terminals began remediation. Remediation included recovery of all flowable liquids and the removal of all affected soils. The liquids were recovered and the affected soils are being packaged for incineration. The soil is hazardous waste (i.e. EPA Waste No. U240), and hence falls under the Third Third - Land Disposal Restriction.

GATX

If you have any questions, please do not hesitate to contact us at 713-455-1231.

Sincerely,

Lynn R. Jones
Environmental Engineer

LRJ/nro

cc: Ralph Baker, GATX/Galena Park
Marsha Hill, TWC/Deer Park - Cert. Mail No. P 961 136 844
Robert Hahn, TWC/Austin - Cert. Mail No. P 961 136 845
Mayor Alvin Baggett/Galena Park - Cert. Mail No. P 961 136 846
File

Attachments

30573

GATX

GATX TERMINALS CORPORATION
906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

July 11, 1990

SENT BY
FEDERAL EXPRESS

Ms. Anne C. Dobbs, Chief
Texas Water Commission
Hazardous & Solid Waste Division
P. O. Box 13087, Capitol Station
1700 North Congress Avenue
Austin, TX 78711-3087

Dear Ms. Dobbs:

Attention: Mr. Robert Hahn:

I would like to take this opportunity to confirm your phone conversation of July 10, 1990 with Mr. Jon Simpson of ENSR and summarize for you the results of groundwater sampling to date, at the North Holding Basin (NHB). These data are presented in tabular form by well number and parameter. Also attached is an updated potentiometric surface map for the unit depicting monitor well locations.

The first groundwater sampling event at the NHB included analysis of volatile and semi-volatile organics in MW 3, 4 and 5, and the full scan of Appendix IX constituents in the upgradient (MW-1) and most downgradient well (MW-2): Tables 4-5 through 4-9 present these results.

In the subsequent sampling event, volatile and semi-volatile organic analysis was repeated, in addition to groundwater contamination indicator parameters, groundwater quality parameters and drinking water standards of Appendix III. These results are presented in Tables 4-10 through 4-12.

As Mr. Hahn has discussed with Mr. Simpson, GATX will continue quarterly sampling at the NHB for the following parameters:

- -- GW indicator parameter (pH, specific conductance, total organic carbon, total organic halogens)
- -- Volatile organic compounds (By Method 8240)
- -- Semi-volatile organic compounds (B/N Fraction by Method 8270)

These analyses are being performed so that an accelerated determination of possible hazardous constituents released from the NHB can be made. This allows GATX to comply with requirements set forth in 40 CFR 265.92 and 265.93, to establish background groundwater chemistry. We also understand that this represents an amended groundwater monitoring program.

GATX

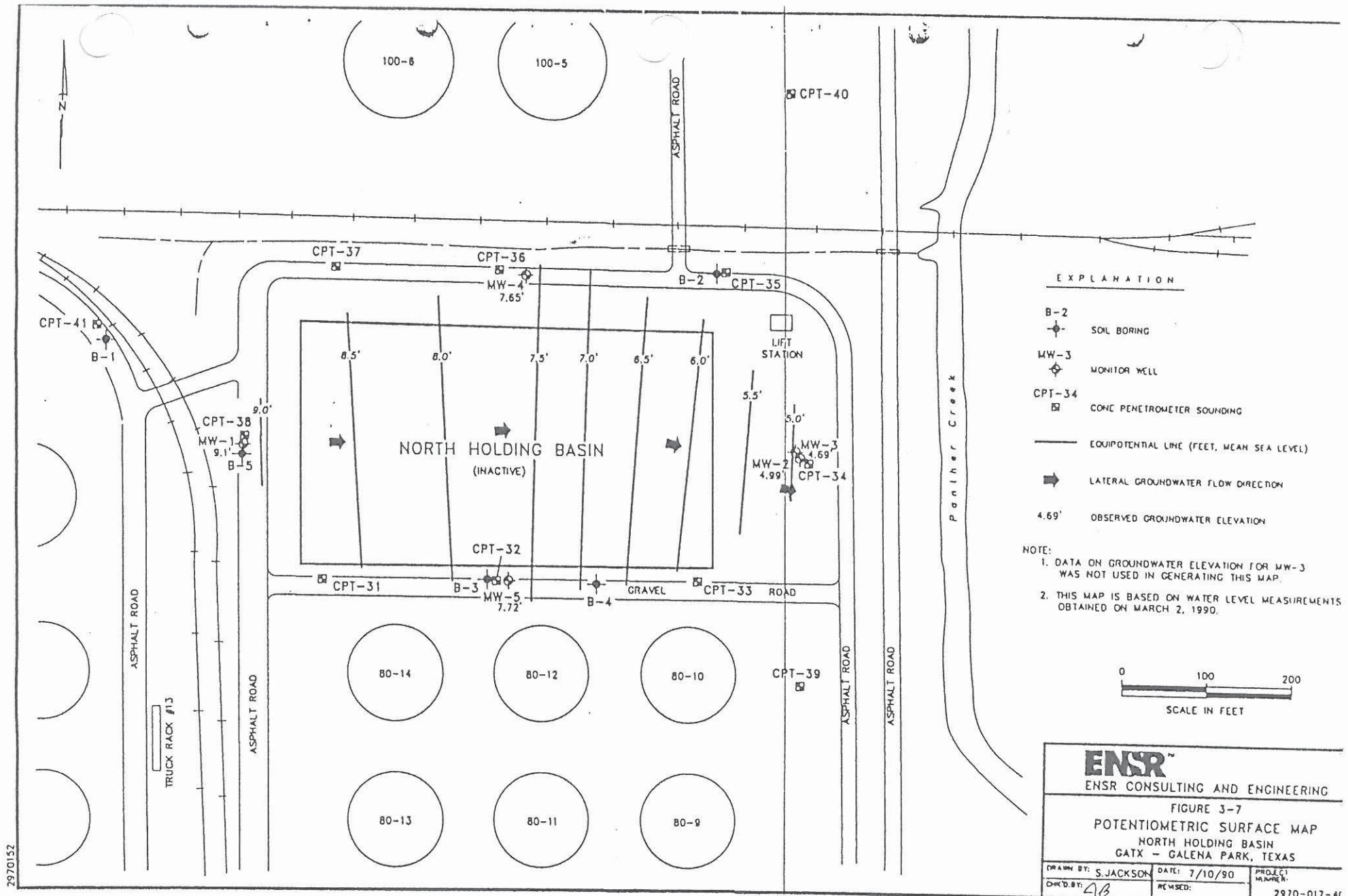
A report on well installation and discussion of stratigraphy and the results of sampling will be submitted the final week of July, 1990. Should you have any questions or recommendations after reviewing these data, please call me at (713) 999-6905 or Jonathan Simpson at (713) 520-9900.

Sincerely,

GATX Terminals Corporation

Susan L. Baird, P.G.
Regional Remediation Specialist

SLB/nro
Enclosures
cc: Ms. Marsha Hill, TWC, District 7
Mr. Jonathan Simpson, ENSR
Mr. James Sherrard, GATX, SRO
File



ENSR™
ENSR CONSULTING AND ENGINEERING

FIGURE 3-7
POTENTIOMETRIC SURFACE MAP
NORTH HOLDING BASIN
GATX – GALENA PARK, TEXAS

DRAWN BY: S.JACKSON	DATE: 7/10/90	PROJECT NUMBER:
CHK'D BY: AB	REVISED:	2970-017-4(

2970152

TABLE 4-5

SUMMARY OF APPENDIX IX HERBICIDE (METHOD 8150), PESTICIDE AND PCB (METHOD 8080)
AND ORGANOPHOSPHOROUS PESTICIDES (METHOD 8140)
NORTH HOLDING BASIN GROUNDWATER SAMPLES
FIRST QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-1		NHB MW-2	
Herbicide Compound (ug/l)	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit
2,4-D	0.47	0.39	ND	0.39
Silvex	ND	0.39	ND	0.39
2,4,5-T	ND	0.39	ND	0.39
Pesticide Compound (ug/kg)				
alpha-BHC	ND	0.5	ND	0.5
beta-BHC	ND	0.5	ND	0.5
delta-BHC	ND	0.5	ND	0.5
gamma-BHC (Lindane)	ND	0.5	ND	0.5
Aldrin	ND	0.5	ND	0.5
Heptachlor	ND	0.5	ND	0.5
Heptachlor epoxide	ND	0.5	ND	0.5
Endrin	ND	0.5	ND	0.5
Endrin Aldehyde	ND	0.5	ND	0.5
Endosulfan I	ND	0.5	ND	0.5
Dieldrin	ND	0.5	ND	0.5
4,4'-DDE	ND	0.5	ND	0.5
4,4-DDD	ND	0.5	ND	0.5
Endosulfan Sulfate	ND	0.5	ND	0.5
4,4'-DDT	ND	0.5	ND	0.5
Methoxychlor	ND	0.5	ND	0.5
Chlordane	ND	0.5	ND	0.5
Toxaphene	ND	1.0	ND	1.0
Aroclor-1016	ND	1.0	ND	1.0
Aroclor-1221	ND	1.0	ND	1.0
Aroclor-1232	ND	1.0	ND	1.0
Aroclor-1242	ND	1.0	ND	1.0
Aroclor-1248	ND	1.0	ND	1.0
Aroclor-1254	ND	1.0	ND	1.0
Aroclor-1260	ND	1.0	ND	1.0
Organophosphorous Pesticides (ug/l)				
Thionazin	ND	0.4	ND	0.4
Phorate	ND	0.5	ND	0.5
Sulfotepp	ND	0.2	ND	0.2
Disulfoton	ND	0.6	ND	0.6
Methyl Parathion	ND	0.4	ND	0.4
Ethyl Parathion	ND	0.5	ND	0.5
Famphur	ND	0.8	ND	0.8

ND - Not Detected

TABLE 4-6

SUMMARY OF APPENDIX IX TOTAL METALS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
EPA METHODS 600 AND SW-846 (6010)
FIRST QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-1		NHB MW-2	
Compound (mg/l)	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit
Silver	ND	0.01	ND	0.01
Aluminum	18	0.025	2.8	0.025
Arsenic	ND	0.050	0.100	0.050
Barium	0.2	0.02	0.1	0.02
Beryllium	ND	0.02	ND	0.02
Calcium	190	0.05	110	0.05
Cadmium	ND	0.010	ND	0.010
Cobalt	0.06	0.025	ND	0.025
Chromium	0.04	0.02	ND	0.02
Copper	0.02	0.02	ND	0.02
Iron	21	0.02	2.4	0.02
Mercury	ND	0.001	ND	0.001
Potassium	5.8	0.25	2.2	0.25
Magnesium	32	0.025	38	0.025
Manganese	0.4	0.02	0.06	0.02
Sodium	69	0.05	97	0.05
Nickel	0.04	0.02	ND	0.02
Osmium	ND	0.025	ND	0.025
Lead	ND	0.02	ND	0.02
Antimony	ND	0.005	ND	0.005
Selenium	ND	0.050	0.097	0.050
Tin	ND	0.5	ND	0.5
Thallium	ND	0.01	ND	0.01
Vanadium	0.1	0.025	0.1	0.025
Zinc	0.1	0.02	0.07	0.02

ND - Not Detected

TABLE 4-7

SUMMARY OF ADDITIONAL APPENDIX IX ANALYTES
NORTH HOLDING BASIN GROUNDWATER SAMPLES
FIRST QUARTER 1990

GATX - GALENA PARK FACILITY

Additional Analytical Parameters (mg/l)	NHB MW-1 Level Detected	NHB MW-1 Lower Detection Limit	NHB MW-2 Level Detected	NHB MW-2 Lower Detection Limit
Cyanides	ND	0.01	ND	0.01
Phenolics	ND	0.01	ND	0.01
Sulfates	ND	0.2	0.4	0.2

ND - Not Detected

TABLE 4-8 (Cont.)

SUMMARY OF APPENDIX IX VOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8240
FIRST QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-6 *	
Volatile Compound (ug/l)	Level Detected	Lower Detection Limit
Chloromethane	ND	1,000
Bromomethane	ND	1,000
Vinyl Chloride	ND	1,000
Chloroethane	ND	1,000
Methylene Chloride	800	500
Acetone	2,500 b	1,000
Carbon Disulfide	ND	500
1,1-Dichloroethene	ND	500
1,1-Dichloroethane	ND	500
trans-1,2-Dichloroethene	ND	500
Chloroform	ND	500
1,2-Dichloroethane	11,000	500
2-Butanone	ND	1,000
1,1,1-Trichloroethane	ND	500
Carbon Tetrachloride	ND	500
Vinyl Acetate	ND	1,000
Bromodichloromethane	ND	500
1,2-Dichloropropane	ND	500
cis-1,3-Dichloropropene	ND	500
Trichloroethene	ND	500
Dibromochloromethane	ND	500
1,1,2-Trichloroethane	ND	500
Benzene	ND	500
trans-1,3-Dichloropropene	ND	500
2-Chloroethylvinylether	ND	1,000
Bromoform	ND	500
4-Methyl-2-pentanone	ND	1,000
2-Hexanone	ND	1,000
Tetrachloroethene	ND	500
1,1,2,2-Tetrachloroethane	ND	500
Toluene	ND	500
Chlorobenzene	ND	500
Ethylbenzene	ND	500
Styrene	ND	500
Total xylenes	ND	500

ND - Not Detected
b - Detected in QC blank
* - Duplicate of NHB MW-5

TABLE 4-9

SUMMARY OF APPENDIX IX SEMIVOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8270
FIRST QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-1		NHB MW-2		NHB MW-3	
Semi-Volatile Compound (ug/l)	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit
Phenol	ND	10	ND	10	ND	10
bis(2-Chloroethyl)ether	ND	10	ND	10	ND	10
2-Chlorophenol	ND	10	ND	10	ND	10
1,3-Dichlorobenzene	ND	10	ND	10	ND	10
1,4-Dichlorobenzene	ND	10	ND	10	ND	10
Benzyl Alcohol	ND	10	ND	10	ND	10
1,2-Dichlorobenzene	ND	10	ND	10	ND	10
2-Methylphenol	ND	10	ND	10	ND	10
bis(2-Chloroisopropyl)ether	ND	10	ND	10	ND	10
4-Methylphenol	ND	10	ND	10	ND	10
N-Nitroso-di-N-Propylamine	ND	10	ND	10	ND	10
Hexachloroethane	ND	10	ND	10	ND	10
Nitrobenzene	ND	10	ND	10	ND	10
Isophorone	ND	10	ND	10	ND	10
2-Nitrophenol	ND	10	ND	10	ND	10
2,4-Dimethylphenol	ND	10	ND	10	ND	10
Benzoic Acid	ND	52	ND	50	ND	51
bis(2-Chloroethoxy)methane	ND	10	ND	10	ND	10
2,4-Dichlorophenol	ND	10	ND	10	ND	10
1,2,4-Trichlorobenzene	ND	10	ND	10	ND	10
Naphthalene	ND	10	ND	10	ND	10
4-Chloroaniline	ND	10	ND	10	ND	10
Hexachlorobutadiene	ND	10	ND	10	ND	10
4-Chloro-3-methylphenol	ND	10	ND	10	ND	10
2-Methylnaphthalene	ND	10	ND	10	ND	10
Hexachlorocyclopentadiene	ND	10	ND	10	ND	10
2,4,6-Trichlorophenol	ND	10	ND	10	ND	10
2,4,5-Trichlorophenol	ND	52	ND	50	ND	51
2-Chloronaphthalene	ND	10	ND	10	ND	10
2-Nitroaniline	ND	52	ND	50	ND	51
Dimethyl Phthalate	ND	10	ND	10	ND	10
Acenaphthylene	ND	10	ND	10	ND	10
2,6-Dinitrotoluene	ND	10	ND	10	ND	10
3-Nitroaniline	ND	52	ND	50	ND	51
Acenaphthene	ND	10	ND	10	ND	10
2,4-Dinitrophenol	ND	52	ND	50	ND	51
4-Nitrophenol	ND	52	ND	50	ND	51
Dibenzofuran	ND	10	ND	10	ND	10
2,4-Dinitrotoluene	ND	10	ND	10	ND	10
Diethylphthalate	ND	10	250	10	ND	10
4-Chlorophenyl Phenylether	ND	10	ND	10	ND	10
Fluorene	ND	10	ND	10	ND	10
4-Nitroaniline	ND	52	ND	50	ND	51
4,6-Dinitro-2-Methylphenol	ND	52	ND	50	ND	51
N-Nitrosodiphenylamine (1)	ND	10	ND	10	ND	10
4-Bromophenyl Phenyl Ether	ND	10	ND	10	ND	10
Hexachlorobenzene	ND	10	ND	10	ND	10
Pentachlorophenol	ND	52	ND	50	ND	51
Phenanthrene	ND	10	ND	10	ND	10
Anthracene	ND	10	ND	10	ND	10
Di-n-butyl phthalate	ND	10	91	10	ND	10
Fluoranthene	ND	10	ND	10	ND	10
Pyrene	ND	10	ND	10	ND	10
Butyl benzyl phthalate	ND	10	ND	10	ND	10
3,3'-Dichlorobenzidene	ND	21	ND	20	ND	20
Benzo(a)anthracene	ND	10	ND	10	ND	10
bis(2-Ethylhexyl)phthalate	150	10	19	10	ND	10
Chrysene	ND	10	ND	10	ND	10
Di-n-octyl phthalate	11	10	ND	10	ND	10
Benzo(b)fluoranthene	ND	10	ND	10	ND	10
Benzo(k)fluoranthene	ND	10	ND	10	ND	10
Benzo(a)pyrene	ND	10	ND	10	ND	10
Indeno(1,2,3-cd)pyrene	ND	10	ND	10	ND	10
Dibenzo(a,h)anthracene	ND	10	ND	10	ND	10
Benzo(ghi)perylene	ND	10	ND	10	ND	10

ND - Not Detected

TABLE 4-9 (Cont.)

SUMMARY OF APPENDIX IX SEMIVOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8270
FIRST QUARTER 1990

GATX - GALENA PARK FACILITY

Semi-Volatile Compound (ug/l)	NHB MW-4 Level Detected	NHB MW-4 Lower Detection Limit	NHB MW-5 Level Detected	NHB MW-5 Lower Detection Limit	NHB MW-6 * Level Detected	NHB MW-6 * Lower Detection Limit
Phenol	ND	10	ND	10	ND	10
bis(2-Chloroethyl)ether	ND	10	ND	10	ND	10
2-Chlorophenol	ND	10	ND	10	ND	10
1,3-Dichlorobenzene	ND	10	ND	10	ND	10
1,4-Dichlorobenzene	ND	10	ND	10	ND	10
Benzyl Alcohol	ND	10	ND	10	ND	10
1,2-Dichlorobenzene	ND	10	ND	10	ND	10
2-Methylphenol	ND	10	ND	10	ND	10
bis(2-Chloroisopropyl)ether	ND	10	ND	10	ND	10
4-Methylphenol	ND	10	ND	10	ND	10
N-Nitroso-di-N-Propylamine	ND	10	ND	10	ND	10
Hexachloroethane	ND	10	ND	10	ND	10
Nitrobenzene	ND	10	ND	10	ND	10
Isophorone	ND	10	ND	10	ND	10
2-Nitrophenol	ND	10	ND	10	ND	10
2,4-Dimethylphenol	ND	10	ND	10	ND	10
Benzoic Acid	ND	50	ND	52	ND	51
bis(2-Chloroethoxy)methane	ND	10	ND	10	ND	10
2,4-Dichlorophenol	ND	10	ND	10	ND	10
1,2,4-Trichlorobenzene	ND	10	ND	10	ND	10
Naphthalene	ND	10	ND	10	ND	10
4-Chloroaniline	ND	10	ND	10	ND	10
Hexachlorobutadiene	ND	10	ND	10	ND	10
4-Chloro-3-methylphenol	ND	10	ND	10	ND	10
2-Methylnaphthalene	ND	10	ND	10	ND	10
Hexachlorocyclopentadiene	ND	10	ND	10	ND	10
2,4,6-Trichlorophenol	ND	10	ND	10	ND	10
2,4,5-Trichlorophenol	ND	50	ND	52	ND	51
2-Chloronaphthalene	ND	10	ND	10	ND	10
2-Nitroaniline	ND	50	ND	52	ND	51
Dimethyl Phthalate	ND	10	ND	10	ND	10
Acenaphthylene	ND	10	ND	10	ND	10
2,6-Dinitrotoluene	ND	10	ND	10	ND	10
3-Nitroaniline	ND	50	ND	52	ND	51
Acenaphthene	ND	10	ND	10	ND	10
2,4-Dinitrophenol	ND	50	ND	52	ND	51
4-Nitrophenol	ND	50	ND	52	ND	51
Dibenzofuran	ND	10	ND	10	ND	10
2,4-Dinitrotoluene	ND	10	ND	10	ND	10
Diethylphthalate	ND	10	ND	10	ND	10
4-Chlorophenyl Phenylether	ND	10	ND	10	ND	10
Fluorene	ND	10	ND	10	ND	10
4-Nitroaniline	ND	50	ND	52	ND	51
4,6-Dinitro-2-Methylphenol	ND	50	ND	52	ND	51
N-Nitrosodiphenylamine (1)	ND	10	ND	10	ND	10
4-Bromophenyl Phenyl Ether	ND	10	ND	10	ND	10
Hexachlorobenzene	ND	10	ND	10	ND	10
Pentachlorophenol	ND	50	ND	52	ND	51
Phenanthrene	ND	10	ND	10	ND	10
Anthracene	ND	10	ND	10	ND	10
Di-n-butyl phthalate	ND	10	ND	10	ND	10
Fluoranthene	ND	10	ND	10	ND	10
Pyrene	ND	10	ND	10	ND	10
Butyl benzyl phthalate	ND	10	ND	10	ND	10
3,3'-Dichlorobenzidene	ND	20	ND	21	ND	20
Benzo(a)anthracene	ND	10	ND	10	ND	10
bis(2-Ethylhexyl)phthalate	ND	10	ND	10	ND	10
Chrysene	ND	10	ND	10	ND	10
Di-n-octyl phthalate	ND	10	ND	10	ND	10
Benzo(b)fluoranthene	ND	10	ND	10	ND	10
Benzo(k)fluoranthene	ND	10	ND	10	ND	10
Benzo(a)pyrene	ND	10	ND	10	ND	10
Indeno(1,2,3-cd)pyrene	ND	10	ND	10	ND	10
Dibenzo(a,h)anthracene	ND	10	ND	10	ND	10
Benzo(ghi)perylene	ND	10	ND	10	ND	10

ND - Not Detected
* - Duplicate of NHB MW-5

TABLE 4-10

NORTH HOLDING BASIN GROUNDWATER SAMPLES
SECOND QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-1 04/23/90		NHB MW-2 04/24/90		NHB MW-3 04/24/90	
EPA Interim Primary Drinking Water Standards	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit
Total metals (mg/l)						
Silver	ND	0.01	ND	0.01	ND	0.01
Arsenic	ND	0.001	ND	0.001	ND	0.001
Barium	0.2	0.02	1.0	0.02	0.1	0.02
Cadmium	ND	0.010	ND	0.010	ND	0.010
Chromium	ND	0.02	ND	0.02	ND	0.02
Mercury	ND	0.001	ND	0.001	ND	0.001
Lead	0.005	0.003	ND	0.003	0.004	0.003
Selenium	ND	0.001	ND	0.002	ND	0.002
Pesticides (ug/l)						
Endrin	ND	0.5	ND	0.05	ND	0.05
Lindane	ND	0.5	ND	0.05	ND	0.05
Toxaphene	ND	10	ND	1	ND	1
Methoxychlor	ND	0.5	ND	0.05	ND	0.05
Herbicides (ug/l)						
2,4-D	ND	24.00	ND	300.0	ND	12.0
2,4,5-TP (Silvex)	ND	3.40	ND	42.50	ND	1.70
Additional Compounds						
Fluoride (mg/l)	0.6	0.05	0.5	0.05	0.5	0.05
Nitrate (mg/l)	2.1	0.08	0.04	0.04	0.6	0.04
Coliform (Colonies/100 ml)	ND	1	ND	1	ND	1
Gross Alpha (pCi/L)	4+/-3	---	6+/-5	---	7+/-4	---
Gross Beta (pCi/L)	6+/-5	---	12+/-3	---	8+/-3	---
Radium (226/228) (pCi/L)	6+/-2	---	4+/-2	---	4+/-2	---
Groundwater Quality Parameters (mg/l)						
Chloride	150	1.0	18	0.5	130	1
Sulfate	84	50	130	50	84	50
Phenols	ND	0.01	ND	0.01	ND	0.01
Manganese (total)	0.07	0.02	1.5	0.02	0.05	0.02
Iron (total)	1.6	0.02	16	0.02	2.3	0.02
Sodium (total)	140	0.05	1,200	0.5	130	0.05
Groundwater Contamination Indicators (mg/l) **						
Total Organic Halides (TOX)	0.2	0.01	ND	0.01	ND	0.01
Total Organic Carbon (TOC)	4	1	3	1	25	1
pH (Units)	6.78	---	6.92	---	6.74	---
Specific Conductance (umho/l)	1,500	---	1,400	---	8,000	---

ND - Not Detected
** - Reported as arithmetic mean of quadruplicate samples

TABLE 4-10 (Cont.)

NORTH HOLDING BASIN GROUNDWATER SAMPLES
SECOND QUARTER 1990

GATX - GALENA PARK FACILITY

EPA Interim Primary Drinking Water Standards	NHB MW-4 04/24/90 Level Detected	NHB MW-4 04/24/90 Lower Detection Limit	NHB MW-5 04/23/90 Level Detected	NHB MW-5 04/23/90 Lower Detection Limit	NHB MW-6 * 04/23/90 Level Detected	NHB MW-6 * 04/23/90 Lower Detection Limit
Total metals (mg/l)						
Silver	ND	0.01	ND	0.01	ND	0.01
Arsenic	0.003	0.001	ND	0.001	ND	0.001
Barium	0.2	0.02	0.2	0.02	0.2	0.02
Cadmium	ND	0.010	ND	0.010	ND	0.010
Chromium	ND	0.02	ND	0.02	ND	0.02
Mercury	ND	0.001	ND	0.001	ND	0.001
Lead	0.006	0.003	ND	0.003	0.004	0.003
Selenium	ND	0.002	ND	0.001	ND	0.001
Pesticides (ug/l)						
Endrin	1	0.05	ND	0.5	ND	0.05
Lindane	1	0.05	ND	0.5	ND	0.05
Toxaphene	ND	1	ND	1	ND	1
Methoxychlor	0.05	0.05	ND	0.5	ND	0.05
Herbicides (ug/l)						
2,4-D	ND	12.0	ND	24.00	ND	12.00
2,4,5-TP (Silvex)	ND	1.7	ND	3.40	ND	1.70
Additional Compounds						
Fluoride (mg/l)	0.5	0.05	0.6	0.05	0.6	0.05
Nitrate (mg/l)	0.04	0.04	0.2	0.04	0.2	0.04
Coliform (Colonies/100 ml)	ND	1	ND	1	ND	1
Gross Alpha (pCi/L)	12+/-4	---	7+/-3	---	8+/-5	---
Gross Beta (pCi/L)	12+/-3	---	13+/-5	---	11+/-5	---
Radium (226/228) (pCi/L)	21+/-14	---	3+/-2	---	5+/-3	---
Groundwater Quality Parameters (mg/l)						
Chloride	160	1	340	5.0	340	5.0
Sulfate	68	20	84	50	92	50
Phenols	ND	0.01	ND	0.01	ND	0.01
Manganese (total)	0.4	0.02	2.4	0.02	2.4	0.02
Iron (total)	5.1	0.02	3.1	0.02	3.4	0.02
Sodium (total)	140	0.05	200	0.05	200	0.05
Groundwater Contamination Indicators (mg/l) **						
Total Organic Halides (TOX)	14	1	2.5	0.1	1.5	0.01
Total Organic Carbon (TOC)	4.5	1	6.8	1	7	1
pH (Units)	6.96	---	6.73	---	NA	---
Specific Conductance (umho/l)	1,400	---	1,500	---	NA	---

ND - Not Detected
NA - Not Analyzed
* - Duplicate of NHB MW-5
** - Reported as arithmetic mean of quadruplicate samples

TABLE 4-11

SUMMARY OF APPENDIX IX VOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8240
SECOND QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-1		NHB MW-2		NHB MW-3		NHB MW-4		NHB MW-5	
Volatile Compound (ug/l)	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit
Chloromethane	ND	10	ND	10	ND	10	ND	5,000	ND	500
Bromomethane	ND	10	ND	10	ND	10	ND	5,000	ND	500
Vinyl Chloride	ND	10	ND	10	ND	10	ND	5,000	ND	500
Chloroethane	ND	10	ND	10	ND	10	ND	5,000	ND	500
Methylene Chloride	6 b	5	5 b	5	5 b	5	4,700 b	2,500	530 b	250
Acetone	12 b	10	12 b	10	10 b	10	17,000 b	5,000	1,200 b	500
Carbon Disulfide	ND	5	ND	5	ND	5	ND	2,500	ND	250
1,1-Dichloroethene	ND	5	ND	5	ND	5	ND	2,500	ND	250
1,1-Dichloroethane	ND	5	ND	5	ND	5	ND	2,500	ND	250
trans-1,2-Dichloroethene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Chloroform	ND	5	ND	5	ND	5	ND	2,500	ND	250
1,2-Dichloroethane	140	5	ND	5	130	5	99,000	2,500	6,000	250
2-Butanone	ND	10	ND	10	ND	10	ND	5,000	ND	500
1,1,1-Trichloroethane	ND	5	ND	5	ND	5	ND	2,500	ND	250
Carbon Tetrachloride	ND	5	ND	5	ND	5	ND	2,500	ND	250
Vinyl Acetate	ND	10	ND	10	ND	10	ND	5,000	ND	500
Bromodichloromethane	ND	5	ND	5	ND	5	ND	2,500	ND	250
1,2-Dichloropropane	ND	5	ND	5	ND	5	ND	2,500	ND	250
cis-1,3-Dichloropropene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Trichloroethene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Dibromochloromethane	ND	5	ND	5	ND	5	ND	2,500	ND	250
1,1,2-Trichloroethane	ND	5	ND	5	ND	5	ND	2,500	ND	250
Benzene	ND	5	ND	5	ND	5	ND	2,500	ND	250
trans-1,3-Dichloropropene	ND	5	ND	5	ND	5	ND	2,500	ND	250
2-Chloroethylvinylether	ND	10	ND	10	ND	10	ND	5,000	ND	500
Bromoform	ND	5	ND	5	ND	5	ND	2,500	ND	250
4-Methyl-2-pentanone	ND	10	ND	10	ND	10	ND	5,000	ND	500
2-Hexanone	ND	10	ND	10	ND	10	ND	5,000	ND	500
Tetrachloroethene	ND	5	ND	5	ND	5	ND	2,500	ND	250
1,1,2,2-Tetrachloroethane	ND	5	ND	5	ND	5	ND	2,500	ND	250
Toluene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Chlorobenzene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Ethylbenzene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Styrene	ND	5	ND	5	ND	5	ND	2,500	ND	250
Total xylenes	ND	5	ND	5	ND	5	ND	2,500	ND	250

ND - Not Detected
b - Detected in QC blank

TABLE 4-11 (Cont.)

SUMMARY OF APPENDIX IX VOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8240
SECOND QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-6 *	
Volatile Compound (ug/l)	Level Detected	Lower Detection Limit
Chloromethane	ND	500
Bromomethane	ND	500
Vinyl Chloride	ND	500
Chloroethane	ND	500
Methylene Chloride	310 b	250
Acetone	550 b	500
Carbon Disulfide	ND	250
1,1-Dichloroethene	ND	250
1,1-Dichloroethane	ND	250
trans-1,2-Dichloroethene	ND	250
Chloroform	ND	250
1,2-Dichloroethane	8,300	250
2-Butanone	ND	500
1,1,1-Trichloroethane	ND	250
Carbon Tetrachloride	ND	250
Vinyl Acetate	ND	500
Bromodichloromethane	ND	250
1,2-Dichloropropane	ND	250
cis-1,3-Dichloropropene	ND	250
Trichloroethene	ND	250
Dibromochloromethane	ND	250
1,1,2-Trichloroethane	ND	250
Benzene	ND	250
trans-1,3-Dichloropropene	ND	250
2-Chloroethylvinylether	ND	500
Bromoform	ND	250
4-Methyl-2-pentanone	ND	500
2-Hexanone	ND	500
Tetrachloroethene	ND	250
1,1,2,2-Tetrachloroethane	ND	250
Toluene	ND	250
Chlorobenzene	ND	250
Ethylbenzene	ND	250
Styrene	ND	250
Total xylenes	ND	250

ND - Not Detected
b - Detected in QC blank
* - Duplicate of NHB MW-5

TABLE 4-12

SUMMARY OF APPENDIX IX SEMIVOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8270
SECOND QUARTER 1990

GATX - GALENA PARK FACILITY

	NHB MW-1		NHB MW-2		NHB MW-3	
Semi-Volatile Compound (ug/l)	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit	Level Detected	Lower Detection Limit
Phenol	ND	10	ND	5	ND	20
bis(2-Chloroethyl)ether	ND	10	ND	5	ND	20
2-Chlorophenol	ND	10	ND	5	ND	20
1,3-Dichlorobenzene	ND	10	ND	5	ND	20
1,4-Dichlorobenzene	ND	10	ND	5	ND	20
Benzyl Alcohol	ND	10	ND	5	ND	20
1,2-Dichlorobenzene	ND	10	ND	5	ND	20
2-Methylphenol	ND	10	ND	5	ND	20
bis(2-Chloroisopropyl)ether	ND	10	ND	5	ND	20
4-Methylphenol	ND	10	ND	5	ND	20
N-Nitroso-di-N-Propylamine	ND	10	ND	5	ND	20
Hexachloroethane	ND	10	ND	5	ND	20
Nitrobenzene	ND	10	ND	5	ND	20
Isophorone	ND	10	ND	5	ND	20
2-Nitrophenol	ND	10	ND	5	ND	20
2,4-Dimethylphenol	ND	10	ND	5	ND	20
Benzoic Acid	ND	52	ND	25	ND	100
bis(2-Chloroethoxy)methane	ND	10	ND	5	ND	20
2,4-Dichlorophenol	ND	10	ND	5	ND	20
1,2,4-Trichlorobenzene	ND	10	ND	5	ND	20
Naphthalene	ND	10	ND	5	ND	20
4-Chloroaniline	ND	10	ND	5	ND	20
Hexachlorobutadiene	ND	10	ND	5	ND	20
4-Chloro-3-methylphenol	ND	10	ND	5	ND	20
2-Methylnaphthalene	ND	10	ND	5	ND	20
Hexachlorocyclopentadiene	ND	10	ND	5	ND	20
2,4,6-Trichlorophenol	ND	10	ND	5	ND	20
2,4,5-Trichlorophenol	ND	52	ND	25	ND	100
2-Chloronaphthalene	ND	10	ND	5	ND	20
2-Nitroaniline	ND	52	ND	25	ND	100
Dimethyl Phthalate	ND	10	ND	5	ND	20
Acenaphthylene	ND	10	ND	5	ND	20
2,6-Dinitrotoluene	ND	10	ND	5	ND	20
3-Nitroaniline	ND	52	ND	25	ND	100
Acenaphthene	ND	10	ND	5	ND	20
2,4-Dinitrophenol	ND	52	ND	25	ND	100
4-Nitrophenol	ND	52	ND	25	ND	100
Dibenzofuran	ND	10	ND	5	ND	20
2,4-Dinitrotoluene	ND	10	ND	5	ND	20
Diethylphthalate	ND	10	ND	5	ND	20
4-Chlorophenyl Phenylether	ND	10	ND	5	ND	20
Fluorene	ND	10	ND	5	ND	20
4-Nitroaniline	ND	52	ND	25	ND	100
4,6-Dinitro-2-Methylphenol	ND	52	ND	25	ND	100
N-Nitrosodiphenylamine (1)	ND	10	ND	5	ND	20
4-Bromophenyl Phenyl Ether	ND	10	ND	5	ND	20
Hexachlorobenzene	ND	10	ND	5	ND	20
Pentachlorophenol	ND	52	ND	25	ND	100
Phenanthrene	ND	10	ND	5	ND	20
Anthracene	ND	10	ND	5	ND	20
Di-n-butyl phthalate	5 b	5	110	5	ND	20
Fluoranthene	ND	10	ND	5	ND	20
Pyrene	ND	10	ND	5	ND	20
Butyl benzyl phthalate	ND	10	ND	5	ND	20
3,3'-Dichlorobenzidene	ND	21	ND	10	ND	40
Benzo(a)anthracene	ND	10	ND	5	ND	20
bis(2-Ethylhexyl)phthalate	9 b	5	30	5	140	20
Chrysene	ND	10	ND	5	ND	20
Di-n-octyl phthalate	ND	10	ND	5	ND	20
Benzo(b)fluoranthene	ND	10	ND	5	ND	20
Benzo(k)fluoranthene	ND	10	ND	5	ND	20
Benzo(a)pyrene	ND	10	ND	5	ND	20
Indeno(1,2,3-cd)pyrene	ND	10	ND	5	ND	20
Dibenzo(a,h)anthracene	ND	10	ND	5	ND	20
Benzo(ghi)perylene	ND	10	ND	5	ND	20

ND - Not Detected
b - Detected in QC blank

TABLE 4-12 (Cont.)

SUMMARY OF APPENDIX IX SEMIVOLATILE ORGANIC COMPOUNDS
NORTH HOLDING BASIN GROUNDWATER SAMPLES
METHOD 8270
SECOND QUARTER 1990

GATX - GALENA PARK FACILITY

Semi-Volatile Compound (ug/l)	NHB MW-4 Level Detected	NHB MW-4 Lower Detection Limit	NHB MW-5 Level Detected	NHB MW-5 Lower Detection Limit	NHB MW-6 * Level Detected	NHB MW-6 * Lower Detection Limit
Phenol	ND	10	ND	5	ND	6
bis(2-Chloroethyl)ether	ND	10	ND	5	ND	6
2-Chlorophenol	ND	10	ND	5	ND	6
1,3-Dichlorobenzene	ND	10	ND	5	ND	6
1,4-Dichlorobenzene	ND	10	ND	5	ND	6
Benzyl Alcohol	ND	10	ND	5	ND	6
1,2-Dichlorobenzene	ND	10	ND	5	ND	6
2-Methylphenol	ND	10	ND	5	ND	6
bis(2-Chloroisopropyl)ether	ND	10	ND	5	ND	6
4-Methylphenol	ND	10	ND	5	ND	6
N-Nitroso-di-N-Propylamine	ND	10	ND	5	ND	6
Hexachloroethane	ND	10	ND	5	ND	6
Nitrobenzene	ND	10	ND	5	ND	6
Isophorone	ND	10	ND	5	ND	6
2-Nitrophenol	ND	10	ND	5	ND	6
2,4-Dimethylphenol	ND	10	ND	5	ND	6
Benzoic Acid	ND	50	ND	25	ND	29
bis(2-Chloroethoxy)methane	ND	10	ND	5	ND	6
2,4-Dichlorophenol	ND	10	ND	5	ND	6
1,2,4-Trichlorobenzene	ND	10	ND	5	ND	6
Naphthalene	ND	10	ND	5	ND	6
4-Chloroaniline	ND	10	ND	5	ND	6
Hexachlorobutadiene	ND	10	ND	5	ND	6
4-Chloro-3-methylphenol	ND	10	ND	5	ND	6
2-Methylnaphthalene	ND	10	ND	5	ND	6
Hexachlorocyclopentadiene	ND	10	ND	5	ND	6
2,4,6-Trichlorophenol	ND	10	ND	5	ND	6
2,4,5-Trichlorophenol	ND	50	ND	25	ND	29
2-Chloronaphthalene	ND	10	ND	5	ND	6
2-Nitroaniline	ND	50	ND	25	ND	29
Dimethyl Phthalate	ND	10	ND	5	ND	6
Acenaphthylene	ND	10	ND	5	ND	6
2,6-Dinitrotoluene	ND	10	ND	5	ND	6
3-Nitroaniline	ND	50	ND	25	ND	29
Acenaphthene	ND	10	ND	5	ND	6
2,4-Dinitrophenol	ND	50	ND	25	ND	29
4-Nitrophenol	ND	50	ND	25	ND	29
Dibenzofuran	ND	10	ND	5	ND	6
2,4-Dinitrotoluene	ND	10	ND	5	ND	6
Diethylphthalate	ND	10	ND	5	ND	6
4-Chlorophenyl Phenylether	ND	10	ND	5	ND	6
Fluorene	ND	10	ND	5	ND	6
4-Nitroaniline	ND	50	ND	25	ND	29
4,6-Dinitro-2-Methylphenol	ND	50	ND	25	ND	29
N-Nitrosodiphenylamine (1)	ND	10	ND	5	ND	6
4-Bromophenyl Phenyl Ether	ND	10	ND	5	ND	6
Hexachlorobenzene	ND	10	ND	5	ND	6
Pentachlorophenol	ND	50	ND	25	ND	29
Phenanthrene	ND	10	ND	5	ND	6
Anthracene	ND	10	ND	5	ND	6
Di-n-butyl phthalate	ND	10	4 bw	5	7 b	6
Fluoranthene	ND	10	ND	5	ND	6
Pyrene	ND	10	ND	5	ND	6
Butyl benzyl phthalate	ND	10	ND	5	ND	6
3,3'-Dichlorobenzidene	ND	20	ND	10	ND	11
Benzo(a)anthracene	ND	10	ND	5	ND	6
bis(2-Ethylhexyl)phthalate	30	10	6 b	5	9 b	6
Chrysene	ND	10	ND	5	ND	6
Di-n-octyl phthalate	ND	10	ND	5	ND	6
Benzo(b)fluoranthene	ND	10	ND	5	ND	6
Benzo(k)fluoranthene	ND	10	ND	5	ND	6
Benzo(a)pyrene	ND	10	ND	5	ND	6
Indeno(1,2,3-cd)pyrene	ND	10	ND	5	ND	6
Dibenzo(a,h)anthracene	ND	10	ND	5	ND	6
Benzo(ghi)perylene	ND	10	ND	5	ND	6

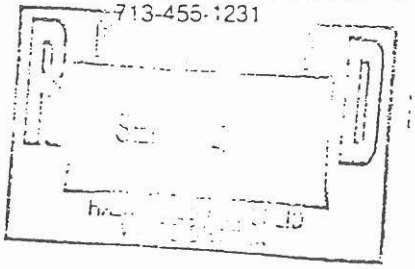
ND - Not Detected
b - Detected in QC blank
w - Reported value is less than the quantitation limit.
* - Duplicate of NHB MW-5

30573

GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

September 13, 1990



Ms. Anne Dobbs
Section Chief - Rm. 230
Texas Water Commission
Hazardous & Solid Waste Enforcement Section
1700 North Congress Avenue
Austin, Texas 78701

Re: GATX Terminals Corporation - Galena Park Facility SWR No. 30573-Enforcement Order Dated January 31, 1990.

Dear Ms. Dobbs:

Pursuant to the above - referenced Enforcement Order, I am hereby submitting the following documents on behalf of GATX Terminals Corporation for filing with the Texas Water Commission:

1. A Part B hazardous waste permit application for the Southeast Holding Basin and the North Holding Basin;

2. A groundwater compliance plan application; and

3. A Remedial Facility Investigation Workplan for tanks Nos. 29, 50, 51, 116, 117, 25-1 and oil/water separator. (3 COPIES (2-TWC-AUSTIN, 1-TWC-DIST. 7)

In order for the Part B permit application to be considered complete, I am also hereby submitting the following material:

(a) original and four (4) copies of the completed Parts A and B permit application;

(b) original and four (4) copies of all associated reports and documentary materials;

(c) six (6) additional copies of Section I of the application;

(d) the appropriate application and notice fee of $2937.00, check # 13532 established by 31 T. A. C., 305.53 which appears in Section X of the Part B application and which supersedes the Part A fee instructions; and

(e) the appropriate application fee of $150.00, check # 13533 for the Compliance Plan Application.

In accordance with the Enforcement Order, I am submitting duplicate copies of the above - referenced materials to:

Texas Water Commission
District 7 Southeast Region
5144 East Sam Houston Pkwy. North
Houston, Texas 77015

Thank you for your prompt attention to this matter. If you should have any questions, please do not hesitate to contact me at (713) 455-1231.

Sincerely,

Paula Murph

for Ralph Baker
Plant Manager

RB/mra
Enclosures

cc: Jim Sherrard (GATX/SRO)
Sue Snyder (Vinson Elkins)
District/TWC

CR

CONFERENCE RECORD

Project: GATX Terminals Corporation, ISW No.30573

Conference Date: February 19, 1991 Place: SFA Building

Type of Conference: Compliance Plan Ground-Water Monitoring

Attendance: See Attached.

Summary:

Terminal Environmental Manager Paula Mrozek and Regional Environmental Manager Terry McAdams of GATX Terminals Corporation met with TWC staff in regard to the proposed modifications to the ground-water monitoring program submitted in the Compliance Plan dated September 14, 1990.

The major points of discussions are listed below:

1. GATX is not required to implement the proposed Compliance Plan ground-water monitoring program until the Permit and the Compliance Plan are issued; however, GATX may implement the proposed reduction in number and parameters of ground-water sampling pending a review of relevant reports by TWC.

2. The priority at this site is to remediate aqueous and non-aqueous phase contaminants in the ground water and in the soils, and to ascertain the sources of these contaminants for rapid and effective remediation. The 2 recovery wells on-site are not effective in extracting DNAPLs. GATX will submit a 10 page ENSR proposal for upgrading these recovery wells.

3. Part 2 of the Compliance Plan application concerns risk assessment studies and establishing an Alternative Concentration Limit (ACL). TWC's position is that all non-aqueous phase liquid contaminants must be cleaned-up before ACL is applicable since ACL only applies to dissolved-phase contaminants.

4. Part 3 of the Compliance Plan application outlines the corrective action program that will be implemented based on the Preliminary Engineering Feasibility Assessment Study. This part will be submitted by GATX according to the proposed schedule.

5. An assessment of all tanks at the central portion of the GATX facility is currently being conducted. Soil vapor surveys have also been conducted around several tanks. GATX may also need to implement a soil boring program to further assess vertical extent of soil contamination and to delineate possible sources.

6. Additional source investigation of the areas west and northwest of MW-15, MW-16, MW-17, GWAB-4, and GWAB-5 was recommended by ENSR in the Expanded Groundwater Quality Assessment of the Former Southeast Holding Basin report dated June 14, 1990. This investigation will assess possible sources upgradient of the areas with known ground-water and soil contamination, but GATX has not initiated this investigation.

7. GATX was not able to clean-close the North Holding Basin. A bioremediation project has been conducted and a report will be sent to Allan Posnick for review. A closure plan for this basin will also be sent to Allan.

8. The North Holding Basin (NHB) is currently under interim ground-water monitoring status. The ground-water samples are analyzed for indicator parameters and volatile organics (Method 8240) on a quarterly basis, and the semi-volatiles are analyzed on an annual basis. GATX is required to perform statistical analyses on VOCs and indicator parameters. If they fail the t-test, then GATX will have to submit a proposal for assessment of the NHB.

9. GATX has indicated that dichloroethane (DCA) is present in the ground water samples taken from monitor wells along the perimeter of the NHB. DCA is found in highest concentration in the upgradient well and GATX suggests that the DCA may have originated from a drum recycling facility upgradient of the NHB. It is GATX's responsiblity to prove such a claim and until it is proven, GATX needs to submit an assessment plan to TWC and they also need to submit a Compliance Plan application for the NHB after its closure certification.

10. GATX is not aware of the reasons that prompted the investigations of Tract A Solid Waste Management Unit that is located on the north side of the property. The Tract A area was used as a general dumping ground and also had received tank bottoms. There are 7 or 8 monitor wells around the unit that were installed by IT Corporation when it conducted a preliminary investigation. It will be acceptable to TWC that GATX submit these previous results to Bill Shafford of the Permits Section for review.

Prepared by: Jason Wang

cc: TWC District 7
Allan Posnick, Solid Waste Enforcement
Bill Schafford, Permits
File

GATX TERMINALS CORPORATION

906 CLINTON DRIVE
P.O. BOX 466
GALENA PARK, TX 77547-0466
713-455-1231

February 21, 1991

CERTIFIED MAIL NO. P 125 239 580
RETURN RECEIPT REQUESTED

SLR 30573

Executive Director
Texas Water Commission (TWC)
P. O. Box 13087, Capitol Station
1700 North Congress Avenue
Austin, TX 78711-3087

Re: Notification under 40 CFR 265.93

Dear Executive Director:

As required by 40 CFR 265.93(d)(1) GATX has determined there is a statistically significant increase in groundwater conditions in the area of the North Holding Basin (NHB) at the Galena Park facility. The NHB is inactive and is undergoing closure activities per TWC guidance & approvals.

It has not yet been determined if the NHB is affecting the groundwater; however, interim status groundwater monitoring has indicated a release of one component: 1-,2-Dichlorethane.

An Annual Groundwater Summary Report outlining the groundwater activities conducted was submitted to TWC on February 15, 1991.

Within 15 days of this notice an outline for a Groundwater Assessment Program will be submitted to your agency.

If you need additional information, do not hesitate to contact me at (713) 455-1231.

Sincerely,

Paula Mrozek

Paula Mrozek
Terminal Environmental Manager

PM/nro
cc: TWC District 7 - Director
File

CK 5615

GATX

GATX TERMINALS CORPORATION
906 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

March 20, 1991

CERTIFIED MAIL NO. P 534 490 597
RETURN RECEIPT REQUESTED

Executive Director
Texas Water Commission
P.O. Box 13087 Capitol Station
1700 No. Congress Avenue
Austin, Texas 78711-3087

RECEIVED
MAR 2 1991
TEXAS WATER COMMISSION

Re: GATX Galena Park Facility
North Holding Basin
Ground Water Monitoring Activities

Dear Executive Director:

This letter addresses a number of topics relevant to GATX's ground water monitoring program in the North Holding Basin (NHB) area of its Galena Park facility. A discussion of all planned reporting and sampling activities is presented with a schedule timeline. The Ground Water Assessment Plan Outline, which fulfills the requirements in 40 CFR 265.93(a), is presented as an attachment.

A schedule timeline is included with this letter illustrating GATX's intended activities in the NHB towards complying with the established requirements. All sampling events have been entered on the timeline with their tentative dates. Similarly, reporting dates are listed.

GATX intends to comply with the guidelines specified in 40 CFR 265 and 31 TAC. In addition to these requirements, the Texas Water Commission (TWC) has specified, through written and phone correspondence, analytical parameters that GATX must analyze for. These parameters are not specified in 40 CFR 265. GATX believes these requirements are as stringent or more so in complying with 40 CFR 265. The Texas Water Commission has also allowed variance by recommending to GATX the installation of new monitoring wells to collect more ground water contamination and gradient information in the NHB area.

These additional wells will be installed as part of an information gathering effort and not as part of a ground water assessment program, as agreed upon by Robert Hahn (TWC) and GATX. The proposed locations of these wells are to the northwest, north and southeast of the NHB. The purpose of these new wells is to better identify the direction of ground water flow in the vicinity of the NHB, as well as to provide additional information on potential sources of ground water contamination.

Proposed future sampling activities include two quarters of sampling (June and September, 1991) on the new wells. Water level measurements will be taken in all seven monitoring wells during these additional two quarterly sampling events. The three new monitoring wells will be sampled during both the June and September, 1991 sampling events; the existing monitoring wells will be sampled only during the September 1991 sampling event. The September 1991 sampling event will satisfy GATX's semi-annual ground water monitoring requirements.

The samples will be analyzed for the same contaminant parameters currently monitored in wells MW-1 through MW-5. The information provided will assist in determining whether the NHB is the source of ground water contamination or if its source is another facility in the upgradient direction. The existing wells lie too close to the NHB for GATX to make this determination.

Water level data collected from the June and September sampling events will be used to generate potentiometric surface maps for the area. The data from these two quarters of sampling on the three new wells will be qualitatively compared to the four quarters of data obtained from MW-1 through MW-5 during the period from April, 1990 to March, 1991. Statistical comparisons will be made if appropriate. The information provided by these wells will assist GATX in determining the origination of ground water contamination and developing a final Assesssment Plan.

Sampling of wells MW-1 through MW-5 in the NHB area will be done on March 26-27 to obtain a fourth quarter of sampling data for statistical analyses (in accordance with 40 CFR 265.92). Samples will be analyzed for the following parameters:

- Ground Water Indicator Parameters; and
- Volatile Organic Compounds.

This parameter list was agreed upon by the TWC and GATX over the phone and mentioned in a letter to Ms. Anne Dobbs (TWC) from GATX, dated July 17, 1990.

The data from the fourth quarter sampling event will be combined with the first three quarters of data to arrive at mean and variance data for the upgradient and downgradient data sets. The upgradient data will then be compared to the downgradient data to determine if statistically significant levels of ground water contaminants have been detected. An addendum report, which will include the fourth quarter data, is required to supplement the data presented in ENSR Consulting and Engineering's report entitled "1990 Annual Ground Water Monitoring Report for the NHB".

The previously mentioned two quarters of sampling (June and September, 1991) will also be used in a statistical analysis to determine whether ground water has been impacted (The second sampling event will fulfill the semi-annual sampling criteria). If so, a confirmation sampling event will be necessary.

If confirmation samples are needed, as specified in 40 CFR 265.93(c)(2), sampling will take place immediately after the second of the two additional quarters of sampling (semi-annual). Its approximate date would be in the second week in October.

If statistically significant increases in ground water concentrations of constituents in the upgradient or downgradient over the upgradient wells are observed, as specified in 40 CFR 265.93(d)(1), GATX will notify the EPA Regional Administrator in writing and development of a Ground Water Assessment Plan will be completed based on the attached outline. Written notification was submitted to the TWC on February, 1991, stating that statistically significant levels of 1,2-dichloroethane (1,2-DCA) were found in the downgradient wells in the NHB area. Formal notification of the EPA Regional Administrator has not been performed because GATX lacks four full quarters of data.

GATX's Ground Water Assessment Plan Outline has been prepared in accordance with 40 CFR 265.93(a) and is designed to help determine the following:

- Whether hazardous waste or hazardous waste constituents have entered the ground water;
- The rate and extent of migration of hazardous waste or hazardous waste constituents in the ground water; and
- The concentrations of hazardous waste or hazardous waste constituents in the ground water.

This Ground Water Assessment Plan Outline is subject to change should results of the proposed three new wells reveal a different scenario from that expected. Also, should confirmation sampling be necessary, the results will be used in determining the best Ground Water Assessment Plan.

In submitting this letter and Assessment Plan Outline, GATX Terminals Corporation believes that they are within the guidelines of 40 CFR 265, 31 TAC and TWC recommendations. Please notify me with questions regarding the content of this letter or the Assessment Outline at (713)455-1231. GATX is willing to meet with the TWC in Austin to discuss any matters that require more attention.

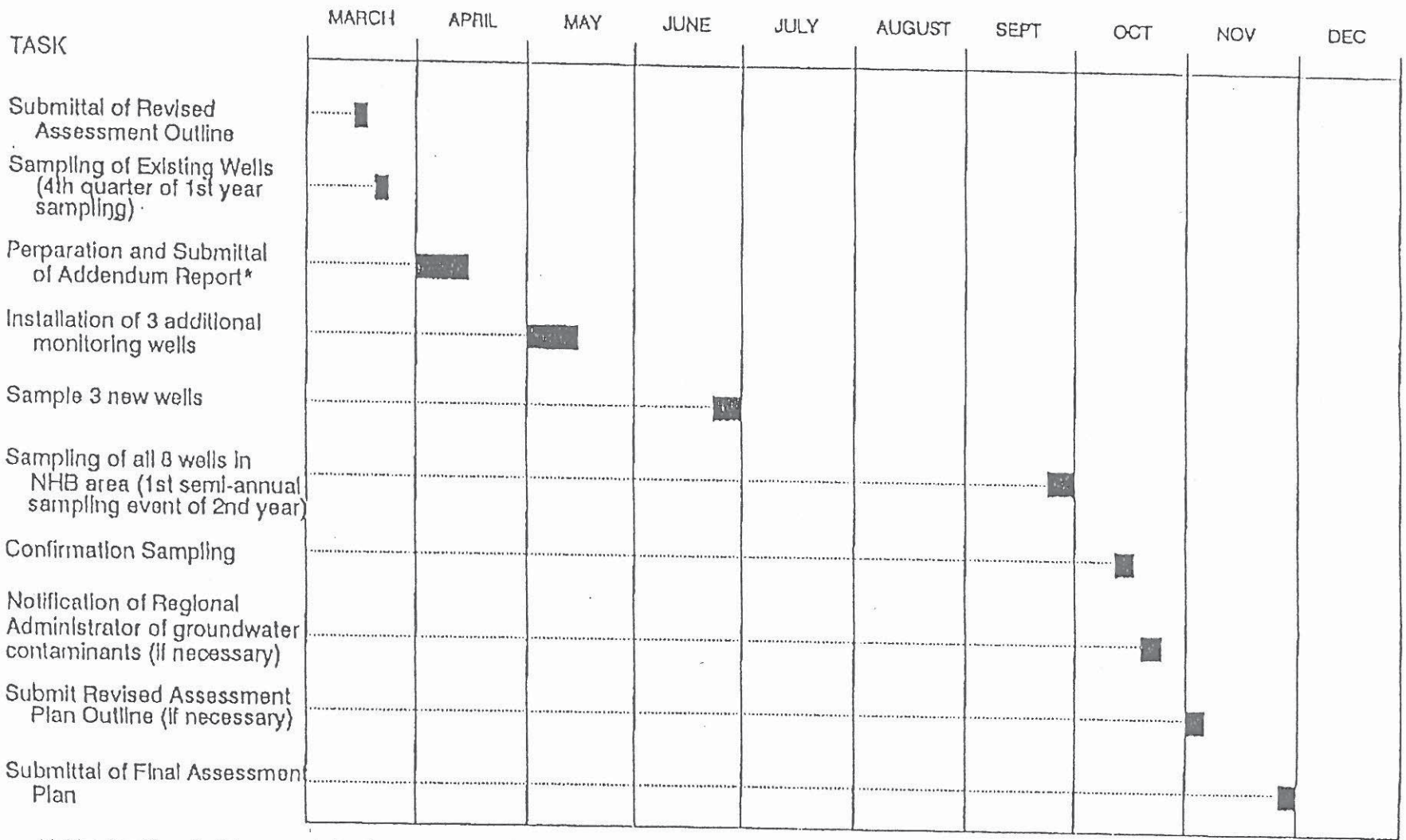
Sincerely,

GATX Terminals Corporation

Paula Mrozek
Environmental Manager

PM/fbc
cc: Alan Posnick (TWC-Austin)
Marsha Hill (TWC-Houston)

NHB GROUNDWATER ACTIVITIES SCHEDULE



*Addendum Report will incorporate fourth quarter groundwater sampling data into ENSR's 1990 report.

GATX

GROUNDWATER QUALITY ASSESSMENT OUTLINE
GATX GALENA PARK FACILITY
NORTH HOLDING BASIN

1.0 Introduction

- 1.1 Objectives of Assessment Activities (40 CFR 265.93(a))
  - 1.1.1 Determination of the Source of Groundwater Contamination
  - 1.1.2 Determination of the Rate and Extent of Migration of Groundwater Contamination
  - 1.1.3 Determination of the Magnitude of Groundwater Contamination

2.0 Background Information

- 2.1 General Site Description
  - 2.1.1 Location
  - 2.1.2 Regional Geology and Hydrogeology
- 2.2 Facility Description
  - 2.2.1 GATX Galena Park Facility
  - 2.2.2 North Holding Basin
    - 2.2.2.1 Operation
    - 2.2.2.2 Closure
- 2.3 Groundwater Conditions - North Holding Basin
  - 2.3.1 Existing Groundwater Monitoring System
    - 2.3.1.1 Previous Investigations
    - 2.3.1.2 Monitoring Well Specifications
    - 2.3.1.3 Shallow Geologic Conditions

2.3.2 Groundwater Flow Conditions

2.3.2.1 Direction of Groundwater Flow (Potentiometric Surface Maps)
2.3.2.2 Surface Water - Groundwater Relationship

2.3.3 Groundwater Quality Conditions

2.3.3.1 Historical Groundwater Quality Data
2.3.3.2 Up-gradient Groundwater Quality Evaluations
2.3.3.3 Down-gradient Groundwater Quality Evaluations

2.4 Evaluation of Existing Data Relative to Groundwater Quality Objectives

2.4.1 Source of Groundwater Contamination

2.4.2 Rate and Extent of Migration of Groundwater Contamination

2.4.3 Magnitude of Groundwater Contamination

2.5 Rationale for Implementation of Groundwater Quality Assessment

3.0 Groundwater Quality Assessment Activities

3.1 Identification of Specific Activities Required to Satisfy Groundwater Quality Contamination Objectives (specific activities selected from potential activities identified in the following sub-subsections based on available background data)

3.1.1 Potential Activities to Identify Source of Groundwater Contamination

3.1.1.1 Facility Record Review and Sampling of Potential Facility or Other Contamination Sources and Comparison of Potential Source Characteristics with Available Groundwater Quality Data
3.1.1.2 Soil Sampling and Comparison of Results with Available Groundwater Quality Data
3.1.1.3 Groundwater Sampling of Existing Monitoring Wells
3.1.1.4 Installation and Sampling of Additional Monitoring Wells

3.1.2 Potential Activities to Determine the Rate of Migration of Groundwater Contamination

3.1.2.1 Water Level Measurements in Existing Monitoring Wells for Potentiometric Surface Map Development
3.1.2.2 Installation and Water Level Measurements in Additional Monitoring Wells for Potentiometric Surface Map Development
3.1.2.3 Determination of Hydraulic Characteristics of Contaminated Aquifer - Literature Review or Testing (slug or pump tests in existing or additional monitoring wells)

3.1.2.4 Determination of Groundwater - Surface Water Interactions (additional wells, monitoring of water levels in surface water bodies)

3.1.3 Potential Activities to Determine the Extent and Magnitude of Groundwater Contamination

3.1.3.1 Groundwater Sampling of Existing Monitoring Wells
3.1.3.2 Installation and Sampling of Additional Monitoring Wells

3.1.4 Selection of Analytical Parameters for Potential Sampling Activities

3.1.4.1 Waste Sampling (Section 3.1.1.1)
3.1.4.2 Soil Sampling (Section 3.1.1.2)
3.1.4.3 Groundwater Sampling (Sections 3.1.1.3, 3.1.1.4, 3.1.2.1 and 3.1.2.2)

3.1.5 Field QA/QC Sampling Requirements

3.1.5.1 Waste Sampling (Section 3.1.1.1)
3.1.5.2 Soil Sampling (Section 3.1.1.2)
3.1.5.3 Groundwater Sampling (Sections 3.1.1.3, 3.1.1.4, 3.1.2.1 and 3.1.2.2)

3.1.6 Field Sampling Plan

3.1.6.1 Waste Sampling (Section 3.1.1.1)
3.1.6.2 Soil Sampling (Section 3.1.1.2)
3.1.6.3 Groundwater Sampling (Sections 3.1.1.3, 3.1.1.4, 3.1.2.1 and 3.1.2.2)

3.1.7 Field QA/QC Sampling Requirements

3.1.7.1 Waste Sampling (Section 3.1.1.1)
3.1.7.2 Soil Sampling (Section 3.1.1.2)
3.1.7.3 Groundwater Sampling (Sections 3.1.1.3, 3.1.1.4, 3.1.2.1 and 3.1.2.2)

3.1.8 Development and Submittal of a Groundwater Quality Assessment Plan as required by 40 CFR 265.93(d)(2) - specifics of required activities including type, location, number of samples, etc. based on result of Sections 3.1.1 through 3.1.7

3.2 Implementation of Groundwater Assessment Field Activities Specified in Groundwater Quality Assessment Plan (Section 3.1.4) - (All potential activities identified in the following sub-subsections, however only activities specified in Groundwater Assessment Plan will be performed. Specifics of each activity will also be defined in the Groundwater Assessment Plan).

3.2.1 Facility Records Review

3.2.2 Selection of Analytical Parameters for Sampling Activities

3.2.3 Sampling of Facility or Other Potential Contamination Sources

3.2.4 Soil Sampling

3.2.5 Additional Monitoring Well Installation

3.2.6 Monitoring Well Water Level Measurements

3.2.7 Aquifer Testing

3.2.8 Surface Water Level Measurements

3.2.9 Groundwater Sampling

3.2.10 Field QA/QC Sampling

3.2.11 Schedule for Field Assessment Activities

3.3 Data Evaluation with Respect to Assessment Objectives (Section 1.1)

3.3.1 Compile, Compare and Review All Analytical Data to Determine the Source, Extent and Magnitude of Groundwater Contamination

3.3.1.1 Facility or Other Potential Source Samples
3.3.1.2 Soil Samples
3.3.1.3 Groundwater Samples
3.3.1.4 Laboratory and Field QA/QC Samples

3.3.2 Review All Groundwater Flow Data to Determine Groundwater Flow Conditions

3.3.2.1 Groundwater Water Level Data
3.3.2.2 Aquifer Hydraulic Characteristics Data
3.3.2.3 Surface Water Level Data

3.4 Groundwater Quality Assessment Report Preparation

3.4.1 Report Contents

3.4.1.1 Discussion of Background Information (Section 2.0)
3.4.1.2 Summary of Groundwater Assessment Field Activities (Section 3.2)
3.4.1.3 Evaluation of All Data in Terms of Assessment Objectives (Section 1.1)
3.4.1.4 Recommendations for Future Activities (ie. monitoring, additional investigations, remediation, etc.)
3.4.1.5 Submittal of Report to TWC (within 15 days of completion)

INTERNATIONAL TECHNOLOGY CORPORATION

Project No. 42-143
May 199

Preliminary Site Characterization Report Field and Analytical Activities Former Pit Galena Park, Texas

Prepared for:

GATX Terminals
906 Clinton Avenue
Galena Park, Texas

GATX

(713) 999-6905
400 NORTH BELT EAST SUITE 700 • HOUSTON, TEXAS 77060

PRELIMINARY SITE CHARACTERIZATION REPORT
FIELD AND ANALYTICAL ACTIVITIES
FORMER PIT
GALENA PARK, TEXAS

1.0 INTRODUCTION

IT Corporation (IT) is pleased to submit this preliminary report of field and analytical activities conducted for GATX Terminals Corporation (GATX) for the characterization of a former waste disposal pit in Galena Park, Texas. The site is located north of Clinton Drive, west of Hunters Bayou and east of Panther Creek as shown on Figure 1.

The purpose of this investigation was to characterize the chemical constituents in the disposal pit, determine the vertical and horizontal extent of contamination, determine the impact of contaminants on the shallow groundwater, prepare an estimate of the volume of impacted material within the pit, and to evaluate remediation alternatives.

The scope of work contained in our proposal of May, 1989 divided our work effort into two categories: (1) Field and Analytical work and (2) an evaluation of remedial alternatives. The field and analytical effort included:

- Excavate nine shallow trenches;
- Drill eleven soil borings;
- Install six shallow groundwater monitor wells;
- Chemical analyses of 21 waste and soil samples and 6 groundwater samples; and
- A report on the field and analytical work.

The evaluation of remedial alternatives included the following:

- In-place closure;

- On-site treatment, bioremediation and waste fixation;
- Clean closure;
- Cost estimates for the alternatives; and
- Remediation evaluation report.

Based on the initial field investigation it was determined that additional field work would be needed to determine the extent of the pit and its effects on the soils and groundwater. Two additional trenches were excavated on the south side of the pit, two additional monitor wells were installed south of the pit, and additional chemical analyses were conducted of soils and ground water.

The site served as an active disposal pit during at least two distinct time periods. The pit received unknown types and volumes of materials during the 1950's to early 1960's. From the early 1970's until 1980 or 1981, the pit received mainly phenolic tank bottoms and other wastes. No records were kept of materials disposed of in the pit, but preliminary evidence and storage records from the terminal suggests a high probability of creosote wastes and phenols being present in the pit. Aerial photographs from 1980 show the pit as being partially filled, and in January, 1981 an aerial photo shows the pit as completely filled.

A 1989 preliminary investigation of the former waste disposal pit confirmed the presence of phenolic wastes in the pit. Other results of that investigation found constituents of fuel oils, creosote and coal tar. Fragments of steel drums were also found during that field phase of the investigation. The soil was affected by the wastes to a depth 11 feet below grade and the estimated volume of wastes and impacted soils was approximately 6,600 cubic yards.

The remainder of this report provides detailed discussions regarding the field activities and analytical work performed by IT for this project. Section 2.0 provides data on the site area survey. Section 3.0 discusses the details of

the field investigation, while sections 4.0 and 5.0 discuss the geology and hydrogeology of the region and site. Section 6.0 and 7.0 discuss the analytical program and the analytical results, respectively. Conclusions are presented in Section 8.0 and Section 9.0 discusses recommendations for additional work.

The results of this phase of the investigation indicates that the pit contains a wide variety of chemical contaminants, that the volume of affected soils is approximately 6,350 cubic yards, that the soils within the pit are affected to a depth of approximately 18 feet, that groundwater beneath the pit has been contaminated, and that groundwater contamination has moved beyond the boundaries of the pit.

We recommend the following course of action in terms of this site.

1. Notification of the Texas Water Commission.
2. Additional soil borings and monitor wells to define the extent of contaminant migration in the groundwater.
3. Additional chemical analyses of soils from the soil borings and monitor wells.
4. An additional round of groundwater analyses.
5. Computer modeling of groundwater flow and contaminant migration.

2.0 SITE AREA SURVEY

The site is located north of Clinton Drive in Galena Park, Texas (Figure 1). It is less than a mile north of the Houston Ship Channel. Hunting Bayou is approximately a half mile to the northeast and Panther Creek is a quarter mile to the southwest of the site. Hunting Bayou and Panther Creek both empty into the Houston Ship Channel.

2.1 LAND USE

Land use in the vicinity of the site can be classed as multiuse. Shipping and transportation industries generally dominate land use south of Clinton Drive and includes the location of the GATX terminal. Several large above ground storage tanks owned by GATX are located directly east of the site. A municipal water treatment plant is located at the intersection of Federal Road and Clinton Drive approximately a half mile east of the site. Residential areas of Galena Park are found within a quarter mile to the west of the site. Numerous buried petroleum and natural gas pipelines pass within a quarter mile on the south, west, and north of the site. A Texaco crude oil pipeline passes through the south side of the site (Figure 2).

2.2 CLIMATE

Climate in the region is dominated by the warm waters of the Gulf of Mexico. Prevailing winds are from the south or southeast throughout the year except for occasional cold fronts from the north in December and January. The mean daily maximum temperature is 79°F and the mean daily minimum is 59°F on an annual basis. On average 7 to 15 days per year have a reported low of 32°F or less. These low temperatures usually last only a few hours. On a monthly basis, rainfall is evenly distributed throughout the year. March is the "driest" month with approximately 2.67 inches of rain while December is usually the wettest with almost 4.5 inches of rain. The rain often occurs in the form of thunderstorms. The area is frequently subject to tropical storms and occasional hurricanes. Average annual rainfall is 46 inches.

3.0 FIELD INVESTIGATION

The field investigation of the former waste disposal pit site was conducted between November and December, 1989 and included three activities: trenching, soil borings, and monitor well installation and sampling. The trenching was undertaken to define the horizontal and possibly the vertical extent of the former pit and to assist in determining the type or types of buried wastes. Soil borings were drilled and sampled to further assess the vertical and horizontal extent of wastes, determine the extent of impacted soils beneath and surrounding the pit area, to define the site stratigraphy, and to define the depth of groundwater occurrence. Groundwater monitoring wells were installed inside the pit area and around the pit perimeter to determine the extent groundwater has been impacted by the wastes buried in the former pit. The monitor wells were later sampled. Results of the groundwater sampling are discussed in Section 6.0. Each of these field activities is discussed in detail in the following subsections.

3.1 TRENCHING

Trenching was done to determine the horizontal extent of the former waste disposal pit. Trenching operations began on November 16, 1989 and were completed on November 20, 1989. A Case 580K backhoe (Photograph 1, Appendix A) with a one eighth cubic yard capacity bucket, an operator and helper were supplied by GATX and worked under the supervision of an IT field geologist on the excavation of ten trenches at the site. The trench locations are shown in Figure 2.

The length of trenches varied from approximately 22 feet to 50 feet. Depth of the trenches reached approximately 10 feet at some locations, the maximum reach of the backhoe. Trenching was conducted by working radially from outside the pit to inside the pit boundary to eliminate the potential of contaminating areas outside the known boundaries of the pit and to more easily detect the first presence of organic vapor using the HNu. The trenches were backfilled with the excavated soil after they had been examined. The backhoe was decontaminated by high pressure steam wash after completion of each trench. Soil samples from the trenches were randomly selected and analyzed for organic vapors with an HNu meter.

Wastes discovered in the pit area included a black oily coating found on soils near the surface, lumber and metal debris, and bricks (Photographs 2 and 3, Appendix A). Strong organic odors were common. HNu readings reached 27 ppm in the visibly contaminated soils. Heaviest contamination was found in trenches 3 and 4 on the north east side of the pit (Photograph 2-4 Appendix A). Building material debris was also found mainly in trenches on the north and east sides of the pit. A previously unknown underground pipeline was discovered in trench number 7. (Photographs 5-6). The pipeline is oriented such that it may cross or intersect the main Texaco pipeline which crosses the southern portion of the site. The pipeline is believed to be currently inactive, however that has not been confirmed. Areal extent of the pit as determined by the trenching program is depicted in Figure 3.

3.2 SOIL BORINGS

The objectives of the soil boring program were to define the vertical extent of any contamination and to define the site stratigraphy, the depth of groundwater occurrence, and the aquifer thickness for the proper determination of screen intervals for the monitor wells. A drilling rig, crew and auxillary equipment were mobilized to the site on December 1, 1989 and worked under the supervision of an IT field geologist.

In order to meet the above stated objectives, a total of five soil borings were completed within the pit area. The borings were advanced by solid stem auger and terminated between 25 and 30 feet below the surface. Boring logs were constructed for each soil boring and are presented in Appendix B. Upon completion, the borings were grouted to the surface and the locations marked for surveying.

Shelby tubes were used to collect soil samples for lithologic examination. Samples were taken on three foot intervals or at the discretion of the field geologist. The samples were also used to define the vertical extent of the soil/waste mixture zone, the impacted soil zone and the "clean" soil zone. One sample from each of these zones in each soil boring was retained for chemical analysis. All samples were examined for lithology and visible presence of waste and were screened with an HNu meter for organic vapors.

Descriptions of the samples and the results of the HNu examinations are recorded on the soil boring logs in Appendix B. Drilling cuttings and discarded samples were placed in fiber pack drums and disposed of by GATX.

3.3 MONITOR WELL INSTALLATION

Installation of the monitor wells began immediately following the completion of the soil boring program. The eight monitor wells were screened in the first water bearing transmissive zone below the ground surface. A total of six monitor wells were installed around the outside perimeter of the pit and two wells were installed within the pit boundaries.

The monitor wells outside the boundaries of the pit were constructed using four inch Schedule 40 flush threaded PVC casing and screen. Slot size for the screen was 0.010 inch. The well boreholes were advanced with 11 inch O.D. hollow stem augers. The casing and well filter pack were installed through the hollow stem auger. A filter pack of No. 3 sand was placed adjacent to the well screen to a height approximately two feet above the top of the screen. The filter pack was then sealed with a one to two foot thick layer of bentonite pellets. The wells were then grouted to the surface with a cement/bentonite grout. A six inch steel locking protective cover was cemented in place over the top of the riser pipe. A 3 foot by 3 foot concrete pad was constructed around the base of the protective well cover. Construction detail diagrams for the monitoring wells are presented in Appendix C. The location of the monitor wells are shown on Figure 2.

Isolation surface casing was installed in the two wells (MW-1 and MW-2), located within the pit area to protect the borehole from any uphole contamination from the soil/waste mixture zone. A nominal 16 inch borehole was advanced from the surface to approximately 9.5 feet. A ten foot length of 12 inch I.D. schedule 40 PVC was placed in the borehole and driven to a depth of 10 feet. The PVC casing was then tremie grouted in place until grout reached the surface outside the isolation casing. The grout was allowed to set for a minimum of 12 hours before drilling continued. The monitor wells were then completed using the same methods as those located outside the pit boundaries.

Soil samples were collected from the monitor well borings on 3 foot intervals or at the discretion of the field geologist to determine the proper screening interval. Samples from the soil/waste mixture zone, impacted soil zone and the "clean" zone were collected from the two well bores inside the pit area and retained for chemical analysis. Samples were collected by Shelby tube.

During the soil boring and monitor well installation programs, all drilling and sampling equipment (augers, drill rods, Shelby tubes, etc.) were thoroughly cleaned between uses. Cleaning was by high pressure soapy steam wash and rinse.

Wells were developed by removing multiple well volumes of groundwater until the well was dry or until the water was clear and free of particulates. Removed water was stored in marked 55 gallon drums and left on site for disposal by GATX.

3.4 GROUNDWATER SAMPLING

Groundwater samples were collected from the site monitor wells on January 18, 1990. The water level in each well was measured and the well purged of three volumes or until dry prior to sample collection. Organic odors were detected in all wells except MW-3 and MW-4 on the north perimeter of the site. A flaky waxy white substance was noted on the water level probe from MW-1 and MW-2 (located within the pit boundary). Samples were field tested for pH.

Samples were collected from each well for priority pollutant volatile organic analysis and for acid base/neutral extractable organic compound analysis. These samples were sent to the IT analytical laboratory in Austin, Texas for analysis. A second set of samples collected from MW-1, MW-2, MW-4 and MW-8 was sent to the IT technology development laboratory in Knoxville, Tennessee for bioremediation studies. All samples were kept on ice after collection and shipped by overnight courier for next day delivery to their respective destinations.

4.0 GEOLOGY

4.1 REGIONAL GEOLOGY

The site is located in the western section of the Gulf Coastal Plain. The site is underlain by the Beaumont Formation of Pleistocene age which is composed of fluvial and deltaic deposits and small areas of coastal marsh and lagoon deposits.

4.2 SITE GEOLOGIC CONDITIONS

The area surrounding the site is generally low and flat. The site is located on relatively high ground between Hunting Bayou and Panther Creek. Area drainage is generally to the south and east toward the Houston Ship Channel. The bench mark elevation of the Clinton Drive bridge over Panther Creek is 12 feet, MSL, and the nearest bench mark elevation along the ship channel is 11 feet, MSL. Highest elevation at the site is 28.9 feet, MSL, at B-3. Lowest elevation at the site is along the west side near MW-3. Water is ponded in this vicinity through much of the year. Details of the area and site topography are shown on Figures 1 and 2, and the location of cross sections are shown on Figure 4.

Soils at the site have been mapped as belonging to the Midland soil series. The Midland series consists of silty clay loams with very slow internal drainage and surface runoff. The soils are deep and acidic. They are found predominately in southeast Harris County. (U.S.D.A., 1976, Soil Survey of Harris County, Texas)

The site specific geology is depicted on cross sections A-A' and B-B' (Figure 5 and 6). The soils immediately below the surface are composed of hard, stiff clays. A native dark brown clay extends from the surface to approximately 8 feet below grade. This clay is underlain by a red/brown very stiff, blocky, desiccated clay which continues downward to approximately 17 or 18 feet. The clay becomes very silty below 18 feet. Distinct tan silt and very fine grained sand layers were observed in MW-5, MW-6, MW-7 and MW-8. The tan silts are underlain by a light gray medium grain unconsolidated saturated sand.

This sand is up to 7 feet thick and becomes clay prone toward the base at approximately 29 feet below grade. The sand is saturated across the site and the overlying silt and clay is usually wet or moist at about 19 feet below the surface. Below the sand is a light gray clay in which the soil borings terminated.

4.3 ESTIMATED VOLUME OF WASTE AND IMPACTED SOIL

The volume of contaminated in place soil and waste is estimated at approximately 6,350 cubic yards. The estimate is based on the areal extent of the pit as determined by the trenching program and on the depth of observed contamination during the soil boring program. Observation may be by either visual, olfactory senses or by field instrumentation. The pit was estimated to be 55 feet in radius and the depth of waste and impacted soil was determined to be approximately 18 feet.

5.0 HYDROGEOLOGY

5.1 SITE HYDROGEOLOGY

The uppermost water being transmissive zone at the site occurs below the red clay zone, at between 1 and 4 feet, MSL. The base of the aquifer ranges from -3 feet to -6 feet, MSL in the pit area as depicted in Figure 7. The transmissive zone consists lithologically of a light gray to white silty to fine grained sand with occassional clay. The red clay above is frequently underlain by a reddish brown silt which may be either wet or dry. Thickness of the uppermost transmissive zone ranges from 6 to 9 feet. An isopach map of the uppermost transmissive zone illustrating the thickness distribution is shown on Figure 8.

Water levels in the monitor wells were measured on January 17, 1990. The measurements were converted to elevations relative to mean sea level. Figure 9 illustrates the groundwater potentiometric surface at the site. The potentiometric surface is considerably higher than the elevation of the uppermost transmissive zone indicating artesian conditions at the site and an upward vertical gradient. As depicted on the potentiometric map the groundwater surface is quiet flat. Flow is generally to the southeast, toward the Houston Ship Channel. The gradient on the eastern side of the site is calculated at 0.00174 and along the western edge at 0.000721. Due to the low gradient groundwater velocity to the southeast is estimated between 6.8×10^{-5} ft/day and 1.64×10^{-4} ft/day (0.025 ft/yr and 0.06 ft/yr).

6.0 ANALYTICAL PROGRAM

6.1 SOIL SAMPLING

Three soil samples from each of the seven boreholes completed within the pit area (five soil borings and two monitor wells) were collected for chemical analysis. Sample selection criteria and strategy was based on the following guidelines:

- One sample of waste material or a soil/waste mixture was selected based on visual observation and soil vapor screening;
- A second sample from the zone of impacted soil was selected, again, based on visual observation and soil vapor screening;
- A third soil sample was to be selected from either the "clean" soil zone or a final soil sample from the bottom of the boring.

The soil samples were collected and placed in clean wide mouth jars with teflon lined lids. The samples were kept on ice in coolers and shipped to IT's analytical laboratory in Austin, Texas by overnight courier. These samples were analyzed for Hazardous Substance List (HSL) priority pollutants and acid and base/neutral extractable organics and for lead, chromium and barium (Table 1).

A second set of samples from 4 of the borings/monitor well boreholes was collected using the previously outlined criteria and forwarded by overnight courier to IT's technology development laboratory in Knoxville, Tennesee for bioremediation studies. These samples were collected and kept in sterile glass jars and stored on ice for overnight delivery.

Sample collection and preparation was carried out using only clean equipment (Shelby tubes, clean knives, spatulas, etc.). All equipment was cleaned after each use to minimize cross contamination between samples.

6.2 GROUNDWATER SAMPLING

Following installation and development of the eight monitoring wells, groundwater samples were obtained for analysis of volatile and semi-volatile organic compounds by EPA Methods 624 and 625. The well sampling procedures were as follows:

- A clean plastic liner was placed on the surface around the well to provide a clean dry surface;
- The static water level was measured with a calibrated electric probe water level sensor;
  - Presence of oil or organics, if any, on the probe was recorded.
- A volume of water equal to three times the volume of water initially contained in the well was removed (purged) or the well was purged to dryness. Two bailers were used. One bailer was used on the wells outside the pit area and the other was used only on the wells within the pit area. Each bailer was properly decontaminated between uses.
- The water purged from the well was retained in a designated waste storage container (55 gallon drums). The water was disposed by GATX following receipt of the laboratory results.
- Within a period of 24 hours after purging, when the water level in the well had recovered to near its original level, samples were collected using a bailer. Typically the samples were collected immediately after purging.
- Groundwater was field tested for pH, and the data recorded on the sample collection logs.
- The samples were carefully transferred into appropriate containers. Prolonged exposure (of the sample) to air and agitation during transfer was avoided. VOA vials contained no visible bubbles.

A summary of the waste characterization analytical program is presented in Table 1.

All samples (soil and groundwater) were kept on ice in coolers and shipped by overnight courier to their respective laboratory destinations. Samples were sent using proper chain of custody and request for analysis procedures. Each sample was labeled with a pre-printed sample identification number. Sample collection logs were kept for each sample.

7.0 ANALYTICAL RESULTS

A suite of analyses were performed on soil, sludge, and groundwater samples to characterize the chemical contaminants in the former pit and the groundwater beneath the pit. The soil and sludge samples were analyzed for Hazardous Substances List volatile organics, acid/base extractable organics, lead, chromium, and barium. The groundwater was analyzed for Priority Pollutant volatile organics and acid, base/neutral extractable organics. The analytical procedures were dictated because of a previous report on the pit and the nature of chemicals stored at the terminal.

All soil and sludge samples analyzed were from soil borings and monitor wells located within the known perimeter of the former pit. A total of 17 soil and sludge samples were analyzed.

Groundwater samples were taken from all eight monitor wells and therefore represent complete coverage across the pit area from upgradient to downgradient conditions.

7.1 SOILS AND SLUDGES

The analytical results for the soil and sludge samples are summarized in Table 2. The complete analyses are provided in Appendix D. Seven volatile components from the Hazardous Substance List were identified: benzene, trans-1,2-dichloroethylene, ethylbenzene, methylene chloride, methyl chloride, toluene, and xylenes (total). In general, higher concentrations were present in the uppermost samples with concentration decreasing with increasing depth. The highest concentration of contamination were found in samples from the 2-3 foot depth in borings B-1 and B-2. Concentration of some contaminants were so high that several dilutions were required thus greatly increasing the detection limits for the other compounds. The concentration levels drop appreciably with depth. For example, in Boring B-2 total xylenes in the 2 - 3 foot sample are 61,000 µg/kg, but decrease to 41 µg/kg between 14 to 15 feet, and reach a value of 9.4 µg/kg between 23 and 24 feet.

Seventeen extractable organic compounds were identified from the soil and sludge samples taken from within the pit boundaries. Soil samples from outside the pit area were not analyzed. The highest concentrations were found in borings B-2 and B-4. Concentrations decrease with increasing depth and most contaminants are below detectable limits at a depth of 23-24 feet. The highest concentration were for napthalene, phenanthrene, fluoranthene, and fluorene.

Metal concentrations in the uppermost soil samples within the pit area are relatively high, as shown in Table 3. This is especially true for surficial soils at Boring B-2 which has a total lead content of 210 mg/kg, barium at 540 mg/kg, and chromium at 15 mg/kg. Although analytical testing was not conducted on deeper samples, it is anticipated that metal concentrations will decrease with depth.

In addition, relatively high concentration of dibenzofuran was present in the borings. Additional analyses determined that chlorinated furans and dioxins were not present. The results of these analyses are shown in Table 4 and the complete analyses are provided in Appendix D.

7.2 GROUNDWATER

Groundwater samples from each of the monitor wells were analysed for volatile organics (EPA 624) and acid base/neutral extractable organics (EPA 625). Seven volatile organics were detected in the groundwater. These are listed on Table 5 and included with the analytical results in Appendix D.

The analytical results from the wells north, and upgradient of the pit show no significant levels of groundwater contamination. Groundwater from MW-4 is below the detection limits for all compounds and the only contaminant detected in MW-3 is 1,1,2,2-tetrachloroethane at 5.4 µg/l.

Monitor wells within the boundaries of the pit display much higher concentrations of organic chemicals. Monitor well MW-1 shows elevated levels of benzene, 8.2 µg/l, toluene, 16 µg/l, and napthalene, 12 µg/l. Monitor well MW-2 however, shows very high levels of both volatile and extractable

organics. Of particular concern is vinyl chloride, 82 µg/l. The extractable organics show high concentration of napthalene (4000 µg/l), acenapthane (340 µg/l) and dibenzofuran (320 µg/l).

Four monitor wells were placed downgradient of the pit in order to define the extent of downgradient contaminant migration. Monitor wells MW-6 and MW-8 showed the absence of contaminants at detection limits of 10 to 20 µg/l. Monitor well 5 detected a small amount of trichloroethylene, 16 µg/l. A high concentration of trichloroethylene, 20,000 µg/l, was detected in monitor well 7. The only other contaminant detected in MW-7 was napthalene, 160 µg/l. The napthalene is present in high concentrations in the pit and its presence in MW-7 could be anticipated.

The source of the trichloroethylene (TCE) in MW-7 is uncertain. TCE is present at detectable limits in the groundwater at one other monitor well, MW-5, at a concentration of 16 µg/l. It has not been detected in upgradient soil borings within the pit, B-5, nor is it present in the upgradient monitor well, MW-8. Additional field work will be required to define the extent of the TCE contamination and to ascertain its source.

8.0 CONCLUSIONS

Based on the data generated as a result of this investigation and the results from a previous investigation we conclude the following:

- The pit contains a wide variety of chemical contaminants;
- The in place volume of affected soils is approximately 6,350 cubic yards;
- The soils are affected to a depth of approximately 18 feet;
- Groundwater upgradient of the pit is virtually free of contaminants;
- Groundwater contamination is present beneath the pit at MW-2, however the groundwater contamination is not as extensive as could be expected; and
- Some groundwater contamination is present in MW-7, downgradient of the pit, however, the principal contaminant has not been found at detectable limits within the pit.

TABLE 1
WASTE CHARACTERIZATION
ANALYTICAL PROGRAM
FOR SOIL AND GROUNDWATER
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

SAMPLE	NUMBER OF SAMPLES	CONSTITUENTS TO BE ANALYZED	EPA METHOD
Soil/Waste	21(1)	Priority Pollutant Volatile Organics and Acid and Base/Neutral Extractable Organics	SW8240/SW5030
Soil/Waste	4(2)	Lead Chromium Barium	SW7421/SW3050
Groundwater	8	Priority Pollutant Volatile Organics and Acid and Base/Neutral Extractable Organics	EPA 624 EPA 625

(1) Three samples of soil/waste will be obtained from each of seven borings.
(2) Four samples of representative waste will be analyzed for metals.

TABLE 2 ANALYTICAL RESULTS [illegible] AND SLUDGES'

Furgo Pit Investigation
Volatile Organics - Soils, ug/kg
GATX Terminals Corporation
Galena Park, Texas

Compound	Boring/Well I.D.	B-1 2-3'	B-1 14-15'	B-1 28-29'	B-2 2-3'	B-2 14-15'	B-2 21-22'	B-3 2-3'	B-3 14-15'	B-3 26-27'	B-4 2-3'	B-4 11-12'	B-4 20-21'	B-5 5-6'	B-5 11-12'	B-5 23-24'	MW-1 5-6'	MW-1 11-12'	MW-1 29-30'	MW-2 5-6'	MW-2 11-12'	MW-2 30.5-32'
Benzene		<250	<5.0	<5.0	5000	<5.0	<5.0	37	<5.0	40	300	0.8	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<25	<25	<5.0
trans 1,2-Dichloroethylene		<250	<5.0	<5.0	<1300	<5.0	<5.0	<5.0	<5.0	<25	<25	<5.0	<5.0	<5.0	<5.0	9.5	<25	<5.0	<5.0	<25	<25	<5.0
Ethylbenzene		530	17	<5.0	3000	30	<5.0	190	6.3	29	130	40	<5.0	<5.0	<5.0	27	<5.0	990	32	<5.0	160	133	<5.0
Methylene chloride		<250	<5.0	<5.0	<1300	<5.0	16	<5.0	<5.0	<25	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<25	<25	<5.0
Methyl chloride		<500	<5.0	<10	<25000	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<50	<10	<10	<50	<50	<10
Toluene		250	9.4	<5.0	20000	<5.0	<5.0	120	6.3	170	690	100	<5.0	7.5	13	<5.0	<25	<5.0	<5.0	180	20	<5.0
Xylenes, total		1900	110	<5.0	61000	41	9.4	360	<5.0	110	1900	260	<5.0	18	130	<5.0	550	9.9	<5.0	640	510	<5.0

Furgo Pit Investigation
GATX Terminals Corporation
Extractable Organics - Soils, ug/kg

Compound	Boring/ Well I.D.	B-1 2-3'	B-1 14-15'	B-1 28-29'	B-2 2-3'	B-2 14-15'	B-2 21-22'	B-3 2-3'	B-3 14-15'	B-3 26-27'	B-4 2-3'	B-4 11-12'	B-4 20-21'	B-5 5-6'	B-5 11-12'	B-5 23-24'	MW-1 5-6'	MW-1 11-12'	MW-1 29-30'	MW-2 5-6'	MW-2 11-12'	MW-2 30.5-32'
Naphthalene		120	110	<10	7300	29	15	94	<0.33	<10	300	20	<0.33	20	20	15	0.8	1.11	<0.33	130	130	<0.33
2-Methylnaphthalene		45	<10	<10	2100	<10	<10	38	<0.33	<10	240	8.5	<0.33	<10	<10	10	2.1	<0.33	<0.33	41	15	<0.33
Acenaphthene		180	57	<10	2100	10	<10	36	1.4	<10	300	13	<0.33	15	15	<10	5.1	11	<0.33	82	39	<0.33
4-Nitrophenol		<250	<50	<50	<1300	<50	<50	<8.3	<1.7	<50	<1300	<8.3	<1.7	15	<50	<50	<8.3	<1.7	<1.7	<50	<50	<1.7
Dibenzofuran		120	81	<10	2600	10	<10	36	<0.33	<10	350	15	<0.33	<10	11	<10	4.2	13	<0.33	99	83	<0.33
Fluorene		180	71	<10	2800	11	<10	56	1.9	<10	420	18	<0.33	17	11	<10	15	17	<0.33	91	84	<0.33
Phenanthrene		280	130	<10	6000	21	21	110	4.3	<10	820	30	<0.33	27	23	15	28	45	<0.33	110	110	<0.33
Anthracene		75	25	<10	1700	<10	<10	42	1.3	<10	950	24	<0.33	12	17	<10	110	6.2	<0.33	57	17	<0.33
Di-n-butylphthalate		<50	<10	<10	<250	<10	<10	<1.7	<0.33	<10	<250	<1.7	<0.33	<10	<10	<10	<1.7	0.42	<0.33	<10	<10	<0.33
Fluoranthene		240	69	<10	5100	10	10	45	1.5	<10	130	17	<0.33	21	37	<10	15	17	<0.33	78	63	<0.33
Pyrene		190	48	<10	2700	7	<10	33	1.9	<10	250	14	<0.33	20	25	<10	11	9.4	<0.33	60	49	<0.33
Butylbenzylphthalate		<50	<10	<10	<250	<10	<10	<1.7	<0.33	<10	<250	<1.7	<0.33	<10	<10	<10	<1.7	0.33	<0.33	<10	<10	<0.33
Benzo(a)anthracene		55	11	<10	630	<10	<10	10	0.5	<10	<250	3.0	<0.33	<10	<10	<10	3.1	2.1	0.10	18	17	0.10
Chrysene		75	19	<10	930	<10	<10	16	0.7	<10	<250	5.1	<0.33	<10	11	<10	5.9	3.5	<0.33	25	21	<0.33
Benzo(b)fluoranthene		<50	<10	<10	<250	<10	<10	6.5	<0.33	<10	<250	<1.7	<0.33	<10	13	<10	<1.7	0.59	<0.33	<10	7	<0.33
Benzo(k)fluoranthene		<50	<10	<10	<250	<10	<10	4.0	<0.33	<10	<250	<1.7	<0.33	<10	<10	<10	2.1	0.43	<0.33	<10	5	<0.33
Benzo(a)pyrene		<50	<10	<10	<250	<10	<10	3.0	<0.33	<10	<250	<1.7	<0.33	<10	<10	<10	<1.7	0.51	<0.33	<10	5	<0.33

TABLE 3

FORMER PIT INVESTIGATION
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS
METALS ANALYSIS - SOIL MG/KG

Boring	B-1	B-2	B-3	B-4
Sample Depth	2-3'	2-3'	2-3'	2-3'
Barium	210	540	180	190
Chromium	12	15	9.6	10
Lead	19	210	17	28

DXR/GATX

TABLE 4

FURAN ANALYSIS
OLD PIT INVESTIGATION
GATX TERMINALS CORPORATION
GALENA PARK, TEXAS

Sample Location: SSB2 (adjacent to B2)

Soil Depth 1 - 2 feet

COMPOUND	RESULT	DETECTION LIMIT (ppb)
Total TCDF	ND	0.94
Total PeCDF	ND	0.65
Total HxCDF	ND	1.5
Total HpCDF	ND	2.3
Total OCDF	ND	4.8

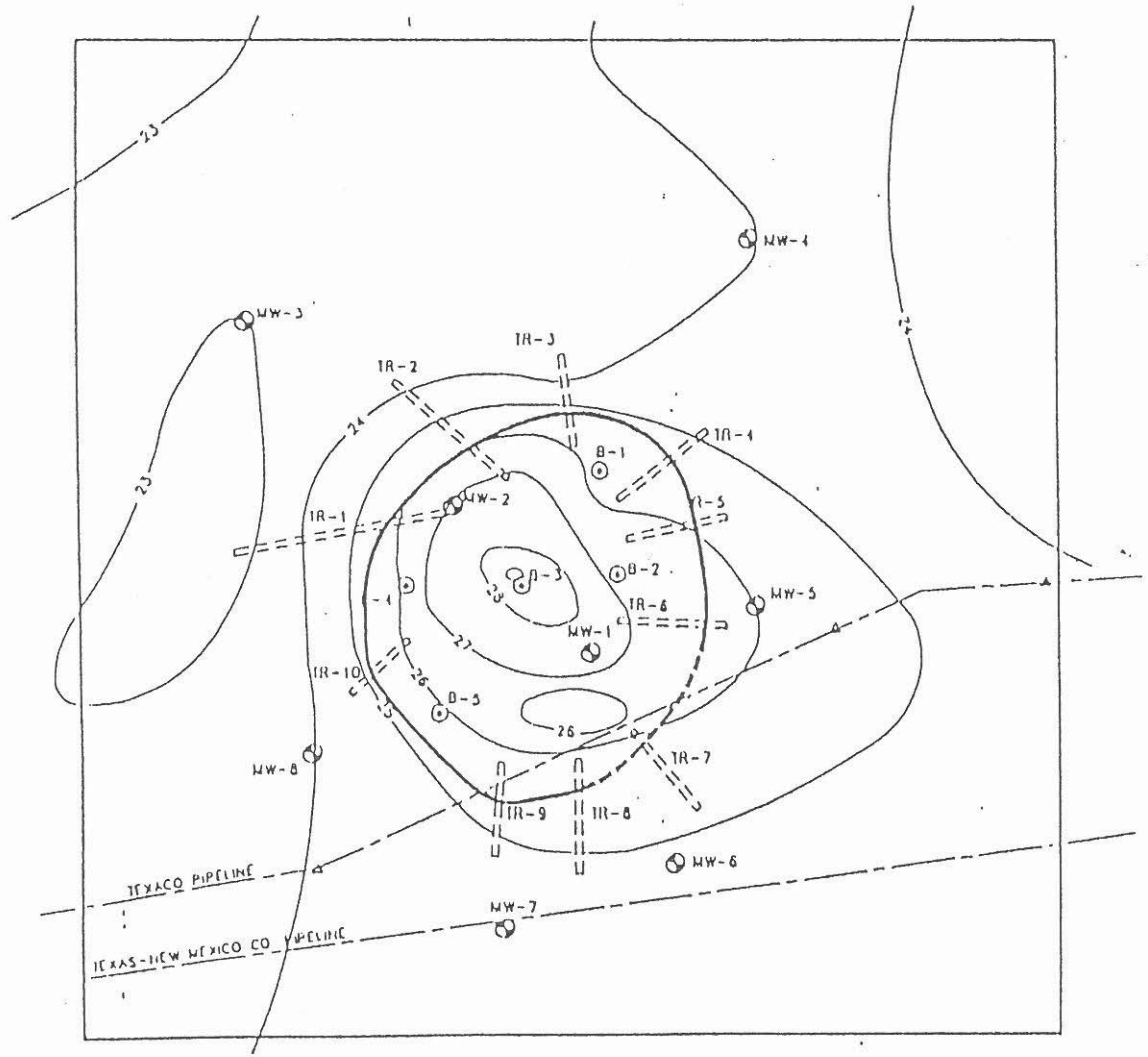
TABLE 5 ANALYITICAL RESULTS - GROUNDWATER

Former Pit Investigation
Volatile Organics - Groundwater ug/l
GATX Terminal Corporation
Galena Park, Texas

Compound\Well	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8
Benzene	8.2	40	<10	<10	<10	<10	7.1	<10
1.1.2.2-Tetrachloroethane	<10	<10	5.4	<10	<10	<10	<10	<10
trans-1.2-Dichloroethylene	<10	55	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	31	<10	<10	<10	<10	<10	<10
Toluene	16	73	<10	<10	<10	<10	<10	<10
Trichloroethylene	<10	<10	<10	<10	16	<10	20000	<10
Vinyl chloride	<10	82	<10	<10	<10	<10	<10	<10

Former Pit Investigation
Extractible Organics - Groundwater ug/l
GATX Terminal Corporation
Galena Park, Texas

Compound\Well	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8
Acenaphthene	<10	340	<10	<10	<10	<10	<50	<10
Anthracene	<10	21	<10	<10	<10	<10	<50	<10
Fluorene	<20	160	<20	<20	<20	<20	<100	<20
Fluoranthene	<20	13	<20	<20	<20	<20	<100	<20
Naphthalene	12	4000	<10	<10	<10	<10	160	<10
Phenanthrene	<10	110	<10	<10	<10	<10	<50	<10
Benzoic Acid	NR	63	NR	NR	NR	NR	NR	NR
2 Methyl naphthalene	NR	210	NR	NR	NR	NR	NR	NR
Dibenzofuran	NR	320	NR	NR	NR	NR	NR	NR



EXPLANATION

- TRENCH LOCATION
- MONITOR WELL LOCATION
- BORING LOCATION
- PIPELINE MARKER
- APPROXIMATE LOCATION OF UNDERGROUND PIPELINES
- 27 GROUND ELEVATION CONTOURS, MSL
- APPROXIMATE PIT BOUNDARY

10 0 40 FT
SCALE

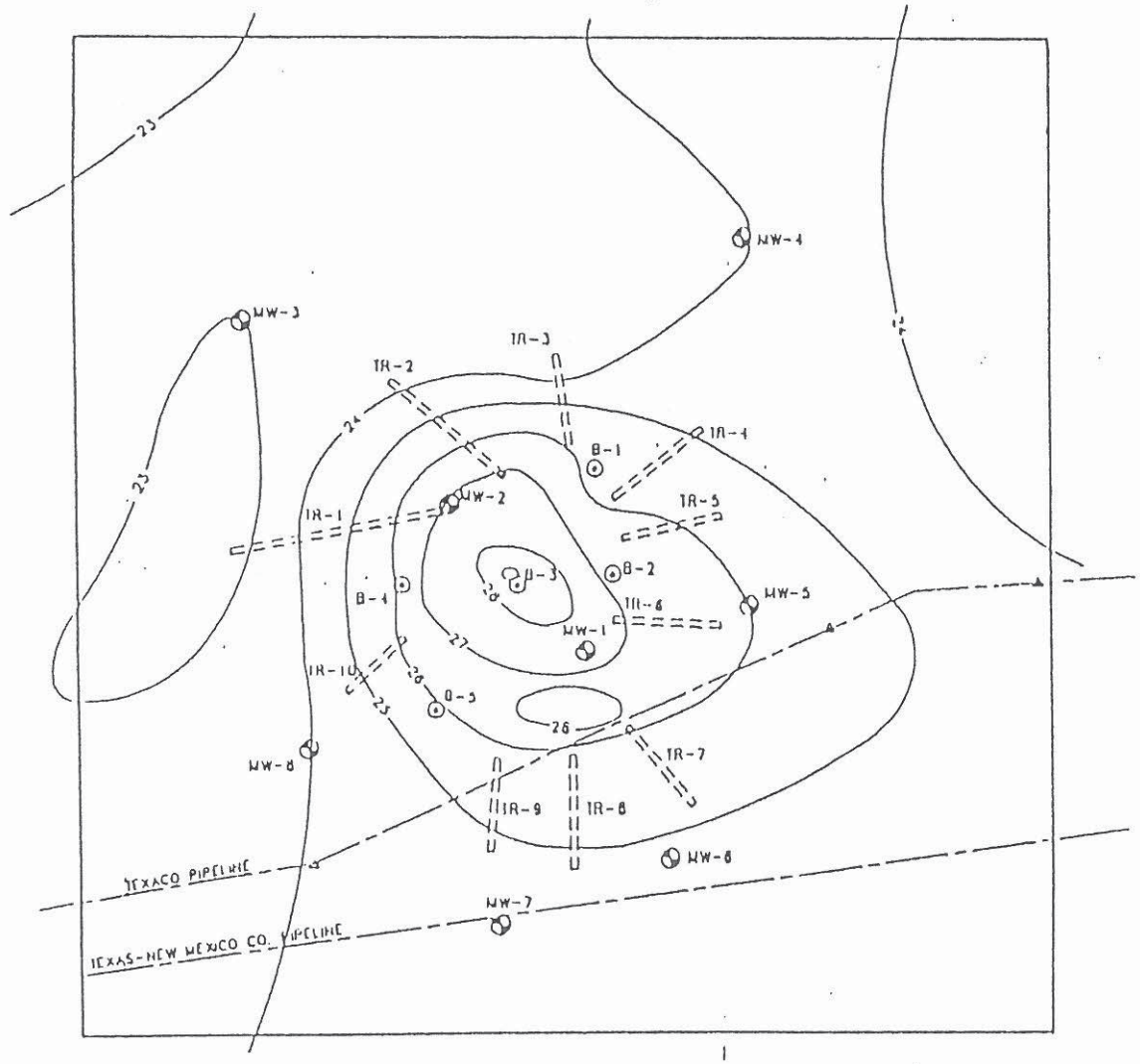
FIGURE 3

APPROXIMATE AREAL EXTENT OF PIT BASED ON TRENCHING PROGRAM OBSERVATIONS OLD DISPOSAL PIT AREA

PREPARED FOR

GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION



EXPLANATION

- TRENCH LOCATION
- MONITOR WELL LOCATION
- BORING LOCATION
- PIPELINE MARKER
- APPROXIMATE LOCATION OF UNDERGROUND PIPELINES
- 27 GROUND ELEVATION CONTOURS, MSL

10 0 10 FT
SCALE

FIGURE 2

SITE MAP

PREPARED FOR:
GATX TERMINALS CORP.
GALENA PARK, TEXAS.

INTERNATIONAL TECHNOLOGY CORPORATION

APPENDIX

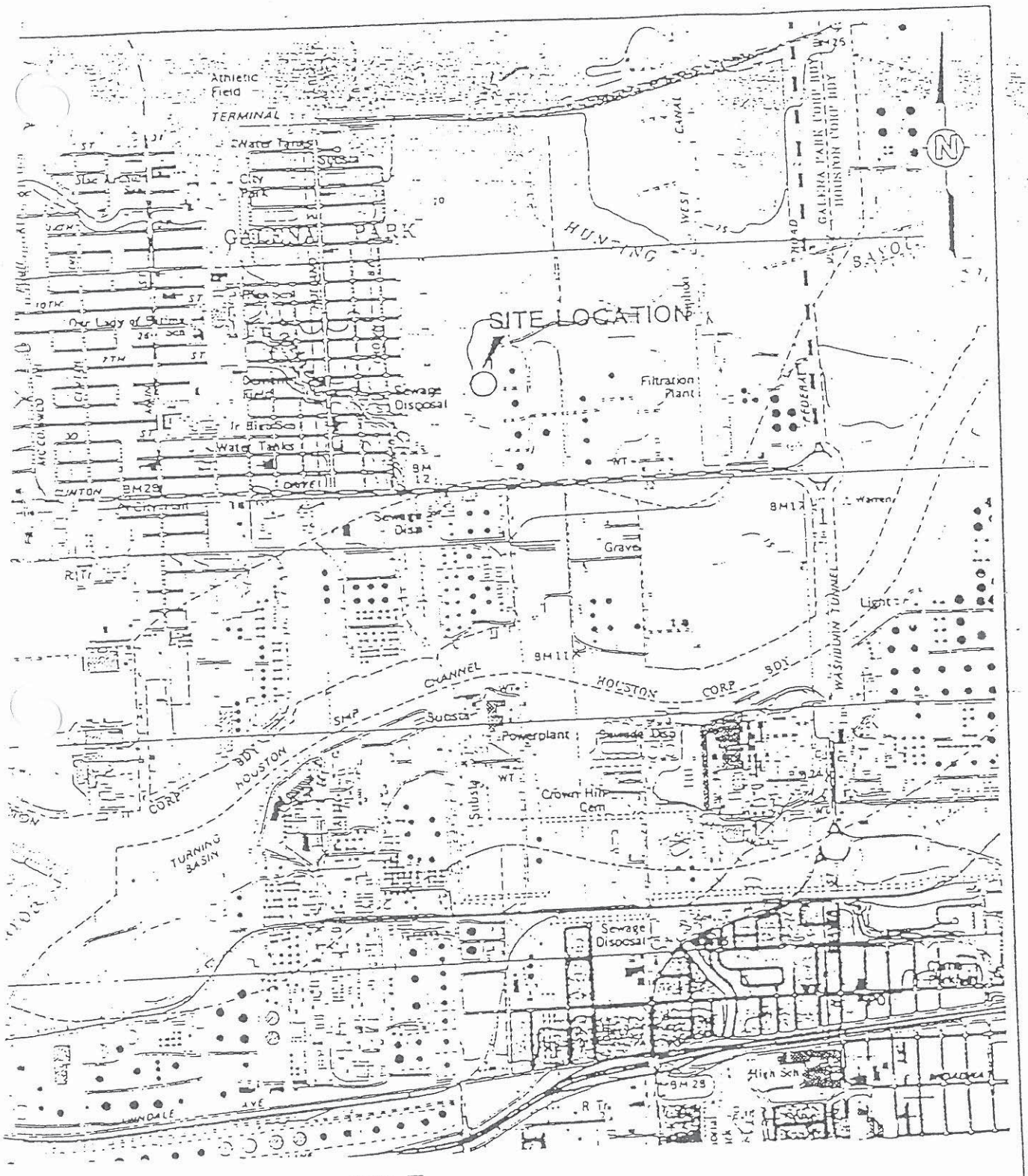


FIGURE 1.

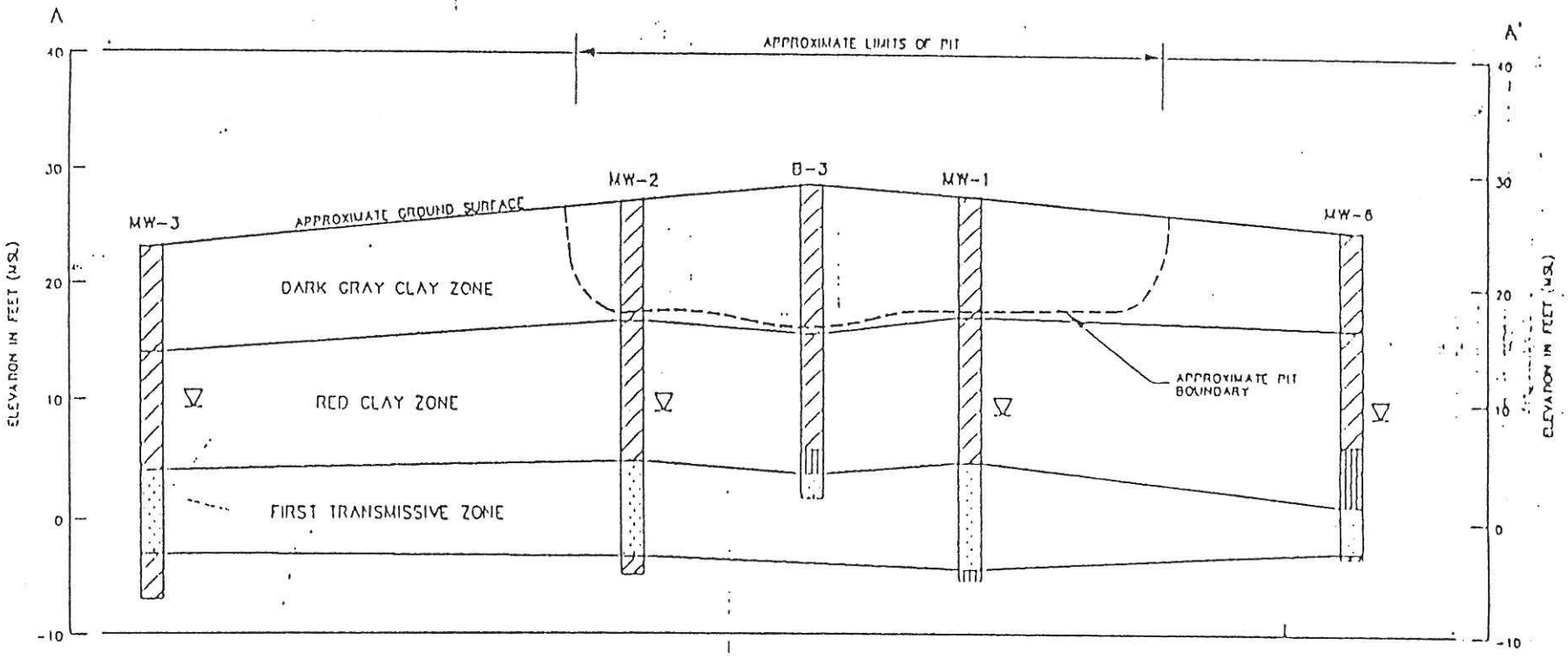
SITE LOCATION MAP

PREPARED FOR

GATX TERMINALS CORP.
GALENA PARK, TEXAS

RENCE: U.S.G.S. 7.5 MINUTE QUADRANGLE
PASADENA, TEXAS, 1982

APPENDIX A



10 0 10 FT
VERTICAL SCALE

20 0 20 FT
HORIZONTAL SCALE

SAND
CLAY
SILT

GROUND WATER LEVELS MEASURED 1-18-90

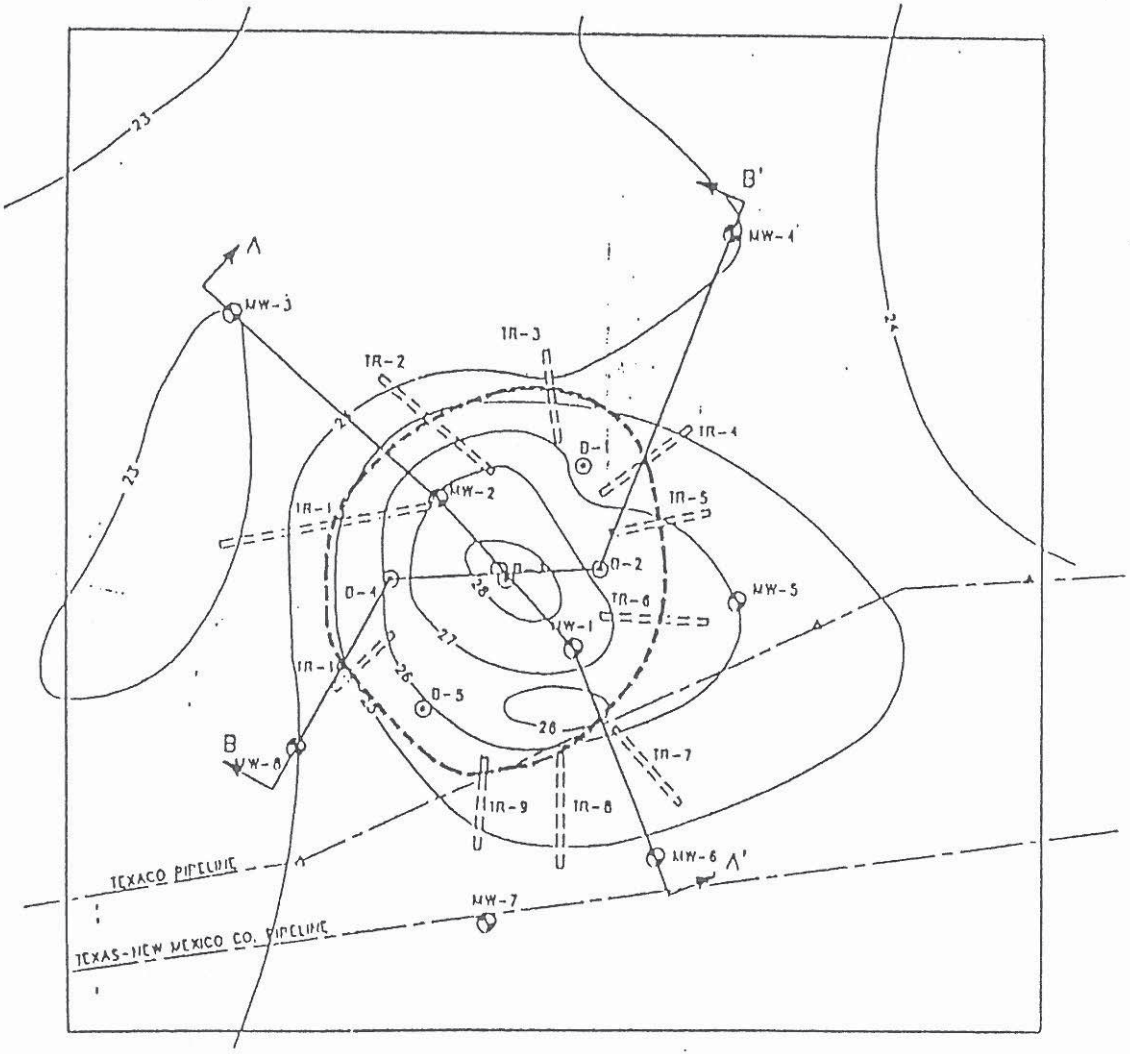
FIGURE 5

CROSS SECTION A-A'
OLD DISPOSAL PIT AREA
PREPARED FOR
GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY | DATE 3-5-90 | CHECKED BY | APPROVED BY | DATE 10/1/90 | PROJECT NUMBER 21439.04

GATX9.DWG 05/24/90 2:31pm DRS



EXPLANATION

- TRENCH LOCATION
- MONITOR WELL LOCATION
- BORING LOCATION
- PIPELINE MARKER
- APPROXIMATE LOCATION OF UNDERGROUND PIPELINES
- APPROXIMATE PIT BOUNDARY

40 0 40 FT
SCALE

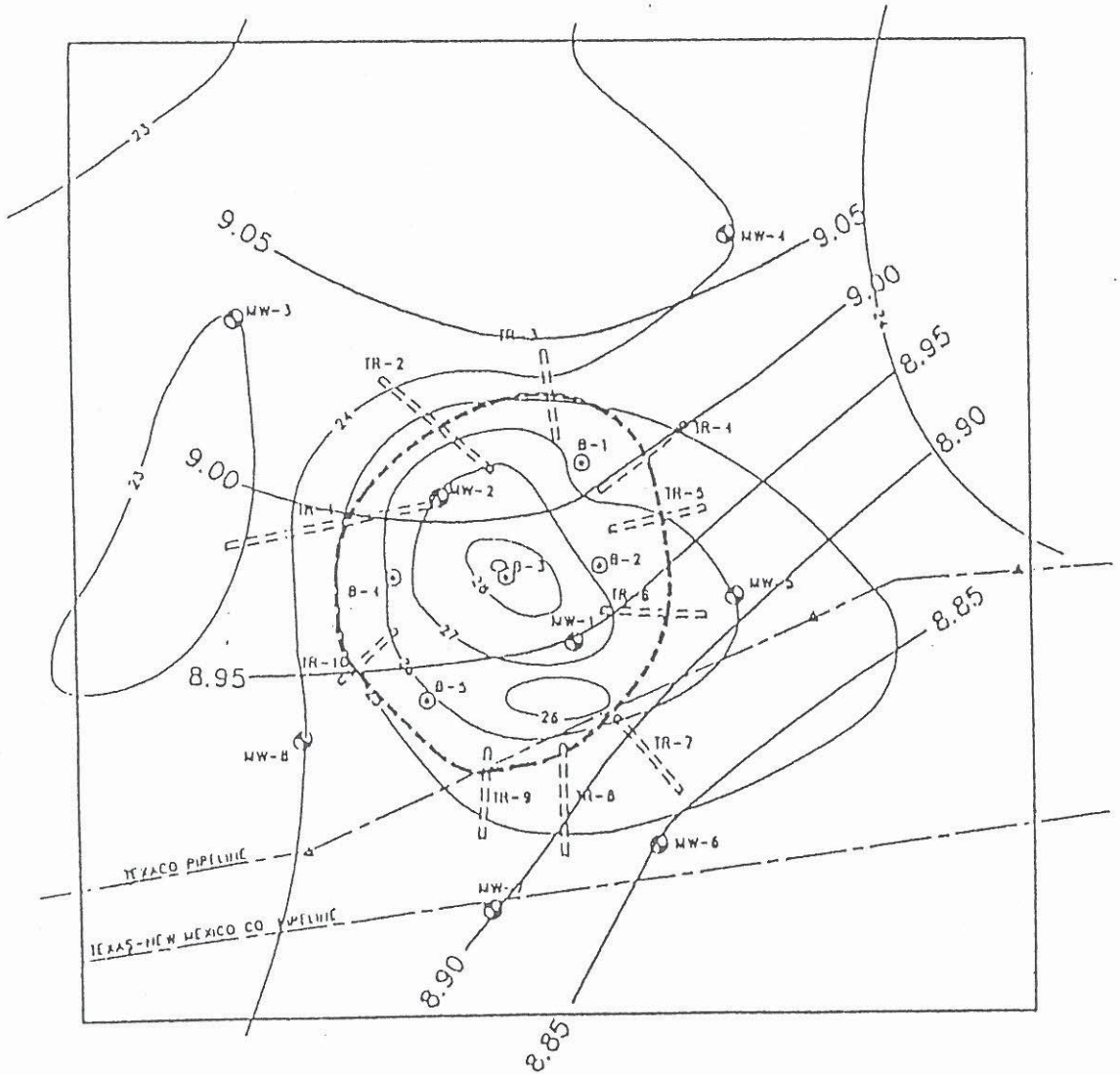
FIGURE 4
CROSS SECTION
LOCATION MAP

PREPARED FOR
GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY | DATE | CHECKED BY | DATE | APPROVED BY | DATE | PROJECT NUMBER 421439.04

GATX1 DWG 05/24/90 2:24pm CRS



EXPLANATION

- TRENCH LOCATION
- MONITOR WELL LOCATION
- BORING LOCATION
- PIPELINE MARKER
- APPROXIMATE LOCATION OF UNDERGROUND PIPELINES
- GROUNDWATER ELEVATION CONTOURS
- APPROXIMATE PIT BOUNDARY

CONTOUR INTERVAL = 0.05 FT

ELEVATIONS ARE IN FEET MSL

FIGURE 9

GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR MAP
JANUARY 18, 1990
OLD DISPOSAL PIT AREA
PREPARED FOR
GATX TERMINALS CORP.
GALENA PARK, TEXAS

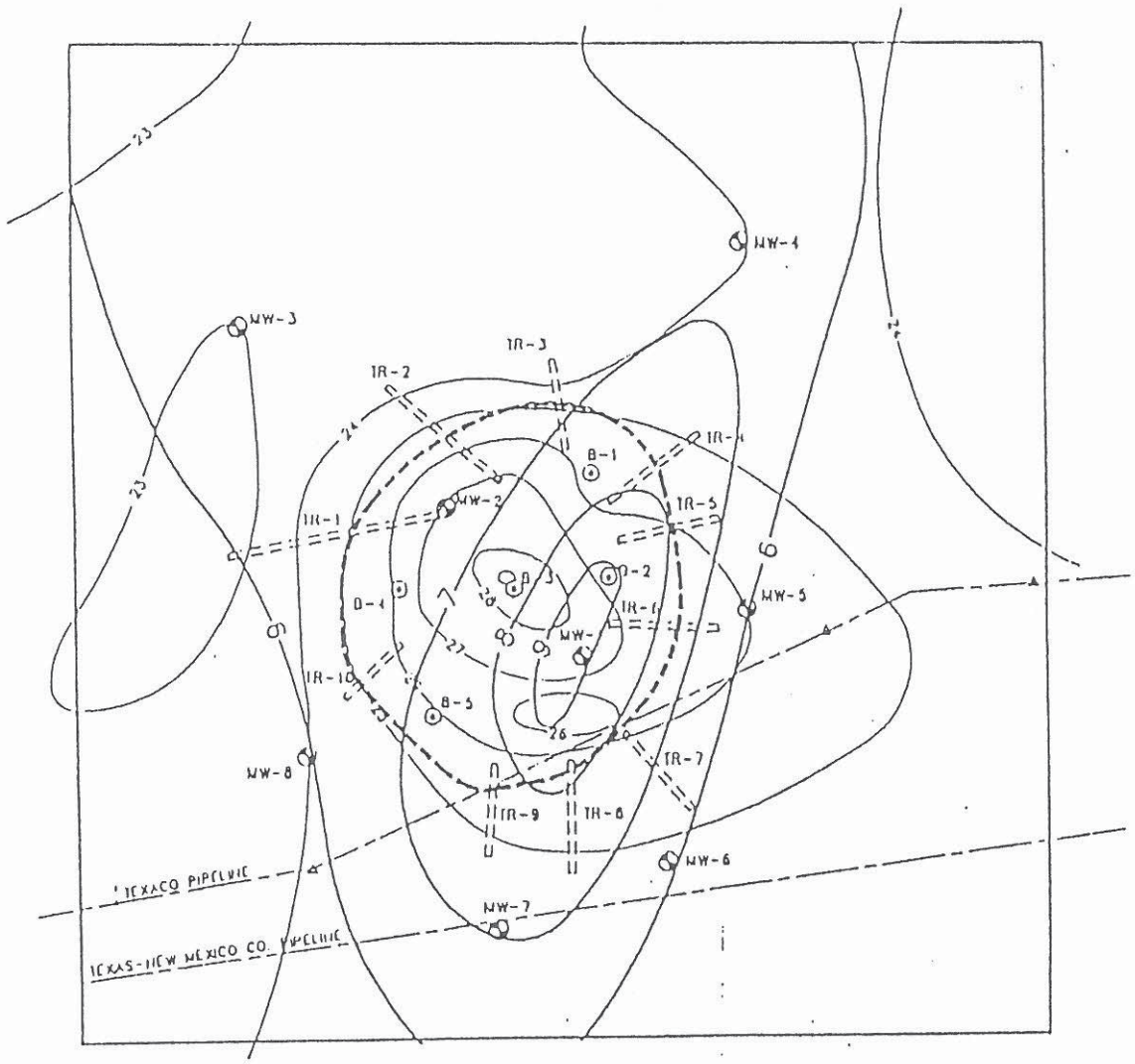
INTERNATIONAL TECHNOLOGY CORPORATION

GATX8 DWG 05/24/90 1 [illegible] DRS

421439.04

APPENDIX

APPENDIX A



EXPLANATION

- TRENCH LOCATION
- MONITOR WELL LOCATION
- BORING LOCATION
- PIPELINE MARKER
- APPROXIMATE LOCATION OF UNDERGROUND PIPELINES
- APPROXIMATE PIT BOUNDARY

CONTOUR INTERVAL = 1 FT

ELEVATIONS ARE IN FEET MSL

10 0 10 FT
SCALE

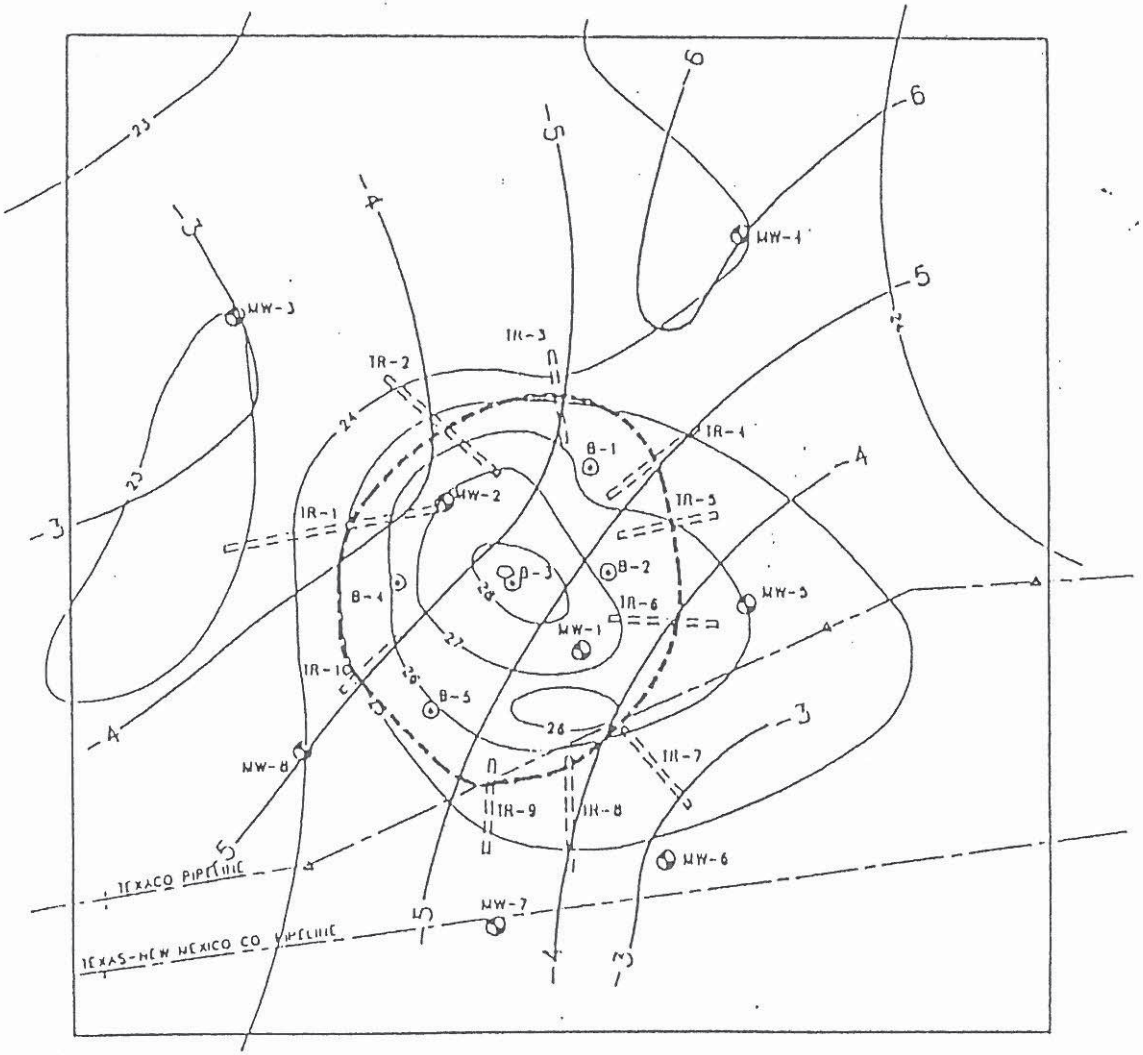
FIGURE 8

AQUIFER ISOPACH MAP
OLD DISPOSAL PIT AREA

PREPARED FOR

GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION



EXPLANATION

- TRENCH LOCATION
- MONITOR WELL LOCATION
- BORING LOCATION
- PIPELINE MARKER
- APPROXIMATE LOCATION OF UNDERGROUND PIPELINES
- AQUIFER BASE CONTOURS
- APPROXIMATE PIT BOUNDARY

CONTOUR INTERVAL = 1 FT

ELEVATIONS ARE IN FEET MSL

40 0 40 FT
SCALE

FIGURE 7

STRUCTURE CONTOUR MAP
BASE AQUIFER
OLD DISPOSAL PIT AREA
PREPARED FOR
GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

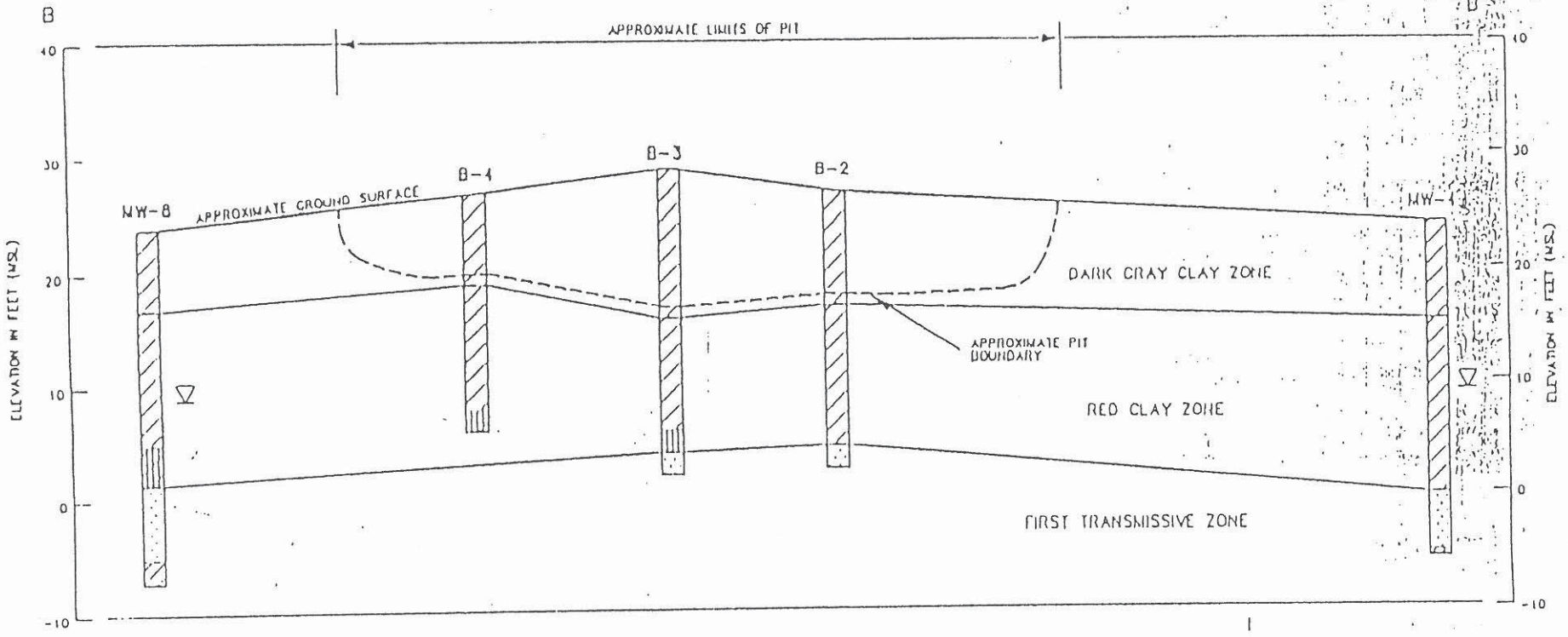


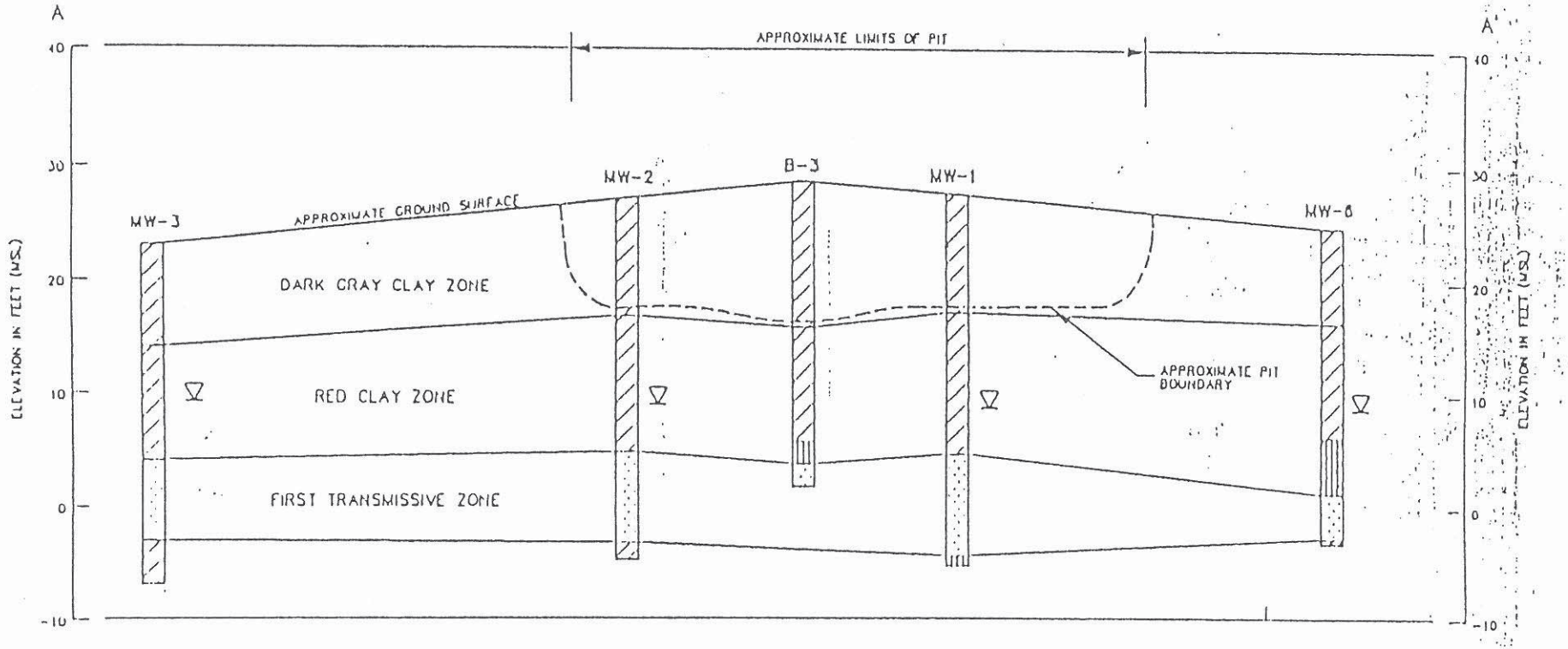
FIGURE 6

CROSS SECTION B-B'
OLD DISPOSAL PIT AREA
PREPARED FOR
GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

APPENDIX B

APPENDIX A



10 0 10 FT
VERTICAL SCALE

20 0 20 FT
HORIZONTAL SCALE

SAND
CLAY
SILT

GROUND WATER LEVELS MEASURED 1-18-90

FIGURE 5

CROSS SECTION A-A'
OLD DISPOSAL PIT AREA
PREPARED FOR
GATX TERMINALS CORP.
GALENA PARK, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

GATXS DWG 05/24/90 2:31pm DPS

APPENDIX

CR 30575

GATX TERMINALS CORPORATION
996 CLINTON DRIVE
P.O. BOX 486
GALENA PARK, TX 77547-0486
713-455-1231

RETURN RECEIPT REQUESTED
RECEIPT NO. P534 490 614

April 23, 1991

Executive Director
Texas Water Commission
P.O. Box 13087
Austin, Texas 78711-3087

Attention: Hazardous Waste and Solid Waste Division,
Reports and Management Group

Gentlemen:

The purpose of this letter is to inform you that GATX Terminals Corporation's Galena Park facility is proceeding with the implementation of the ground water monitoring program for the former SEHB and the supplemental ground water monitoring program. The components of each of these programs were described in "Groundwater Compliance Plan Application, Part I: Investigation Report (Compliance Monitoring Program) Southeast Holding Basin Area" submitted to the TWC in September 1990, and hereafter referred to as the Compliance Plan. We anticipate that field work necessary to install additional monitor wells will commence the week of April 22, 1991. Collection of ground water samples and water level measurements will begin the week of April 29, 1991.

We are proceeding with the implementation of the compliance and supplemental monitoring programs with the approval of TWC staff, although final approval has not been granted for the Compliance Plan. Conversations with TWC staff have indicated that there is general agreement about the scope of the monitoring programs and they have suggested that implementation proceed.

The following changes have been made to the methods and procedures described in the Compliance Plan during the planning stages of our implementation. The changes have been made for both logistical and technical reasons, as described below.

LOCATION OF WELL MW-29

Figure 8.1 in Section 8.0 indicates that well MW-29 will be placed immediately adjacent to well MW-10 on the east side of the pipe rack. Because of the difficulty in gaining access to this location and safety concerns, the location of MW-29 will be moved approximately 20 feet west, to the west side of the pipe rack. The new well location is shown on the attached Figure 8-1. This change in location will not affect the monitoring network.

WELL CONSTRUCTION MATERIALS

Section 8.1.2, page 8-5 and Section 8.2.2, page 8-11 indicate that replacement well MW-2R and new supplemental monitor wells MW-28,

casing and screen. Because of the need to carefully position the screened intervals adjacent to the correct hydrostratigraphic unit, GATX may utilize short lengths (2' to 5') of PVC casing on the uppermost part of the casing string. The use of the PVC will not adversely impact the strength of the well or the quality of the data collected.

WELL INSTALLATION PROCEDURE

The Stage 1 procedure for the installation of surface casing described in Section 8.2.2, page 8-11 will be modified slightly. A 16-inch (OD) auger will be used to sample through the silty clay. A 10 1/4-inch (ID) steel surface casing will then be installed inside the hollow stem augers and pressure grouted in place as the augers are removed. The steel surface casing will be stronger than the PVC originally proposed. The use of a large diameter auger will provide a neater installation than the use of mud rotary methods.

MODIFICATION TO SAMPLE COLLECTION PROCEDURES

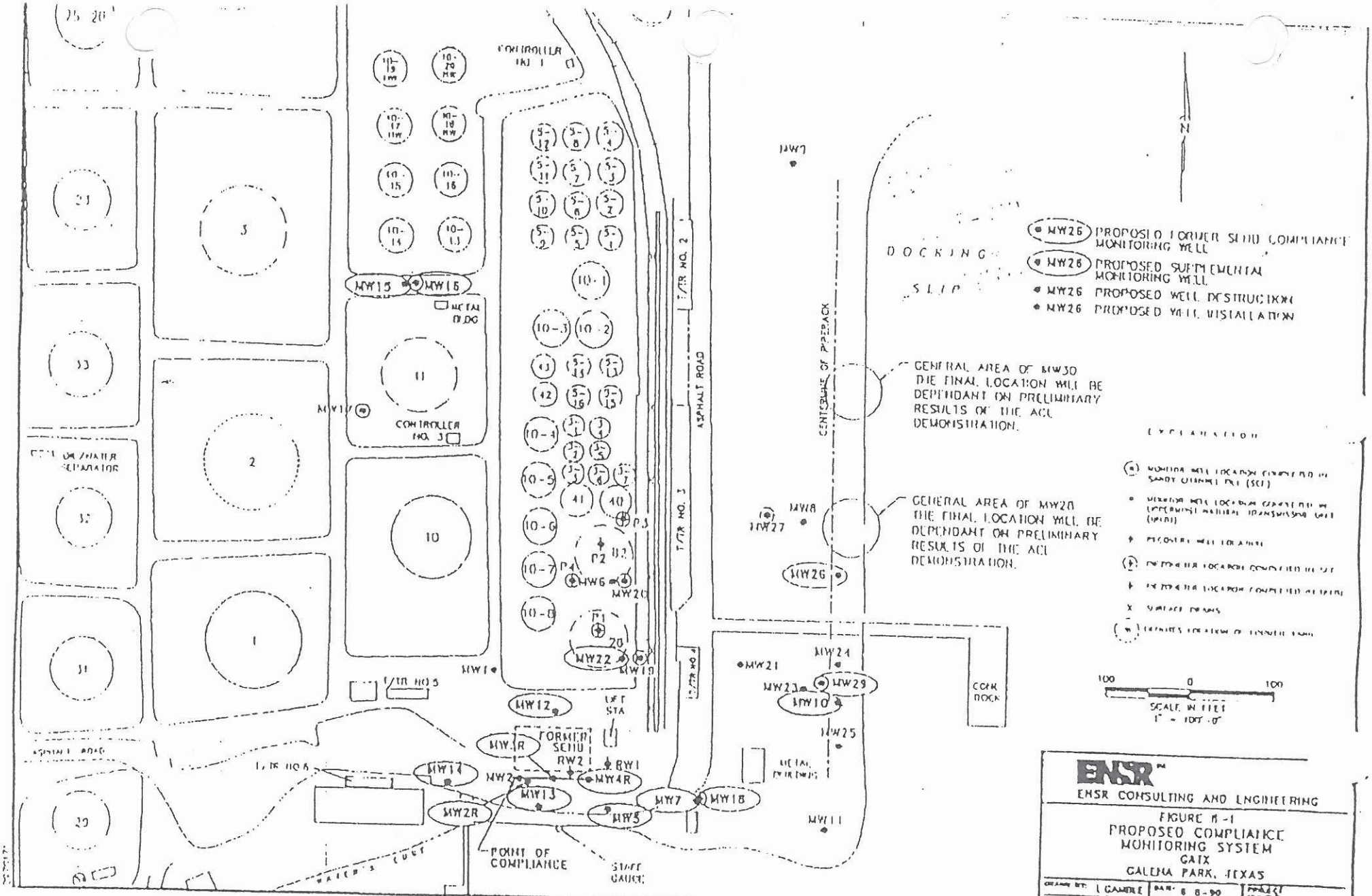
Section 10.3, page 10-6 currently states that there will be no changes to sample handling procedures outlined in Section 3.0 of the Compliance Plan. However, GATX will make one change in the well purging and sampling procedures described in Section 3.6.4, page 3-6. GATX has previously utilized one Teflon bailer to purge and sample wells and decontaminated the bailer between use in each well. This procedure will be modified by dedicating a single bailer for use in each well. In other words, each well in the compliance and supplemental ground water monitoring network will be sampled with a dedicated bailer that is assigned to that well. This will reduce the possibility of cross-contamination between wells and improve the quality of data.

GATX will keep your apprised of the progress of the implementation of our monitoring program, as it proceeds.

Sincerely,

Paula Mrozek
Terminal Environmental Manager

cc: File
Jason Wang - TWC/Austin
Allen Posnick - TWC/Austin
TWC - District 7



ENSR CONSULTING AND ENGINEERING

FIGURE A-1
PROPOSED COMPLIANCE MONITORING SYSTEM
CATX
GALENA PARK, TEXAS

DRAWN BY: L CAMBLE | DATE: 6-8-90 | PROJECT NO.: 2970 011-370

REVISED 4/23/91

CR 50573

GATX

RETURN RECEIPT REQUESTED
RECEIPT NO. P 534 490 615

April 24, 1991

Executive Director
Texas Water Commission
P.O. Box 13087
Austin, Texas 78711-3087

Attention: Hazardous Waste and Solid Waste Division,
Reports and Management Group

Gentlemen:

The purpose of this letter is to inform you of the progress of the implementation of the ground water monitoring program for the former SEHB and the supplemental ground water monitoring program at the GATX Terminals Corporation's Galena Park facility. The components of each of these programs were described in "Groundwater Compliance Plan Application, Part I: Investigation Report (Compliance Monitoring Program) Southeast Holding Basin Area" submitted to the TWC in September 1990, and hereafter referred to as the Compliance Plan.

During the field work for installation of additional monitor wells, it was discovered that access to the proposed location for well MW-28 (Figure 8.1 of the Compliance Plan) was blocked and the well could not be reasonably installed on the east side of the pipe rack. A monitoring well of similar construction (MW-8) is already in place to the west of the pipe rack. Therefore, well MW-28 was not installed.

One of the primary purposes of well MW-28 is to monitor the effectiveness of ground water remediation measures that will be constructed in the future. Therefore, not installing MW-28 at this time will not have a significant affect on the overall monitoring network. The location, design, and need for well MW-28 will be re-evaluated when the final design of the ground water remediation system is completed.

The remainder of the implementation of the monitoring program is proceeding as outlined in the Compliance Plan, as modified by our letter of April 23, 1991.

GATX will continue to keep your apprised of the progress of the implementation of our monitoring program, as it proceeds.

Sincerely,

Paula Mrozek
Terminal Environmental Manager

cc: File
Jason Wang - TWC/Austin
Allen Posnick - TWC/Austin
TWC District 7

SWD

JUN 12 1991

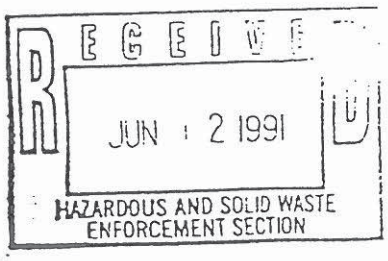
GATX

GATX TERMINALS CORPORATION
906 CLINTON DRIVE
P.O. BOX 466
GALENA PARK, TX 77547-0466
713-455-1231

RETURN RECEIPT REQUESTED
RECEIPT NO. P 534 490 621

June 6, 1991

Ms. Anne Dobbs
Hazardous & Solid Waste Waste
Enforcement Section
Texas Water Commission
P. O. Box 13087
Capitol Station
Austin, Texas 78711-3087



Re: GATX Terminals Corporation - Galena Park, Texas
Solid Waste Registration No. 30573
Southeast Holding Basin Closure Certification

Dear Ms. Dobbs:

Enclosed is a closure certification prepared by GATX Terminals Corporation, which documents the closure of the Southeast Holding Basin at the above referenced facility in full compliance with the approved closure plan dated May 15, 1986 (as amended September 12, 1986) and the Agreed Order between GATX and the Texas Water Commission dated January 31, 1990. The certification from a registered professional engineer had previously been submitted and is therefore not included.

The Southeast Holding Basin closure plan was approved by the Texas Water Commission on December 15, 1986. A closure report was submitted in August of 1987, which contained a certification that closure was completed in accordance with the approved closure plan. In an October 31, 1989 Executive Director's Preliminary report, the Commission stated that it did not accept the closure certification because the report stated that the waste remaining in the unit after the closure was Class II nonhazardous, but the Commission believed the site evidenced groundwater and soil contamination. In the January 31, 1990 Agreed Order, GATX agreed to treat the closed unit as a Class I hazardous waste management unit and submit a post-closure care permit application for the unit to maintain the unit as Class I hazardous. The post-closure care permit application for the Class I hazardous unit was submitted on September 15, 1990, as required by the Agreed Order.

GATX

GATX has complied with the Texas Water Commission regarding maintaining the closed unit as a Class I hazardous waste management unit and has applied for a post-closure care permit for the unit. Therefore, GATX asks that the Commission acknowledge acceptance of the closure certification. Please call me at (713) 455-1231 if you have any questions. We appreciate the Commission's time and attention to this matter.

Sincerely,

Paula Mrozek
Terminal Environmental Manager

PJM/dms

cc: Grace Montgomery, TWC Hazardous & Solid Waste Division
Robert Hahn, Hazardous & Solid Waste Division
TWC District 7, Deer Park Office

Roger Swift, GATX Southern Regional Office
Ralph Baker, GATX Galena Park
Bill McCurley, ECA
Sue Snyder, Vinson & Elkins

File

OWNER CERTIFICATION

I, Roger C. Swift, do hereby certify that the GATX Terminals Corporation Galena Park Facility Southeast Holding Basin located in Galena Park, Texas was closed in accordance with the closure/post closure care plan dated May 15, 1986, as modified September 12, 1986, which was approved by the Texas Water Commission's letter of December 15, 1986. I also certify that the closure activities described by the August 1987 closure report present an accurate summary of the activities performed with the following additions: the wastes remaining after closure are being maintained as Class I hazardous waste; deed recordation for the unit was amended to Class I hazardous on September 10, 1990; and a post-closure permit application for the unit was submitted on September 15, 1990.

Executed this 8TH day of MAY, 1991.

GATX TERMINALS CORPORATION

By Roger C Swift

Roger C. Swift
Vice President, Southern Region
400 North Belt East, Suite 700
Houston, Texas 77060-3534

Before me, the undersigned authority, on this day personally appeared Roger C. Swift, Vice President, Southern Region, GATX Terminals Corporation, 400 North Belt East, Suite 700, Houston, Texas. Known to me to be the person and agent of said company whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes therein expressed, in the capacity therein stated, and as the act and deed of the Galena Park Facility, Southeast Holding Basin, GATX Terminals Corporation, Galena Park, Texas.

Given under my hand and seal of office this the 8th day of May, 1991.

CONNIE D. KALUDEROVIC
Notary Public
STATE OF TEXAS
My Comm. Exp. SEPT 3, 1994

Connie D. Kaluderovic
Notary Public
Harris County, Texas

Connie D. Kaluderovic
Printed Name of Notary Public

My Commission Expires: 9/3/94

\GAT525\DOCS\OWNER.CRT

30573

John Hall, Chairman
B. J. Wynne, III, Commissioner
Pam Reed, Commissioner

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

December 18, 1991

Mr. Ralph Baker
Plant Manager
GATX Terminals Corporation
906 Clinton Dr.
P. O. Box 486
Galena Park, Texas 77547-0486

Certified Mail

RE: Industrial Solid Waste Registration No. 30573
Remedial Facility Investigation (RFI) Work Plan Review
Proposed Hazardous Waste Permit No. HW-50054-001

Dear Mr. Baker:

The Texas Water Commission (TWC) has reviewed the RFI Work Plan dated September 13, 1990 for work to be performed at Tanks 29 (N.O.R. No. 02), 50 (N.O.R. No. 07), 51 (N.O.R. No. 08), 116 (N.O.R. No. 09), 117 (N.O.R. No. 10), Oil/Water Separator (N.O.R. No. 15), and 25-1 at the GATX Terminals Corporation Galena Park Facility, and the GATX response dated July 18, 1991 to the Notice of Deficiency dated May 22, 1991. Pursuant to the Agreed Enforcement Order dated January 31, 1990, the Work Plan must outline the actions taken to determine whether hazardous constituents listed in 40 Code of Federal Regulations (CFR) Part 261 Appendix VIII have been released into the environment.

This letter constitutes approval of the RFI workplan as amended. Should you have any questions or comments, please contact Bill Shafford of the Permits Section, Industrial and Hazardous Waste Division at AC512/475-2339

Sincerely,

Susan S. Furguson for

Susan S. Furguson, Director
Industrial and Hazardous Waste Division

SSF:WJS:wjs

cc: Jason Wang, TWC Hazardous and Solid Waste Enforcement Section - Austin
TWC District 7 Office - Houston
Cheryl Wilson, Corrective Action, TWC Eval. and Asses. Section - Austin

CR
30573

Texas Water Commission

INTEROFFICE MEMORANDUM

TO : The File
Industrial Solid Waste Registration No. 30573

DATE: February 3,1992

THRU :

FROM : Bill Shafford, Facility Unit III, Permits Section
Industrial and Hazardous Waste Division

SUBJECT: Meeting Notes, January 31, 1992 Meeting

Attendees - See Attached List

Representatives of the TWC I&HW Permits Section met with GATX Terminals Inc. (GATX) environmental staff to discuss RFI and groundwater monitoring issues. GATX proposed the following:

1. Consolidate all SWMU's in the Central Plant Area into a single Waste Management Area (WMA). This WMA would include the SEHB, the tanks included in the Jan. 31 1990 Agreed Enforcement Order, and all other SWMU's in that area.

2. Construct a Corrective Action System along the western, northern and southern boundary of the area.

3. Place background wells on the north side of the CXI lease near Clinton Dr.

This proposal prompted concern from TWC staff that no investigation would be performed to determine areas of contamination on the western half of the WMA. The CAP proposed would not address source identification and reduction, but would only address the cleanup at the property boundary. GATX has done no investigative work to date in that area.

The following agreements were made between staff and GATX:

1. GATX would need to perform investigative actions prior to instituting Corrective Action in the western section of the proposed WMA, and that these investigations should be geared to determining the locations of contaminant sources and the removal of contaminated groundwater prior to the groundwater migrating off-site.

2. Staff would determine what administrative and technical requirements to expand the scope of the RFI imposed by the Agreed Order dated January 31, 1990 to include the west side of the Central Plant WMA.

3. Upon determination of administrative and technical requirements, staff would notify GATX.

GATX also raised concerns about scheduling of expanded RFI activities, and was curious about whether an extension of the implementation of the RFI workplan would be needed. Staff determined that the answer to this concern would depend on the requirements for the expanded RFI.

Staff raised concerns about the location of monitoring wells at the NHB. The Closure Plan for this unit specified placing of cover materials over two monitoring wells. GATX replied that information concerning new wells would be included in the annual report.

GATX also wanted to know when they should turn investigation information (non-RFI) on Tract B. Staff replied that the draft permit would require an RFI on Tract B.

Bill Shafford

Bill Shafford

cc: Jason Wang - I&HW Ground-Water Unit, Permits Section

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Units

N.O.R.	RCRA Regulated Units	Type	Status
01	Container Storage Area	Storage	<90 Day
02	Tank 29	WW Tmt	Inactive
03	Tank 10-12	WW Tmt	Inactive*
04	North Holding Basin	Disposal	Inactive
05	Tank 100-5 (Stormwater)	WW Tmt	Active
06	Tank 100-6 (Stormwater)	WW Tmt	Active
07	Tank 50	WW Tmt	Inactive
08	Tank 51	WW Tmt	Inactive
09	Tank 116	WW Tmt	Inactive
10	Tank 117	WW Tmt	Inactive
11	Tank 25-1	WW Tmt	~~Active~~ Inactive*
12	Tank 32 (RCRA exempt)	WW Tmt	Active
13	Tank 3-9 (RCRA exempt)	WW Tmt	Active
14	Above Ground Oil/Water Separator (RCRA exempt)	WW Tmt	Active
15	Below Ground Oil/Water Separator	WW Tmt	Inactive
16	North Pit	Disposal	Inactive
17	Southeast Holding Basin	Disposal	Inactive
18	Tank 5-20 (RCRA exempt)	WW Tmt	Active
19	DAF Tank	WW Tmt	Inactive
20	Equalization Tank	WW Tmt	Inactive

Is No SEHB?

* Tank 10-12 is currently used as a product storage tank.

N.O.R.	Solid Waste Management Units	Type	Status
A^	Tract A	Disposal	Inactive
B^	Tract B	Disposal	Inactive
C^	Texaco Impoundment #3	Disposal	Closed
D^	Texaco Impoundment #4	Disposal	Closed
E^	Stormwater Drainage System		Active
F^	Lift Station #4	Storage	~~Inactive~~ Active
G^	SEHB Sump	Storage	Inactive
H^	East Plant	Disposal	Inactive
I^	North Plant	Disposal	Inactive
J^	Impoundment No. 1	Disposal	Inactive
K^	Impoundment No. 2	Disposal	Inactive
L^	Impoundment No. 3	Disposal	Inactive

* Product storage only. No waste Storage

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 01, Container Storage Area, RCRA, Active Service: 1981 - current

Type : <90-Day Storage I. D. No.: Container Storage Area

Status : Storage Capacity : 11,220 gallons

II. Evidence of Release: No evidence of release was observed or reported.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
002	Oil Trappings/ Oil Skimmings	II	210690	--
003	Tank Bottoms	I	152180	--
004	Tank Bottoms	IH	952180	D0(01-24) *
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
007	Absorbent, Hydro-carbon Contaminated	IH	981510	D0(01-24) *
013	Soil, Creosote Contaminated	IH	978980	U051
015	Stryene Monomer	IH	919470	D001

V. Target Populations of Concern: See Attachment A

* See Table1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 02, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 29
Status : WW tank
Capacity : 1,095,730 gallons

II. Evidence of Release: No direct evidence of release was observed, however, some remediation and closure activities have occurred at this unit.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. This workplan was submitted September 13, 1990, revised July 18, 1991, and was approved on December 18, 1991. This unit is undergoing closure under a TWC approved closure plan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 03, Wastewater Tank RCRA, Inactive
Service: 1968 - 1990
Type : Tank (Surface)
I. D. No.: Tank 10-12
Status : WW tank
Capacity : 420,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. This workplan was submitted September 13, 1990, revised July 18, 1991, and was approved on December 18, 1991. This unit is undergoing closure under a TWC approved closure plan. **

* See Table 1

** This tank was not included in the workplan

See attached Note

Tank 10-12 was not included in the approved RFI workplan. This tank is not undergoing closure and was placed back into commodity (product) service on 5/18/92.

identified in your RFA attachment August 23, 1989 Conference Record, . Mc Faddin (TWC Attorney) indicated the tank was not a regulated unit.

GATX therefore would like to request that this tank be removed from the RFA program.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 04, North Holding Basin, RCRA, Inactive
Service: 1974 - 1988
Type : Surface Impoundment
I. D. No.: North Holding Basin
Status : Storage/Disposal
Capacity : 6000 CY

II. Evidence of Release: The groundwater below this unit is documented to contain Appendix VIII constituents. ~~GATX is currently preparing a Groundwater Compliance Plan application to address this unit.~~ **

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is currently undergoing closure. ~~GATX is currently preparing a Groundwater Compliance Plan for this unit.~~ Appendix VIII constituents have been discovered in groundwater plumes emanating from this unit.

** → A closure plan has been subm. Health program

** A groundwater assessment is currently being implemented. A compliance plan application is not being prepared at this time.

* See TABLE 1

The North Holding Basin is not currently undergoing closure, however a closure plan has been submitted. A groundwater assessment program is currently being implemented. A compliance plan application is not being prepared at this time.

It has not yet been determined if the NHB is the source of the Appendix VIII constituents in the groundwater plumes.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: RCRA Exempt Stormwater

N.O.R. Facility No.: 05, Wastewater Tank RCRA, Active
Service: 1988 - Current
Type : Tank (Surface)
I. D. No.: Tank 100-5
Status : WW tank
Capacity : 4,200,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of release was found in documentation or at the facility.

VII. Recommended Action: No further action is required.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: RCRA Exempt Stormwater **

N.O.R. Facility No.: 06, Wastewater Tank RCRA, Active
Service: 1988 - Current
Type : Tank (Surface)
I. D. No.: Tank 100-6
Status : WW tank
Capacity : 4,200,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of release was observed in documentation or at the facility.

VII. Recommended Action: No further action is required at this time.

** Does not routinely manage waste unless catastrophic spill event were to occur.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 07, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 50
Status : WW tank
Capacity : 30,080 gallons

II. Evidence of Release: Direct evidence of release was observed, as the tank had apparently leaked liquids between its bolted panels.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24 *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 08, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 51
Status : WW tank
Capacity : 22,560 gallons

II. Evidence of Release: The tank appeared to be heavily corroded.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 09, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 116
Status : WW tank
Capacity : 15,227 gallons

II. Evidence of Release: Direct evidence of release was observed, as this tank had apparently leaked liquids between its bolted panels and from around its blind flanges.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 10, Wastewater Tank RCRA, Inactive
Service: 1938 - 1990
Type : Tank (Surface)
I. D. No.: Tank 117
Status : WW tank
Capacity : 15,250 gallons

II. Evidence of Release: Direct evidence of release was observed as this unit evidently leaked liquids between its bolted panels.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 11, Wastewater Tank ** Service: 1938 - 1990
RCRA, Inactive
Type : Tank (Surface) I. D. No.: Tank 25-1

Status : WW tank Capacity : 1,076,982 gallons

II. Evidence of Release: No direct evidence of release was observed, However, this tank was awaiting full closure certification at the time of the VSI.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: An Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990. The workplan was submitted September 13, 1990, revised July 18, 1991, and approved on December 18, 1991. This unit is undergoing closure pursuant to an approved closure plan. This tank is currently used as a product tank.

* See Table 1

** Product Storage No waste stored

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: (RCRA Exempt) Built 1938 modified 1989 for wastewater service

N.O.R. Facility No.: 12, Wastewater Tank RCRA, Active Service: 1938 - Current

Type : Tank (Surface) I. D. No.: Tank 32

Status : WW tank Capacity : 1,050,000 gallons

II. Evidence of Release: No direct evidence of release was observed at this unit.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of releases has been documented or observed at this unit.

VII. Recommended Action: This unit will be included in the RFI for the Central Plant.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: (RCRA Exempt) 1989

N.O.R. Facility No.: 13, Wastewater Tank RCRA, Active Service: 1988 - Current * *

Type : Tank (Surface) I. D. No.: Tank 3-9

Status : WW tank Capacity : 126,000 gallons

II. Evidence of Release: No direct evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

V. Target Populations of Concern: See Attachment A

VI. Summary: No evidence of release has been documented or observed at this unit.

VII. Recommended Action: This unit will be included in the RFI for the Central Plant.

* See Table 1

** Built 1988 Operated 1989

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 14, Oil/water Separator, RCRA, Active
Service: 1989 - Current
Type : Tank (Surface)
I. D. No.: ** Above Ground Oil/Water Separa
Status : WW tank
Capacity : 10,180 gallons

II. Evidence of Release:

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*
014	Water Containing Misc. Organics	IH	906990	D0(01-21)* U037, U220, U228

V. Target Populations of Concern: See Attachment A

** VI. Summary: ~~A Remedial Facility Investigation workplan was required by the Agreed Order between GATX and TWC issued January 31, 1990.~~

VII. Recommended Action: Continued investigative work ~~as prescribed in the Agreed Order dated January 31, 1990 and~~ the approved Remedial Facility Investigation Workplan.

* Table 1

** This unit was not included in the Jan 1990 order. The inactive oil/water sep [below grou

This unit was not included in the January 1990 Consent Order. The below ground oil/water separator was the unit included in the order. The aboveground unit was newly constructed for use with Tank 32.

RFI workplan was not required for this unit.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 15, Oil/water Separator, RCRA, Inactive
Service: 1938 ~~1980~~ - Current
Type : Tank (Surface)
I. D. No.: Below Ground Oil/Water Separator
Status : WW tank
Capacity : 12,000 gallons

II. Evidence of Release: No Evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: Remedial Facility Investigation workplan required by the Agreed Order between GATX and TWC issued January 31, 1990.

VII. Recommended Action: Continued investigative work as prescribed in the Agreed Order dated January 31, 1990 and the approved Remedial Facility Investigation Workplan.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: North Spoils *

~~N.O.R. Facility No.~~: ~~16, North Pit~~ SWMU, Inactive

Service: Unknown

Type : Landfill
Status : Disposal

I. D. No.: North Spoils Area
Capacity : Unknown

II. Evidence of Release: No evidence of release was observed

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
--	Dredge Spoils	—	--	--

V. Target Populations of Concern: See Attachment A

VI. Summary: This land disposal unit was used to dispose of dredge spoils from the Ship Channel.

VII. Recommended Action: This unit will be included in the North Plant Waste Management Area investigation by proximity.

* Change. NOR #16 (North Pit) is "Tract A". Need to choose New name for this new unit. Perhaps "North spoils".

NOR #16 is Tract ~~31~~ A (North Pit)

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 17, Southeast Holding Basin, RCRA, Inactive
Service: 1975 - 1985
Type : Surface Impoundment
I. D. No.: Southeast Holding Basin
Status : Storage/Disposal
Capacity : 640 CY

II. Evidence of Release: The groundwater below this unit is documented to contain Appendix VIII constituents. A Groundwater Compliance Plan is currently being prepared.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
001	Wastewater Treatment Sludge	II	249000	--
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is currently undergoing closure. A Groundwater Compliance Plan is being written for this unit. Appendix VIII constituents have been discovered in plumes emanating from this unit. This unit is located in the 100 year floodplain.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit: (RCRA Exempt 1975)

N.O.R. Facility No.: 18, Wastewater Tank RCRA Active Service: 1938 - Current

Type : Tank (Surface) I. D. No.: Tank 5-20 **

Status : WW tank Capacity : 210,000 g

II. Evidence of Release:

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	
005	Pipeline Flushings	IH	906110	
006	Pipeline Flushings	I	106110	
008	Tank Washings	IH	906330	
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *
014	Water Containing Misc. Organics	IH	906990	D0(01-21), * U037, U220, U228

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is currently used in the facility wastewater treatment system. No releases were observed or reported.

VII. Recommended Action: This unit should be included in the Central Plant ** ? RFI.

* See Table 1

** 5-20 is not included in the Central Plant. It is located in the west plant

Tank 5-20 is not located in the Central Plant. This tank is located in the West Plant. As this unit has not evidenced any releases as is a wastewater unit, could it be recommended that no further action be taken at this time ?

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 19, Wastewater Tank RCRA, Inactive
Service: 1980 - 1988
Type : Tank (Surface)
I. D. No.: DAF Tank
Status : WW tank
Capacity : 18,500 gallons

II. Evidence of Release:

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24)*
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24)*
009	Stormwater, Contaminated	IH	906330	D0(01-24)*
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24)*

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was part of the North Holding Basin wastewater treatment system. The unit is inactive, and closure has been proposed to occur concurrently with NHB closure.

VII. Recommended Action: This unit should be included in the Compliance Plan for the North Holding Basin by proximity.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: 20, Wastewater Tank RCRA, Inactive
Service: 1980 - 1988
Type : Tank (Surface)
I. D. No.: Equalization Tank
Status : WW tank
Capacity : 10,000 gallons

II. Evidence of Release: No direct evidence of release was observed or noted.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
005	Pipeline Flushings	IH	906110	D0(01-24) *
006	Pipeline Flushings	I	106110	--
008	Tank Washings	IH	906330	D0(01-24) *
009	Stormwater, Contaminated	IH	906330	D0(01-24) *
010	Organic Liquid, Mixed Wastestream	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was part of the North Holding Basin wastewater treatment system. The unit is inactive, and closure has been proposed to occur concurrently with NHB closure.

VII. Recommended Action: This unit should be included in the Compliance Plan for the North Holding Basin by proximity.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: ~~A~~ 16, Tract A, SWMU Closed Service: 1945-1981

Type : Landfill I. D. No.: Tract A

Status : Disposal Capacity : 6,400 CY (est.)

II. Evidence of Release: A preliminary Site Characterization Report dated May, 1990 documents soil and groundwater contamination at this unit. Analyses of samples taken from this area turned up several Appendix VIII constituents, such as Trichloroethylene, vinyl chloride, benzene, naphthalene, and dibenzofuran. Elevated levels of metals were also found. See Attachment F.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Wastes unknown at this time			

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was apparently used over a long period as a disposal pit. Aerial photographs showed this unit in operation in 1944 and 1945, but the area appeared closed in a photo from 1953. Extensive contamination appears to be present at this unit, with contamination consisting of VOA's, semi-volatiles, and possibly metals. No recovery system or remediation plan has yet been proposed. The unit was not presented as a permittable unit in the Part B permit application, and was not mentioned as a Compliance Plan unit.

VII. Recommended Action: This unit should be assessed in an RFI. A plan for remediation of soil and groundwater should be proposed as part of a CMS plan upon completion of the RFI phase of the CAP at this unit. The RFI for groundwater beneath this unit should be addressed in the Groundwater Compliance Plan.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: C^, Texaco Impoundment #3, SWMU, Closed
Service: 1918-1981
Type : Surface Impoundment
I. D. No.: Texaco Impoundment #3
Status : Disposal
Capacity : 400 CY

II. Evidence of Release: No evidence of release was observed

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
N/A	Wastewaters with Various Organics	--	--	--

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was certified closed in 1958. The Post-Closure period was ended in 1981.. No evidence of any release was found or observed.

VII. Recommended Action: This area will be included in the RFI recommended for the ~~North Plant~~ * by proximity.

* This impoundment is in the east plant

See attached note

We propose recommended actions for Texaco Impoundments #3 and #4 NOR C and D, be changed to requiring no further action as there is no evidence of groundwater or surface water impacts from these closed impoundments. We make this recommendation based on a review of EPA's files in Region VI office where we found a work plan which was developed by the Region VI field investigation team. Section 1.2 of the plan in paragraph 3 acknowledged that no adverse groundwater effects were found in wells installed by TWC. We are enclosing this section of the work plan with our submission. Since both impoundments were capped, we do not anticipate surface water runoff from these impoundments to be contaminated. Therefore, we propose that these impoundments require no further investigation.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: E^, Stormwater Drainage System, SWMU Active

Service: 1945 - Current

Type :

I. D. No.: Stormwater Drainage System

Status : Disposal

Capacity : Unknown

II. Evidence of Release: Dead and distressed vegetation was noted directly adjacent to several drainage ditches. Soil in the Drainage Ditches appeared oil-stained. A sheen was noticed on the surface of water within the ditch. The Drainage facilities for T/T Racks No. 3 and No. 4 have been established as possible contributing sources for the subsurface soil and groundwater contamination in the southeast portion of the GATX facility

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
009	Stormwater, Contaminated	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit is used to convey stormwater to an NPDES outfall or to stormwater processing units prior to discharge to a POTW. Possible evidence of waste or waste constituents was present at the time of inspection. This unit has been used for a very long time.

VII. Recommended Action: This unit should be included in the Central Plant RFI. The plan should address soil and groundwater contamination from this unit. The groundwater compliance plan should require a groundwater investigation for this unit.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: F^, Lift Station #4 (Active)
SWMU, ~~Inactive~~

Service: 1985 - 1987 (Current)

Type : Tank, Inground

I. D. No.: Lift Station #4

Status : WW Tmt

Capacity : Unknown

II. Evidence of Release: No release may be directly attributed to this unit. However, this unit is constructed adjacent to the former SEHB.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
009	Stormwater, Contaminated	IH	906330	D0(01-24) X

V. Target Populations of Concern: See Attachment A

VI. Summary: No direct evidence of release was observed or found. However, heavy groundwater contamination is present beneath this unit. This unit is constructed adjacent to and replaced the SEHB, and handles the same wastes.

VII. Recommended Action: This unit is included by proximity in the compliance monitoring for the southeast portion of the GATX facility. No further action is required at this time.

* See Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: G^, Southeast Holding Basin Sump, SWMU, Inactive
Service: 1985 - 1987
Type : Lift Station
I. D. No.: SEHB Sump
Status : Inactive
Capacity : Unknown

II. Evidence of Release: No evidence of release was observed at this unit. This unit was used after the SEHB was inactivated, but before Lift Station #4 was constructed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
009	Stormwater, Contaminated	IH	906330	D0(01-24) *

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit was used as an interim unit to replace the SEHB. No visible evidence of contamination was observed at this unit. This unit is included in the facility compliance monitoring by its proximity to the SEHB.

VII. Recommended Action: No further action is required at this time.

* see Table 1

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: H^, East Plant Area
Type : Waste Management Area
Status : Disposal

Service: Pre - 1920's - 1950's
I. D. No.: East Plant
Capacity : Unknown

II. Evidence of Release: No evidence has been discovered concerning releases in this area. The area was used as a Texaco refinery for a long period of time. A closed impoundment, Texaco Impoundment #4, is located within this area at the far eastern edge. It appears that another impoundment was present just north of Texaco Impoundment #3

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
Unknown				

V. Target Populations of Concern: See Attachment A

VI. Summary: This area may be contaminated by years of refinery and tank farm operations. No known survey of possible contamination has been performed. The refinery appeared to have been removed from the site prior to 1953, as shown by an aerial photograph.

VII. Recommended Action: An investigation should be performed to determine whether or not soil and/or groundwater contamination is present beneath the area. If contamination is discovered, then the lateral and vertical limits of the contamination should be determined, and an appropriate CMS/CMI program instigated.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William
Hazsit # : None
Section : H&SW Per

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: I^, North Plant Area
Type : Waste Management Area
Status : Disposal

Service: Pre - 1920's
I. D. No.: North Plant
Capacity : Unknown

II. Evidence of Release: Evidence has been discovered concerning releases in this area at Tract A. The area was used as a Texaco refinery and/or GATX tankfarm over a long period of time. A closed impoundment, Texaco Impoundment #3, has a corner located within this area. Tract B is also located within this area, as is the north spoils area.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
Unknown				

V. Target Populations of Concern: See Attachment A

VI. Summary: This area may be contaminated by years of refinery and tank farm operations. Tracts A and B are known SWMU's. A topographic map shown in Attachment B shows several areas that could be fill areas, and these are circled on the map. No other known survey of possible contamination has been performed.

VII. Recommended Action: An investigation should be performed to determine whether or not soil and/or groundwater contamination is present beneath the area. If contamination is discovered, then the lateral and vertical limits of the contamination should be determined, and an appropriate CMS/CMI program instigated.

RCRA FACILITY ASSESSMENT UNIT CHECKLIST

Facility : GATX Terminals Inc.
EPA I.D.#: TXD026481523
ISW Reg.#: 30573

Reviewer : William J. Shafford
Hazsit # : None
Section : H&SW Permits

Proposed Permit No. HW-50054-000

I. Waste Management Unit:

N.O.R. Facility No.: K^, Impoundment No. 2 Service: Pre 1920 - 1981 Inactive
Type : Surface Impoundment I. D. No.: Impoundment No. 2

Status : Disposal Capacity : Unknown

II. Evidence of Release: No evidence of release was observed.

III. Pollutant Dispersal Pathways: See Attachment A

IV. Waste Characteristics:

N.O.R. Waste No.	Waste Description	Class	Code	EPA Waste No.
	Unknown			

V. Target Populations of Concern: See Attachment A

VI. Summary: This unit appeared on aerial photographs dating from 1944 and 1945. The unit appeared to be an impoundment on the west side of what is now the CXI leased-area of the Central Plant. No evidence of release was found or observed.

VII. Recommended Action: This unit will be included in the RFI recommended for the Central Plant by proximity. Should be eliminated

This area is currently leased to TXI & is being investigated by TXI under an approved RFI with TWC. GATX is not the operator of the property & will rely on TXI to implement further actions.

The property in which Impoundment # 2 is located is leased to Texmark and is currently being investigated under an approved RFI with TWC by the property operators (Texmark). As GATX is not the operator of the property and an RFI is currently being implemented it is proposed that this unit be moved from this RFA.

ATTACHMENT A

I. Pollutant Dispersal Pathways:

Three pathways exist for the transport of waste or waste constituents from the GATX - Galena Park facility. Wastes may be transported via groundwater, air or surface water. Groundwater contaminant transport is the primary waste transport mechanism because of known groundwater contamination at the facility, and discharge of contaminated groundwater to the Houston Ship Channel. Air contaminant transport is the secondary concern, as strong chemical odors were noted during the VSI. Surface water transport is also a concern, as water with a sheen was noticed in a discharge ditch headed toward a facility outfall.

A. Groundwater

Releases to groundwater have been documented from the Southeast Holding Basin, the North Holding Basin and Tract A. A release to groundwater may have also occurred from Tract B, but no information exists on any release from this pre-RCRA SWMU at this time.

Contamination is known in two aquifers below the facility. One aquifer, denoted in the Groundwater Compliance Plan as the Sandy Channel Fill (SCF), is a shallow perched aquifer consisting primarily of dredge spoils from the Houston Ship Channel. Below this aquifer is a discontinuous clay unit denoted as the First Silty Clay Unit (FSCU), and below that is the Uppermost Natural Transmissive Unit (UNTU), consisting primarily of silty and clayey sands. The SCF and UNTU appear to be hydraulically connected. Below the UNTU lie thickly bedded clays of Second Silty Clay/Clay Unit (SSC/CU). Contamination is known in both the SCF and the UNTU. Waters in the SCF discharge to the Houston Ship Channel, as do waters in the UNTU in the area of the Expanded Groundwater Quality Assessment[1]. Groundwaters may also discharge to Hunting Bayou on the ~~east~~ North side of the facility. Groundwater gradients generally tend to be toward the Houston Ship Channel, with some gradients trending toward Hunting Bayou.

B. Surface Water

Releases to surface water are believed to be occurring from groundwaters in the SCF and UNTU at the GATX facility. Possibly contaminated runoff was noted in a drainage ditch near Outfall 003, which discharges into the Houston Ship Channel.

C. Air

Releases to air of waste and waste constituents is also a possibility at the GATX facility. Vapors resulting from contamination of soil and groundwater by volatile organics may be released to the air through the soil. Air releases may also result from the storage areas through fugitive emissions, and from loading

emissions from tanks and containers. Prevailing winds are probably from the south and southeast.

II. Target Populations of Concern:

The GATX facility is not a critical wildlife habitat area, or an area designated state or federal wilderness. Parts of the GATX facility appear to qualify as wetlands.

To the north of GATX is a tract of land owned by the ARCO Pipeline Company. ~~East~~ West of the facility is Pak - Tank. ~~West~~ East of the facility is the ~~Gulf Coast Waste Disposal Authority~~ City of Houston Water Treatment Plant. South of the facility is the Houston Ship Channel. Across the Ship Channel is A City of Houston Power Generation Station. & Gulf Coast Waste Disposal Authority.

NOTES

1 Groundwater Compliance Plan Application, Part One, ENSR, 1989, Chapter 3.

ATTACHMENT Q

General Site Information

ATTACHMENT Q

GENERAL SITE INFORMATION
KM Liquids Terminals LLC – Galena Park Terminal

1.0 INTRODUCTION

The KM Liquids Terminals LLC (Kinder Morgan) Galena Park Terminal is located at 906 Clinton Drive in Galena Park, Texas. The facility is located approximately 9 miles east of Houston, on the north side of the Houston Ship Channel, in Harris County (Figure 1). The facility is a contract liquid storage terminal for bulk quantities of diverse chemical products. Loading/unloading facilities at the Galena Park facility can accommodate tank trucks, tank cars, barges, and ships. The facility consists of more than 100 storage tanks, four dock loading areas and several tank truck and rail car loading and unloading areas. In addition, the facility operates wastewater and stormwater collection tanks. Figure 2 shows the plan view of the facility.

Historically, the facility operated two wastewater/surface water impoundments –Southeast Holding Basin (SEHB) and North Holding Basin (NHB). The SEHB was closed in accordance with Texas Water Commission (TWC) technical guidelines in August 1987 and the NHB was taken out of operation in November 1988. The sludge in the NHB has been stabilized in place and the impoundment is permitted for operation as a Resource Conservation and Reclamation Act (RCRA) corrective action management unit (CAMU) under the closure and post-closure permit for the facility (Permit HW 50054)

In practice, the Kinder Morgan facility is divided into four areas: Central Plant, East Plant, West Plant, and North Plant. There are 37 solid waste management units (SWMUs) at the facility. The Texas Commission on Environmental Quality (TCEQ) created four designations as they weighed the possibility of allowing Kinder Morgan to group their SWMUs as whole plants. These four administrative creations were designated the East Plant Waste Management Area (EPWMA), the West Plant Waste Management Area (WPWMA), the North Plant Waste Management Area (NPWMA), and the Central Plant Waste Management Area (CPWMA). The TCEQ abandoned the concept of grouping SWMUs by plant and administratively deleted the NPWMA and the CPWMA in 1999. However, the WPWMA and EPWMA were left on the list to delineate and address benzene plumes discovered in the East Plant and West Plant. These SWMUs were designated as EPWMA Benzene Release and the WPWMA Groundwater Plume and cover less than the total area of their respective plants. A total of 37 SWMUs are located within the EPWMA and the WPWMA.

The release or potential release of contaminants from the SWMU were orignally investigated and reproted in the Phase I and Phase II RCRA Facility Investigations (RFI). In 2003, Kinder Morgan submitted a Notice of Intent to Switch to TRRP and subsequent corrective action investigation and reporting activities at the facility was completed under the TRRP. Affected Property Assessment Reports (APARs) were submitted for various groupings of SWMUs in 2004 through 2006. Upon approval of the APARs by the TCEQ, Response Action Plans (RAPs) were prepared and submitted. The RAPs for West Plant, Central Plant, and East Plant were approved November 2007; the RAP for the SWMU in the Texmark Chemical was approved in June 2008. Additionally, Areas of Concern (AOCs) were incorporated into the Hazardous Waste Permit as part of the 2018 Class 3 Permit and Compliance Plan Modification, which was issued by the TCEQ on November 18, 2019. The locations of the SWMUs and AOCs are shown in Figure 3. This attachment summarizes the operational history of the SWMUs associated with the Kinder Morgan Galena Park Terminal. The SWMUs are organized by plant in the following sections and the AOCs are grouped together.

2.0 CENTRAL PLANT WASTE MANAGEMENT AREA

There are 18 SWMUs in the Central Plant. The SWMUs are categorized into four (4) groups for the purpose of accomplishing delineation of affected media for the RFI process. The Central Plant SWMUs are discussed by SWMU Group.

2.1 SWMU Group C1

There are six (6) SWMUs in the SWMU group C1. None of these SWMUs are in service today. All SWMUs were located in the southwest corner of the Central Plant. SWMU Group C1 consists of Tank 29, Tank 50, Tank 51, Tank 116, Tank 117, and the Belowground Oil/Water Separator. The SWMUs are discussed separately below.

2.1.1 Tank 29

Tank 29 has a designated NOR of 002. This unit was converted from product storage in 1974. Waste codes stored in this tank were 106110, 249000, 906110, 906330, 906870, and 913370. Estimated capacity of this tank was 1,095,730 gallons. None of the waste is left, because Tank 29 no longer exists. Waste has not been placed here since 1988. The tank was removed on February 19, 1993. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.1.2 Tank 50

Tank 50 has a designated NOR of 007. This unit was converted from product storage in 1980. Waste codes stored in this tank were 106110, 906110, 906330, 906870, and 913370. The estimated capacity of this tank was 30,080 gallons. There is no waste remaining, as Tank 50 no longer exists. Waste has not been placed here since 1988. The tank was taken out of service in 1989 and subsequently removed. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.1.3 Tank 51

Tank 51 has a designated NOR of 008. This unit was converted from product storage in 1980. Waste codes stored in this tank were 106110, 906110, 906330, 906870, and 913370. The estimated capacity of this tank was 26,560 gallons. There is no waste remaining, as Tank 51 no longer exists. Waste has not been placed here since 1988. The tank was taken out of service in 1989 and subsequently removed. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.1.4 Tank 116

Tank 116 has a designated NOR of 009. This unit was converted from product storage in 1980. Waste codes stored in this tank were 106110, 906110, 906330, 906870, and 913370. The estimated capacity of this tank was 15,227 gallons. There is no waste remaining, as Tank 116 no longer exists. Waste has not been placed here since 1988. The tank was taken out of service in 1989 and subsequently removed. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.1.5 Tank 117

Tank 117 has a designated NOR of 010. This unit was converted from product storage in 1980. Waste codes stored in this tank were 106110, 906110, 906330, 906870, and 913370. The estimated capacity of this tank was 15,250 gallons. There is no waste remaining, as Tank 117 no longer exists. Waste has not been placed

here since 1988. The tank was taken out of service in 1989 and subsequently removed. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.1.6 Belowground O/W Separator

The Belowground Oil/Water Separator can be classified as a tank (NOR 015). This unit was installed in 1980. Waste codes stored in this tank were 106110, 906110, 906330, 906870, and 913370. Estimated capacity of this tank is not known. There is no waste remaining, as the unit no longer exists. Waste has not been placed here since 1988. The tank was taken out of service in 1989 and subsequently removed. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.2 SWMU Group C2

There are six (6) SWMUs in SWMUs Group C2. None of these SWMUs are in service today. All of them were located in the southeast part of the Central Plant. SWMU Group C2 consists of the former SEHB, the SEHB Sump, the Stormwater Drainage System, Lift Station No. 4, Tank 26, and Tank 82.

2.2.1 Southeast Holding Basin

The SEHB was a surface impoundment, but it is classified on the NOR as a landfill (NOR 017). It operated as part of the Wastewater Treatment System (WTTS) from 1974 to 1985. The capacity was approximately 3,000 cubic yards. Waste codes stored in this unit were 106110, 906110, 906330, 906870, and 913370. The SWMU is certified as closed and is in post-closure care. A Corrective Action Program is in place to address the release from the unit.

2.2.2 SEHB Sump

The SEHB Sump was associated with the SEHB and handled the same materials. It does not have a NOR number. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.2.3 T/TR Stormwater Drainage

The Stormwater Drainage System was a set of surface drains and underground piping associated with the SEHB. It operated during the same time period and handled stormwater. It did not have a NOR number. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.2.4 Lift Station #4

Lift Station #4 was a part of the WTTS, associated with the SEHB. It did not have a NOR number. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.2.5 Tank 26

Tank 26 was a tank. It was not assigned a NOR number. The Phase I RFI states that this tank was used only for product storage. Therefore, there are no waste codes associated with this tank. The tank was removed prior to 1990. Estimated capacity of this tank was 1,050,000 gallons. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.2.6 Tank 82

Tank 82 was not assigned a NOR number. The Phase I RFI states that this tank was used only for product storage. Therefore, there are no waste codes associated with this tank. The tank was removed prior to 1990.

Estimated capacity of this tank was 1,050,000 gallons. The SWMU is not certified as closed. A response action under the TRRP has been implemented.

2.3 SWMU Group C3

There are three SWMUs in SWMU Group C3. They are located in the same diked area toward the center of the Central Plant. SWMU Group C3 consists of the Aboveground Oil/Water Separator, Tank 32, and Tank 3-9.

2.3.1 Aboveground O/W Separator

The Aboveground Oil/Water Separator is a tank (NOR number 014). This unit discharges to a sewer/publicly owned treatment works (POTW). No dates are listed to indicate when the unit went into or out of service, but it has not been used since January 5, 1994, at the latest. No waste codes are given. The SWMU is not certified as closed. A response action under TRRP has been implemented.

2.3.2 Tank 32

Tank 32 is an active tank (NOR number 012). The tank was built in 1938, but it was not used as part of the new wastewater treatment system until 1989. The wastes that are in this tank are 0006205H, 0007206H, 0015119H, 106110, 906110, 906330, 906870, 906990, and 913370. The capacity of this tank was 1,050,000 gallons. Wastewater and other wastes flow to this tank regularly. There is no date of projected closure for this unit. A response action under TRRP has been implemented.

2.3.3 Tank 3-9

Tank 3-9 is an active tank (NOR number 013). The tank came into use as part of the new wastewater treatment system in 1989. The wastes that are in this tank are 0006205H, 0007206H, 0015119H, 106110, 906110, 906330, 906870, 906990, and 913370. The capacity of this tank is 126,000 gallons. Wastes flow to this tank regularly. There is no date of projected closure for this unit. A response action under TRRP has been implemented.

2.4 SWMU Group C4

There are three SWMUs in SWMU Group C3. They are located in the same diked area in the northwest corner of the Central Plant. SWMU Group C4 consists of Tank 25-1, the Drum Storage Building, and Impoundment # 2.

2.4.1 Tank 25-1

Tank 25-1 has a designated NOR number of 011. Tank 25-1 was constructed in 1956, and was placed in wastewater service in 1980. Waste codes for wastes that were in this tank are 106110, 906110, 906330, 906870, 906990, and 913370. The estimated capacity of this tank is 1,076,982 gallons. All waste was removed and the tank was returned to product storage service in 1989. The RFI for this unit was only conditionally accepted by TCEQ. A response action under the TRRP has been implemented.

2.4.2 Drum Storage Building

The Drum Storage Building is a container storage area (NOR number 001). The unit was placed in service in 1989. Wastes previously managed in this unit include 00273192, 906330, 906870, and 913370. Wastes currently managed in this unit include 000131H, 0008319H, 009319H, 0010301H, 0011404H, 0012219H,

0013609H, 00144891, 00173021, 00186091, 00192191, 00203192, 00213192, 00220091, 0023009H, 00253011, 00263191, 00283892, 00293111, 00303901, 00313191, 0032319H, 0033319H, 00343192, 0035609H, 0036191, 00374891, 00383192, 0039301H, 00412071, 0042301H, 0043319H, 0044409H, 00472061, 0048209H, 0049319H, 00503902, 00513101, 160110, 150950, 151950, 152180, 152920, 180490, 210690, 249000, 906110, 919470, 950950, 952180, 977990, 978980, 980490, 981510, and 983710. Drums are presently stored in this building, but for periods of less than 90 days. The unit is active. A response action under TRRP has been implemented.

2.4.3 Impoundment #1

Impoundment #1 is a Surface Impoundment. It was not assigned a NOR number and it no longer exists. It was placed on the RFA list due to its appearance on an old aerial photograph. It was constructed before 1920. Little is known about the history or use of this triangular feature. A response action under TRRP has been implemented.

3.0 EAST PLANT WASTE MANAGEMENT AREA

There are four (4) SWMUs in the East Plant. The SWMUs in the East Plant were not grouped. The SWMUs are the East Plant Tank Car Rack (EPTCR), Texaco Landfill No. 3, Impoundment #3, and the EPWMA.

3.1 East Plant Tank Car Rack

The EPTCR is an area of concern due to the discovery of soil contamination. This SWMU was self-reported when environmental impacts were found; therefore, there is no NOR number for the EPTCR. The RFI was completed and the EPTCR was approved for closure under Risk Reduction Standard 2 (RRS2) under 30 TAC §335 in a letter from TCEQ dated January 5, 2005.

3.2 Texaco Landfill #3

Texaco Landfill #3 is a landfill that was operated by Texaco up until 1980. Because it was removed prior to the sale of the refinery to GATX, this unit did not receive a NOR number. The unit and all wastes were removed by Texaco in 1980. The RFI for this unit was accepted by TCEQ on December 8, 2000. This unit was granted No Further Action (NFA) status at that time.

3.3 Impoundment #3

Impoundment #3 is a surface impoundment that was discovered on historical aerial photographs of the former Texaco Refinery during the RFA process. Impoundment #3 was identified in the draft RFA Report only from its appearance on aerial photographs from 1945 and 1953, although it was described as having been constructed prior to 1920 and inactivated in 1981. Its capacity and the types of waste managed in it (if any) are unknown. In response to a query from GATX, Texaco Refining and Marketing Inc. found no indication in its files of the existence of Impoundment #3. There are no obvious signs of the former impoundment visible at the surfce in the area identified in the RFA. The SWMU is not certified as closed. The TCEQ approved NFA in a letter dated April 11, 2013.

3.4 EPWMA Benzene Release

The EPWMA is an area of concern identified in the Phase II RFI because of benzene-affected groundwater. Thus, it has no NOR number. The SWMU is not certified as closed. The TCEQ approved NFA in a letter dated April 11, 2013.

4.0 WEST PLANT WASTE MANAGEMENT AREA

Five (5) of the eight (8) SWMUs in the West Plant are categorized into three (3) SWMU groups for the purpose of accomplishing delineation for the RCRA Facility Investigation (RFI). These West Plant SWMUs are discussed by SWMU Group. One other three SWMUs (Tank 5-20) is not grouped.

4.1 SWMU Group W1

There are three (3) SWMUs in SWMU Group W1. They are located in the northern part of the West Plant. SWMU Group W1 consists of the North Holding Basin (NHB), which is now the CAMU, the Equalization Basin, and the Dissolved Air Floatation (DAF) Tank.

4.1.1 CAMU (North Holding Basin)

The NHB is a surface impoundment (NOR number 004). The NHB is now the CAMU. Waste was first placed in this unit in 1975. The unit handled stormwater runoff, as well as rinsate and washwater from various loading and unloading stations, line flushes, and tank rinses. The waste codes handled by the NHB are 106110, 249000, 906110, 906330, 906870, and 913370. The functions of the NHB included flow equalization and pretreatment by aeration. Wastewater was pumped from the NHB to the Gulf Coast Waste Disposal Authority (GCWDA) wastewater treatment plant. The NHB had a capacity of 18 million gallons. Sludge built up on the bottom of the NHB during its operational lifetime. On November 7, 1988, the NHB ceased to receive wastewater. The CAMU was constructed in the NHB in 1996, after closing the unit with stabilized sludges in place, and it receives wastes from the Corrective Action process. Kinder Morgan expects to continue to use this unit in the future. The unit is currently in a Corrective Action Program.

4.1.2 Equalization (EQ) Basin

The Equalization Basin is a tank (NOR number 020). This basin functioned with the old NHB from 1975 to 1988. The basin was removed after February 1993. A response action under the TRRP has been implemented..

4.1.3 DAF Tank

The DAF Tank has a designated NOR number of 019. This tank functioned with the old NHB from 1975 to 1988. The tank was removed after February 1993. Estimated capacity of this tank is 25,000 gallons. A response action under the TRRP has been implemented.

4.2 SWMU Group W2

There are two (2) SWMUs in SWMU Group W2. They are located in the same diked area in the northern part of the West Plant. SWMU Group W2 consists of Tank 100-5 and Tank 100-6.

4.2.1 Tank 100-5

Tank 100-5 has a designated NOR number of 005. The tank initially received stormwater, but was converted later to receive wastewater. It was constructed in 1988, and together with Tank 100-6, replaced the NHB. It has a capacity of 4,200,000 gallons. It was taken out of wastewater service and placed back in product storage service in 1998. A response action under TRRP has been implemented.

4.2.2 Tank 100-6

Tank 100-6 has a designated NOR number of 006. The tank received stormwater. It was constructed in 1988, and together with Tank 100-5, it replaced the NHB. It has a capacity of 4,200,000 gallons. It was taken out of stormwater service and placed back in product storage service in 1988. A response action under TRRP has been implemented.

4.3 SWMU Group W3

There are two (2) SWMUs in SWMU Group W3. These SWMUs are Tank 10-12 and the WPWMA Groundwater Plume. Each of these SWMUs is discussed below.

4.3.1 Tank 10-12

Tank 10-12 has a designated NOR number of 003. The tank was in wastewater service and received wastes with the waste code 106110, 249000, 906110, 906330, 906870, and 913370. Its capacity is 10,000 barrels, or 420,000 gallons. No waste is present; the unit was returned to product storage service and was closed on February 19, 1993. A response action under TRRP has been implemented.

4.3.2 WPWMA Groundwater Plume

The WPWMA is an area of concern identified in the West Plan Groundwater Assessment Report. Thus, it does not have a NOR number. It is a large area with soil and groundwater impacts that are being addressed through the Corrective Action Program. A response action under TRRP has been implemented.

4.4 Others

SWMU Tank 5-20 is grouped as Other.

4.4.1 Tank 5-20

Tank 5-20 has a designated NOR number of 018. It is an active part of the wastewater treatment system as a surge tank for wastewater shipments. It receives wastes with the following waste codes: 0006205H, 0007206H, 0015119H, 106110, 906110, 906330, 906870, 906990, and 913370. Its capacity is 5,000 barrels, or 210,000 gallons. The TCEQ approved NFA in a letter dated May 11, 2005.

5.0 NORTH PLANT WASTE MANAGEMENT AREA

There are five (5) SWMUs in the North Plant. The SWMUs in the North Plant were not grouped. The SWMUs are Tract A, Tract B, Tract C, the North Spoils Area, and Texaco Landfill #4.

5.1 Tract A

Tract A is a landfill (NOR number 016). It is also referred to as the North Pit in some documents. Wastes were placed in this unit beginning from the early 1950s. Wastes of unknown types and volumes were placed in this unit until the early 1960s. Beginning from the early 1970s, this unit again received wastes. No records were kept, but evidence from terminal storage records indicates that phenolic tank bottoms and possibly creosote wastes were disposed in this landfill. Investigation data confirm this view. Aerial photographs from January 1981 show that the pit was completely filled. The capacity of this unit is approximately 6,350 cubic yards. The unit was closed and capped after 1991. The RFI was accepted by TCEQ on December 29, 1999. In 2013, a Notice of Intent to Switch to TRRP was submitted to the TCEQ for this SWMU. At that time, an addendum to the North APAR was submitted detailing additional investigaiton activities at the SWMU. The TCEQ approved the APAR in December 2013 and injection events were initiated in 2013 to

address the chlorinated COCs in groundwater. Injection events have been ongoing since 2013 and are being implemented under the Interim Corrective Action Measures of the RCRA Hazardous Waste Permit.

5.2 Tract B

Tract B is a landfill and was not assigned a NOR number. It was discovered and self-reported to TCEQ by GATX. Lead-impacted soils with concentrations in excess of RRS2 were excavated in 1998 and placed in the CAMU. The RFI has not been accepted by TCEQ. The TCEQ approved NFA in a letter dated April 1, 2005.

5.3 Tract C

Tract C is a landfill and was not assigned a NOR number. It was discovered and self-reported to TCEQ by GATX in January 1996. Lead-impacted soils with concentrations in excess of RRS2 were excavated in 1998 and placed in the CAMU. The RFI has not been accepted by TCEQ. The TCEQ approved NFA in a letter dated May 5, 2005.

6.0 TEXMARK CHEMICAL INC. (TCI) GROUP

There were two SWMUs identified in the Texmark Chemicals, Inc. (Texmark) facility. Texmark was a tenant of the former GATX Terminals Corporation prior to its purchase of the property in 1998. However, GATX (and its successor Kinder Morgan) retains responsibility for the corrective action of the SWMUs. The SWMUs were grouped in 1999. These SWMUs are Impoundment #2 and Tank 28.

6.1 Impoundment #2

Impoundment #2 was a surface impoundment. The unit was discovered on aerial photographs in the RFA. The unit may have received wastes beginning in approximately 1994. This impoundment and the features within its footprint, including the Velsicol Pit and the landfill upon which the Area 3 Pond is presently located, are no longer active. Sludges and styrene tar were placed in the pit by Velsicol, another former tenant of the land now used by Texmark. Aerial photographs suggest that waste may have been placed in the Velsicol Pit as late as 1969. Texmark presently operates its wastewater impoundment within the footprint of this SWMU. Sludges from past practices are still present. The SWMU is not certified as closed. A response action under TRRP has been implemented..

6.2 Tank 28

Tank 28 does not have NOR number. It was self-reported to TCEQ by GATX in a letter dated September 15, 1995. Estimated capacity of this tank is 1,050,000 gallons. The SWMU is not certified as closed. A response action under TRRP has been implemented.

7.0 ADDITIONAL RFI UNITS

Two (2) additonal SWMUs exist at the facility and have not been incorproated into a SWMU group. These include the Texaco Landfill #4 and North Spoils Area. Both of these SWMUs are discussed below.

7.1 Texaco Landfill #4

Texaco Landfill #4 is an impoundment. It was never operated by Kinder Morgan or its predecessor, GATX Terminals Corporation and, thus, did not receive a NOR number. It first received waste in 1952. The waste it managed was oily wastewater. It had a capacity of approximately 117,800 cubic yards. The unit was closed between 1980 and 1981. Approximately 16,000 cubic yards of waste were excavated. The unit was granted NFA status by TNRCC on June 14, 1999.

7.2 North Spoils Area

The North Spoils Area is an area where dredge spoils were piled when they were removed from the Houston Ship Channel. It was not assigned a NOR number. The activity began in late 1980 or in January 1981. It should be noted that Kinder Morgan no longer owns the land on which this unit is located. In 1990, the former GATX Terminals Corporation sold the land to ARCO Pipeline Company. The unit was approved by TNRCC for NFA on June 14, 1999.

8.0 AREAS OF CONCERN

The AOCs discussed below were incorporated into the Hazardous Waste Permit as part of the 2018 Class 3 Permit and Compliance Plan Modification. The revised Hazardous Waste Permit was issued by the TCEQ on November 18, 2019.

8.1 WEST CHEMICAL AOC

The former Vopak Terminal Galena Park, Inc. (VTGP) Terminal, which was located immediately adjacent to the Kinder Morgan Galena Park Terminal, was purchased by Kinder Morgan on February 7, 2015, and incorporated into the Galena Park Terminal. Kinder Morgan notified the TCEQ of the acquisition and submitted an application for a Class 1 permit modification to the Galena Park Hazardous Waste Permit (HW-50054) to change the legal description of the facility to include the VTGP property. The permit modification was issued by the TCEQ on May 31, 2016. The former VTGP is now referred to as the Kinder Morgan Galena Park West Chemical AOC.

A Draft 2017 RAP Addendum (TRC, 2017) for the Galena Park West Plant was submitted to the TCEQ in October 2017 to incorporate soil and groundwater impacts at the former VTGP Terminal (SWR No. 30566) into the TCEQ approved Plume Management Zone (PMZ) located in West Plant on the KM Liquids Terminals LLC (Kinder Morgan) Galena Park Terminal. The TCEQ issued conditional approval with comments of 2017 Draft RAP Addendum for the West Plant on December 29, 2017. The Final RAP Addendum for the West Plant was submitted to TCEQ in September 2018, and incorporated into the 2018 Class 3 Hazardous Waste Permit Modification Application submittal. The Class 3 Permit and Compliance Plan Modification were incorporated into Permit No. HW-50054 and a revised Hazardous Waste Permit was issued by the TCEQ on November 18, 2019.

8.2 OLD PUMP HOUSE NO. 5 AOC

Old Pump House No. 5 (OPH5) is located in the East Plant of the Galena Park Terminal. The site of the KMLT Galena Park Terminal has been used for heavy industrial purposes since prior to 1928 and was the site of a former Texaco oil refinery. Old Pump House No. 5 has been present in East Plant since at least 1944 and is currently used to transfer product from locations within the Galena Park terminal and from onsite storage to nearby barge or ship docks.

Petroleum hydrocarbon impacts were identified in 2014 and assessment and remediation have been completed at OPH5 since that time. A Response Action Completion Report (RACR) was submitted to the TCEQ in June 2024 requesting no further action for OPH5 and to update CP Table II as part of the RCRA Permit Renewal Application to designate no further action.

8.3 GATE 6 AOC

Gate 6 AOC is located in the East Plant Terminal Area of the Galena Park Terminal. While completing closure of the East Plant Turn Around Container Storage Area (RCRA Permit Unit # 3) in 2008, soil impacts unrelated to the unit was discovered. Assessment and remediation have been completed at Gate 6 since that time. A RACR was submitted to the TCEQ in October 2022 requesting no further action for Gate 6. The TCEQ conditionally approved no further action and requested that CP Table II be updated in the 2024 RCRA Permit Renewal Application to officially terminate corrective action at Gate 6 AOC.

8.4 NORTH PLANT AOC

North Plant AOC is located in the North Plant Terminal Area of the Galena Park Terminal. After demolition activities at former Tanks 118-1 (current Tank 100-11) and Tank 118-2 (current Tank 100-12), soil assessments were completed in 2022 which identified soil impacts at each former tank area. An APAR was submitted to the TCEQ in January 2004 and approved in July 2004. A Response Action Plan (RAP) was submitted in March 2005 (and subsequent RAP Addendums in 2006 and 2007) to implement and modify remedial actions at the site. A 2024 RAP Addendum was submitted in July 2024 to establish a PMZ and incorporate the North Plant AOC into the RCRA Hazardous Waste Permit as part of the 2024 Permit Renewal Application.

FIGURES

Figure 1 – Regional Location Map
Figure 2 – Site Location Map
Figure 3 – SWMU Location Map

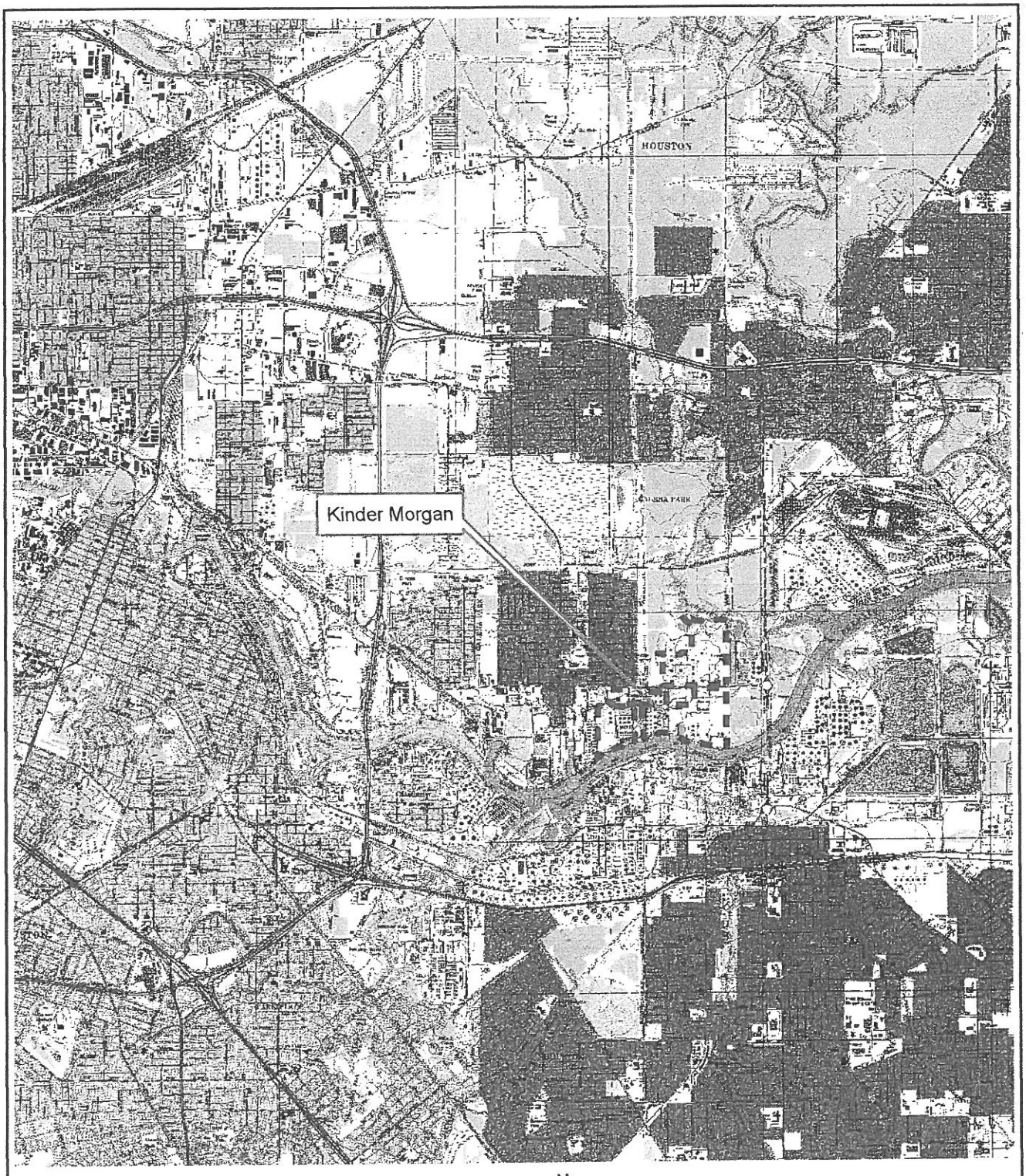
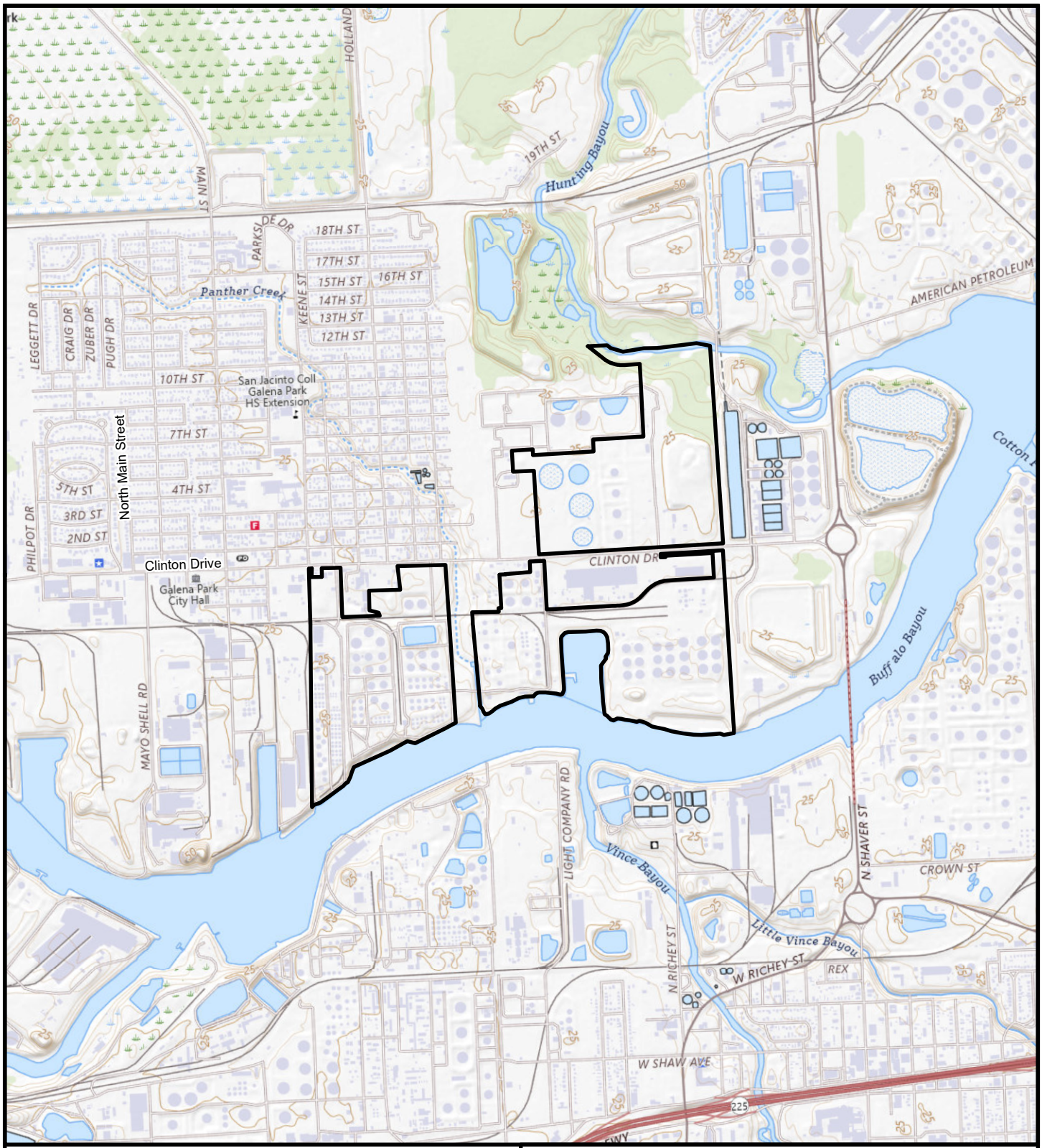


Figure I-1
Regional Location Map

Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

CH2MHILL

Regional Map-Section8(8x11).mxd



Approximate Terminal Boundary

N
W E
S

0 1,000 2,000

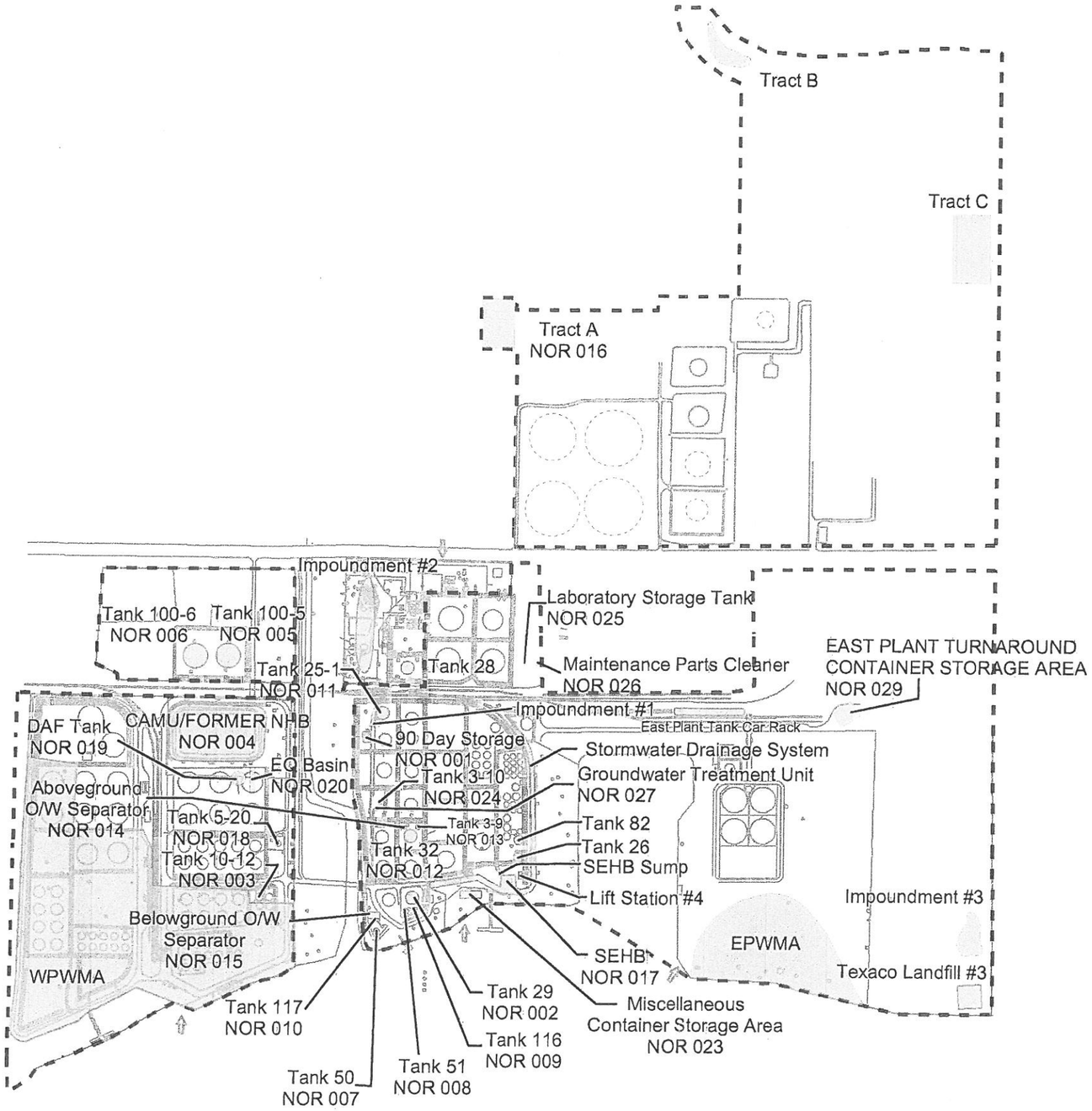
Approximate Scale in Feet

Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

Figure I-2
Site Location Map



LEGEND

- SWMUs
- Kinder Morgan Facility Boundary
- Kinder Morgan Facility Basemap

NOTE: NOR UNITS 021, 022 & 028 NOT SHOWN

N

700 350 0 700

Feet

Figure I-3
SWMU Location Map
Kinder Morgan Liquids Terminals L.L.C.
Galena Park, Texas

SWMUs-Section9.mxd

CH2MHILL

ATTACHMENT R

Groundwater Monitoring and Corrective Action Program Description

ATTACHMENT R

GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM DESCRIPTION
KM Liquids Terminals LLC – Galena Park Terminal

1.0 INTRODUCTION

This attachment describes the existing groundwater recovery and monitoring systems associated with the ongoing corrective action for the CAMU/Former North Holding Basin (NHB) (NOR 004) and Southeast Holding Basin (SEHB) (NOR 017) areas. No changes are proposed for the existing groundwater recovery systems or groundwater monitoring programs.

2.0 CAMU/FORMER NHB AREA

2.1 Groundwater Recovery System

A groundwater recovery and monitoring system was proposed and a Corrective Action Plan (see Attachment T of the 2013 Permit Renewal) was prepared for the CAMU/Former NHB area in June 1994. The system was installed in September and October 1995, and groundwater pumping began on October 11, 1995. The groundwater recovery system was designed to reduce the likelihood of impacted groundwater in Zone III and Zone IV reaching the surface water in Panther Creek. The groundwater recovery system consists of eight recovery wells. The locations of the wells are shown in Figure 1. The recovery wells and the screened zones are identified below:

- MW – 4 Zone III
- MW – 6 Zone IV
- MW – 7 Zone III
- MW – 11 Zone III
- MW – 12 Zone V
- MW – 15 Zone IV
- MW – 16 Zone III
- MW – 17 Zone IV

The contaminated groundwater is collected in a header pipe and conveyed to the aboveground storage Tank 3-10. The fluid recovered from the groundwater recovery systems is temporarily stored in Tank 3-10 before treatment and disposal. Groundwater from Tank 3-10 is then pumped to and temporarily stored in aboveground storage Tank 5-20 before being discharged to the Gulf Coast Waste Disposal Authority for treatment. The average groundwater pump rate, as combined with the SEHB groundwater recovery system, is about 5 gpm.

2.2 Groundwater Monitoring System

The groundwater monitoring system for the CAMU/Former NHB area was designed to demonstrate the effectiveness of the groundwater recovery system. The monitoring system consists of two background wells, four compliance monitoring wells, and eight Corrective Action Observation Wells. The locations of the wells are shown in Figure 1. The monitoring wells and the screened zones are identified below:

- Background Wells:
    - MW – 1 Zone III
    - MW – 8 Zone III

- Compliance Monitoring Wells:

  - MW – 6 Zone IV
  - MW – 7 Zone III
  - RW – 16 Zone III
  - RW – 17 Zone IV

- Corrective Action Observation Wells:

  - MW – 4 Zone III
  - MW – 5 Zone III
  - MW – 9 Zone III
  - MW – 13 Zone III
  - MW – 14 Zone IV
  - MW – 15 Zone IV

The groundwater monitoring program was initiated in 1996. The Sampling and Analysis Plan (SAP) is included in Attachment U of the 2013 Permit Renewal application. In July 1996, a Corrective Action Management Unit (CAMU) was constructed in the Former NHB. Since initiation of the groundwater monitoring and recovery system in 1996, groundwater samples have been collected seminannually from the monitoring wells and analyzed for 1,2-dichloroethane. Water levels in the monitoring wells have also have been measured during each sampling event.

3.0 SEHB AREA

3.1 Groundwater Recovery System

A groundwater recovery and monitoring system was installed in July 1993 and began operation in August 1993. The groundwater recovery system was designed to reduce the likelihood of impacted groundwater in SCF and UNTU zones reaching the surface water in the Houston Ship Channel and Docking Slip. The SEHB groundwater recovery system consists of twelve recovery and two interceptor trenches equipped with extraction wells. The north trench is 260 feet long and the south trench is 160 feet long. Both trenches were installed in the SCF zone with extraction wells in the middle of the trenches. The locations of the wells are shown in Figure 2. The recovery wells and the screened zones are identified below:

- MW – 5 SCF and UNTU
- MW – 7 UNTU
- MW – 10 UNTU
- MW – 13 SCF and UNTU
- MW – 24R UNTU
- MW – 25 UNTU
- MW – 26 UNTU
- MW – 30 UNTU
- MW – 33 SCF and UNTU
- MW – 34 UNTU
- RW – 1 UNTU

- RW – 2 UNTU

Like the CAMU/Former NHB groundwater recovery system, the contaminated groundwater and nonaqueous phase liquid (NAPL) are collected in a header pipe and conveyed to the aboveground storage Tank 3-10. The fluid recovered from the groundwater recovery systems is temporarily stored in Tank 3-10 before treatment and disposal. Groundwater from Tank 3-10 is then pumped to and temporarily stored in aboveground storage Tank 5-20 before being discharged to the Gulf Coast Waste Disposal Authority for treatment. The average groundwater pump rate, as combined with the CAMU/Former NHB groundwater recovery system, is about 5 gpm.

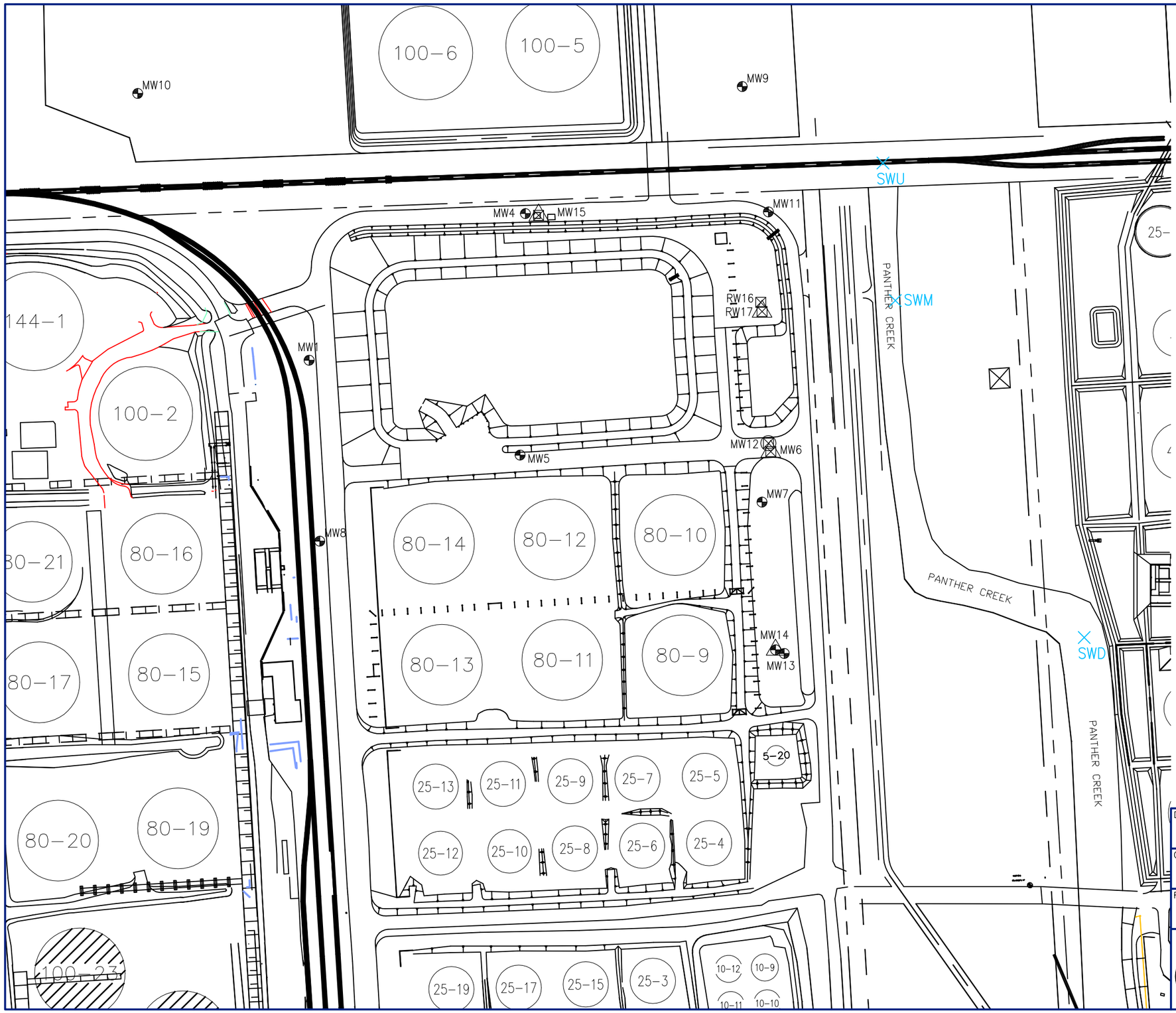
3.2 Groundwater Monitoring System

The groundwater monitoring system for the SEHB area was designed to demonstrate the effectiveness of the groundwater recovery system. The monitoring system consists of 3 compliance monitoring wells, 20 corrective action observation wells, and 3 potentiometric surface observation wells. The locations of the wells are shown in Figure 1. The wells and the screened zones are identified below:

- Compliance Monitoring Wells:
  - MW – 2R SCF and UNTU
  - MW – 3R SCF and UNTU
  - MW – 4R UNTU
- Corrective Action Observation Wells:
  - MW – 1 UNTU
  - MW – 6 UNTU
  - MW – 8 UNTU
  - MW – 9 UNTU
  - MW – 11 SCF and UNTU
  - MW – 12 UNTU
  - MW – 14 SCF and UNTU
  - MW – 15 SCF
  - MW – 16 UNTU
  - MW – 17 SCF and UNTU
  - MW – 18 SCF
  - MW – 19 UNTU
  - MW – 20 SCF
  - MW – 21 UNTU
  - MW – 22 SCF
  - MW – 23 UNTU
  - MW – 27 SCF
  - MW – 29 SCF
  - MW – 31 UNTU
  - MW – 32 SCF

- Potentiometric Surface Observation Wells:
    - P – 1 SCF

The groundwater monitoring program was initiated in 1993. The Sampling and Analysis Plan (SAP) is included in Attachment U of the 2013 Permit Renewal application. Groundwater samples are collected semiannually from the monitoring wells and analyzed for select VOCs, select SVOCs, select herbicides and total lead. Water levels and NAPL thickness in the monitoring wells are also measured during each sampling event.



LEGEND

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL (ZONE 3)
- RECOVERY WELL (ZONE 3)
- MONITORING WELL (ZONE 4)
- RECOVERY WELL (ZONE 4)
- RECOVERY WELL (ZONE 5)
- SURFACE WATER SAMPLE
- PLUGGED/ABANDONED WELL

Background Wells
MW-1 and MW-8

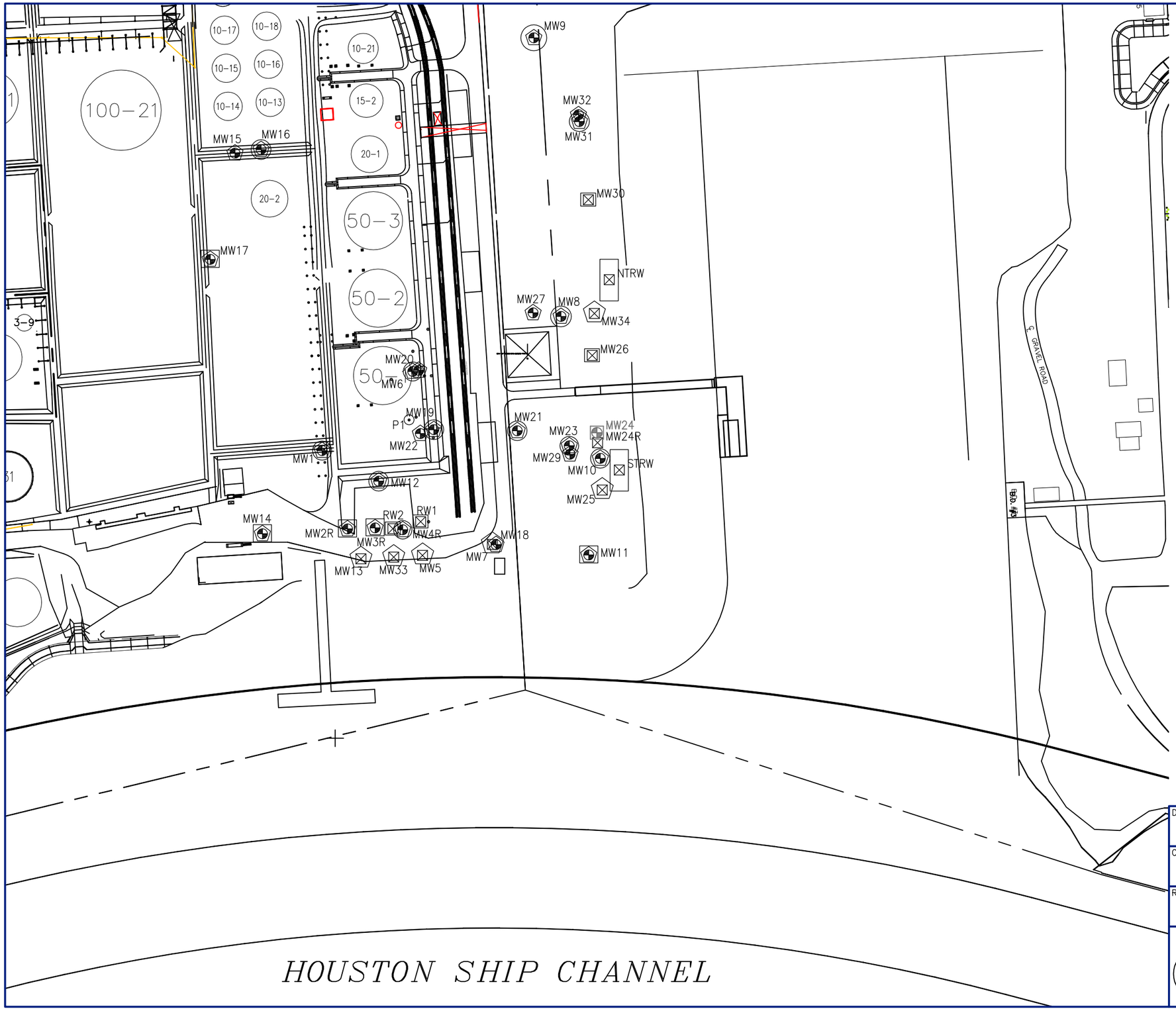
Point of Compliance Wells
MW-6, MW-7, RW-16, RW-17

Corrective Action System Wells
MW-4, MW-6, MW-7, MW-11, MW-12, MW-15, RW-16, RW-17

Corrective Action Observation Wells
MW-4, MW-5, MW-9, MW-11, MW-12, MW-13, MW-14, MW-15

DRAFTED BY: W.G.S. (N.J.)	SITE MAP (NORTH HOLDING BASIN)	
CHECKED BY:	KINDER MORGAN TERMINAL KM LIQUIDS TERMINALS, LCC 906 CLINTON DRIVE GALENA PARK, TEXAS	
REVIEWED BY:	Groundwater & Environmental Services, Inc. 13003 SW FREEWAY, SUITE 190, STAFFORD, TEXAS 77477	
NORTH	SCALE IN FEET 0 APPROXIMATE 150	DATE: 7–8–09 / FIGURE: 1

M:\Graphics\3600-Houston\Kinder Morgan\Galena Park Facility\Galena Park Facility SM.dwg, B-150 (NHB), 7/8/2009 9:35:56 AM, WShea



M:\Graphics\3600-Houston\Kinder Morgan\Galena Park Facility\Galena Park Facility SM.dwg, B-150 (SEHB), 7/8/2009 9:39:16 AM, WShea

LEGEND

PROPERTY BOUNDARY

FENCE

PLUGGED/ABANDONED WELL

MONITORING WELL (SCF)

RECOVERY WELL (UNTU & SCF)

SCF SCREENED IN SANDY CHANNEL FILL

UNTU SCREENED IN UPPERMOST NATURAL TRANSMISSIVE UNIT

MONITORING WELL (UNTU)

MONITORING WELL (SCF & UNTU)

RECOVERY WELL (UNTU)

RECOVERY TRENCH (SCF)

PIEZOMETER (SCF)

Point of Compliance Wells

MW-2R, MW-3R, MW-4R

Point of Exposure Wells

MW-5, MW-13, MW-33

Corrective Action System Wells

MW-5, MW-7, MW-10, MW-13, MW-24R, MW-25, MW-26, MW-30, MW-33, MW-34, RW-1, RW-2

Corrective Action Observation Wells

MW-1, MW-6, MW-8, MW-9, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-27, MW-29, MW-31, MW-32

Potentiometric Surface Observation Well

P-1

DRAFTED BY: W.G.S. (N.J.)	SITE MAP (SOUTHEAST HOLDING BASIN)
CHECKED BY:	KINDER MORGAN TERMINAL KM LIQUIDS TERMINALS, LCC 906 CLINTON DRIVE GALENA PARK, TEXAS
REVIEWED BY:	Groundwater & Environmental Services, Inc. 13003 SW FREEWAY, SUITE 190, STAFFORD, TEXAS 77477
NORTH	SCALE IN FEET: 0 APPROXIMATE 150 / DATE: 7-8-09 / FIGURE: 2

ATTACHMENT S

Report – SEHB Corrective Action System

file ECS - 76- 40-008

Please put soft in a binder.

UW.

GROUND WATER RECOVERY SYSTEM

GATX Terminals Corporation
Galena Park Terminal
Galena Park, Texas

Tara L. Shuler
Project Hydrogeologist/
Environmental Scientist

Mark H. Macdonald, P.G.
Manager, Houston Engineering/
Remediation Services

Michael P. Pitre, P.E.
Vice President,
Engineering/Remediation
Services

Prepared By:

Environmental Remediation, Inc.
1111 North Loop West
Suite 520
Houston, Texas 77008
(713) 861-5891

September 29, 1993
Project Number 1771

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1 - INTRODUCTION 2

1.1 Project Background 2

1.2 Scope and Objectives 2

2 - FIELD ACTIVITIES 6

2.1 Construction Activities 6

2.1.1 Monitor Well Conversion 6

2.1.2 Monitor Well Installation 6

2.1.3 Recovery Trench Excavation and Backfill 11

2.2 Changes to Project Scope 15

2.2.1 Changes to Scope-of-Work 15

2.2.2 Changes to Project Design 15

LIST OF FIGURES

Figure 1-1	Site Location Map
Figure 1-2	South Side Plot Plan
Figure 1-3	East Side Plot Plan
Figure 2-1	Typical Recovery Well Development
Figure 2-2	Typical Recovery Wellhead Detail
Figure 2-3	Typical Monitor Well Detail
Figure 2-4	SCF Recovery Trench Detail
Figure 2-5	SCF Recovery Trench End View Cross-Section
Figure 2-6	Proposed SCF Recovery Trench Detail

LIST OF TABLES

Table 2-1	Summary of Recovery Wells
Table 2-2	Summary of Well Development Data

LIST OF APPENDICES

Appendix A	Soil Boring/Monitor Well Logs
Appendix B	Sieve Analysis for Trench Fill

EXECUTIVE SUMMARY

GATX is constructing a ground water recovery system at the request of the Texas Water Commission (TWC) to recover and treat potentially contaminated ground water at the Galena Park, Texas facility. The construction of the system is occurring in two phases, subsurface construction and above grade installation. Environmental Remediation, Inc. (ERI) was contracted by GATX to install the subsurface elements of the recovery system.

Construction of the subsurface elements of the recovery system included converting seven monitor wells to recovery wells; installation of pumping equipment in and well development of eleven recovery wells including the seven converted monitor wells; installation of two monitor wells; and excavation and backfill of two ground water recovery trenches equipped with recovery wells. Field activities were initiated on July 7, 1993 and construction was substantially completed by July 23, 1993.

During the field activities, GATX removed the upgrade of the two existing recovery wells from the scope-of-work. In addition, the design of the recovery trenches was slightly modified to facilitate the use of the specialized trenching/backfill equipment used to install the two trenches.

1 - INTRODUCTION

1.1 Project Background

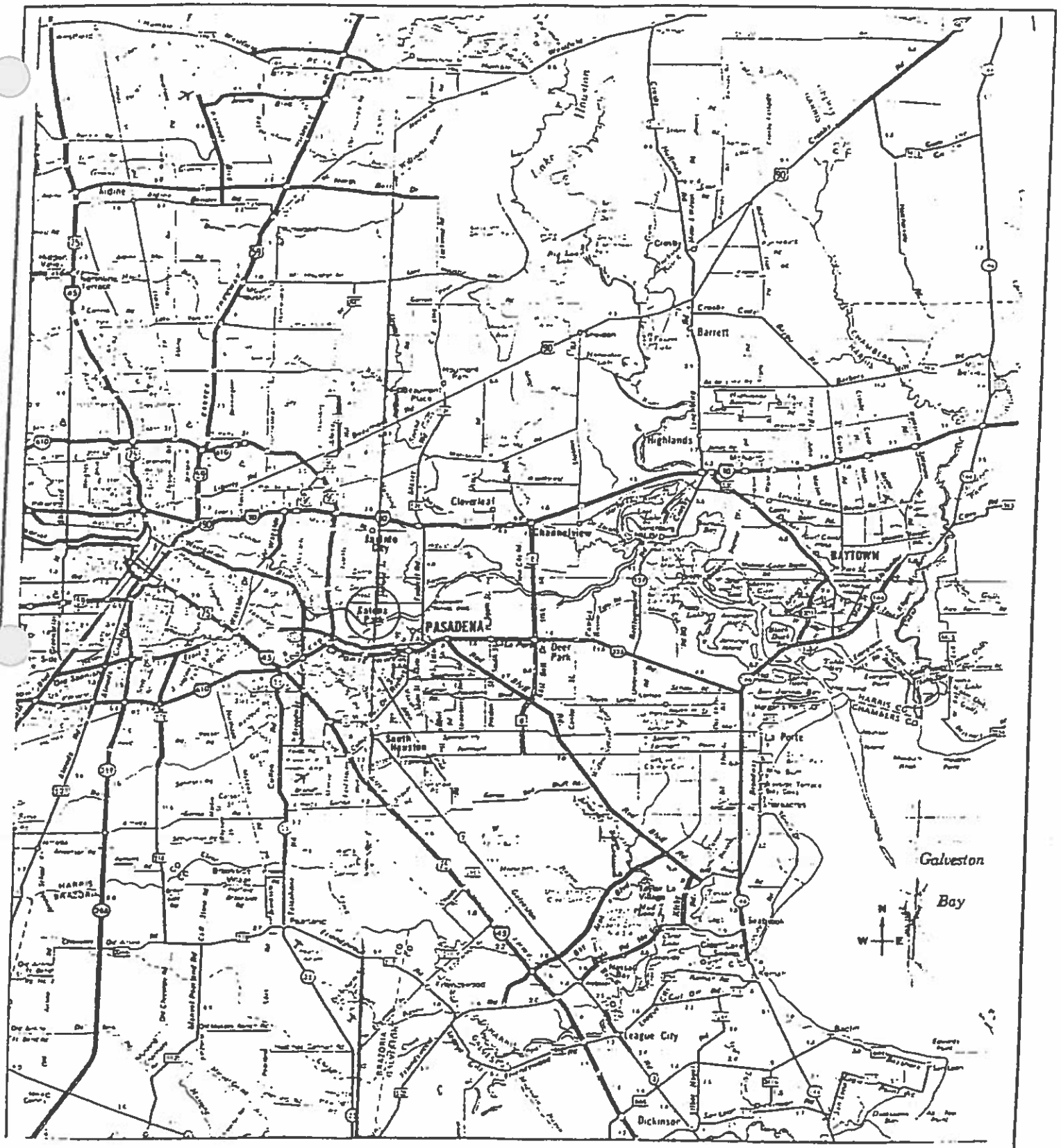
GATX constructed a ground water recovery system at the request of the TWC to recover and treat potentially contaminated ground water at the Galena Park facility (Figures 1-1, 1-2 and 1-3). The design for the ground water recovery system was reviewed and approved by the TWC. Construction of the system is being performed in two phases. The first phase, which is the subject of this report, included the installation of the subsurface elements of the system. The second phase, to be completed by another contracting company, will involve the installation of the above-grade elements of the system including the water treatment equipment.

1.2 Scope and Objectives

The objective of this project was to install the subsurface elements of a ground water recovery system that would allow recovery of potentially contaminated ground water at a maximum pumping rate of two gallons per minute. The design and location of the elements of the project were specified by GATX. The scope for the ground water recovery system included the following:

- Conversion of seven monitor wells to recovery wells which included modification of the wellhead and installation of subgrade concrete well boxes;
- Installation of pumping equipment in eleven recovery wells including the seven converted monitor wells;
- Installation of two monitor wells which included obtaining soil samples taken at five foot intervals and submitted to GATX;
- Excavation and backfill of two ground water recovery trenches: a north trench (SCFI) of 260 feet long and a south trench (SCFII) of 160 feet long;
- Installation of one recovery well in each of the ground water recovery trenches; and
- Well development of all of the eleven new and/or previously installed recovery wells.

The project objective was achieved and each of the scope items was executed.

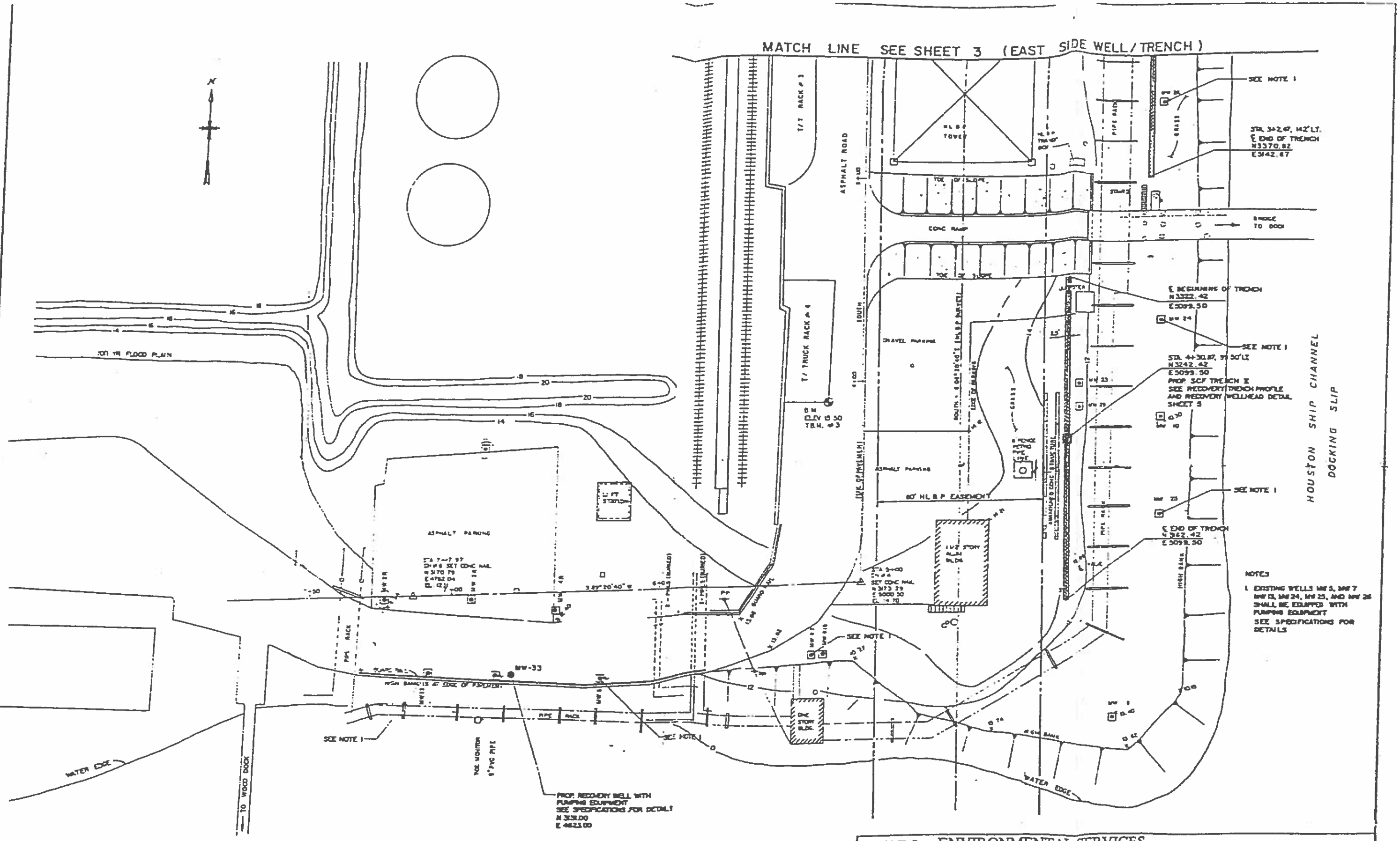


ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation , Inc.

SITE LOCATION MAP

GATX TERMINALS CORP.
Galena Park, TX

9/1/93
Figure 1-1



REVISIONS

DES DMH
DWN DMA
CKD REC

GATX GALENA PARK FACILITY

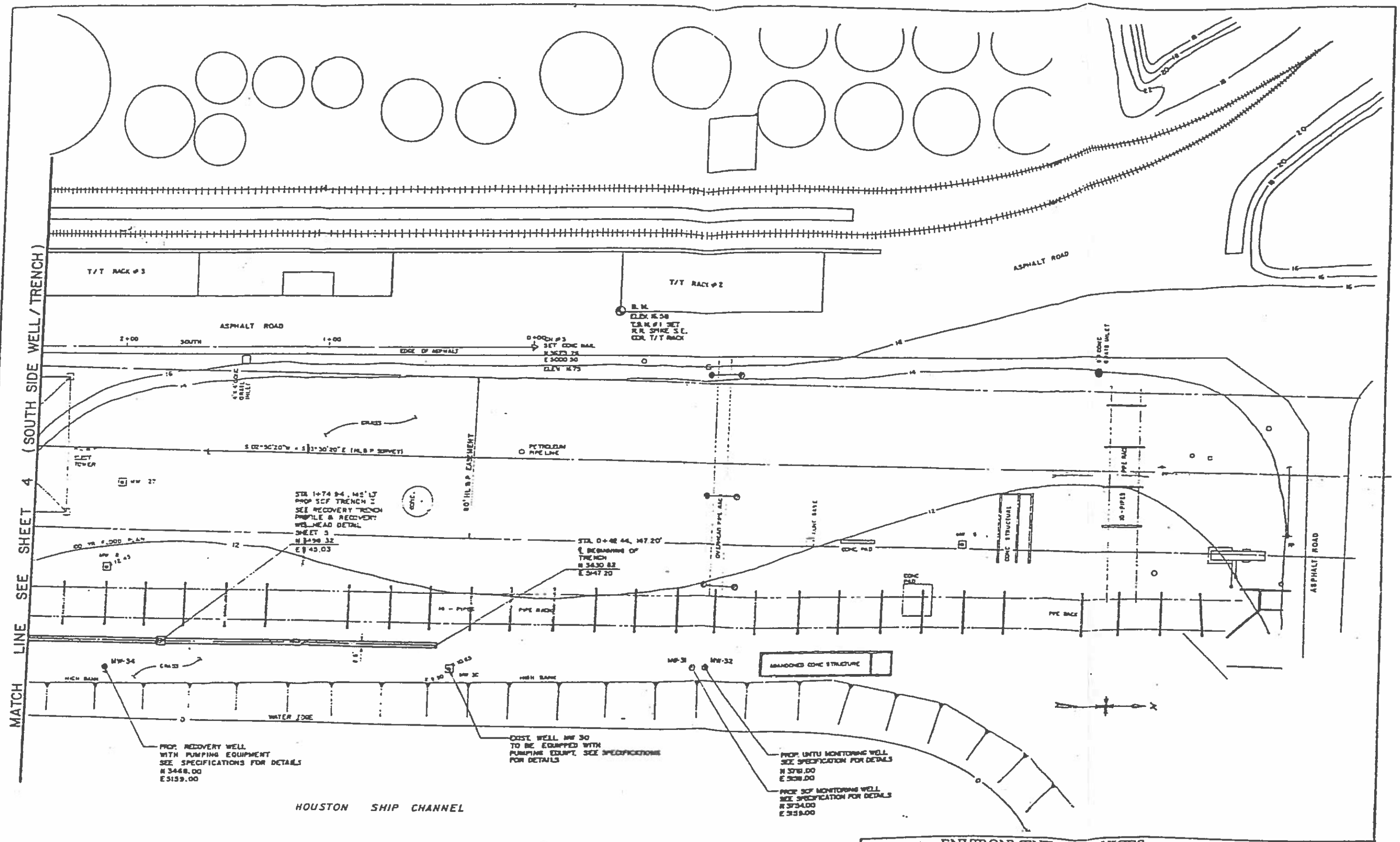
GROUNDWATER INTERCEPTION SYSTEM

ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation, Inc.

SOUTH SIDE PLOT PLAN

GATX TERMINALS CORP.
Galena Park, TX

9/1/93
Figure 1-2



REVISIONS

GATX GALENA PARK FACILITY

GROUNDWATER INTERCEPTION SYSTEM

ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation, Inc.

EAST SIDE PLOT PLAN

GATX TERMINALS CORP.

9/1/93

2 - FIELD ACTIVITIES

2.1 Construction Activities

The field work commenced on July 7, 1993 with the mobilization of an excavation crew for the conversion of the monitor wells to recovery wells and installation of well boxes. The trenching crew began mobilization on July 9 and initiated trenching operations on July 12, the following Monday. The drilling crew mobilized and began activities on July 15. All field activities were substantially completed by July 23, 1993. ERI provided an experienced, professional hydrogeologist to supervise the subcontractors and to install all pumping equipment at the end of construction activities. The field activities included the conversion of seven existing monitor wells to recovery wells; the installation of two new recovery wells and two new monitor wells; the excavation and backfill of two ground water recovery trenches and the installation of pneumatic pumps in the existing and new recovery wells.

2.1.1 Monitor Well Conversion

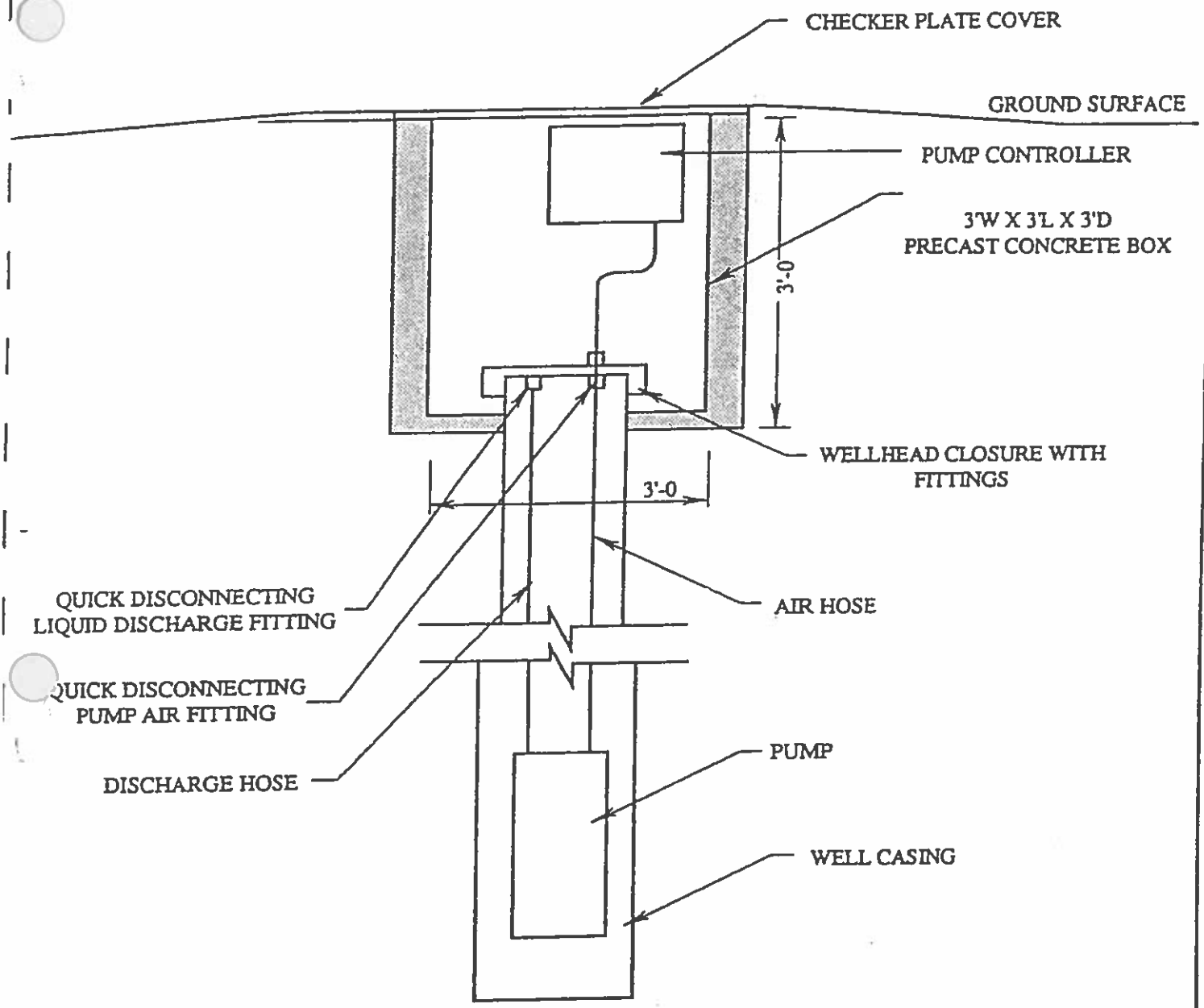
Seven existing monitor wells ranging in depths of twenty-two to twenty-seven feet below ground surface were modified and later equipped with pneumatic pumps and controls provided by GATX. A list of the monitor wells converted to recovery wells and their total depths below grade is presented in Table 2-1. Typical recovery well and recovery wellhead detail are depicted in Figures 2-1 and 2-2, respectively. Initial modifications included the installation of precast subgrade reinforced concrete well vaults also provided by GATX. ERI subcontracted an excavation crew to excavate a square hole approximately three and one-half feet wide on all sides and three and one-quarter feet deep. A one inch layer of soil was backfilled and leveled in order in insure a level surface for placement of the vault. The precast opening at the bottom the vault was centered around the wellhead as the vault was lowered. Once in place, the vault lid was replaced and the hole was backfilled. Excavated soil from each well area was field-tested by GATX, using an HNU meter and historical data, to determine if the soil could be used as backfill. Only the soils from wells 5,7, and 13 were determined by GATX to be potentially contaminated. These potentially contaminated soils were placed in a roll off bin provided by GATX. Excavated soil from vault installation of all other wells was used as backfill. Cement stabilized sand was used to backfill around the vaults of wells 5,7, and 13, which are located in a paved driveway, to prevent shifting of the vaults under traffic loads.

2.1.2 Monitor Well Installation

Two ground water monitor wells were completed, one to a depth of thirty-one feet (MW-31) and one to a depth of fourteen feet (MW-32). A typical monitor well detail is depicted in Figure 2-3. Subsurface conditions based on drill cuttings were documented and may be found in Appendix A - Soil Boring/Monitor Well Logs. At the request of GATX, soil boring samples

TABLE 2-1
SUMMARY OF RECOVERY WELLS

Well Number	Total Depth Below Grade (feet)	Converted Monitor Well (Y/N)
MW-5	25.5	Y
MW-7	27.1	Y
MW-13	22.9	Y
MW-24	23.4	Y
MW-25	22.3	Y
MW-26	24.1	Y
MW-30	24.6	Y
MW-33	23.0	N
MW-34	32.0	N
SCFI	12.5	N
SCFII	11.5	N



NOT TO SCALE

ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation , Inc.

TYPICAL RECOVERY WELLHEAD DETAIL

GATX TERMINALS CORP.
Galena Park, TX

9/1/93
Figure 2-2

were taken from each well at five foot intervals, placed in four ounce pre-cleaned glass jars, labeled and hand delivered by ERI personnel to the GATX Environmental Health and Safety Manager. The samples were also reviewed by a GATX Engineer. Well locations were approved by GATX personnel for the absence of buried pipelines and conduit. Under the supervision of ERI's hydrogeologist, the two four-inch diameter stainless steel wells were installed using a hollow-stem auger. Aluminum shrouds were placed over the portion of the well extending above grade and cement pads were constructed around each shroud. A four foot long surface casing was placed around MW-32 prior to placement of the shroud, as specified. All drill cuttings were collected in drums labeled by drilling personnel. The drums were provided by GATX and the disposition of the cuttings was the responsibility of GATX. Upon completion, the wells were developed by surge block and jetting methods. Displaced well water was collected and placed in drums labeled by drilling personnel. The drums were provided and disposed of by GATX. For a summary of well development data see Table 2-2.

2.1.3 Recovery Trench Excavation and Backfill

Two ground water recovery trenches, SCFI and SCFII, were installed to provide for the collection of affected ground water. The trenches were installed using specialized trenching equipment which simultaneously excavates and backfills without exposing an open excavation. Utilization of this equipment minimized personnel exposure and the amount of potentially contaminated material generated by the excavation activities.

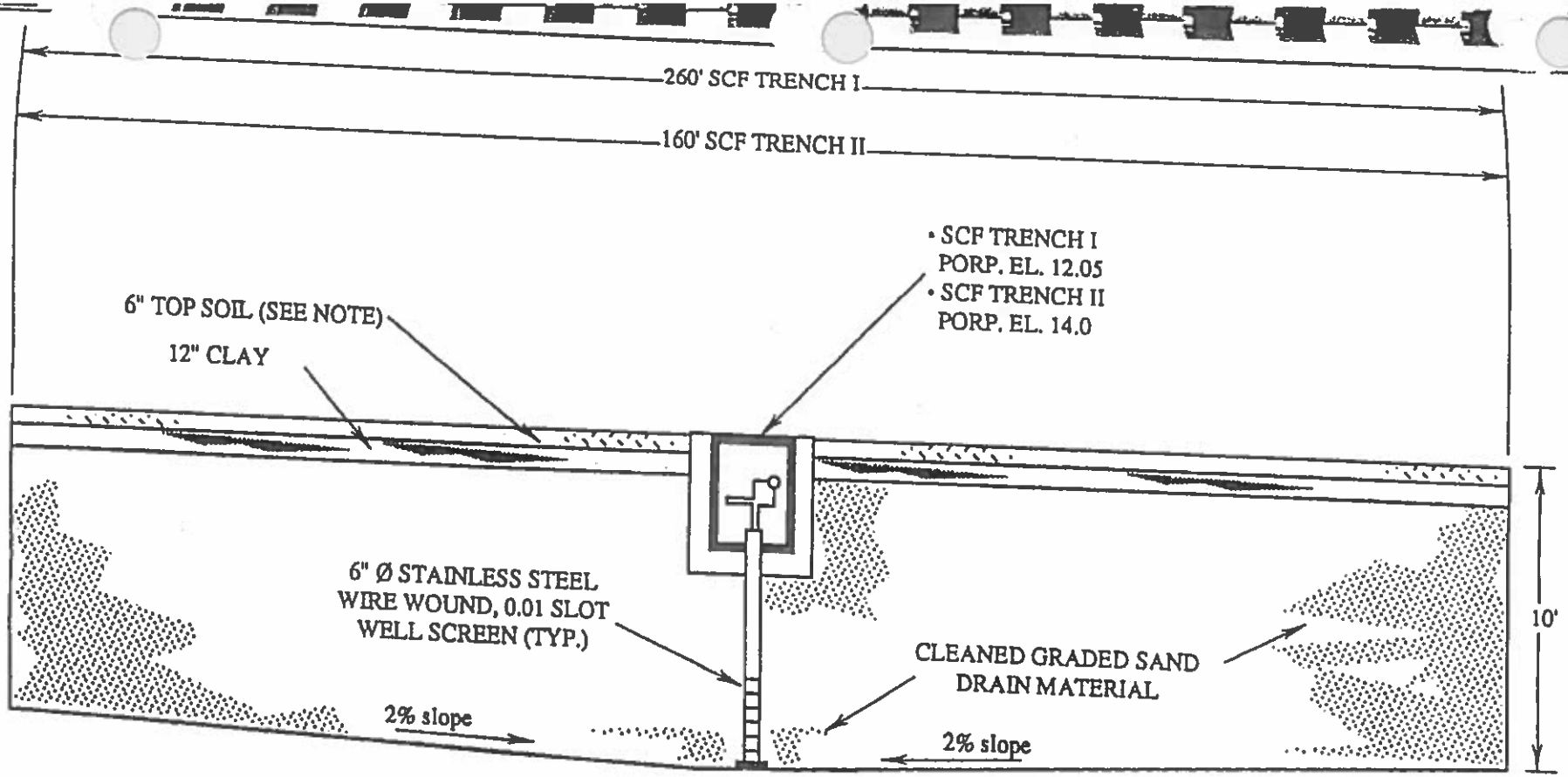
Trench SCFI was constructed approximately 260 feet long and twelve inches wide. The base of the trench was sloped at a two percent grade from each end (ten feet deep) to the center (12.6 feet deep). Trench SCFII was constructed approximately 160 feet long and twelve inches wide. The depth of SCFII was graded from ten feet at each end of the trench to 11.6 feet in the center. Cross-sections of both SCFI and SCFII are depicted in Figures 2-4 and 2-5.

Prior to installing Trench SCFI, the uppermost two feet of soil was removed from the work area and segregated into labeled roll-off bins. An additional two feet of overburden, eighteen inches in width was excavated along the trench path. Again, these soils were segregated and placed into labeled roll-off bins.

Upon completion of the work area preparation, and before initiation of trenching a layer of eight-mil polyethylene sheeting was placed along both sides of the trench line. During the excavation activity, spoils from the trench were deposited onto the polyethylene sheeting, thereby reducing the risk of surface soil contamination. These soils were segregated and placed in labeled roll-off bins. During the trenching operation, the trench was simultaneously backfilled with granular fill from an off-site source from the base of the trench to approximately eighteen inches below grade. Sieve analyses for the fill are provided in Appendix B. A twelve-inch clean clay cap was then placed over the backfill. The cap was compacted by tracking over the cap with a twenty-six ton track-hoe. The work area was then graded and the trench covered with native soils.

Table 2-2
SUMMARY OF WELL DEVELOPMENT DATA

Well Number	Gallons Pumped/Bailed	Recharge	Notes
5	55	Slow	Encountered Product
7	55	Slow	Encountered Product
13	55	Slow	Light Sheen
24	55	Slow	Encountered Product
25	55	Slow	N/A
26	55	Slow	Encountered Product
30	55	Slow	N/A
31	110	Slow	N/A
32	110	Slow	N/A
33	55	Slow	N/A
34	55	Slow	N/A
SCF I	55	Good	N/A
SCF II	55	Good	N/A



NOT TO SCALE

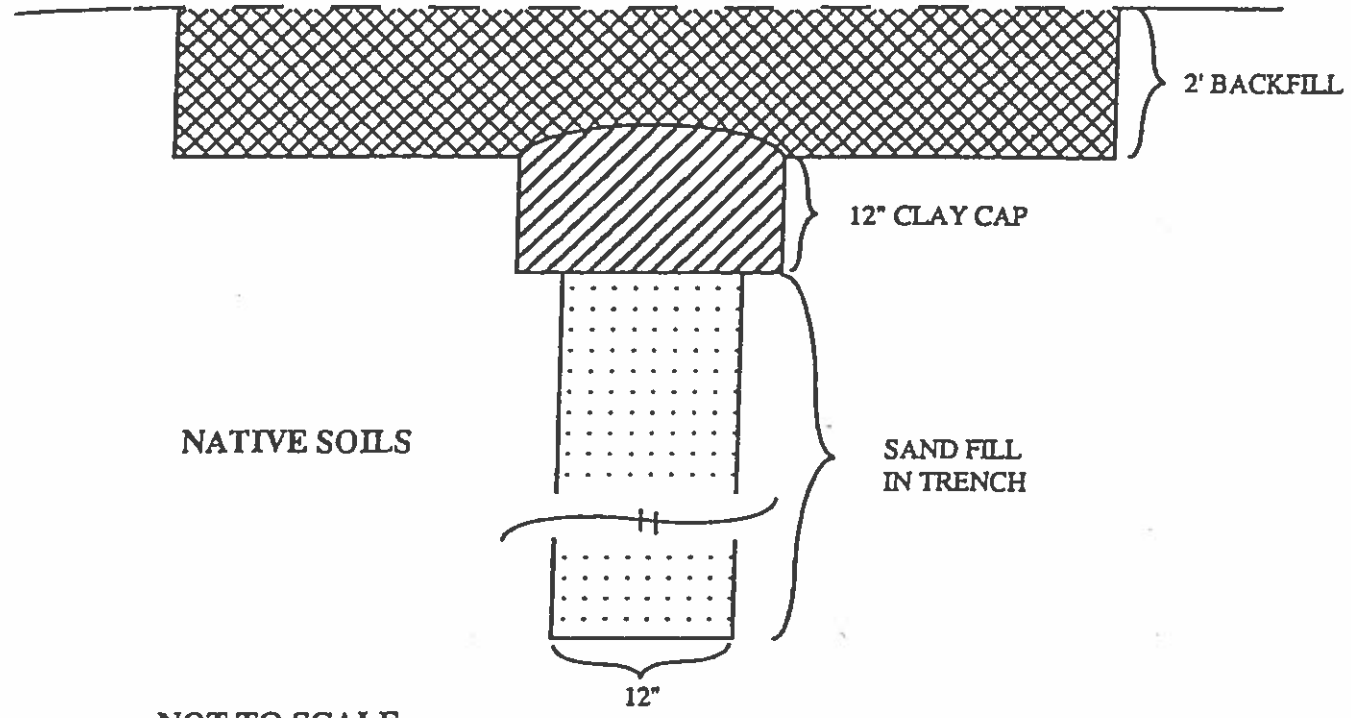
ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation , Inc.

SCF RECOVERY
TRENCH DETAIL

GATX TERMINALS CORP.
Galena Park, TX

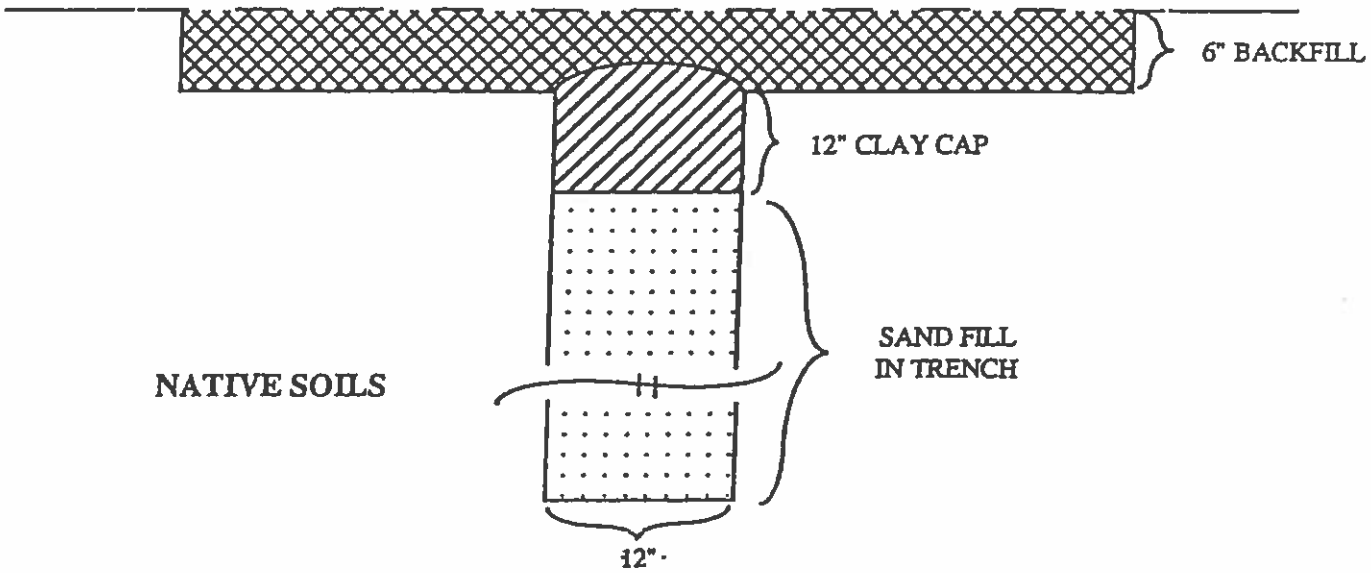
9/1/93
Figure 2-4

X177104.1



NOT TO SCALE

SCF I



SCF II

NOT TO SCALE

ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation , Inc.

SCF RECOVERY TRENCH
END VIEW CROSS-SECTION

GATX TERMINALS CORP.
Galena Park, TX

9/1/93
Figure 2-5

0177105

Trench SCFII was completed in essentially the same manner as SCFI. However, work area preparation of SCFII was limited to grading the upper six inches of soil to allow for a level base for the excavation equipment. Characterization and disposition of all excavated soils and trench spoils was performed by GATX.

2.2 Changes to Project Scope and Design

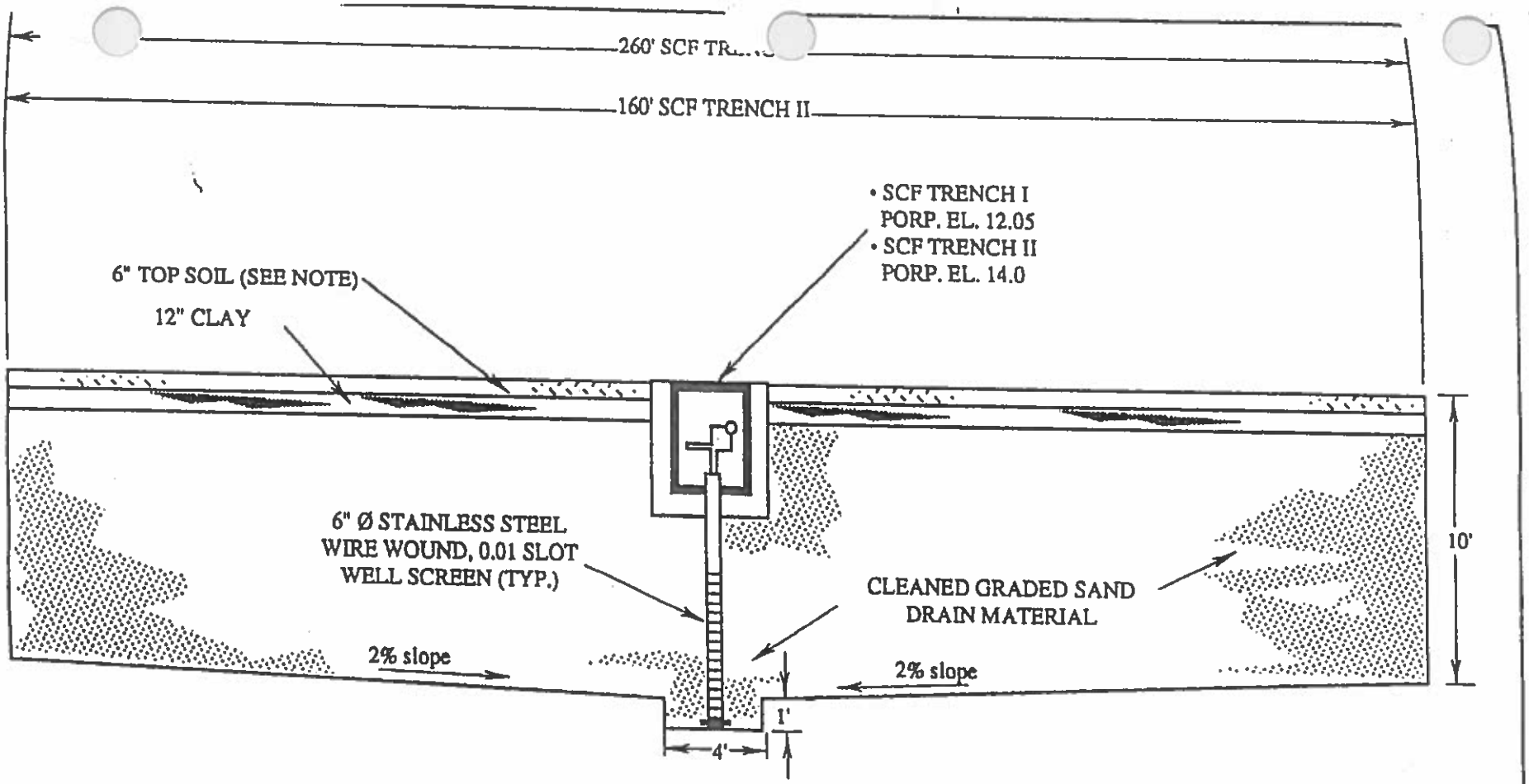
During projects of this magnitude, it is frequently necessary to make changes to the scope of work or project design due to site conditions. As such, some minor changes in project scope and design were made during this project. All changes in the scope of work or project design were either initiated or approved by GATX prior to implementation and are described in the following paragraphs.

2.2.1 Changes to Scope-of-Work

During the installation of the pre-cast concrete well vaults and monitor well conversions, GATX decided not to upgrade two existing recovery wells (RW-1 and RW-2). The wells were scheduled to be upgraded with the newer concrete vaults and new pumping equipment. However, GATX determined the upgrades to be unnecessary and removed them from the scope-of-work.

2.2.2 Changes to Project Design

The ground water recovery trenches were initially designed with a two percent grade from each end of the trench to the center with a one foot deep sump in the center. A recovery well was then to be installed to draw from this sump. (See Figure 2-6). The method of construction utilized for the trench installation did not facilitate the construction of an abrupt depth change such as the sump. The function of the trench was not determined to be degraded by the absence of the sump and the trench was constructed with a uniform two percent bottom slope throughout its length. The recovery well was then installed at the junction of the two slopes and the pump installed.



NOT TO SCALE

ERI ENVIRONMENTAL SERVICES
a division of Environmental Remediation , Inc.

SCF RECOVERY
TRENCH DETAIL

GATX TERMINALS CORP.
Galena Park, TX

9/1/93
Figure 2-6

GATX177104

ATTACHMENT T

Report – Former NHB Corrective Action System

NHB
CORRECTIVE ACTION
PROGRAM

Site Specific Information

The North Holding Basin was constructed in 1975 and operated until 1988. The North Holding Basin is rectangular with sides of 480 feet and 276 feet. The average depth of the basin is 18.3 feet from the top of the berm. The total capacity of the basin is approximately 18 million gallons. The floor of the basin slopes slightly to the east to facilitate drainage.

The North Holding Basin received wastewater and storm water during the period of 1975 to 1988 from a collection system installed throughout the western portion of the facility. Effluent from the wastewater/storm water collection system passed through an oil/water separator before being discharged to the North Holding Basin. In 1988, the North Holding basin was retired from service. The sludge in the basin has undergone bioremediation treatment.

The subsurface in the Waste Management Area has been divided into four stratigraphic units by previous investigators. These four zones are labelled, from shallowest to deepest, Zone I through Zone IV. Lithologic descriptions of these zones are as follows:

- Zone I - Recent fill materials (ground surface to approximately 3 feet to 8 feet below ground surface.
- Zone II - Upper silty-clays and sandy-clays with silt, silty-sand and clayey-sand lenses (ranges in thickness from approximately 15 feet to 25 feet)
- Zone III - Silty-sands and clayey-sands (ranges in thickness from approximately 7 feet to 25 feet)
- Zone IV - Lower silty-sands and clayey-sands (ranges in thickness from 25 feet to 28 feet)

The lithology below Zone IV consists stiff, dense clay with very minor amounts of silt and fine sand.

Zone III is the uppermost naturally-occurring transmissive unit. The potentiometric surface of the groundwater in this unit occurs at a depth of between 3 feet and 8 feet below ground surface. Ten of the fifteen monitoring wells in the area of investigation are screened in Zone III. Three monitoring wells (MW-6, MW-14, MW-15) are screened in the deeper Zone IV. Monitoring well MW-3 is screened in Zone II and Zone III and monitoring well MW-12 is screened below Zone IV.

The approximate direction of groundwater flow in Zone III, as indicated on the June 1993 groundwater elevation contour map, was easterly to northeasterly in the area of the North Holding Basin. The potentiometric gradient in Zone III was approximately 0.009 feet/feet. The approximate direction of groundwater flow in Zone IV, as indicated on the June 1993 contour map, is to the east-northeast at the eastern end of the North Holding Basin. This flow direction is approximately coincident with the flow direction in the overlying Zone III. The gradient of the potentiometric surface in Zone IV is approximately 0.006 feet/feet.

The average hydraulic conductivity for Zone III, as determined from aquifer testing, is 1.8 feet per day. The average hydraulic conductivity for Zone IV is 0.5 feet per day. The range

of calculated hydraulic conductivities is 0.9 feet per to 3.2 feet per day for Zone III and 0.2 feet per day to 0.8 feet per day for Zone IV.

Groundwater Protection Standards

The objective of the groundwater corrective action plan for the area around the North Holding Basin is to control migration of the dissolved-phase volatile organic compound 1,2-dichloroethane in the stratigraphic Zone III and Zone IV. A series of groundwater investigations and subsequent quarterly groundwater monitoring events have identified areas in Zone III and Zone IV where the concentration of 1,2-dichloroethane in groundwater exceeds 5 micrograms per liter. Five micrograms per liter of 1,2-dichloroethane is the published TNRCC risk reduction rule Standard #2 for groundwater. This standard has been adopted as the groundwater protection standard for the North Holding Basin Waste Management Area.

Existing Groundwater Monitoring Program

Quarterly monitoring of groundwater quality is currently conducted at the North Holding Basin. Current quarterly monitoring consists of the following tasks:

- collecting water-level data from all existing monitoring wells
- inspecting each existing monitoring well
- collecting groundwater samples from each existing monitoring well
- laboratory analysis of groundwater and surface water samples for the compound 1,2-dichloroethane
- constructing potentiometric surface maps for Zone III and Zone IV.

PART V - Corrective Action Program
North Holding Basin
GATX - Galena Park, Texas

1.0 TYPE OF CORRECTIVE ACTION

Groundwater well recovery with surface treatment.

2.0 PROGRAM DESCRIPTION

The corrective action program for groundwater at the North Holding Basin has been developed to meet Texas Natural Resources Conservation Commission (TNRCC) requirements for a modification under Provision XI.D of Compliance Program CP-50054. This requirement was communicated in a letter dated December 28, 1994 from the TNRCC - Industrial and Hazardous Waste Permits Section to GATX.

The TNRCC requires that the corrective action program consider all known areas of contamination adjacent to the North Holding Basin. This area has been designated a Waste Management Area for the purposes of the corrective action. The Waste Management Area includes potential sources based on historical information on storage of product. Areas of identified groundwater contamination on the GATX property are also included in the Waste Management Area. The boundaries of the Waste Management Area are shown on Figure 2-1.

This corrective action program will focus on the identified groundwater contamination. Previous investigations have determined that the volatile organic compound 1,2-dichloroethane is the compound of concern. No soil remediation will be completed at this time as there appears to be multiple subsurface source areas in the vicinity of the North Holding Basin, as well as potential offsite sources. Identification and cleanup of these multiple source areas is not practicable because of the number of potential source areas, including possible offsite source areas, and ongoing facility operations in the North Holding Basin area. Above ground source remediation has been achieved by GATX's commitment not to store or manage this compound at this facility. Limited benefit will be gained from the additional removal of source areas because a long-term groundwater cleanup is required, in any case, to address the existing area of groundwater contamination. Planned aboveground storage tank renovations in the area of contamination will require excavation of soils in the Waste Management Area. Excavated soils will be tested, properly treated, and disposed of at that time. Some remediation of the soil is anticipated in the future.

The design of the corrective action program is based upon subsurface conditions and site constraints. Factors related to subsurface conditions include: the distribution of dissolved contaminants, subsurface geology, and the hydrodynamic characteristics of the water-bearing units. Site constraint factors include: buried utilities, roadways, property boundaries, and planned future uses of the North Holding Basin and the area around the North Holding Basin.

The findings from several groundwater investigations conducted in the area of the North Holding Basin are summarized in the document titled, "North Holding Basin Phase II Expanded Groundwater Quality Assessment Report" (Phase II - EGWQA) dated June 1993. This report provides a description of the texture, thickness, and stratigraphic relationship of Zone III and Zone IV. The report also identifies areas of groundwater contamination in Zone III and Zone IV. The distribution and concentration of 1,2-dichloroethane in groundwater has been further characterized by subsequent quarterly monitoring.

The corrective action program is designed to develop zones of capture that encompass the areas dissolved-phase contaminants in groundwater in Zone III and Zone IV. Figure 2-2 and Figure 2-3 indicate the areas where the concentration of 1,2-dichloroethane in groundwater exceeds 5 micrograms per liter. Five micrograms per liter of 1,2-dichloroethane is the published TNRCC risk reduction rule Standard #2 for groundwater. The areas of 1,2-dichloroethane concentration indicated on these figures are based data from the most recent groundwater sampling event conducted in April 1994.

Zone III and Zone IV have similar potentiometric elevations, potentiometric gradients, and groundwater flow directions. The hydraulic head difference between the two zones is small. This indicates that Zone III and Zone IV are probably hydrodynamically connected. However, there is a significant difference in the hydraulic conductivity of the two units.

Aquifer testing was conducted at 9 of the existing monitoring wells to assess the hydrodynamic characteristics of Zone III, Zone IV, and a deeper zone below Zone IV. Five tests were conducted in Zone III, three tests were conducted in Zone IV, and one test was conducted below Zone IV. Data generated during aquifer testing were used to determine the average hydraulic conductivity for Zone III and Zone IV. The aquifer test in the monitoring well screened below Zone IV yielded unsuitable data for the determination of hydraulic conductivity due to extremely impermeable clays.

The average hydraulic conductivity for Zone III, as determined from aquifer testing, is 1.8 feet per day. The average hydraulic conductivity for Zone IV is 0.5 feet per day. The range of calculated hydraulic conductivities is 0.9 feet per to 3.2 feet per day for Zone III and 0.2 feet per day to 0.8 feet per day for Zone IV. Calculated hydraulic conductivities for each of the nine aquifer tests are summarized in the following table:

Aquifer Testing - North Holding Basin

WELL ID	ZONE SCREENED	SCREEN LENGTH (feet)	Total Depth of Well (feet)	CALCULATED HYDRAULIC CONDUCTIVITY (ft/day)
MW-2	III	5	34.0	1.7
MW-4	III	20	31.7	0.9
MW-5	III	20	45.5	3.2
MW-6	IV	10	53.9	0.8
MW-7	III	10	30.4	2.1
MW-12	Below IV	10	82.0	0.0
MW-13	III	10	30.0	1.1
MW-14	IV	10	58.0	0.2
MW-15	IV	10	59.0	0.5

Average Hydraulic Conductivity (K) of Zone III	= 1.8 feet/day
Average Hydraulic Conductivity (K) of Zone IV	= 0.5 feet/day

Analytical groundwater modeling of Zone III and Zone IV in the area around the North Holding Basin was performed using the QuickFlow model. The QuickFlow analytical model simulates two-dimensional steady-state groundwater flow. The thickness of each water-bearing zone is averaged across the model.

The average hydraulic conductivities of Zone III and Zone IV were used in the QuickFlow model to simulate various groundwater pumping conditions (withdrawal rates) and recovery well system configurations. The modeled area includes the Waste Management Area and extends to Panther Creek. This area encompasses all of the 15 existing monitoring wells.

Several steady-state modeling runs were executed using varying configurations of recovery wells. Groundwater pumping of Zone III and Zone IV were modeled separately. Modeling results indicate that capture zones large enough to encompass the downgradient end of the area of contamination can be created using three recovery wells with a combined flow rate of approximately 7 gallons to 9 gallons per minute (gpm).

The proposed corrective action program will withdraw groundwater from five existing wells (MW-4, MW-15, MW-6, MW-7, and MW-12) and two new recovery wells. Two existing wells (MW-3 and MW-9) will be plugged and abandoned. The location of these wells are illustrated on Figure ~~4-1~~ 2-2.

The two new recovery wells, labeled RW-16 and RW-17, will be installed at the eastern end of the North Holding Basin near the existing monitoring wells MW-2 and MW-3. RW-16 will be screened in Zone III and RW-17 will be screened in Zone IV. The planned locations of the new recovery wells are illustrated on Figure 4-1.

The planned groundwater pumping will create a zone of capture or radius of influence for each recovery well. Projected optimum pumping rates, approximate potentiometric drawdown, and estimated radius of influence for each of the six recovery wells are summarized on the following table:

Projected Pumping Rates, Calculated Drawdown and Estimated Radius of Influence for North Holding Basin Recovery Wells

Recovery Well	Zone Screened	Projected Pumping Rate (gpm)	Calculated Potentiometric Drawdown (feet)	Estimated Radius of Influence (feet)
MW-4 (existing)	III	2.0	12.0	200
MW-15 (existing)	IV	0.5	11.0	200
MW-6 (existing)	IV	0.5	12.0	200
MW-7 (existing)	III	2.0	13.5	200
MW-12 (existing)	Below IV	< 0.1	20.0	unknown
RW-16 (proposed)	III	2.0	17.5	200
RW-17 (proposed)	IV	1.0	15.0	250

The estimated combined groundwater pumping rate for the three Zone III recovery wells (MW-4, MW-7, and RW-16) is 6 gpm. The estimated combined groundwater pumping rate for the three Zone IV recovery wells (MW-15, MW-6, and RW-17) is approximately 2 gpm. Pumping rates of Zone III wells are higher than the pumping rates of the Zone IV wells due to higher hydraulic conductivity. An accurate estimation of the pumping rate from MW-12 could not be made due to the extremely low permeability clays. However, the pumping rate from MW-12 is expected to be small (less than 100 gallons per day). The estimated total pumping rate for all 7 recovery wells is 8 gpm.

The radius of influence of the three recovery wells will merge to create a capture zone or zone of influence in Zone III after steady-state conditions are established. The modeled capture zone and potentiometric drawdown for Zone III for groundwater pumping from MW-4, MW-7, and RW-16 is represented on Figure 4-2. The modeled capture zone encompasses the entire downgradient portion of the area of contamination.

The steady-state modeled capture zone and potentiometric drawdown for Zone IV for groundwater pumping from MW-15, MW-6, and RW-17 is represented on Figure 4-3. The modeled capture zone encompasses the entire downgradient portion of the area of contamination in Zone IV.

A steady-state capture zone could not be modelled for the planned groundwater recovery at MW-12 due to the low permeability clays. The estimated radius of influence will be small, probably less than 100 feet.

System Design and Specifications

The groundwater recovery system proposed for this corrective action program will employ five existing wells, two new recovery wells, and a discharge header. The existing wells that will be used in the recovery system are MW-4, MW-15, MW-6, MW-7, and MW-12. All five of these wells are constructed of flush-threaded PVC screens and riser. Construction details of these wells are summarized below:

Recovery Well Construction Details

RECOVERY WELL	ZONE SCREENED	TOTAL DEPTH (feet)	WELL DIAMETER (inches)	SCREEN LENGTH (feet)	SCREEN SLOT SIZE (inches)
MW-4	III	31.7	4	20	0.010
MW-15	IV	59.0	4	10	0.010
MW-6	IV	53.9	4	10	0.010
MW-7	III	30.4	4	10	0.010
MW-12	Below IV	82.0	4	10	0.010

The two new recovery wells, RW-16 and RW-17, will be installed east of the North Holding Basin. RW-16 will be screened in Zone III and RW-17 will be screened in Zone IV. These wells will placed to the east of existing monitoring wells MW-2 and MW-3. Well MW-3 will be properly plugged and abandoned according to TNRCC regulations. Well MW-2 will serve as a supplemental monitoring well.

The proposed construction details of RW-16 and RW-17 are similar to the construction of the existing monitoring wells. RW-16 and RW-17 will be 4-inch diameter, flush-threaded PVC with 10 feet of 0.010-inch wire-wrapped or slotted screen. The screens in each new recovery well will be installed near the bottom of each water-bearing zone. The screen in RW-16 (Zone III) will be installed between 22 feet and 32 feet below ground surface. The screen RW-17 (Zone IV) will be installed between 47 feet and 57 feet below ground surface. Proposed construction specifications and details for the new recovery wells are illustrated on Figure 4-4. The depth of the screened intervals of the new recovery wells may be adjusted based on the geology observed in the borings.

Pneumatically operated and controlled groundwater recovery pumps will be installed in each of the seven recovery wells. The pumps can be operated using compressed air or compressed nitrogen. The plant-wide compressed nitrogen system has been used successfully for the groundwater interception system installed at the SEHB in the Central Plant. All piping and associated wellhead equipment at the North Holding Basin will be installed below grade or in below ground vaults with flush-mounted covers. This equipment arrangement will be similar to the type of groundwater recovery system operating in the Central Plant. Detail of a typical recovery wellhead is presented on Figure 4-5.

The pumps will be installed at a depth sufficient to allow for the designed drawdown in each recovery well. The estimated designed stabilized drawdowns of the potentiometric surface, as measured from ground surface, and the approximate pumping water-level elevations in the seven recovery wells are:

Estimated Drawdown and Approximate Pumping Water-Level Elevations in North Holding Basin Recovery Wells

RECOVERY WELL	Estimated Stabilized Drawdown from Ground Surface (feet)	Approximate Pumping Water-Level Elevation (feet relative to mean sea level)
MW-4	15.5	- 5.1
MW-15	15.5	- 4.1
MW-6	17.5	- 7.5
MW-7	19.3	- 8.4

RECOVERY WELL	Estimated Stabilized Drawdown from Ground Surface (feet)	Approximate Pumping Water-Level Elevation (feet relative to mean sea level)
MW-12	70.1	- 59.3
RW-16	22.5	- 13.1
RW-17	20.0	- 10.5

Groundwater withdrawn from the North Holding Basin recovery system will be collected and conveyed in a piping header. The route of the piping header from the area of the North Holding Basin to the treatment system is illustrated on Figure 4-4. The piping header will discharge to a temporary above ground storage tank prior to treatment and disposal.

The temporary above ground storage tank is labelled 3-10 and has an operating capacity of approximately 130,000 gallons. This tank is currently used for temporary storage of groundwater recovered from the interception system operating in the Central Plant. Flows from both the Central Plant groundwater interception system and the North Holding Basin groundwater recovery system will be temporarily stored in tank 3-10.

The water-level in tank 3-10 will be maintained at an approximately constant level of about 90,000 gallons. Based on an estimated combined flow rate of 10.5 gpm for both groundwater recovery systems, the approximate flow-through time or duration of storage in tank 3-10 is 6 days.

Groundwater stored in tank 3-10 will be treated by air stripping. The air stripping system was installed in 1993 in a building adjacent to tank 3-10 to treat the discharge from the Central Plant groundwater recovery system. Treated groundwater will be discharged to Gulf Coast Waste Disposal Authority under GATX's existing industrial wastewater permit.

3.0 GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM DESCRIPTION

Quarterly monitoring is conducted at the North Holding Basin as required in the TNRCC lettered to GATX dated December 28, 1993. Current quarterly monitoring consists of the following tasks:

- collecting water-level data from 15 existing monitoring wells
- inspecting 15 existing monitoring wells
- collecting groundwater samples from 15 existing monitoring well

- collecting 3 surface water samples from Panther Creek
- laboratory analysis of groundwater and surface water samples for the volatile organic compound 1,2-dichloroethane
- constructing potentiometric surface maps for Zone III and Zone IV.

Several changes are planned for future groundwater monitoring. The planned sampling interval will be semiannual. Monitoring will be conducted during the first month of each semiannual period (i.e., January and July). Existing and proposed wells will be grouped into the following categories:

Recovery Wells	MW-4, MW-6, MW-7 MW-12, MW-15, RW-16, RW-17
Point of Compliance Wells	MW-6, MW-7, MW-12 RW-16, RW-17
Background Wells (semiannual monitoring for 1,2-dichloroethane)	MW-1, MW-8
Corrective Action Observation Wells (semiannual monitoring for 1,2-dichloroethane)	MW-4, MW-5, MW-6, MW-7, MW-12, MW-15, RW-16, RW-17
Supplemental Wells (semiannual monitoring for water level only)	MW-2, MW-11, MW-13, MW-14
Abandoned Wells	MW-3, MW-9

Water-level data will be collected semiannually from all recovery wells, point of compliance wells, background wells, corrective action observation wells, and supplemental wells. Groundwater samples will be collected semiannually from background wells and corrective action observation wells. Groundwater samples will be analyzed for the volatile organic compound 1,2-dichloroethane. Well construction details are provided on Table V.1. Monitoring parameters and sample handling, chain-of-custody, quality control/quality assurance, and analytical procedures will be the same as conducted during prior groundwater monitoring.

Semiannual reports, as required in the permit, will be prepared to present groundwater monitoring data. The report for the period of January to June will be prepared by July 25th. The report for the period of July to December will be prepared by January 25th of the following year. Potentiometric maps of Zone III and Zone IV will be presented to illustrate the capture zones. Groundwater quality data will be presented in a table. The text will describe all activities conducted during the prior semiannual period. A determination of contaminant migration direction and migration rate will be prepared annually.

4.0 WASTE MANAGEMENT UNITS/AREAS MONITORED UNDER CORRECTIVE ACTION PROGRAMS

The waste management area at the North Holding Basin is indicated on Figure 2-1. The waste management area extends to the property line on the east side of the North Holding Basin. The proposed point of compliance are the wells MW-6, MW-7, MW-12, RW-16, and RW-17.

Wells which are included in the proposed groundwater monitoring and corrective action system are listed on Table V.1. The location of these wells are illustrated on Figures 2-3 and 4-1.

5.0 IMPLEMENTATION SCHEDULE

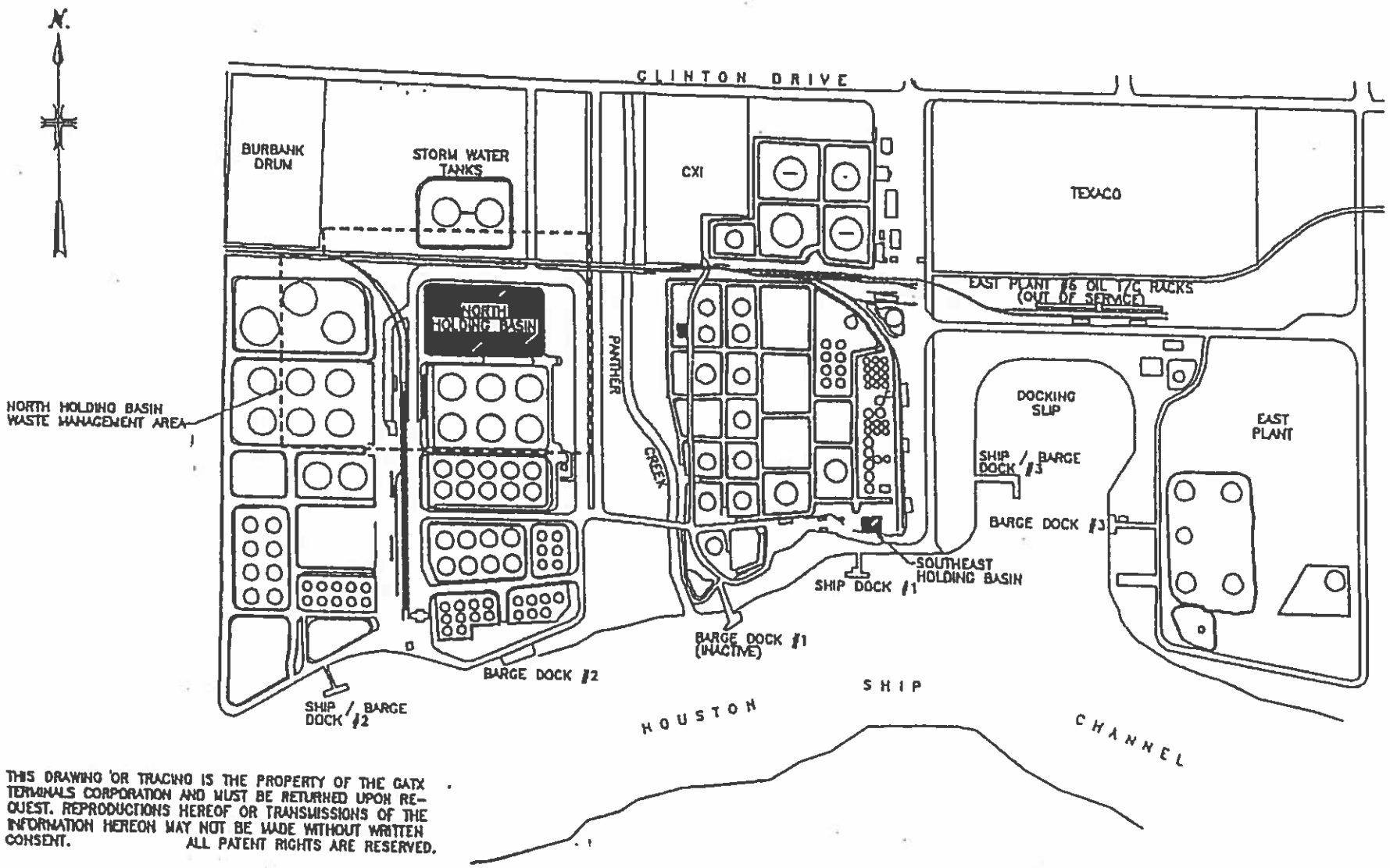
The following schedule is proposed for implementation of the corrective action program at the North Holding Basin waste management area:

Task	Time to Complete
Final Design	45 days
Contractor Procurement	90 days
Construction and Start up	180 days

The implementation schedule will begin on the date of approval of the compliance plan modification.

6.0 CONTINGENCY PROCEDURES

Groundwater monitoring will provide an evaluation of the performance of the corrective action program. Water-level monitoring will be used to assess the establishment of the proposed capture zones. Certain parameters of the corrective action program can be modified if the proposed steady-state drawdowns are not established by the designed recovery system. Built in flexibility of recovery system will allow for adjustments to pump settings and pumping rates.

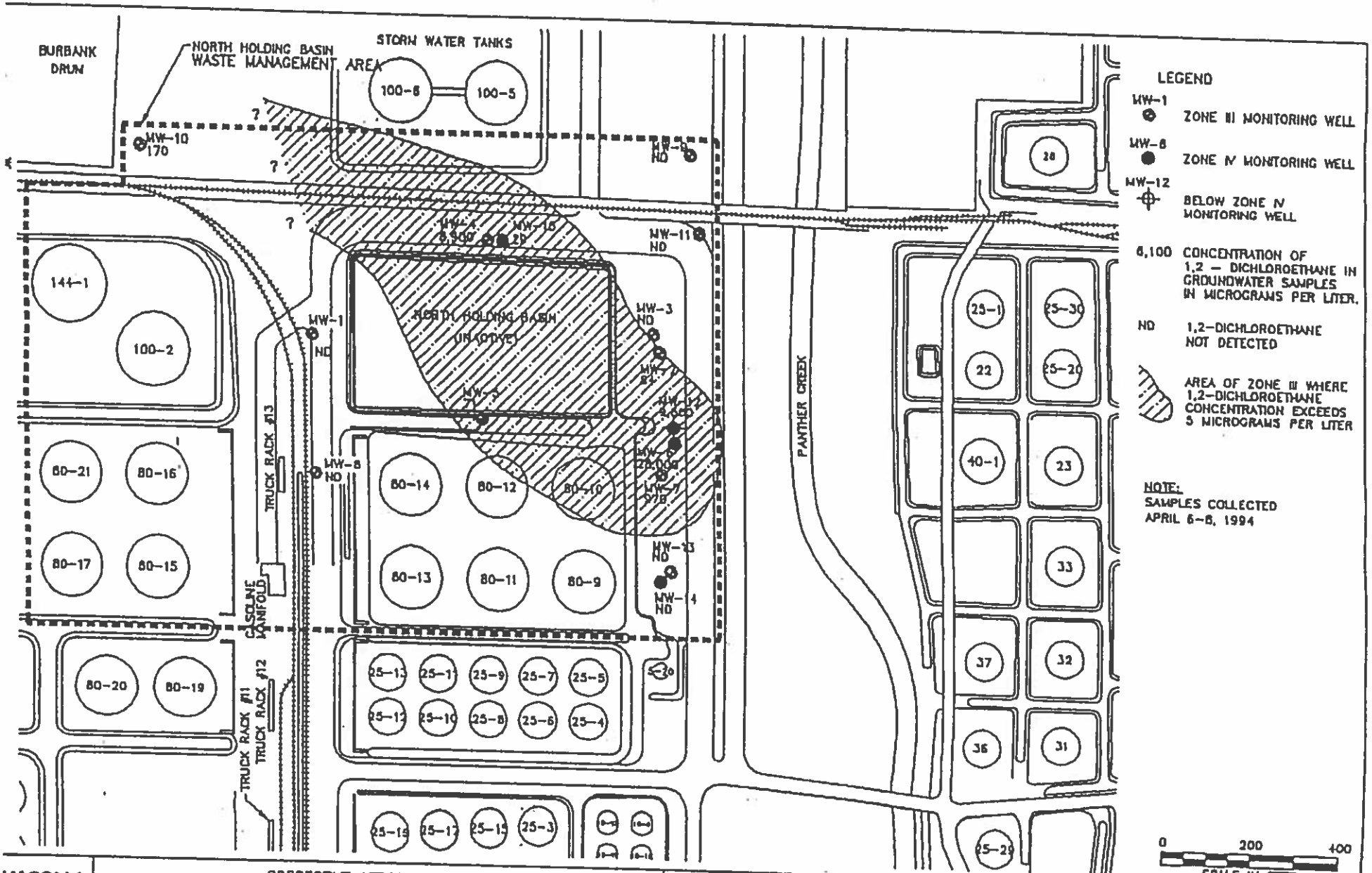


THIS DRAWING OR TRACING IS THE PROPERTY OF THE GATX TERMINALS CORPORATION AND MUST BE RETURNED UPON REQUEST. REPRODUCTIONS HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

0 500 1000 2000

SCALE IN FEET

WALCOLM PIRNIE	CORRECTIVE ACTION PLAN NORTH HOLDING BASIN GATX – GALENA PARK, TEXAS	SITE PLAN NORTH HOLDING BASIN AND WASTE MANAGEMENT AREA LOCATION	FIGURE 2–1



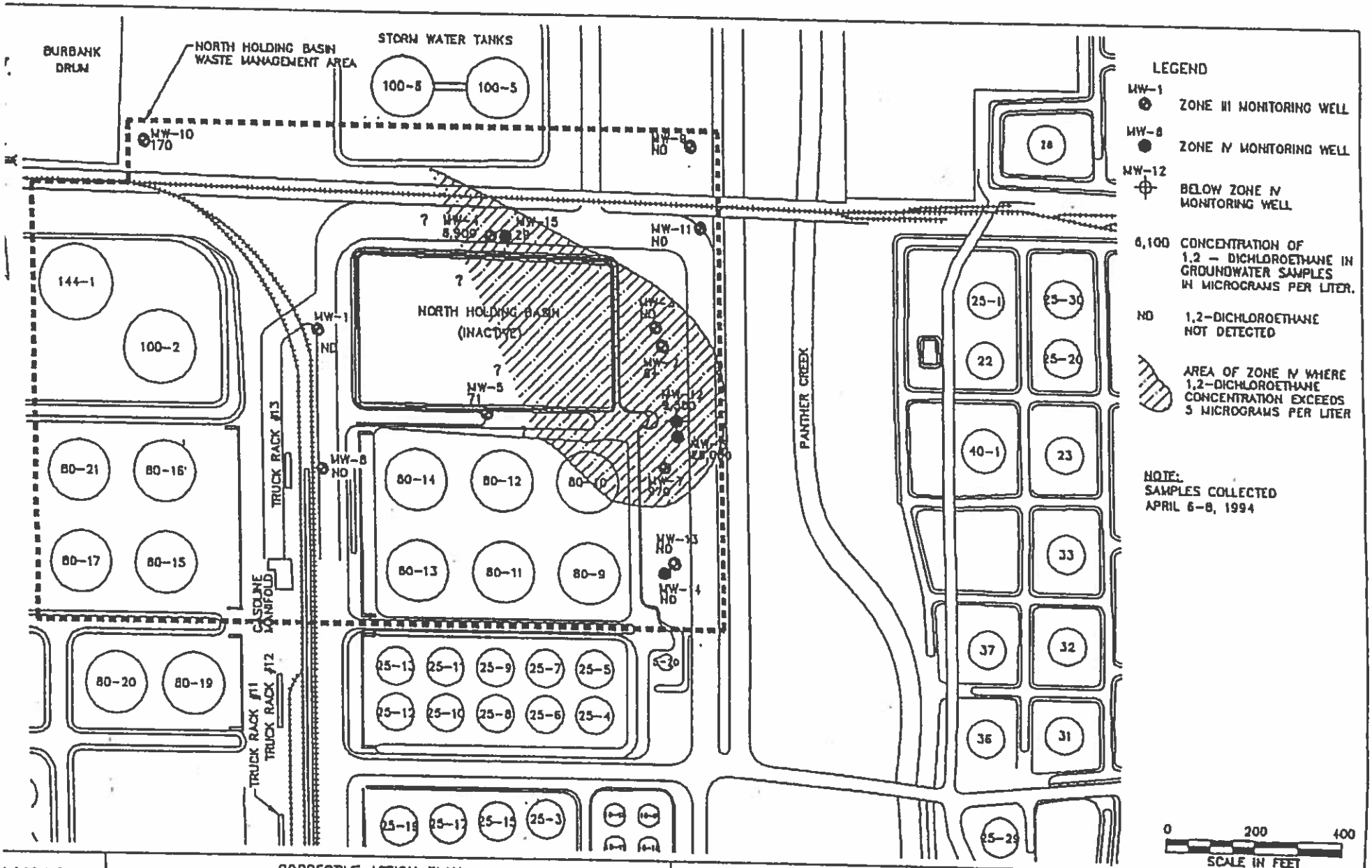
MALCOLM PIRNIE

CORRECTIVE ACTION PLAN
NORTH HOLDING BASIN
GATX GALENA PARK, TEXAS

1,2-DICHLOROETHANE CONCENTRATIONS IN ZONE III
SECOND QUARTER 1994

COPYRIGHT © 1991 MALCOLM PIRNIE, INC.

FIGURE 2-2



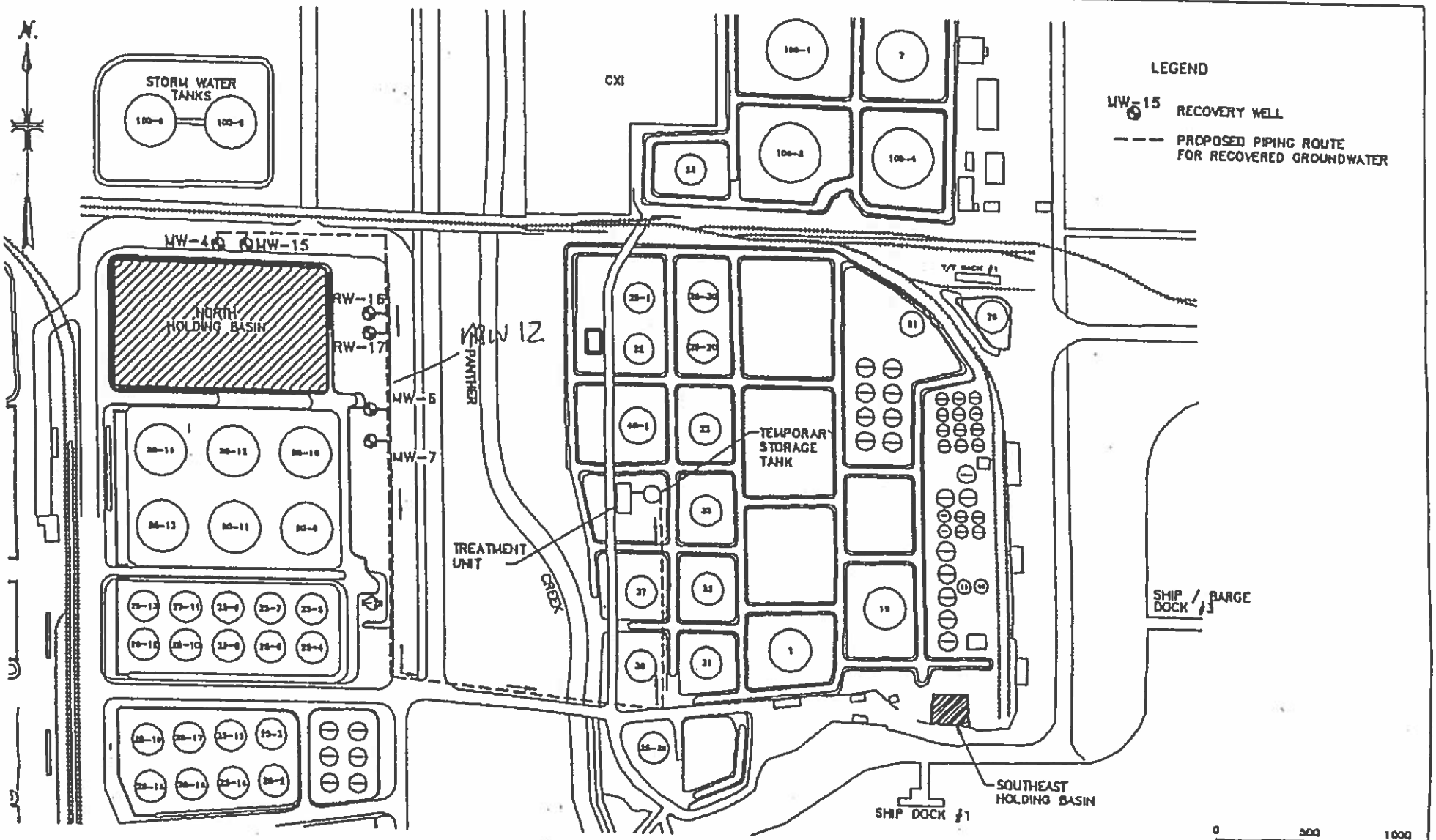
MALCOLM PIRNIE

CORRECTIVE ACTION PLAN
NORTH HOLDING BASIN
GATX GALENA PARK, TEXAS

1,2-DICHLOROETHANE CONCENTRATIONS IN ZONE IV
SECOND QUARTER 1994

COPYRIGHT © 1994 MALCOLM PIRNIE, INC.

FIGURE 2-3

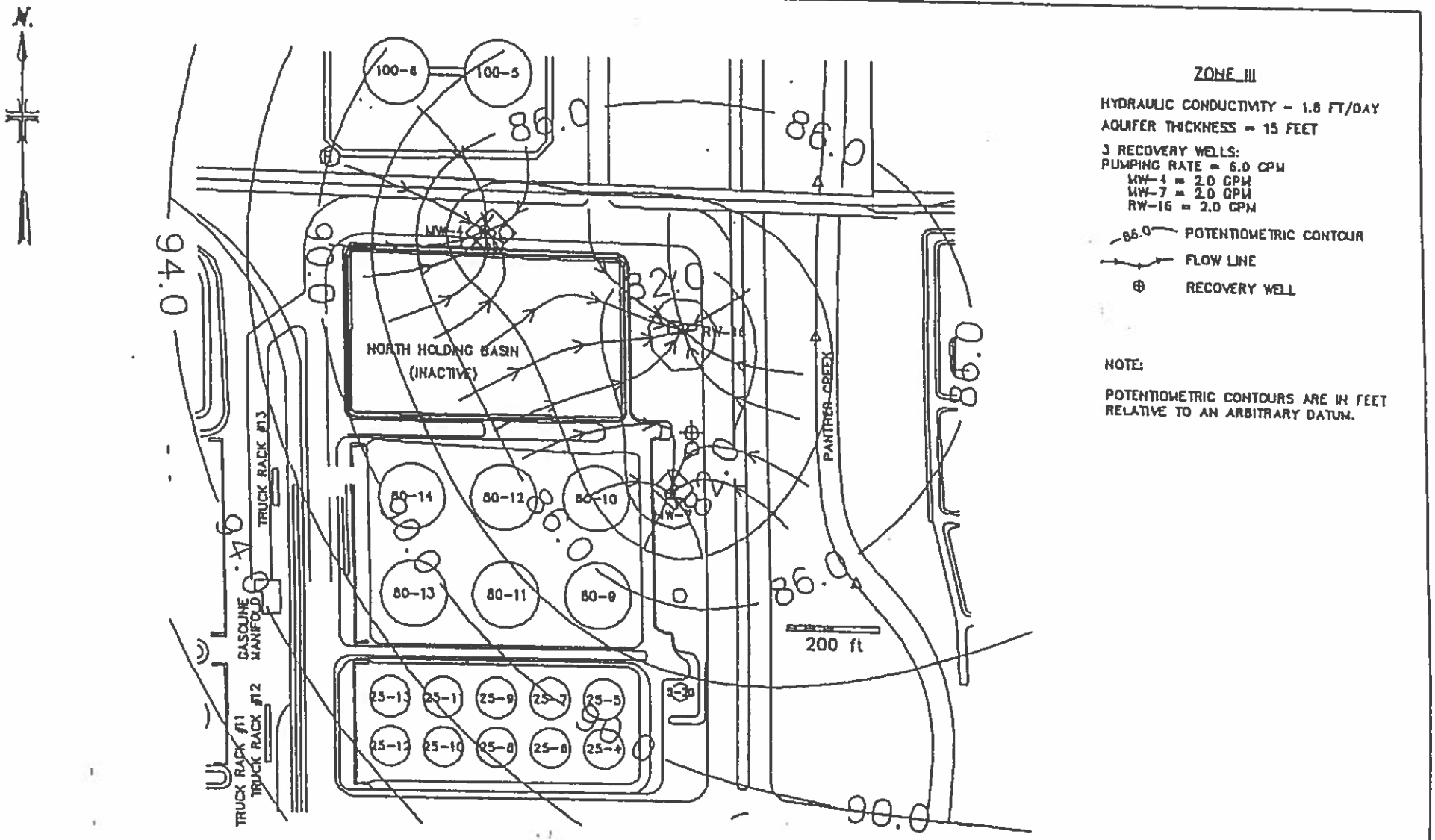


MALCOLM PIRNIE

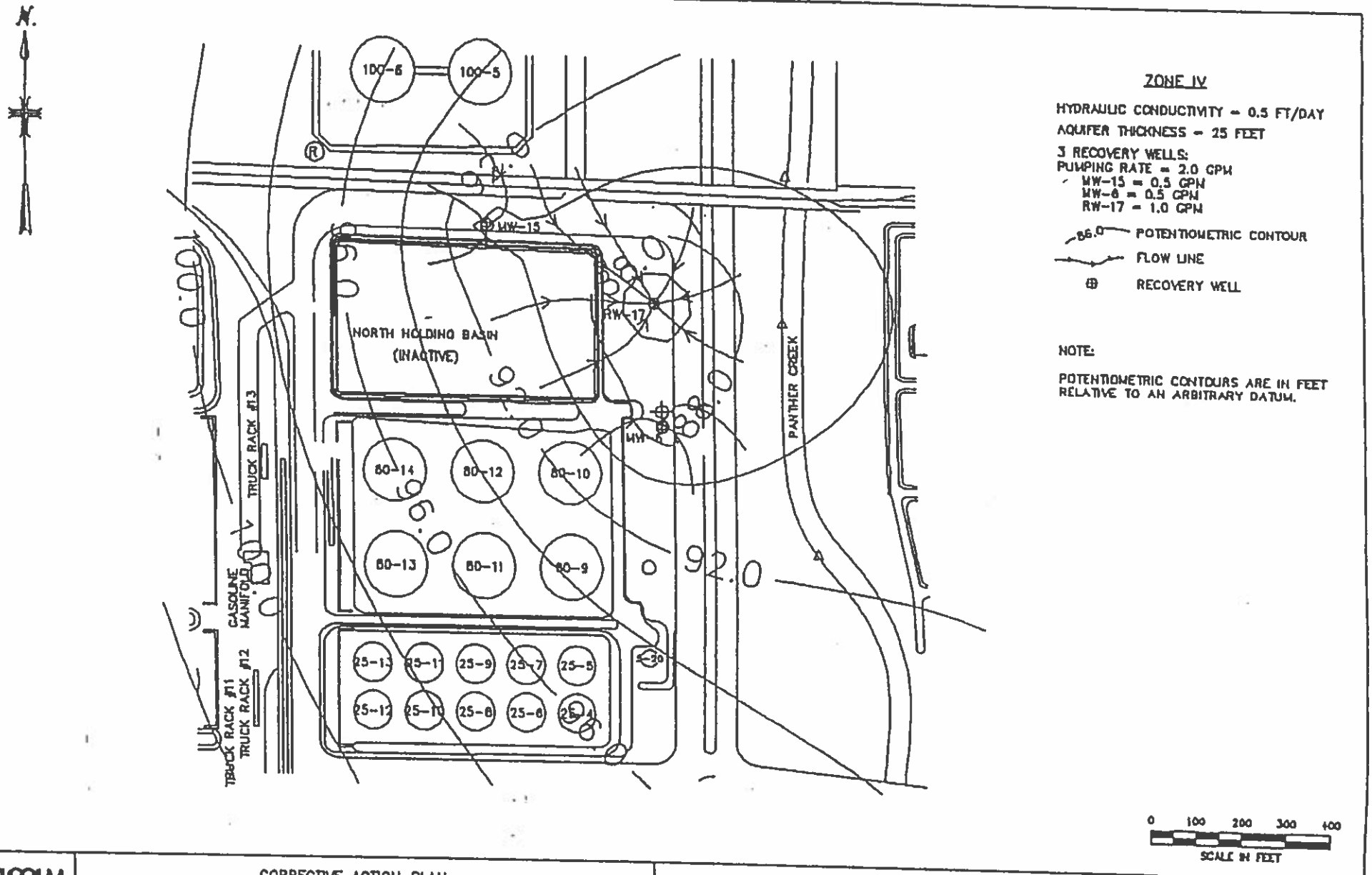
CORRECTIVE ACTION PLAN
NORTH HOLDING BASIN
GATX – GALENA PARK, TEXAS

LOCATION OF PROPOSED RECOVERY WELLS AND DISCHARGE PIPING ROUTE

FIGURE 4-1



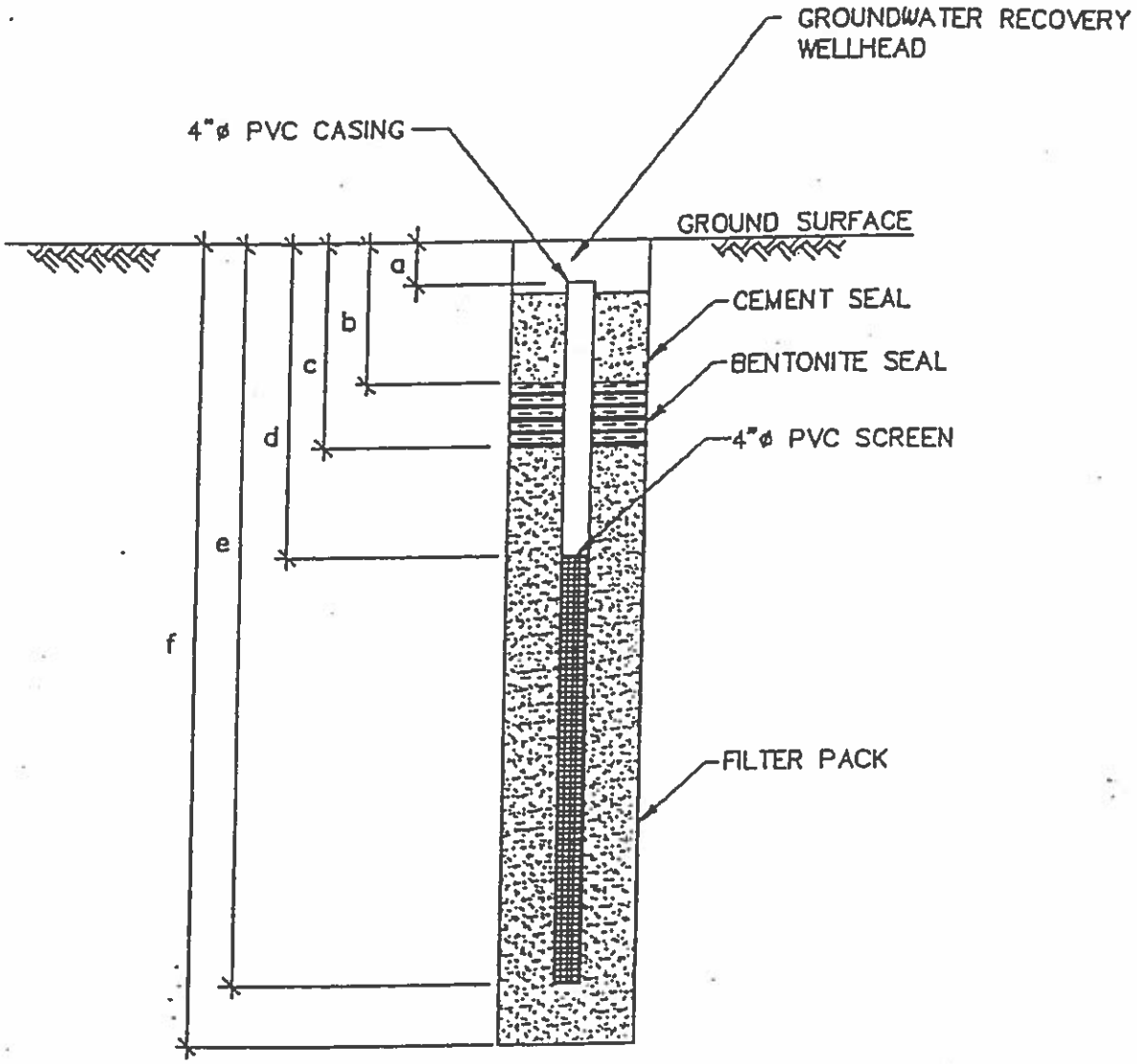
WALCOLM PIRNIE	CORRECTIVE ACTION PLAN NORTH HOLDING BASIN GATX – GALENA PARK, TEXAS	GROUNDWATER MODEL POTENTIOMETRIC DRAWDOWN AND FLOWLINES ZONE III	COPYRIGHT © 1994 WALCOLM PIRNIE, INC. FIGURE 4-2



MALCOLM PIRNIE	CORRECTIVE ACTION PLAN NORTH HOLDING BASIN GATX – GALENA PARK, TEXAS	GROUNDWATER MODEL POTENTIOMETRIC DRAWDOWN AND FLOWLINES ZONE IV	COPYRIGHT © 1994 MALCOLM PIRNIE, INC. FIGURE 4-3

GROUNDWATER RECOVERY WELL DETAILS

RECOVERY WELL No.	COMMENTS	a TOP OF CASING	b TOP OF SEAL	c TOP OF FILTER PACK	d TOP OF SCREEN	e BOTTOM OF SCREEN	SCREEN LENGTH	f BOREHOLE DEPTH
RW-16	ZONE III	---	18.0'	20.0'	22.0'	32.0'	10.0'	33.0'
RW-17	ZONE IV	---	38.0'	42.0'	45.0'	55.0'	10.0'	57.0'



TYPICAL RECOVERY WELL DETAIL

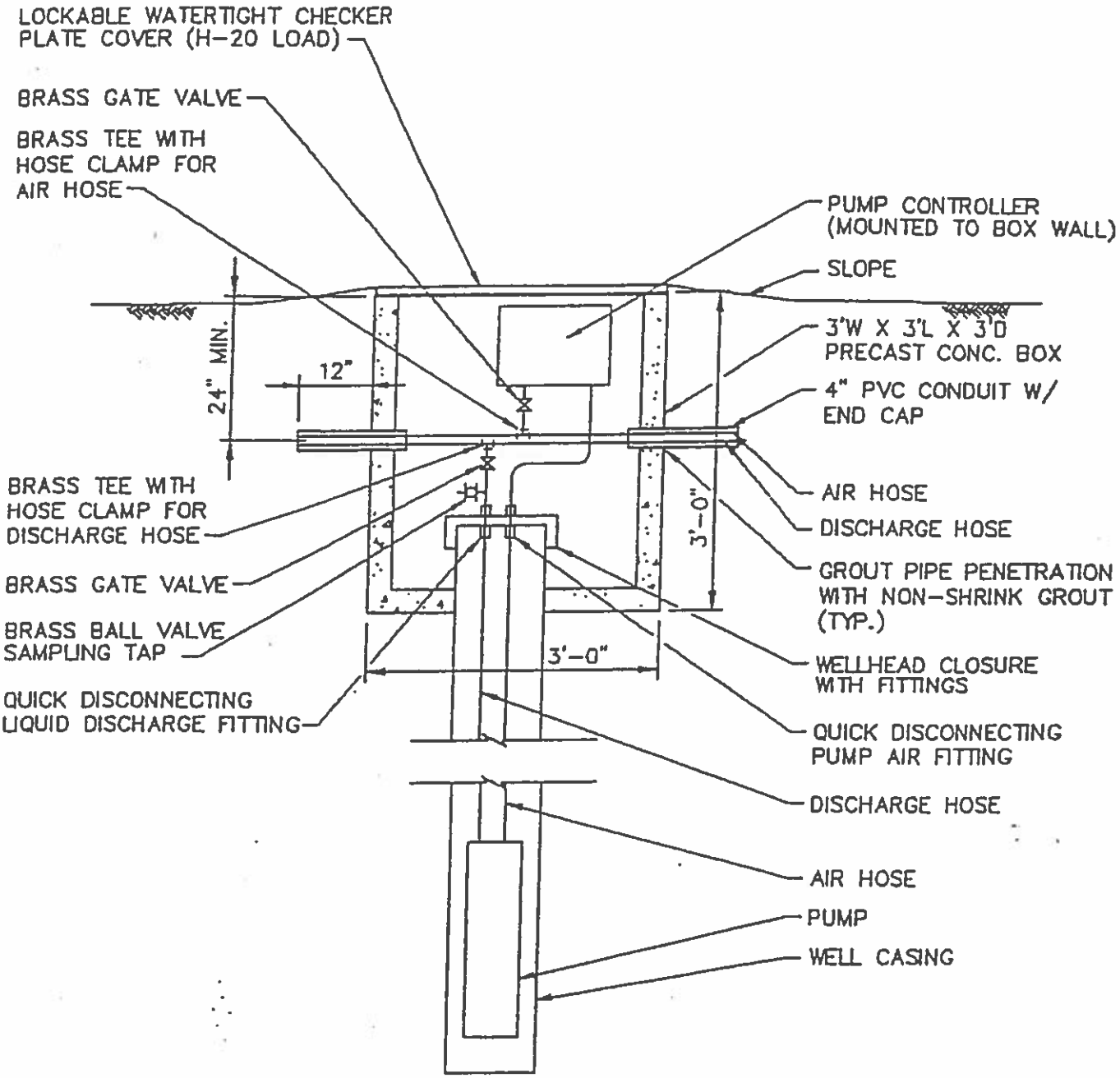
NOT TO SCALE

MALCOLM PIRNIE

CORRECTIVE ACTION PLAN
NORTH HOLDING BASIN
CATX – GALENA PARK, TEXAS

COPYRIGHT © 1994
MALCOLM PIRNIE, INC.

FIGURE 4-4



TYPICAL RECOVERY WELLHEAD DETAIL

NOT TO SCALE

MALCOLM PIRNIE

CORRECTIVE ACTION PLAN
NORTH HOLDING BASIN
GATX – GALENA PARK, TEXAS

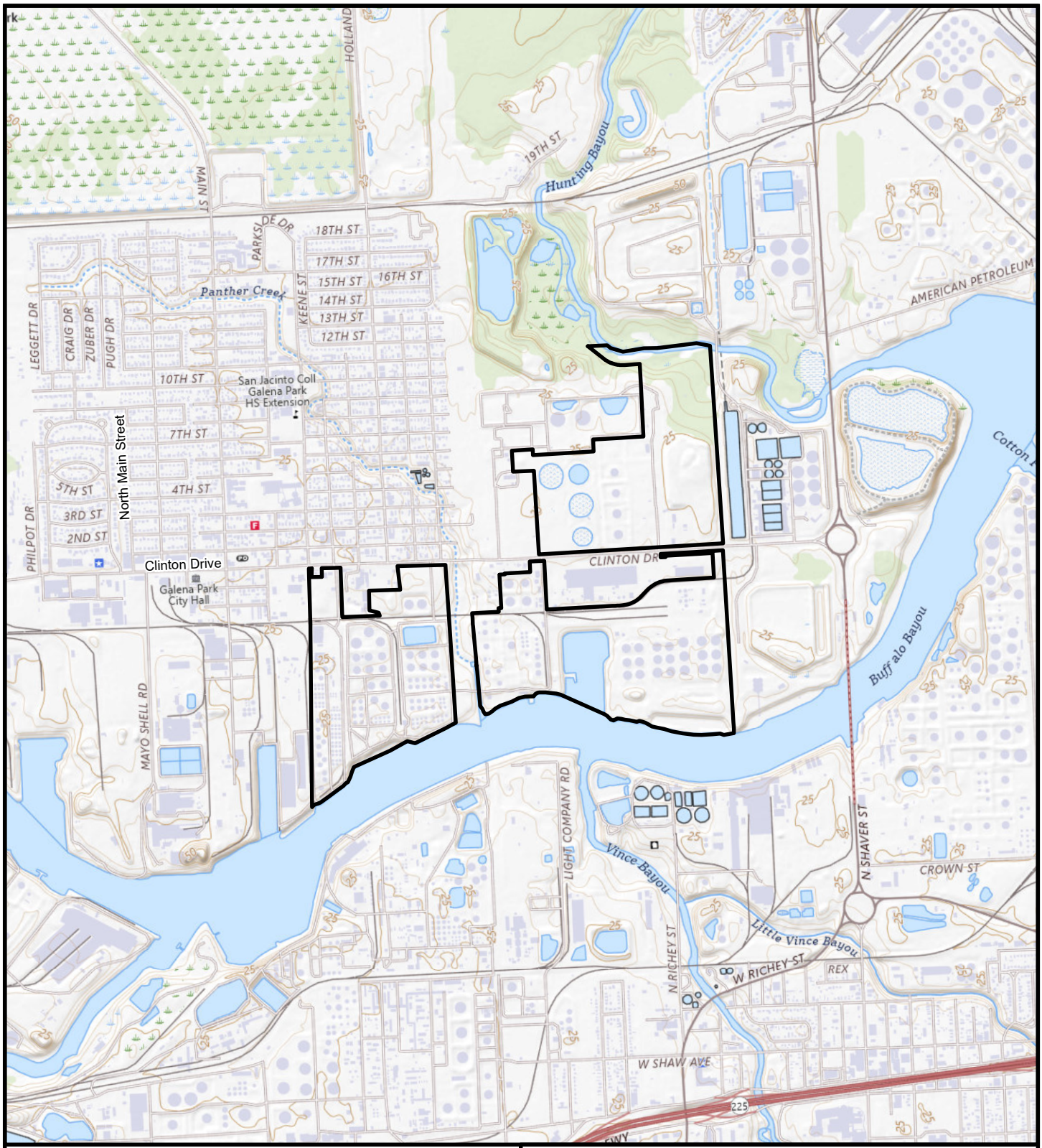
COPYRIGHT © 1994
MALCOLM PIRNIE, INC.

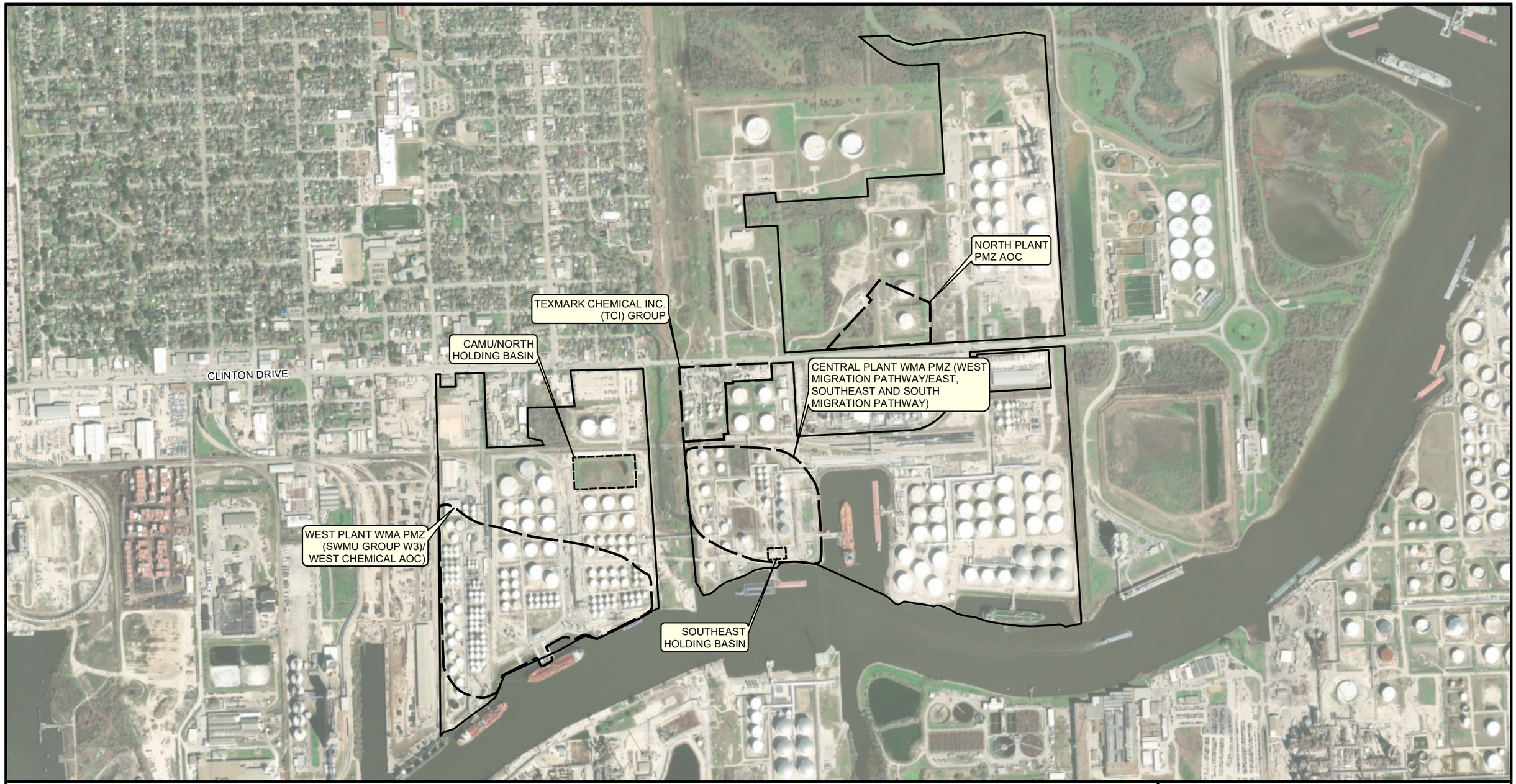
FIGURE 4-5

SCALE: 1:11 06/10, 1994

ATTACHMENT U

Compliance Plan Attachment A Maps


Approximate Terminal Boundary
N
W
E
S
0
1,000
2,000
Approximate Scale in Feet
Source: USGS 7.5 Minute Series, Pasadena, Texas, 2022.
TETRA TECH
KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660
FACILITY SITE MAP
CP ATTACHMENT A, SHEET 1 OF 9



Approximate Terminal Boundary

SWMU/AOCs With Corrective Action Monitoring

RCRA Permitted Units

N
W E
S

0 450 900

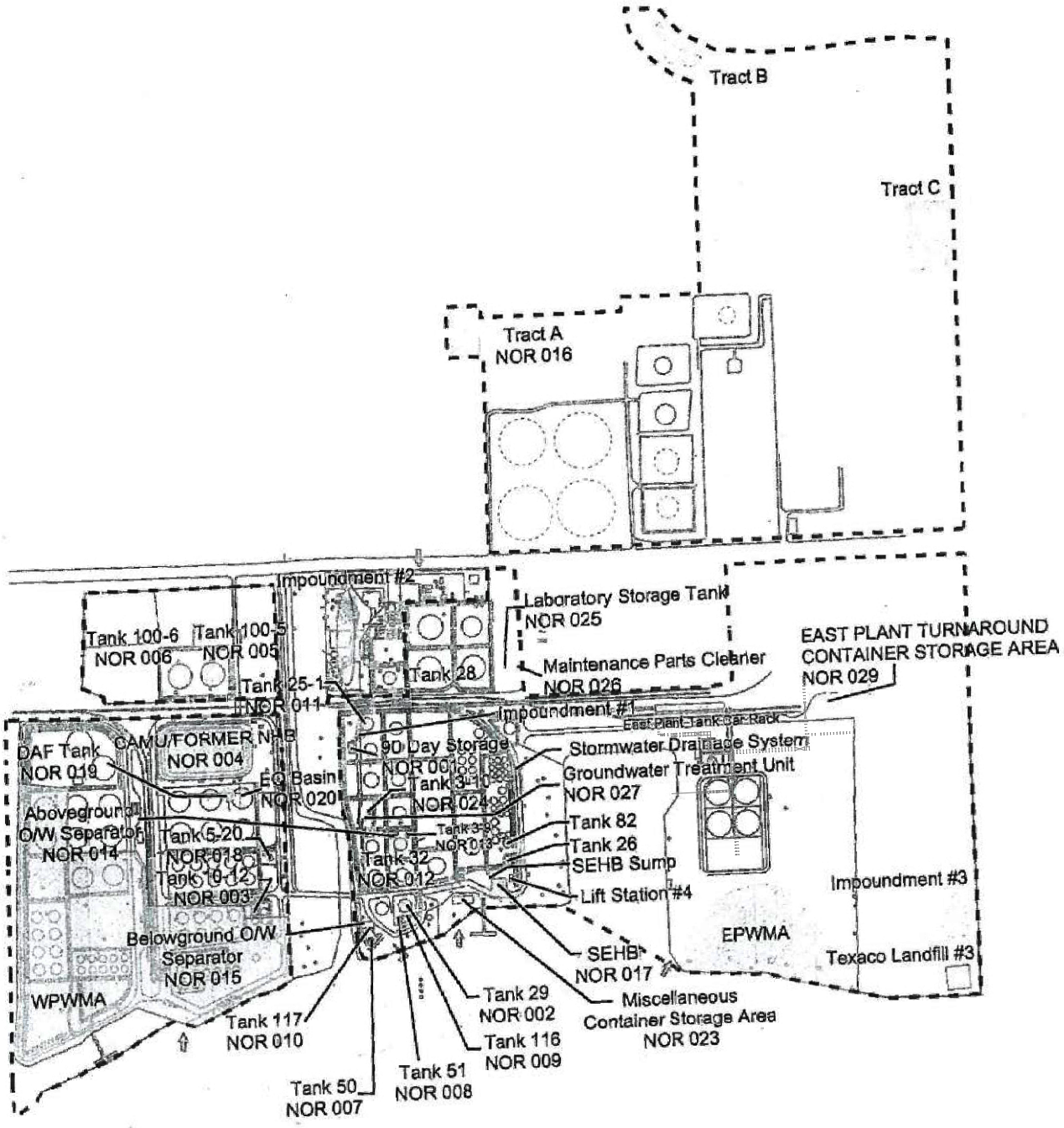
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

FACILITY AND UNIT BOUNDARY MAP
CP ATTACHMENT A, SHEET 2 OF 9

Document Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 2 of 9.mxd



N
W
E
S

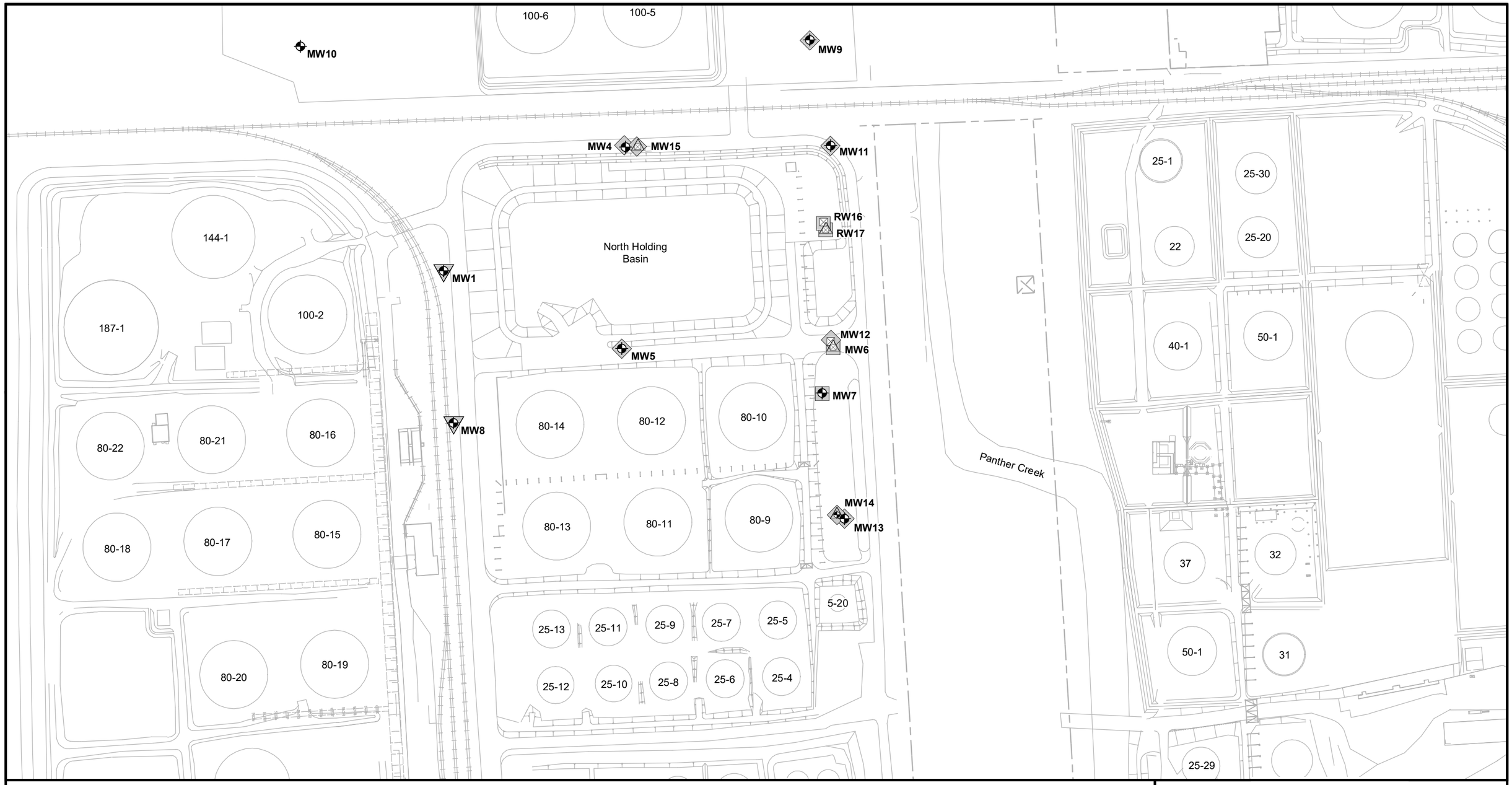
0 500 1,000

Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

SWMU LOCATION MAP
CP ATTACHMENT A, SHEET 3 OF 9



LEGEND

- Monitor Well (Zone 3)
- Recovery Well (Zone 3)
- Monitoring Well (Zone 4)
- Recovery Well (Zone 4)
- Background Well
- Point of Compliance Well
- Corrective Action Observation Well

Background Wells
MW-1, MW-8

Point of Compliance Wells
MW-6, MW-7, RW-16, RW-17

Corrective Action Observation Wells
MW-4, MW-5, MW-9, MW-11, MW-12, MW-13, MW-14, MW-15

N
W E
S

0 75 150
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

SITE MAP (CAMU/NORTH HOLDING BASIN)
CP ATTACHMENT A, SHEET 4 OF 9

Document Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 4 of 9 - 07-31-24.mxd



LEGEND

- Monitoring Well (SCF)
- Recovery Well (UNTU & SCF)
- Monitoring Well (UNTU)
- Monitoring Well (SCF & UNTU)
- Recovery Well (UNTU)
- Piezometer (SCF)
- Point of Compliance Well
- Potentiometric Surface Obersvation Well
- Corrective Action Observation Well
- Point of Exposure Well
- Corrective Action System Well

Point of Compliance Wells
MW-2R, MW-3R, MW-4R

Point of Exposure Wells
MW-5, MW-13, MW-33

Corrective Action System Wells
MW-7, MW-10, MW-24R, MW-25, MW-26, MW-30, MW-34, RW-1, RW-2

Corrective Action Observation Wells
MW-1, MW-6, MW-8, MW-9, MW-11, MW-12, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-27, MW-29, MW-31, MW-32

Potentiometric Surface Observation Well
P-1

N
W E
S

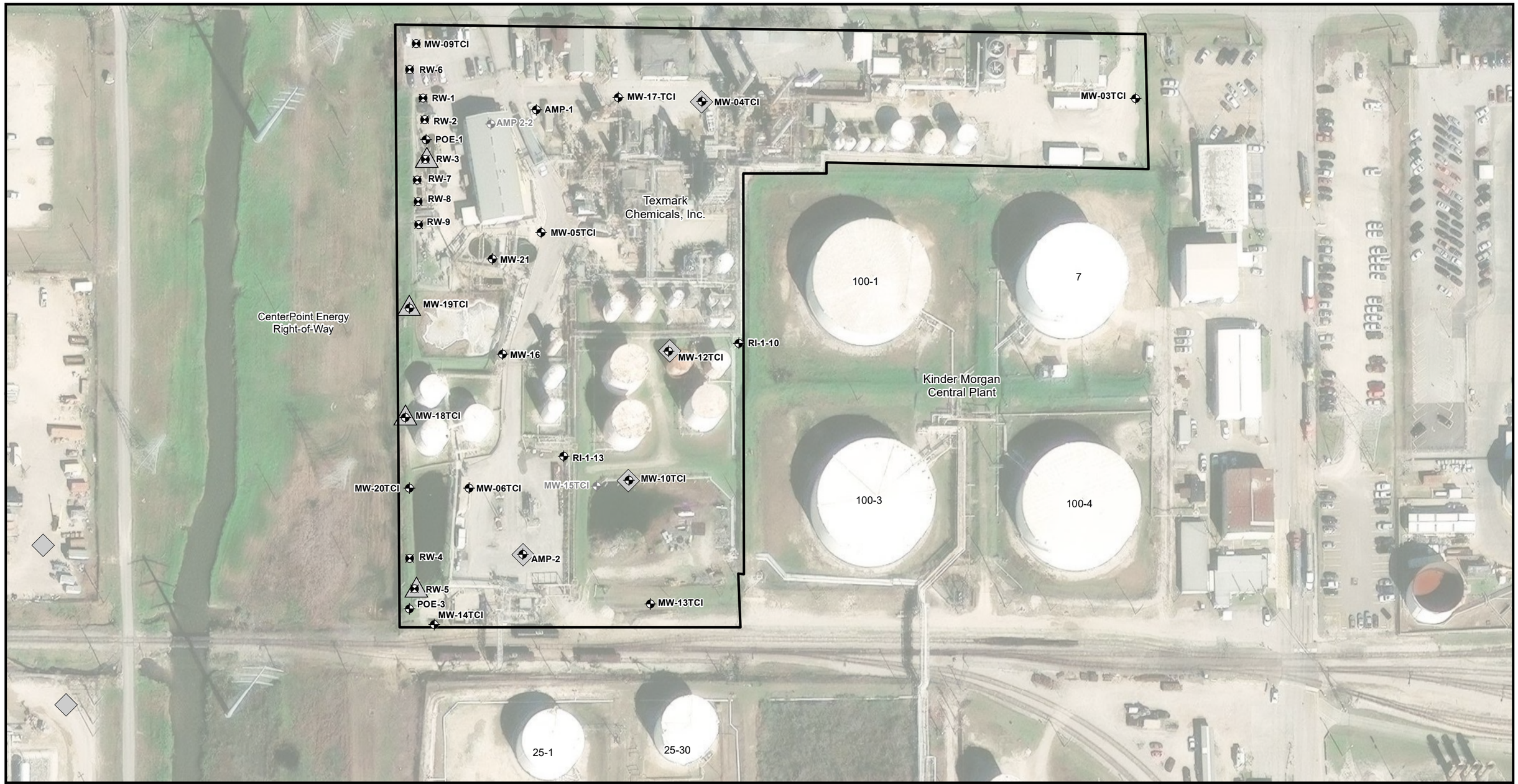
0 75 150
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

SITE MAP (SOUTHEAST HOLDING BASIN)
CP ATTACHMENT A, SHEET 5 OF 9

Document Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 5 of 9 - 07-31-24.mxd



LEGEND

- Texmark Property Line
- Monitor Well
- Recovery Well
- Plugged and Abandoned Well
- Point of Compliance Well
- Corrective Action Observation Well

Point of Compliance Wells
MW-18TCI, MW-19TCI, RW-3, RW-5

Corrective Action Observation Wells
AMP-2, MW-4TCI, MW-10TCI, MW-12TCI

N
W E
S

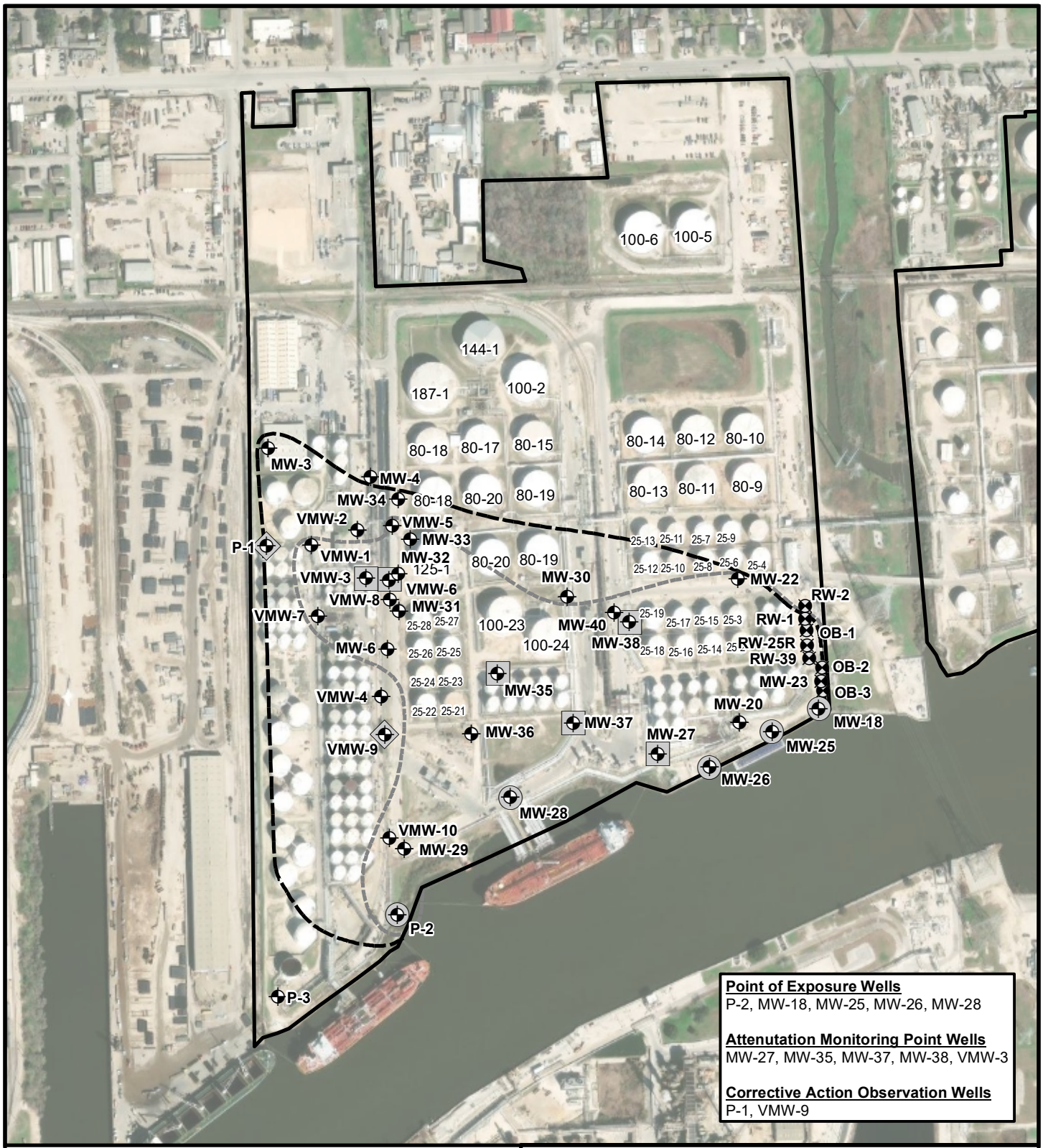
0 50 100
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

SITE MAP (TEXMARK CHEMICAL INC. TCI GROUP)
CP ATTACHMENT A, SHEET 6 OF 9

Document Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 6 of 9.mxd



Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-27, MW-35, MW-37, MW-38, VMW-3

Corrective Action Observation Wells
P-1, VMW-9

Monitor Well
Recovery Well
Terminal Boundary
Plume Management Zone
Groundwater PCLE Zone
Attenuation Monitoring Point Well
Point of Exposure Well
Corrective Action Observation Well

N
W
E
S

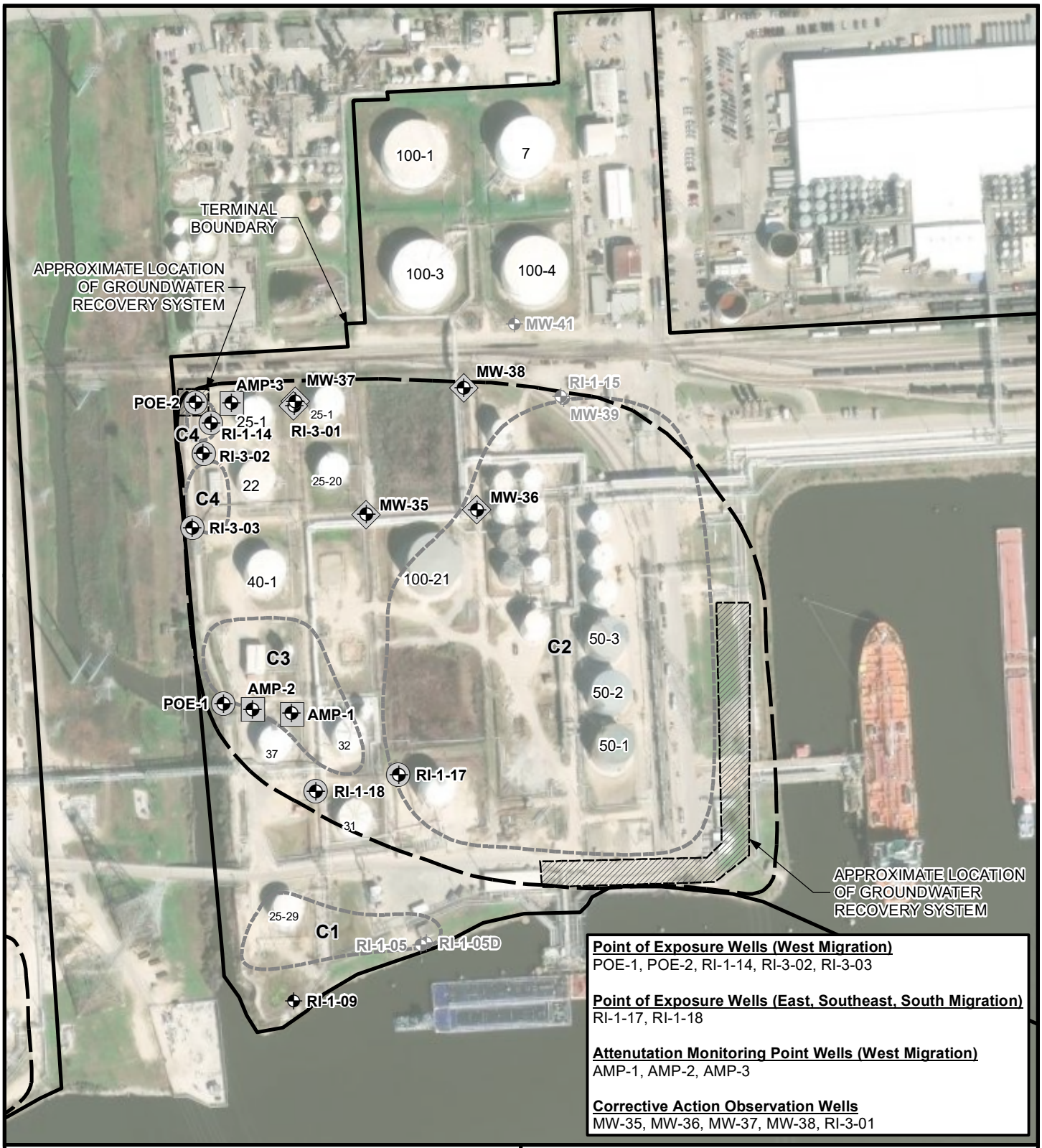
0 250 500
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

WEST PLANT WMA PMZ (SWMU GROUP W3)WEST CHEMICAL AOC)
CP ATTACHMENT A, SHEET 7 OF 9

Document Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 7 of 9.mxd



- Monitor Well (Zone 3)
- Plugged and Abandoned Monitor Well
- Plume Management Zone
- Solid Waste Management Zone Unit (SWMU)
- Attenutation Monitoring Point Well
- Point of Exposure Well
- Corrective Action Observation Well

N, W, E, S

0 150 300

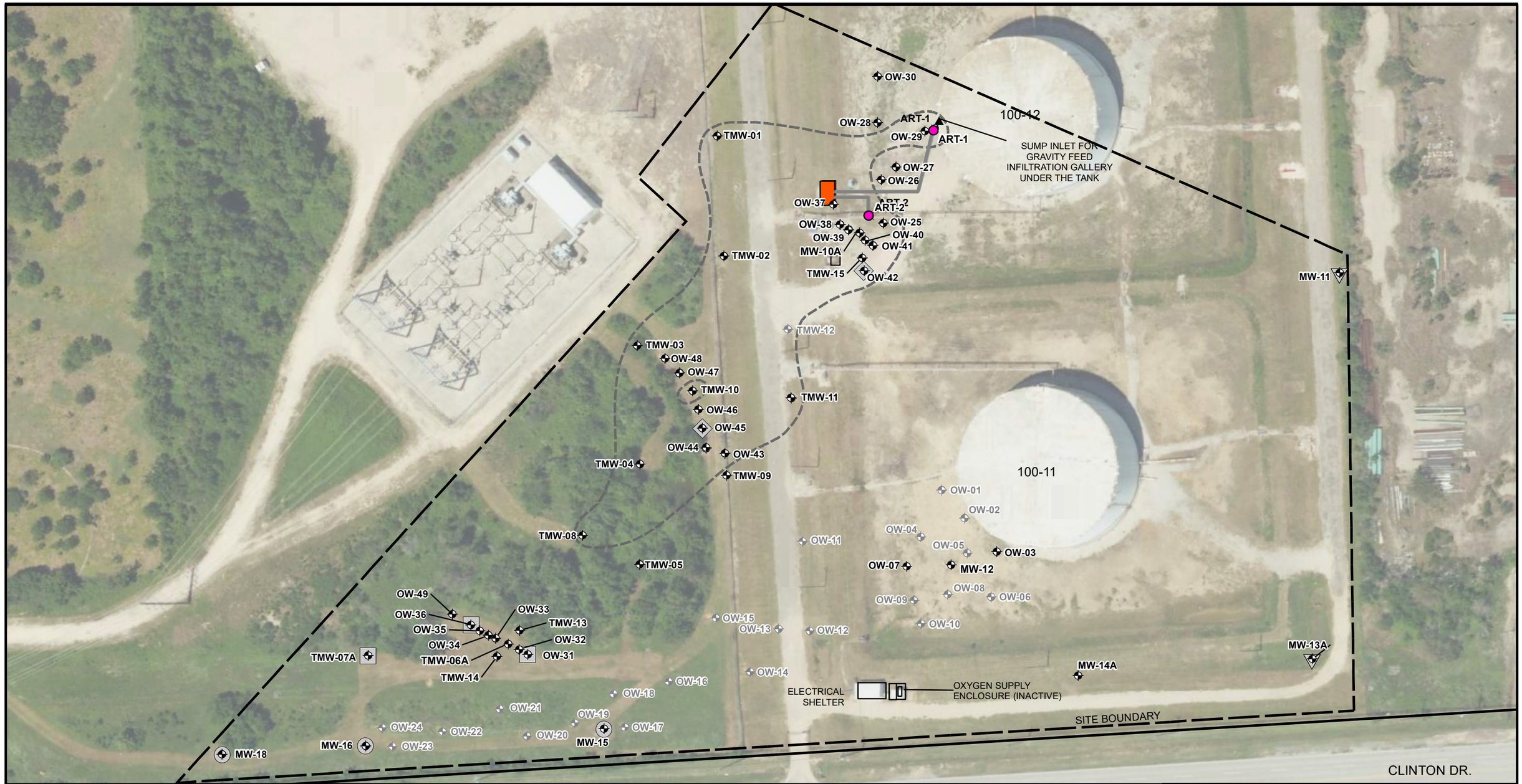
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

CENTRAL PLANT WMA PMZ (WEST MIGRATION PATHWAY/ EAST, SOUTHEAST AND SOUTH MIGRATION PATHWAY)
CP ATTACHMENT A, SHEET 8 OF 9

Document Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 8 of 9.mxd



LEGEND

- Terminal Boundary
- ART System Control Skid
- Monitoring Well Location
- Well Plugged and Abandoned
- Source Area Well
- Attenuation Monitoring Point Well
- Point of Exposure Well
- Background Well
- Accelerated Remediation Technology (ART) Groundwater Remediation Pilot Test System Wells (Installed October 2016)
- Plume Management Zone Boundary
- Approximate MTBE Plume Boundary - August 2022
- ART System Piping

Background Wells
MW-11; MW-13A

Source Area Wells
OW-42; OW-45

Attenuation Monitoring Point (AMP) Wells
TMW-07A; OW-36; OW-31

Point of Exposure Wells
MW-15; MW-16; MW-18

N
W E
S

0 40 80
Approximate Scale in Feet

TETRA TECH

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 212C-HN-02660

NORTH PLANT PMZ AOC
CP ATTACHMENT A, SHEET 9 OF 9

Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Permit Renewal - 2024\Figures\Attachment A 9 of 9.mxd

ATTACHMENT V

Response Action Completion Report

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Margaret Hoffman, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 11, 2004

Mr. Neal McHugh
Environmental Health & Safety Manager
Kinder Morgan Liquids Terminals, LLC
405 Clinton Drive
Galena Park, TX 77547-0486

Re: Approval of Remedy Standard A - Residential
Tank 5-20 RFI Addendum Report and Closure Report, dated January 9, 2004
Kinder Morgan Liquids Terminals, LLC
TCEQ SWR No. 30573
TCEQ Hazardous Waste Permit/Compliance Plan No. HW- 50054
EPA ID No. TXD026481523

Dear Mr. McHugh:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced submittal, dated January 9, 2004. Tank 5-20 was included in the West Plant RFI waste management area, but has subsequently been shown not to have had a release above Texas Risk Reduction Program (TRRP) Remedy Standard A, Tier 1 Residential Protective Concentration Levels (PCLs).

Based on the TCEQ review of the report, Texas Risk Reduction Program (TRRP) Remedy Standard A Tier 1 Residential Protective Concentration Levels (PCLs) have been achieved such that no institutional control or post-response action care is required. No further action is required under 30 Texas Administrative Code (TAC) §350 for the above-referenced areas.

In order to attain Remedy Standard A under TRRP, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated from affected media (i.e., soil, surface water, groundwater, air, etc.) to applicable human health and ecological based standards and criteria. In order to be released from the requirement to file an institutional control in accordance with 30 TAC §350 Subchapter F, contaminants that remain in place must not exceed Remedy Standard A Tier 1 Residential PCLs.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a

nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the activities described in the report fail to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of the site to determine compliance with the report.

Questions concerning this letter should be directed to me at (512) 239-2531. When responding by mail, please submit an original and one copy of all correspondence and reports to the TCEQ Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Mark E. Erwin, Project Manager
Team II, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality

MEE/mee

cc: Waste Program Manager, TCEQ Region 12 Office, Houston

Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 11, 2013

Mr. Johnny Kennedy
Project Manager, Environmental Remediation
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Approval of: Post Response Action Completion Report (PRACR), East Plant, dated January 16, 2013
Kinder Morgan Liquid Terminals, L.P., Galena Park
RN 100237452, CN 601545940
TCEQ SWR No. 30573
TCEQ Hazardous Waste Permit/Compliance Plan No. HW- 50054
EPA ID No. TXD026481523

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has completed the review of the above mentioned report. Post response action care activities have been evaluated annually for two years at the East Plant with the submittal of PRACRs. The Plume Management Zone (PMZ) is managed by attenuation monitoring points (AMPs) and point of exposure (POE) wells to verify that the affected groundwater plume will not migrate beyond the PMZ boundaries above the applicable protective concentration levels (PCLs).

Kinder Morgan is requesting a no further action (NFA) status for the East Plant Terminal based on four consecutive semi-annual sampling events. The PRACR has demonstrated that benzene concentrations in all the PMZ monitoring wells are stable or decreasing in concentration and continue to remain below the critical PCL. Based on the information provided, the TCEQ approves the PRACR.

Questions concerning this letter should be directed to me at (512) 239-2572.

Sincerely,

Kirk Coulter, P.G., Project Manager
Corrective Action Team, VCP/CA Section
Remediation Division

KC/mdh

cc: Ms. Nichole Bealle, Waste Program Manager, TCEQ Region 12 Office, Houston

printed on recycled paper using vegetable-based ink

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 5, 2005

Mr. Lance Richards, P.E.
Project Manager, Environmental Remediation
Kinder Morgan Liquids Terminals, LLC
405 Clinton Drive
Galena Park, TX 77547-0486

Re: *Closure* - Risk Reduction Standard No. 2
Acceptance of Deed Certification and Release From Post-closure Care Responsibilities
Kinder Morgan Liquids Terminals, LLC
North Plant Tract C and East Plant Tank Car Rack - RFI Units
TCEQ SWR No. 30573
TCEQ Hazardous Waste Permit/Compliance Plan No. HW- 50054
EPA ID No. TXD026481523

Dear Mr. Richards:

The Texas Commission on Environmental Quality (TCEQ) received a letter December 8, 2004 submitted by Kinder Morgan containing proof of deed certification for the RCRA Facility Assessments/Investigations (RFI) Units Tract C and the East Plant Tank Car Rack. The certification states that contaminants remaining at the site have been remediated to meet non-residential soil criteria under Risk Reduction Standard (RRS) No. 2 pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water and air) must not exceed the health based clean up levels as specified in 30 TAC §335.556. A Final Report, documenting that remediation at the facility has attained RRS No. 2 such that no post-closure care or engineering control measures are required, was previously accepted by the TCEQ in our letter dated March 11, 2004. Public Notice was published on January 4, 2004 and no comments were received.

After review of the proof of deed certification, it appears that the deed certification requirements of 30 TAC §335.560(b) and (c) have been completed. The TCEQ hereby releases the facility from post-closure care responsibilities for Tract C and the East Plant Tank Car Rack.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Kinder Morgan to take any necessary and authorized action to correct such conditions. A TCEQ field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-6786. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 12 Office in Houston. The TCEQ Solid Waste Registration Number and North Plant Tract C and the East Plant Tank Car Rack should be referenced in all submittals.

Sincerely,

Kellie Jones, Project Manager
Team II, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality

KJ/kj

cc: Waste Program Manager, TCEQ Region 12 Office, Houston

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 1, 2005

Mr. Lance Richards, P.E.
Project Manager, Environmental Remediation
Kinder Morgan Liquids Terminals, LLC
405 Clinton Drive
Galena Park, TX 77547-0486

Re: *Closure* - Risk Reduction Standard No. 2
Acceptance of Deed Certification and Release From Post-closure Care Responsibilities
Kinder Morgan Liquids Terminals, LLC
North Plant Tract B - RFI Units
TCEQ SWR No. 30573
TCEQ Hazardous Waste Permit/Compliance Plan No. HW- 50054
EPA ID No. TXD026481523

Dear Mr. Richards:

The Texas Commission on Environmental Quality (TCEQ) received a letter March 24, 2005 submitted by Kinder Morgan containing proof of deed certification for the RCRA Facility Investigation (RFI) Unit North Plant Tract B. The certification states that contaminants remaining at the site have been remediated to meet non-residential soil criteria under Risk Reduction Standard (RRS) No. 2 pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water and air) must not exceed the health based clean up levels as specified in 30 TAC §335.556. A Final Report, documenting that remediation at the facility has attained RRS No. 2 such that no post-closure care or engineering control measures are required, was previously accepted by the TCEQ in our letter dated December 9, 2004. Public Notice of proposed Corrective Measures was published on August 22, 2004, and no comments were received.

After review of the proof of deed certification, it appears that the deed certification requirements of 30 TAC §335.560(b) and (c) have been completed. The TCEQ hereby releases the facility from post-closure care responsibilities for North Plant Tract B.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Kinder Morgan to take any necessary and authorized action to correct such conditions. A TCEQ field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-6786. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 12 Office in Houston. The TCEQ Solid Waste Registration Number and North Plant Tract B should be referenced in all submittals.

Sincerely,

Kellie Jones, Project Manager
Team II, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality

KJ/kj

cc: Waste Program Manager, TCEQ Region 12 Office, Houston

Kennedy, Johnny

From: Kirk Coulter [redacted]
Sent: Monday, May 16, 2011 9:08 AM
To: Kennedy, Johnny
Subject: Re: TCEQ Meeting Follow-Up

Kenneth

Please provide another copy of the RACR for the East Plant. If the report is at the agency, it is probably in Central records and no longer in my office.

I concur with requested suspension on the sampling which was requested in the Semiannual Corrective Action Program Report -July 1-December 31, 2010

>>> "Kennedy, Johnny" [redacted] 5/5/2011 9:03 AM >>>
Kirk,

Thank you for meeting with Rich Steinberg and myself on Tuesday to discuss the status of the Kinder Morgan Liquids Terminals (KMLT) Galena Park projects. Per our discussion, I am following up with this email on two issues.

1) Response Action Completion Report (RACR) for the KMLT East Plant. The RACR was submitted to the TCEQ in June 2010 (copies of the cover letter and report cover attached). Could you please provide us a status on the TCEQ's review of this report. If you cannot locate the report, please let me know and I will provide you with additional copies.

2) Semiannual Corrective Action Program Report -July 1-December 31, 2010 (SWR No. 30573; HW Permit/Compliance Plan No. HW-50054). In Section 4.0, Summary and Conclusions, KMLT requested suspending sampling of CAO wells MW-5, MW-9, MW-12 and MW-14 in the NHB since reported concentrations of 1,2-dichloroethane have consistently been below GWPS. The requested suspension of sampling would only be until the POC wells listed in Table V of the Compliance Plan achieved analytical results that satisfy the GWPS for the constituents listed in Table IV of the Compliance Plan for two (2) consecutive events. At that time, the four (4) referenced wells would be sampled with all other wells associated with the NHB for the Table III constituents as outlined in the Compliance Plan.

The TCEQ approval letter for the submission, dated April 20, 201, did not address this request. Could you please provide a response.

Once again, thank you for meeting with us and if you have any questions or issues you would like to discussion, please do not hesitate to contact me.

Regards,
Johnny Kennedy
Kinder~Morgan Liquid Terminals
* Office: (713) 920-8423
* Fax: (832) 397-4474

Kennedy, Johnny

From: Kirk Coulter <[redacted]
Sent: Monday, April 22, 2013 9:27 AM
To: Kennedy, Johnny
Subject: RE: Kinder Morgan Galena Park East Plant PRACR Approval Letter

Yes use this E-Mail for the approval of the PRACR and proceed with the P @ A of the wells

---

From: Kennedy, Johnny [redacted]
Sent: Friday, April 19, 2013 10:27 AM
To: Kirk Coulter
Subject: Kinder Morgan Galena Park East Plant PRACR Approval Letter

Kirk,

I am in receipt of your April 11, 2013 approval letter for the Kinder Morgan Galena Park East Plant Post Response Action Completion Report (PRACR). I would just like to get one clarification before I proceed. Although not explicitly stated, I am under the assumption that your approval of the report means that you are also approving Kinder Morgan's request for a No Further Action at the site. The reason that I am asking for clarification is that I will need to plug and abandon the remaining few monitoring wells along the shoreline and I will be working with our Engineering Group once they begin shoreline stabilization for the new tank area.

I don't mean to be questioning your response, I just have to give Engineering and Management a factual answer and not my interpretation.

Thanks,

Johnny

Johnny Kennedy

Kinder Morgan Liquids Terminals
☎ Office: (713) 920-8423
☎ Fax: (713) 472-7660

"Do the Right Thing Every Day"

Core Principles
1. Safety Will Not Be Compromised
2. Environmentally Compliant and Responsible Operator
3. Ethics and Integrity
4. Commitment to Employees and Resources
5. Customer Service and Fiscal Responsibility
6. Quality Focus

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 19, 2022

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LL
1500 Clinton Drive
Galena Park, TX 77547

Re: Approval Conditional - TRRP Remedy Standard B- No Further Action
Response Action Completion Report (RACR) – Gate 6 Project, dated October 12, 2022
Kinder Morgan Liquids Terminals, LLC – Galena Park;
TCEQ SWR No. 30573; CN601545940; RN100237452
TCEQ Hazardous Waste Permit No. 50054; EPA ID No. TXD026481523

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced RACR. The RACR documents that the chemicals of concern remaining at the Gate 6 Area of Concern (AOC) meet the Texas Risk Reduction Program (TRRP) Remedy Standard B commercial/industrial protective concentration levels such that no post-response action care or groundwater monitoring is required pursuant to 30 Texas Administrative Code (TAC) §350.33. The RACR also documents that Kinder Morgan filed a deed notice in the Harris County records on October 16, 2018 and fulfilled the institutional control requirements of 30 TAC §350.111. The TCEQ has determined that the RACR meets the requirements of 30 TAC §350.95 and the performance standards and corrective action objectives are for Gate 6 AOC in accordance with Permit Provisions XI.D., and XI.E.

Therefore, the TCEQ approves Kinder Morgan's proposed request to terminate corrective action for Gate 6 AOC with the condition that Kinder Morgan updates CP Table II in the Permit renewal application due in 2024, to officially terminate corrective action for Gate 6 AOC in accordance with Permit Provisions XI.D., and XI.H.6.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the RAP.

Questions concerning this letter should be directed to me at (512) 239-2034. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all future documents to the TCEQ Remediation Division at Mail Code MC-127.

An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Maureen M. Hatfield, P.G., Project Manager
VCP-CA Section, Remediation Division
Texas Commission on Environmental Quality

MMH/mmh

cc: Ms. Alma Jefferson, Waste Program Manager, TCEQ Region 12 Office, Houston, MC R-12 (email)

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

June 14, 1999

Ms. Usha Mehra, Manager, Health & Safety
GATX Terminals Corporation
P. O. Box 465
Galena Park, TX 77547-0465

CERTIFIED MAIL #
RETURN RECEIPT REQUESTED
Z 435 646 170

Re: Comments to RCRA Facility Investigation Reports
GATX Terminals Corporation - Galena Park
TNRCC SWR No. 30573
TNRCC Hazardous Waste Permit/Compliance Plan No. HW/CP-50054
EPA ID No. TXD026481523

Dear Ms. Mehra:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the following reports: *West Plant Groundwater Assessment*, submitted November 26, 1996; *RCRA Facility Investigation Report - Phase I*, submitted April 14, 1997; *RCRA Facility Investigation Report - Phase II*, submitted July 31, 1998; and *Site Investigation Report Texmark Chemical, Inc.*, submitted September 30, 1998. A list of comments is enclosed. Please prepare a written response to each comment, referencing the assigned TNRCC comment number. The facility name, location and identification number(s) in the TNRCC reference line above should be included in your response.

An original and one copy of the written response to these comments must be submitted to the TNRCC at the letterhead address using mail code number MC-127. An additional copy should be submitted to Ms. Marsha Hill, Waste Program Manager, TNRCC Region 12 Office, 5425 Polk Ave., Suite H, Houston TX 77023-1486. Please submit your response within 90 days from the date of this letter.

Should you need additional information, or wish to discuss these comments or the due date, please call me at (512) 239-2130. Thank you for your cooperation in this matter.

Sincerely,

Lila Beckley, Project Manager
Team III, Corrective Action Section
Remediation Division

SDG	RCS	NLT	MPI
DGB	CGC	SMR	EMZ
DLW			SCC
UM	JUN 23 1999		RLC
FILE			

LMB/lmb

cc: Ms. Marsha Hill, Waste Program Manager, TNRCC Region 12 Office, Houston

Enclosure

TNRCC letter dated 6/14/99
ENCLOSURE
TNRCC SWR No. 30573

Comments to RFI Reports

1. The Phase I RFI Report proposes No Further Action (NFA) for nineteen (19) Solid Waste Management Units (SWMUs) (see Table 3). Based on information provided in this report, and for the purposes of GATX's RFI requirements, the TNRCC accepts the NFA proposal only for the following two (2) North Plant SWMUs at this time: Texaco Landfill No. 4 and the North Spoils Area.

2. There appear to be inconsistencies between the Phase I and II Reports regarding which SWMUs have released and which media have been contaminated. For example, although the Phase I Report (e.g., Table 2) does not appear to address the Central Plant Aboveground Oil/Water Separator, the Phase II Report (see pp. 3 and 43) states that the Phase I RFI showed there had been no release and recommended no further action for this unit. Additionally, there seems to be confusion on terminology and usage of data for release and extent determinations. For example, the Phase I Report proposes that Tank 10-12 be "deemed closed with no further action" (p. 6). This proposal appears to be based on findings of Total Petroleum Hydrocarbon (TPH) contamination in soil and ground water at locations which are more than 100' away from the tank. Also, as there are other tanks between Tank 10-12 and the sample locations, it is not clear how release determinations can be made for Tank 10-12.

   Please clarify GATX's interpretation of SWMU status by providing a table which lists each SWMU (ordered by SWMU groups, as appropriate), and states whether the units have released, and if so, which environmental media have been affected. Also, indicate which SWMUs are proposed for NFA, and distinguish between NFA/No Release and NFA due to previous closure activities. For the latter case, specify whether final reports were submitted to the TNRCC, and provide date(s) of TNRCC response(s) and approval, as applicable.

3. Compliance Plan Section XIII.E.5 requires a listing of SWMUs determined to be continuing sources of releases into the ground water. Please include this information in the response to this letter.

4. For each SWMU that has released contaminants into the environment, please provide maps illustrating the extent of contamination in soil and ground water, as appropriate. These maps, which should correspond to the information requested in Item No. 2 above, should be appropriately scaled and legible, and should include concentration contours of the primary, SWMU-specific constituents of concern. Please take the following into consideration when developing the requested maps:

TNRCC letter dated 6/14/99
ENCLOSURE
TNRCC SWR No. 30573

a. GATX's November 11, 1997 letter and Phase II Report (e.g., p. 27) indicate that the extent of contamination for organics would be determined by extrapolation of decreasing concentration trends below Risk Reduction Standard No. 2 levels. At the time the RFI workplan was under discussion, the TNRCC had agreed to this method of evaluation. It appears, however, that for many SWMUs discussed in the Phase II Report, direct comparisons to target concentrations were made and trend data were not incorporated. Please provide maps which clearly illustrate the pattern of decreasing concentrations. An interpretation of the total contaminated area (for all constituents of concern) should also be provided, and adequate data should be posted to justify the interpretation of the extent.

b. The Phase II Report states that the extent of contamination is defined for some SWMUs by sample results which are below quantitation limits. These quantitation limits may be elevated and may be above Standard No. 2 levels. Because the elevated quantitation limits appear to be sample-specific, the TNRCC does not concur with use of these data for extent determination without supporting documentation that lower quantitation limits were not achievable (i.e., for the suite of investigation data; see 30 TAC §335.2 - Definition of PQL). The full extent of contamination in soils and ground water should be defined to appropriate Practical Quantitation Limits, which should be equal to or less than the applicable health-based concentrations of concern.

c. Please verify that units (mg/kg vs. µg/kg) and other information are posted correctly on the maps.

3. It appears that some Phase II analytical results and laboratory flags may not have been transcribed correctly from the laboratory analytical reports to the summary tables. Examples include, but are not limited to, samples II-047 (4-8'), II-062 (12-14'), II-063 (5-7'), II-065 (17.5-20'), and II-076 (8-10'). Please verify the data and discuss the impact any errors have on determination of the extent of contamination and calculation of source terms used in the Baseline Risk Assessments.

4. Additional Comments for the West Plant, based on *West Plant Groundwater Assessment*, submitted November 26, 1996:

a. During the initial phase of this assessment, 37 soil samples were collected and analyzed for TPH and Total Organic Halogens (TOX). TOX concentrations were

TNRCC letter dated 6/14/99
ENCLOSURE
TNRCC SWR No. 30573

below detection limits in all the samples. TPH was detected in 17 of the samples, with concentrations ranging from 10 mg/kg to 25,371 mg/kg. The Report proposes no further action for soils.

According to the Risk Reduction Standards, TPH can be used as an indicator, but must be appropriately supported by compound-specific analyses [30 TAC §335.553(d); See also 30 TAC §335.553(f)]. Please complete additional sampling and analysis to determine the nature and extent of soils contamination such that requirements of the Risk Reduction Standards are met.

b. In the 1996 investigation, all ground-water samples, except for that from MW-18, were collected using direct-push methods. Additional monitor wells should be installed and ground-water samples collected for analysis to confirm the degree and extent of ground-water contamination.

31 Notice IC

20120310349
07/12/2012 RP2 $136.00

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

> ***A legal property description used in the last recorded vesting deed, covering the Property that includes the entire recorded tract of land held by the owner executing this deed notice, is attached hereto and incorporated herein by reference as Exhibit A.***

Portions of the soil and groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property for soil (Former Impoundment #3) is described as follows:

> ***METES AND BOUNDS DESCRIPTION of a 0.230 acre tract in the Ezekiel Thomas Survey, Abstract No 73, Harris County, Texas. Said 0.230 acre tract is in a 123.5686 acre tract as described in a deed to KM Liquids Terminals, L.P. as recorded in Clerk's File No. 20070176988 in the Harris County Clerk's Office and is more particularly described by metes and bounds as follows:***
>
> ***COMMENCING at a concrete monument found in the south right-of-way line of Clinton Drive, (based on a width of 100-feet), said point is the northeast corner of a 24.2862 acre tract, called "Parcel Two as described in a deed to GATX Terminals Corporation as recorded in Clerk's File No. GB67917 in the Harris County Clerk's Office, same being the northwest corner of an 88.152 acre tract, called "Tract 1" as described in a deed to Houston Cement Company, L.P. as recorded in Clerk's File No. Y243302 in the Harris County Clerk's Office;***
>
> ***THENCE, South 03°27'58" East, along the east line of said 24.2862 acre tract, same being the west line of said 88.152 acre tract, at a distance of 427.55 feet pass the northeast corner of the aforementioned 123.5686 acre tract and continue for a total distance of 2,099.25 feet to an angle point, a found 5/8-inch iron rod bears South 03"27'58" East, 493.50 feet;***
>
> ***THENCE, South 86°32'02" West, perpendicular to the east line of said 123.5686 acre tract for a distance of 220.26 feet to the POINT OF BEGINNING and northeast corner of the herein described tract, said point having a Texas State Plane surface coordinate of N 13,832,997.86', E 3,169,069.37';***
>
> ***THENCE, South 00°19'55" West, along the easterly line of the herein described tract for a distance of 100.02 feet to the southeast corner of the herein described tract;***

THENCE, West, along the southerly line of the herein described tract for a distance of 100.27 feet to the southwest corner of the herein described tract;

THENCE, North 00°19'55" East, along the westerly line of the herein described tract for a distance of 100.02 feet to the northwest corner of the herein described tract;
THENCE, East, along the northerly line of the herein described tract for a distance of 100.27 feet to the POINT OF BEGINNING; containing a computed area of 0.230 acres (10,029 square feet).

The certified meets and bounds description and corresponding plat maps of the Affected Property (Former Impoundment #3) are attached hereto and incorporated herein by reference as Exhibit B.

The constituents of concern in soil at the Affected Property (the Former Impoundment #3), defined here as exceeding TRRP Protective Concentration Levels (PCLs) for residential land use, is benzo(a)pyrene.

This notice for soil in the Former Impoundment #3 is required for the following reasons:

The Affected Property currently meets TRRP standards for commercial/industrial use. Based on the reports, the chemicals of concern pose no significant present or future risk to humans or the environment based on commercial/industrial land use. No further remediation of the Affected Property is required by the TCEQ as long as the Affected Property is not to be used for residential purposes as the property may not be protective for residential use. If any person desires in the future to use the Affected Property for residential purposes, the TCEQ must be notified at least 60 days in advance of such use and additional response actions may be necessary before the property may be used for residential purposes. Persons contemplating a change in land use for the Affected Property are encouraged to review the definitions of commercial/industrial and residential land use contained in TRRP as the definition of residential land use is broad.

The portion considered to be Affected Property for groundwater is described as follows:

METES AND BOUNDS DESCRIPTION of a 9.508 acre tract in the Ezekiel Thomas Survey, Abstract No. 73, Harris County, Texas. Said 9.508 acre tract is in a 123.5686 acre tract as described in a deed to KM Liquids Terminals, L P. as recorded in Clerk's File No. 20070176988 in the Harris County Clerk's Office and is more particularly described by metes and bounds as follows:

COMMENCING at a concrete monument found in the south right-of-way line of Clinton Drive (based on a width of 100-feet), said point is the northeast corner of a 24.2862 acre tract, called "Parcel Two" as described in a deed to GATX Terminals Corporation as recorded in Clerk's File No. G867917 in the Harris County Clerk's Office, same being the northwest corner of an 88.152 acre tract, called "Tract 1" as described in a deed to Houston Cement Company, L.P. as recorded in Clerk's File No. Y243302 in the Harris County Clerk's Office;

THENCE, South 03°27'58" East, along the east line of said 24.2862 acre tract, same being the west line of said 88.152 acre tract, at a distance of 427.55 feet pass the northeast corner of the aforementioned 123.5686 acre tract and continue for a total distance of 1,870.05 feet to a angle point, a found 5/8-inch iron rod bears

South 03°27'58" East, 723.00 feet;

THENCE, South 86°32'02" West, perpendicular to the east line of said 123.5686 acre tract for a distance of 1,226.58 feet to the POINT OF BEGINNING and easterly corner of the herein described tract, said point having a Texas State Plane surface coordinate of N 13,833,165.80', E 3,168,051.03';

THENCE, South 24°24'04" East, along the easterly line of the herein described tract for a distance of 185.77 feet to a point for corner;

THENCE, South 05°29'48" East, continuing along the easterly line of the herein described tract for a distance of 101.04 feet to a point for corner;

THENCE, South 05°58'17" West, continuing along the easterly line of the herein described tract for a distance of 300.42 feet to a point on the northerly high bank of the Houston Ship Channel;

THENCE, along the northerly high bank of said Houston Ship Channel with following courses and distances:

North 66°42'08" West, for a distance of 87.19 feet to a point for corner:

North 82°25'01" West, for a distance of 378.66 feet to a point for corner;

South 58°53'43" West, for a distance of 70.36 feet to a point for corner;

North 62°45'38" West, for a distance of 128.05 feet to a point for corner;

North 02°43'27" West, for a distance of 227.22 feet to a point for corner;

North 09°37'34" East, for a distance of 190.03 feet to a point for corner:

North 04°34'53" West, for a distance of 321.42 feet to the northwest corner of the herein described tract;

THENCE, South 87°54'37" East, along the northerly line of the herein described tract for a distance of 50.19 feet to a point for corner;

THENCE, South 71°14'07" East, continuing along the northerly line of the herein described tract for a distance of 152.21 feet to a point for corner;

THENCE, South 60°00'24" East, continuing along the northerly line of the herein described tract for a distance of 444.27 feet to the POINT OF BEGINNING; containing a computed area of 9.508 acres (414,173 square feet).

The certified meets and bounds description and corresponding plat maps of the Affected Property for

groundwater (referred to as area of the Plume Management Zone) are attached hereto and incorporated herein by reference as Exhibit B.

The constituents of concern in groundwater at the Affected Property (the Plume Management Zone), defined here as exceeding TRRP PCLs for residential and commercial/industrial land use, is benzene .

> ***The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC 350.33(f)(4). The undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit B provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.***

As of the date of this Notice, the record owner of fee title to the Property is KM Liquids Terminals, L.P. with an address of 500 Dallas, Suite 1000, Houston, Texas 77002.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 3rd day of July, 2012.

KM Liquids Terminals LLC

By: Earl Crockett

Name: Earl J. Crockett

Title: General Manager

STATE OF TEXAS
HARRIS COUNTY

BEFORE ME, on this the 3rd day of July 2012, personally appeared [name] Earl J. Crochet, [title] General Manager, of [company], known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 3rd day of July, 2012

Notary Public in and for the State of Texas,
County of

My Commission Expires:

Patricia Rae Monroe
NOTARY PUBLIC STATE OF TEXAS
My Commission Expires
08/10/2015

Kinder Morgan Liquids Terminals LLC
Attn: Johnny Kennedy
906 Clinton Drive
Galena Park, Tx 77547

Exhibit A

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

20070176988
03/23/2007 RP2 $64.00

SPECIAL WARRANTY DEED AND ASSIGNMENT

STATE OF TEXAS §
§ KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF HARRIS §

THAT, FOR TEN DOLLARS ($10.00) and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, **KINDER MORGAN LIQUIDS TERMINALS LLC**, a Delaware limited liability company ("Grantor"), whose address is 500 Dallas, Suite 1000, Houston, Texas 77002, does hereby grant, bargain, sell, convey, assign, set over, and deliver unto **KM LIQUIDS TERMINALS, L.P.**, a Delaware limited partnership ("Grantee"), whose address is 500 Dallas, Suite 1000, Houston, Texas 77002, all of Grantor's right, title, and interest in and to the property, rights, and interests described below (collectively, the "Property"):

A. That certain real property and real property interests described in those certain instruments and documents recorded in the real property records of Harris County, Texas which are more particularly described on Exhibit A attached hereto, together with all buildings, improvements and fixtures thereon;

B. Those certain easements, tenements, hereditaments, privileges and appurtenances in any way belonging to the property described in Item 1 above, including, without limitation, Grantor's right, title and interest, if any, in and to (a) any land to the midpoint of the bed of any highway, street, road or avenue, open or proposed, in front of, abutting or adjoining any such property, (b) any land lying in or under the bed of any creek, stream, bayou or river running through, abutting or adjacent to such property, (c) any riparian, appropriative or other water rights of Grantor appurtenant to such property and relating to surface or subsurface waters, (d) all wastewater (sewer) treatment capacity and all water capacity assigned to such property, (e) any oil, gas or other minerals or mineral rights relating to such property or to the surface or subsurface thereof owned by Grantor, (f) any strips, gores or pieces of property abutting, bounding or which are adjacent or contiguous to such property and (g) all easements, right-of-ways, rights of ingress or egress and reversionary interests benefiting such property; and

C. Without limiting the foregoing, all other rights, titles, interests (of whatever kind or character, whether legal or equitable, whether vested or contingent, and whether now owned or hereafter acquired by operation of law or otherwise) of Grantor in and to any of the property described in paragraphs A or B above and/or that otherwise relate to the properties, interests or items described in paragraphs A and B above, even though Grantor's rights, titles, and interest in

same may be incorrectly described in, or a description of such rights, titles and interests be omitted from, Exhibit A.

TO HAVE AND TO HOLD the Property unto Grantee and its successors and assigns to WARRANT AND FOREVER DEFEND all and singular title to the Property unto Grantee, it successors and assigns, against every person whomsoever lawfully claiming the same or any part thereof by, through or under Grantor, but not otherwise.

This Special Warranty Deed and Assignment is subject to the following terms and conditions:

1. Pursuant to that certain Contribution and Assumption Agreement (the "Contribution Agreement") dated September 1, 2004 by and between Grantor and Grantee, Grantor conveyed the Property to Grantor. Grantor and Grantee omitted to record this Special Warranty Deed and Assignment, but it is hereby clarified that this instrument with all of its terms and provisions, shall be effective as of the date of the Contribution Agreement at 9:00 a.m. Houston, Texas time on September 1, 2004 (the "Effective Time").

2. The terms, covenants and conditions hereof shall be binding upon and inure to the benefit of Grantor and Grantee, and their successors and assigns, and such terms, covenants and conditions shall be covenants running with the land.

3. This instrument is subject to the terms and conditions of (a) the instruments and agreements referred to in Exhibit A hereto and (b) the instruments and agreements which constitute the record chain of title into Grantor. Grantee agrees to be bound by and assume all obligations and rights created by said instruments, assignments and by recorded agreements related thereto.

4. Anything in this instrument to the contrary notwithstanding, this instrument shall not assign any of the Property or any benefits arising thereunder or resulting therefrom that (a) are not assignable, in whole or in part, or (b) require the consent or approval of the counter-party for the valid assignment thereof and such consent or approval has not been obtained on or before the Effective Time. If any such consents are not obtained before the Effective Time, Grantor and Grantee will use their reasonable best efforts to take such actions as may be possible without violation or breach of such Property or any instrument or agreement relating to such Property to effectively grant to Grantee the economic benefits of, and impose the economic burdens of, such Property.

[SIGNATURE PAGE FOLLOWS]

[SIGNATURE PAGE TO SPECIAL WARRANTY DEED
AND ASSIGNMENT– PAGE 1 OF 1]

This Special Warranty Deed and Assignment is made with full substitution and subrogation of Grantee in and to all covenants and warranties by others heretofore given or made in respect of the Property or any part thereof.

EXECUTED this 12th day of March, 2007 but effective for all purposes as of the Effective Time.

GRANTOR:

KINDER MORGAN LIQUIDS TERMINALS LLC, a Delaware limited liability company

By: _____

Name: Jeff Armstrong

Title: President

GRANTEE:

KM LIQUIDS TERMINALS, L.P., a Delaware limited partnership

By: KM Liquids Partners GP LLC, its general partner

By: _____

Name: Jeff Armstrong

Title: President

Bracewell & Giuliani
711 Louisiana 2300
Houston, TX 77002

FILED
2007 MAR 23 PM 4:33
COUNTY CLERK
HARRIS COUNTY, TEXAS

HOUSTON\1771385.3

[ACKNOWLEDGMENTS PAGE TO SPECIAL WARRANTY DEED
AND ASSIGNMENT– PAGE 1 OF 1]

STATE OF TEXAS

COUNTY OF HARRIS

The foregoing instrument was acknowledged before me on this March 12th, 2007, by Jeffrey R. Armstrong, the President of KINDER MORGAN LIQUIDS TERMINALS LLC, a Delaware limited liability company, on behalf of the limited liability company.

Janice D. Sanford
Notary Public, State of Texas

JANICE D SANFORD
My Commission Expires
October 19, 2008

STATE OF TEXAS

COUNTY OF HARRIS

The foregoing instrument was acknowledged before me on this March 12th, 2007, by Jeffrey R. Armstrong the President of KM Liquids Partners GP LLC, the general partner of KM LIQUIDS TERMINALS, L.P., a Delaware limited partnership, on behalf of said limited partnership.

Janice D. Sanford
Notary Public, State of Texas

JANICE D SANFORD
My Commission Expires
October 19, 2008

EXHIBIT A

DESCRIPTION OF PROPERTY

[attached]

Exhibit A

Grantor	Date	Instrument	Volume/Page	Abstract Survey	County		
Fee Property							
The Texas Company	04/18/1952	Deed	2433/332	Ezekiel Thomas A-73	Harris	92.429 acres	
Phillips Petroleum Company	11/25/1953	Deed	2690/551	Wm Vince A-78	Harris	34.21/33.88253 acres 111.4137 acres	#76-007
James E. Hughes	09/30/1954	Deed	2833/92	Wm Vince A-78	Harris	.898 acres	#76-007
Crown Central Petroleum Corp.	11/10/1954	Deed	2860/668	Wm Vince A-78	Harris	1.256 acres	#76-007
Merle Moore Garrett et vir	040/7/1966	Deed	C268395	Ezekiel Thomas A-73	Harris	17.66 & 69.31248 acres	
Coastal State Marketing, Inc.	10/07/1970	Deed	8170/368	James Seymour A-698	Harris	Outlot 115 of Subdivision Deepwater	#76-007
Industrial Development Corp.	07/31/1972	Deed	148-22-1361	James Seymour A-698	Harris	10 ac -Outlot 116 of Subdivision Deepwater	#76-007
GATX Corporation	07/01/1975	Deed	H408295	Ezekiel Thomas A-73	Harris	49.15, 92.49, 86.9787 acres, less 1.316 & 5.85 acres sold	#76-007
Premier Petrochemical Company	04/04/1977	Deed	162-06-0655	Wm Vince A-78	Harris	42.816 acres	#76-007
Crown Central Petroleum Corp.	11/23/1981	Deed	H253023	Wm Vince A-78	Harris	3.31 acres	#76-027
Southern Pacific RR Company	05/20/1986	Deed	047-730-634	Ezekiel Thomas A-73	Harris	1.6148 acres	
South State Terminals Company	2/11/1981	SWD	178-86-2366	Ezekiel Thomas A-73	Harris	463.8705 Acres, 316.0157, 24.2862, 123.5686	
Easements/Leases/Agreements							
Atlantic Richfield Company	03/21/1973	Easement	S445838	Wm Vince A-78	Harris*	Assigned to GATX - 4/21/1997	
Arco Pipe Line Company	08/23/1985	Easement	K456740	Ezekiel Thomas A-73	Harris		#88-005
Arco Pipe Line Company	03/08/1985	Lease	Unrecorded	Ezekiel Thomas A-73	Harris	Yr-Yr	#88-004
Arco Pipe Line Company	09/15/1988	Easement	M022984	Ezekiel Thomas A-73	Harris		#88-030
Arco Pipe Line Company	03/16/1983	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	60' ROAD	#88-006
Arco Pipe Line Company	02/05/1990	Bill of Sale	Unrecorded	Ezekiel Thomas A-73	Harris	Rd Crossing Permit - Assigned	#88-007 #88-109

G867917

176-86-2366

SPECIAL WARRANTY DEED

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

THAT, SOUTH STATE TERMINALS COMPANY, a Florida corporation (hereinafter referred to as "Grantor"), for and in consideration of the sum of Ten Dollars ($10.00) and other valuable consideration to Grantor paid by GATX TERMINALS CORPORATION, a Delaware corporation (hereinafter referred to as "Grantee"), the receipt of which is hereby acknowledged, has granted, sold and conveyed, and by these presents does grant, sell and convey unto said Grantee, all that certain real property situated in the Ezekiel Thomas Survey, in Harris County, Texas, containing 463.8705 acres, more or less, more particularly described in Exhibit A attached hereto and hereby made a part hereof, together with any and all easements, pipelines, littoral, riparian and shore rights, water stock and any and all other rights and appurtenances pertaining thereto, including any right, title and interest of Grantor in and to adjoining streets, alleys or rights-of-way and including any and all buildings, structures, tanks, facilities and other improvements situated thereon.

The above-described property is conveyed by Grantor to Grantee subject to the following:

(a) Any governmental zoning ordinances or regulations affecting the use and occupancy of said property.

(b) Ad valorem taxes and other real estate taxes (if any) for the calendar year 1981. Said taxes have been pro-rated as of the date of delivery hereof, and Grantee by its acceptance and recordation hereof expressly assumes and agrees to pay such taxes for the calendar year 1981.

1, 3 & 5

ST

178-86-2367

(c) All of the easements and other encumbrances which are described or referred to in Exhibit B, attached hereto and hereby made a part hereof, insofar and only insofar as said easements and encumbrances are valid and subsisting easements and encumbrances affecting the property herein conveyed, it being understood and agreed that all of Grantor's rights and interests in, to or under such easements and encumbrances are hereby conveyed by Grantor to Grantee.

Grantee has inspected, or caused to be inspected, the property herein conveyed, and Grantee is familiar with the present condition of such property and agrees to and does hereby accept the conveyance thereof "as is."

To have and to hold the above described property, together with all and singular the rights and appurtenances thereto in any anywise belonging, unto Grantee, its successors and assigns forever; and Grantor does hereby bind itself and its successors, excepting and subject as aforesaid, to warrant and forever defend all and singular the said property and premises unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same by, through or under Grantor.

EXECUTED this 11th day of February, 1981.

SOUTH STATE TERMINALS COMPANY

By _____
Vice President

ATTEST:

By _____
Secretary

178-86-2368

THE STATE OF ILLINOIS §
§
COUNTY OF COOK §

BEFORE ME, the undersigned authority on this day personally appeared DAVID P. SCHOFIELD Vice President of SOUTH STATE TERMINALS COMPANY, a Florida corporation, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated and as the act and deed of said corporation.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 11th day of February, 1981.

Notary Public in and for
Cook County, Illinois

My Commission Expires: Apr. 29, 1984

Sandra L. Doty

HOLD FOR
AMERICAN TITLE COMPANY
GF# 251699 RXC

RXC/bft

178-86-2369

EXHIBIT A

463.8705 acres of land out of the Ezekiel Thomas Survey, A-73, Harris County, Texas, being the sum of the areas of three separate tracts in said survey, and being the remainder of the following two adjacent tracts of land:

1. That certain tract described as 245.07 acres in deed from G. L. Noble to the Texas Company dated May 10, 1915, and recorded in Volume 351, Page 464, Harris County Deed Records, and
2. That certain tract described as 510.7 acres in deed from Galena Signal Oil Company to the Texas Company dated November 28, 1923, and recorded in Volume 778, Page 578, Harris County Deed Records,

after the conveyance of numerous tracts of land therefrom which severed said two adjacent tracts into the three parcels of land described below (with respect to the Texas Plane Coordinate System, South Central Zone):

PARCEL ONE:

316.0157 acres of land being all of said two adjacent tracts lying south of the south lines of the following four tracts of land conveyed in three deeds to the North Side Belt Railway Co. and to the Harris County Houston Ship Channel Navigation District for the right-of-way of said Belt Railway, and being contiguous to said south lines:

1. 0.995 acres described as Tract 1 and 0.532 acres described as Tract 2 in deed recorded in Volume 3334, Page 211, Harris County Deed Records,
2. 4.0 acres described in deed dated May 16, 1925, from the Texas Pipeline Company to said Belt Railway recorded in Volume 612, Page 561, Harris County Deed Records, and
3. 3.520 acres described in deed recorded in Volume 2665, Page 619, Harris County Deed Records,

and lying north of and contiguous to the north right-of-way line of Clinton Drive, 100 feet wide, as said right-of-way was described in deeds to Harris County recorded in Volume 704, Page 216, and Volume 1011, Page 47, Harris County Deed Records, said 316.0157 acres of land being described as follows:

BEGINNING at a concrete monument with a "Texaco Star" in its top at a fence corner at the intersection of the east line of said 510.7 acre tract with said north right-of-way line of Clinton Drive, having coordinates: x = 3,200,339.61 and y = 709,968.27 from which the City of Houston Survey Marker No. 5756-1211 bears South 85° 00' 41" East 95.77 feet;

THENCE in a westerly direction with said north right-of-way line and generally with a chain link fence with the following two courses and distances:

1. South 86° 31' 10" West 2625.15 feet to a 1½" iron pipe in said fence at an angle point, and
2. South 88° 04' 10" West 46.55 feet to a Railroad Spike for corner located on the south side of a fence corner at the intersection of said north right-of-way line with the west line of said 245.07 acre tract, and at the southeast corner of that certain 43.128 acre tract conveyed to General American Transportation Corporation by deed recorded in Volume 2433, Page 332, Harris County Deed Records, said corner having coordinates: x = 3,197,672.78 and y = 709,807.33;

178-86-2370

THENCE North 3° 24' 05" West with said west line in part generally with said chain link fence and in part generally with a barbed wire fence, in part with the east line of said 43.128 acre tract, in part with the east line of a 20.593 acre tract conveyed to Texas Pipe Line Company by deed dated October 17, 1951, recorded in Volume 2367, Page 237, Harris County Deed Records, and in part with the east line of a 49.301 acre tract also conveyed to General American Transportation Corporation by said deed recorded in Volume 2433, Page 332, Harris County Deed Records, 5054.92 feet to a 1½" iron pipe for corner at a fence corner post at the intersection of said west line with the south line of said Belt Railway right-of-way and being the south west corner of said 0.995 acre tract, said corner having coordinates: x = 3,197,372.87 and y = 714,853.34;

THENCE in an easterly direction with the south lines of said four tracts conveyed to the North Side Belt Railway Co. and to the Houston Ship Channel Navigation District for the right-of-way of said Belt Railway with the following five courses and distances:

1. North 86° 44' 20" East 697.82 feet to a 1½" iron pipe at the southeast corner of said 0.995 acre tract on a curve in the south line of said 4.0 acre tract,
2. with said curve to the right having a radius of 441.78 feet, a central angle of 43° 18' 15" and an arc length of 333.90 feet (the chord of said arc bears South 38° 54' 48" East 326.01 feet) to a 1½" iron pipe at the southeast corner of said 4.0 acre tract,
3. North 3° 24' 30" West 266.31 feet to a 1½" iron pipe at the southwest corner of said 0.532 acre tract on the east line of said 4.0 acre tract,
4. North 82° 29' 35" East 299.18 feet to a 1½" iron pipe at the southeast corner of said 0.532 acre tract and the southwest corner of said 3.520 acre tract, and
5. North 72° 25' 20" East 1520.95 feet to a 1½" iron pipe at a fence corner post for corner at the southeast corner of said 3.520 acre tract on the east line of said 510.7 acre tract, said corner having coordinates: x = 3,200,005.06 and y = 715,403.63;

THENCE South 3° 31' 20" East with said east line, in part generally with a barbed wire fence and in part generally with a chain link fence 5445.65 feet to the PLACE OF BEGINNING and containing 316.0157 acres of land.

PARCEL TWO:

24.2862 acres of land and being all of said two adjacent tracts, lying south of and contiguous to the south right-of-way line of Clinton Drive, 100 feet wide, as said right-of-way was described in deeds to Harris County recorded in Volume 704, Page 216, and Volume 1011, Page 47, Harris County Deed Records, lying north of and contiguous to the north lines of a 40 foot wide fee strip conveyed to the Texas and New Orleans Railroad Company by deed recorded in Volume 2501, Page 242, Harris County Deed Records, and lying east of and contiguous to the east line of that certain 74 foot wide strip, off the west side of said 245.07 acre tract described as Tract No. 1 containing 1.170 acres in deed to General American Transportation Corporation recorded in Volume 1163, Page 515, Harris County Deed Records, said 24.2862 acres of land being described as follows:

BEGINNING at a chain link fence corner at the intersection of said south right-of-way line of Clinton Drive with the east line of said 510.7 acre tract, having coordinates: x = 3,200,346.23 and y = 709,868.49 from which the City of Houston Survey Marker No. 5756-1211 bears North 44° 09' 08" East 127.46 feet;

THENCE South 3° 28' 30" East generally with said fence with the east line of said 510.7 acre tract 387.00 feet to a 1½" iron pipe for corner at the (northeast corner of said 40 foot wide railroad fee strip,) having coordinates: x = 3,200,369.69 and y = 709,482.20;

178-86-2371

THENCE in a westerly direction with the north line of said fee strip with the following four (4) courses and distances:

1. South 86° 31' 10" West 2170.68 feet to a 1½" iron pipe at a point of curve,
2. with said curve to the left having a radius of 306.48 feet, a central angle of 54° 33' 00" and an arc length of 291.79 feet, (the chord of said arc bears South 59° 14' 40" West 280.90 feet,) to a 1½" iron pipe at its point of tangency.
3. South 31° 58' 10" West 98.67 feet to a 1½" iron pipe, and
4. With a curve to the right having a radius of 266.48 feet, a central angle of 33° 39' 43" and an arc length of 156.56 feet (the chord of said arc bears South 48° 48' 02" West 154.32 feet to a 1½" iron pipe at the northwest corner of said fee strip in the east line of said 74 foot wide strip, said corner having coordinates: x = 3,197,793.27 and y = 709,021.42;

THENCE North 3° 30' 10" West with the east line of said 74 foot wide strip and generally with a chain link fence 690.51 feet to a concrete monument with a "Texaco Star" in its top for corner at a corner of said fence, at the northeast corner of said 74 foot wide strip on said south right-of-way line of Clinton Drive, said corner having coordinates: x = 3,197,751.08 and y = 709,710.64;

THENCE North 86° 31' 10" East with said south right-of-way line and generally with said chain link fence 2399.95 feet to the PLACE OF BEGINNING and containing 26.2862 acres of land.

PARCEL THREE:

123.5686 acres of land being all of said two adjacent tracts lying south of and contiguous to the south lines of said 40 foot wide fee strips conveyed to the Texas and New Orleans Railroad Company by deed recorded in Volume 2501, Page 242, Harris County Deed Records, lying north of the "Harbor Line" for the Houston Ship Channel established in grant from the Texas Company to the United States of America recorded in Volume 998, Page 529, Harris County Deed Records, and lying east of and contiguous to the east line of another 74 foot wide strip off the west side of said 245.07 acre tract described as Tract No. 2 containing 2.01 acres in said deed to General American Transportacion recorded in Volume 1163, Page 515, Harris County Deed Records, said 123.5686 acres of land being described as follows:

BEGINNING at a 1½" iron pipe at the south east corner of said 40 foot wide railroad fee strip in the east line of said 510.7 acre tract having coordinates: x = 3,200,372.11 and y = 709,442.27 from which the City of Houston Survey Marker No. 5756-1211 bears North 6° 55' 43" East 521.48 feet;

THENCE South 3° 28' 30" East with the east line of said 510.7 acre tract and generally with a chain link fence, at 2165.50 feet pass a 5/8" iron rod, at 2179.0 feet pass the end of said fence at the north bank of the Houston Ship Channel and at a total distance of 2334.00 feet to a point for corner on said Harbor Line, having coordinates: x = 3,200,313.58 and y = 707,112.56; N

SE FOR SUBJECT TRACT

NAD 27

N 29° 43' 29.835
29.7279

NAD 83

N 29° 45' 29.0090" 0687
W 95° 13' 01.0286" 4361

83 W 95° 13' 01.7914" NAD 83

N 13830552.5171 E 3168919.8312

NAD 83 N 13830411.6558
E 3168989.5341

178-86-2372

THENCE in a westerly direction with said Harbor Line with the following three (3) courses and distances:

1. South 88° 17' 37" West 769.90 feet,
2. North 75° 09' 23" West 1039.00 feet, and
3. North 72° 13' 55" West 904.52 feet to a point for corner having coordinates: x = 3,197,878.32 and y = 707,631.83;

THENCE North 3° 30' 10" West, at 172 feet pass the end of a chain link fence on said north bank and continuing generally with said fence, in part with the east line of said 74 foot wide strip and in part with the east end of an 80 foot wide T & N O R R right-of-way at a total distance of 1349.78 feet to a 1½" iron pipe for corner at the southwest corner of said 40 foot wide railroad fee strip, said corner having coordinates: x = 3,197,795.86 and y = 708,979.09;

THENCE in an easterly direction with the south lines of said 40 foot wide strip with the following four (4) courses and distances:

1. With a curve to the left having a radius of 306.48 feet, a central angle of 36° 29' 13" and an arc length of 195.17 feet, (the chord of said arc bears North 50° 12' 47" East 191.89 feet) to a 1½" iron pipe at its point of tangency,
2. North 31° 58' 10" East 98.67 feet to a 1½" iron pipe at another point of curve,
3. With said curve to the right having a radius of 266.48 feet, a central angle of 54° 33' 00" and an arc length of 253.71 feet, (the chord of said arc bears North 59° 14' 40" East 244.24 feet,) to a 1½" iron pipe at its point of tangency, and
4. North 86° 31' 10" East 2170.68 feet to the PLACE OF BEGINNING,

And containing 123.5686 acres of land, which when added to the 24.2862 acres described above as Parcel Two and to the 316.0157 acres described above as Parcel One, makes a grand total of 463.8705 acres of land,

178-86-2373

EXHIBIT B

1. Pipeline marked M-1 as shown on survey of subject property of Paul A. Ledurer dated February 4, 1981.

2. Pipe line right-of-way from Texas Pipe Line Company to Houston Pipe Line Company, dated December 29, 1925, as follows: Recorded in Volume 660, Page 89, of the Deed Records of Harris County, Texas.

3. Pipe line right-of-way from The Texas Company to Houston Pipe Line dated May 27, 1935, as follows: Recorded in Volume 855, Page 722, of the Deed Records of Harris County, Texas.

4. Pipe line right-of-way from The Texas Pipe Line Company to Dixie Gulf Gas Co. dated March 15, 1928, as follows: Recorded in Volume 1060, Page 662, of the Deed Records of Harris County, Texas.

5. Pipe line right-of-way from The Texas Company to Humble Oil and Refining Company dated September 9, 1937, as follows: Recorded in Volume 998, Page 288 of the Deed Records of Harris County, Texas, amended by instrument recorded in Volume 2630, Page 544 of the Deed Records of Harris County, Texas.

6. Right-of-way to deepen and maintain the Houston Ship Channel dated June 29, 1938, recorded in Volume 998, Page 529, of the Deed Records of Harris County, Texas.

7. Pipe line right-of-way from The Texas Company to Warren Petroleum Corporation dated April 8, 1946, recorded in Volume 1397, Page 152, of the Deed Records of Harris County, Texas.

8. Easement from The Texas Company to Harris County Flood Control District dated March 26, 1947, recorded in Volume 1644, Page 124, of the Deed Records of Harris County, Texas.

9. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company, dated January 12, 1949, as recorded in Volume 1875, Page 550 of the Deed Records of Harris County, Texas; amended by instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number G416656, and recorded under Film Code Number 150-83-2189 of the Official Public Records of Real Property of Harris County, Texas.

10. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company dated October 10, 1950, as recorded in Volume 2181, Page 363; partially released by instrument recorded in volume 2751, Page 595, of the Deed Records of Harris County, Texas.

11. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company dated October 10, 1950, recorded in Volume 2181, Page 365, of the Deed Records of Harris County, Texas.

12. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company dated October 10, 1950, as recorded in Volume 2181, Page 367, of the Deed Records of Harris County, Texas.

178-86-2374

13. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company dated October 10, 1950, recorded in Volume 2181, Page 369 of the Deed Records; amended by instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number G416430, and recorded under Film Code Number 150-83-1481 of the Official Public Records of Real Property of Harris County, Texas.

14. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company, dated October 10, 1950, recorded in Volume 2181, Page 371, of the Deed Records of Harris County, Texas.

15. Pipe line right-of-way from The Texas Company to Texas - New Mexico Pipe Line Company dated October 10, 1950, recorded in Volume 2181, Page 617, of the Deed Records of Harris County, Texas.

16. Pipe line right-of-way from The Texas Company to Service Pipe Line Company dated June 23, 1952, as recorded in Volume 2481, Page 725, of the Deed Records of Harris County, Texas.

17. Pipe line right-of-way from The Texas Company to The Texas Pipe Line Company, dated December 22, 1953, as recorded in Volume 2715, Page 461 of the Deed Records of Harris County, Texas; amended by instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number G416390, and recorded under Film Code Number 150-83-1370, of the Official Public Records of Real Property of Harris County, Texas.

18. Pipe line right-of-way from The Texas Company to Warren Petroleum Corp. dated May 28, 1951, recorded in Volume 2971, Page 103, of the Deed Records of Harris County, Texas.

19. Easement from The Texas Company to Houston Lighting and Power Company dated April 10, 1923, recorded in Volume 4119, Page 178, of the Deed Records of Harris County, Texas.

20. Pipe line right-of-way from Texaco, Inc., to Sinclair Petrochemicals, Inc., dated April 8, 1963, recorded in Volume 5078, Page 225, of the Deed Records of Harris County, Texas, amended by instrument recorded in Volume 5586, Page 5, of the Deed Records of Harris County, Texas.

21. Water line and access easement from Texaco, Inc., to the City of Houston dated December 12, 1963, recorded in Volume 5366, Page 395, of the Deed Records of Harris County, Texas.

22. Easement for construction and maintenance of Ship Channel dated January 16, 1964, recorded in Volume 5398, Page 516, of the Deed Records of Harris County, Texas.

178-86-2375

23. *Easement from* Texaco, Inc., to Houston, Lighting and Power Company, dated March 18, 1966, as set out and described on sketch attached to instrument recorded in Volume 6302, Page 22, of the Deed Records of Harris County, Texas.

24. Easement from Texaco, Inc., to City of Houston dated February 7, 1966, recorded in Volume 6439, Page 419, of the Deed Records of Harris County, Texas.

25. Pipe line right-of-way from Texaco, Inc., to Houston Pipe Line Company dated July 22, 1969, recorded in Volume 7696, Page 254, of the Deed Records of Harris County, Texas.

26. Easement from Texaco, Inc., to Houston Lighting and Power Company dated July 14, 1972, the location of which is shown by sketch attached to instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number D661090, and recorded under Film Code Number [redacted]-1397 of the Official Public Records of Real Property of Harris County, Texas.

27. Easement from Texaco, Inc., to Houston Lighting and Power Company dated September 12, 1975, the location of which is shown by sketch attached to instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number E564232, and recorded under Film Code Number 128-13-0747 of the Official Public Records of Real Property of Harris County, Texas; as amended by instrument as follows: Filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number E758870, and recorded under Film Code Number [redacted]-1310 of the Official Public Records of Real Property of Harris County, Texas.

28. Pipe line right-of-way from Texaco, Inc., to Amerada Hess Corp., dated September 15, 1977, filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number F330573, and recorded under Film Code Number [redacted]-9651 of the Official Public Records of Real Property of Harris County, Texas.

29. Pipe line right-of-way from Texaco, Inc., to Amerada Hess Corp., dated April 14, 1978, as filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number F490040, and recorded under Film Code Number [redacted]-0219 of the Official Public Records of Real Property of Harris County, Texas.

30. Pipe line right-of-way from Texaco, Inc., to Houston Pipe Line Company dated June 30, 1978, filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number F683531, and recorded under Film Code Number [redacted]-1478 of the Official Public Records of Real Property of Harris County, Texas.

31. Easement rights and right-of-way dated March 15, 1956, from The Texas Company to Harris County Houston Ship Channel Navigation District and the U. S. A. as follows: Recorded in Volume 3124, Page 425, of the Deed Records of Harris County, Texas.

32. Pipe line easement between The Texas Company and Texas - New Mexico Pipe Line Company dated June 9, 1938, (unrecorded) and amended by agreement dated December 7, 1972, (unrecorded), both agreements amended by instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number G416663, and recorded under Film Code Number 150-83-2204 of the Official Public Records of Real Property of Harris County, Texas.

178-86-2376

33. Designation of disposal sites for solid waste or set out in instrument filed for record in the office of the County Clerk of Harris County, Texas, under County Clerk's File Number G502833, and recorded under Film Code Number [redacted]-1347 of the Official Public Records of Real Property of Harris County, Texas.

34. Heater site easement from The Texas Co., to Humble Oil and Refining Co., dated August 31, 1945, as follows: Recorded in Volume 1400, Page 344, of the Deed Records of Harris County, Texas.

35. Gravesite and access thereto as shown on survey of Paul Ledbetter, dated February 4, 1981.

36. Easement from Texaco, Inc., to Houston Lighting and Power Company, dated August 8, 1963, and shown on sketch attached to instrument as follows: Recorded in Volume 5240, Page 37, of the Deed Records of Harris County, Texas.

37. The following matters are excepted to though apparently not of record:

(A) Easement from The Texas Company to Sinclair Refining Company dated October 26, 1938.

(B) Easement from The Texas Company to Houston Lighting and Power Company dated February 20, 1930.

(C) Downguy easement from The Texas Company to Houston Lighting and Power Company dated May 25, 1938.

(D) Easement from The Texas Company to the General American Transporation Corporation dated June 20, 1955.

(E) Easement from Texas Pipe Line Company to American Petroleum Company dated August 4, 1920.

(F) Easement from The Texas Company to Southwestern Bell Telephone Company dated November 30, 1938.

38. An undivided 5/6 interest in and to all oil, gas and other minerals reserved by grantor in deed from Texaco, Inc., (grantor) to South States Terminals Company, dated February 18, 1981.

FILED
Feb 17 4 24 PM 1981
COUNTY CLERK
HARRIS COUNTY, TEXAS

STATE OF TEXAS
COUNTY OF HARRIS

I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

FEB 17 1981

COUNTY CLERK,
HARRIS COUNTY, TEXAS

Exhibit B

KM Liquids Terminals, L.P.
0.230 Acre

Ezekiel Thomas Survey
Abstract No. 73

KMLT East Plant Impoundment # 3

STATE OF TEXAS §

COUNTY OF HARRIS §

METES AND BOUNDS DESCRIPTION of a 0.230 acre tract in the Ezekiel Thomas Survey, Abstract No. 73, Harris County, Texas. Said 0.230 acre tract is in a 123.5686 acre tract as described in a deed to KM Liquids Terminals, L.P. as recorded in Clerk's File No. 20070176988 in the Harris County Clerk's Office and is more particularly described by metes and bounds as follows:

COMMENCING at a concrete monument found in the south right-of-way line of Clinton Drive, (based on a width of 100-feet), said point is the northeast corner of a 24.2862 acre tract, called "Parcel Two" as described in a deed to GATX Terminals Corporation as recorded in Clerk's File No. G867917 in the Harris County Clerk's Office, same being the northwest corner of an 88.152 acre tract, called "Tract 1" as described in a deed to Houston Cement Company, L.P. as recorded in Clerk's File No. Y243302 in the Harris County Clerk's Office;

THENCE, South 03°27'58" East, along the east line of said 24.2862 acre tract, same being the west line of said 88.152 acre tract, at a distance of 427.55 feet pass the northeast corner of the aforementioned 123.5686 acre tract and continue for a total distance of 2,099.25 feet to an angle point, a found 5/8-inch iron rod bears South 03°27'58" East, 493.80 feet;

THENCE, South 86°32'02" West, perpendicular to the east line of said 123.5686 acre tract for a distance of 220.26 feet to the POINT OF BEGINNING and northeast corner of the herein described tract, said point having a Texas State Plane surface coordinate of N 13,832,997.86', E 3,169,069.37';

THENCE, South 00°19'55" West, along the easterly line of the herein described tract for a distance of 100.02 feet to the southeast corner of the herein described tract;

THENCE, West, along the southerly line of the herein described tract for a distance of 100.27 feet to the southwest corner of the herein described tract;

THENCE, North 00°19'55" East, along the westerly line of the herein described tract for a distance of 100.02 feet to the northwest corner of the herein described tract;

THENCE, East, along the northerly line of the herein described tract for a distance of 100.27 feet to the POINT OF BEGINNING; containing a computed area of 0.230 acres (10,029 square feet).

NOTES:

1. The bearings and coordinate shown hereon are based on the Texas Coordinate System of 1983, South Central Zone (scale factor 0.99987).

2. The corners of this tract have not been monumented at the request of the client.

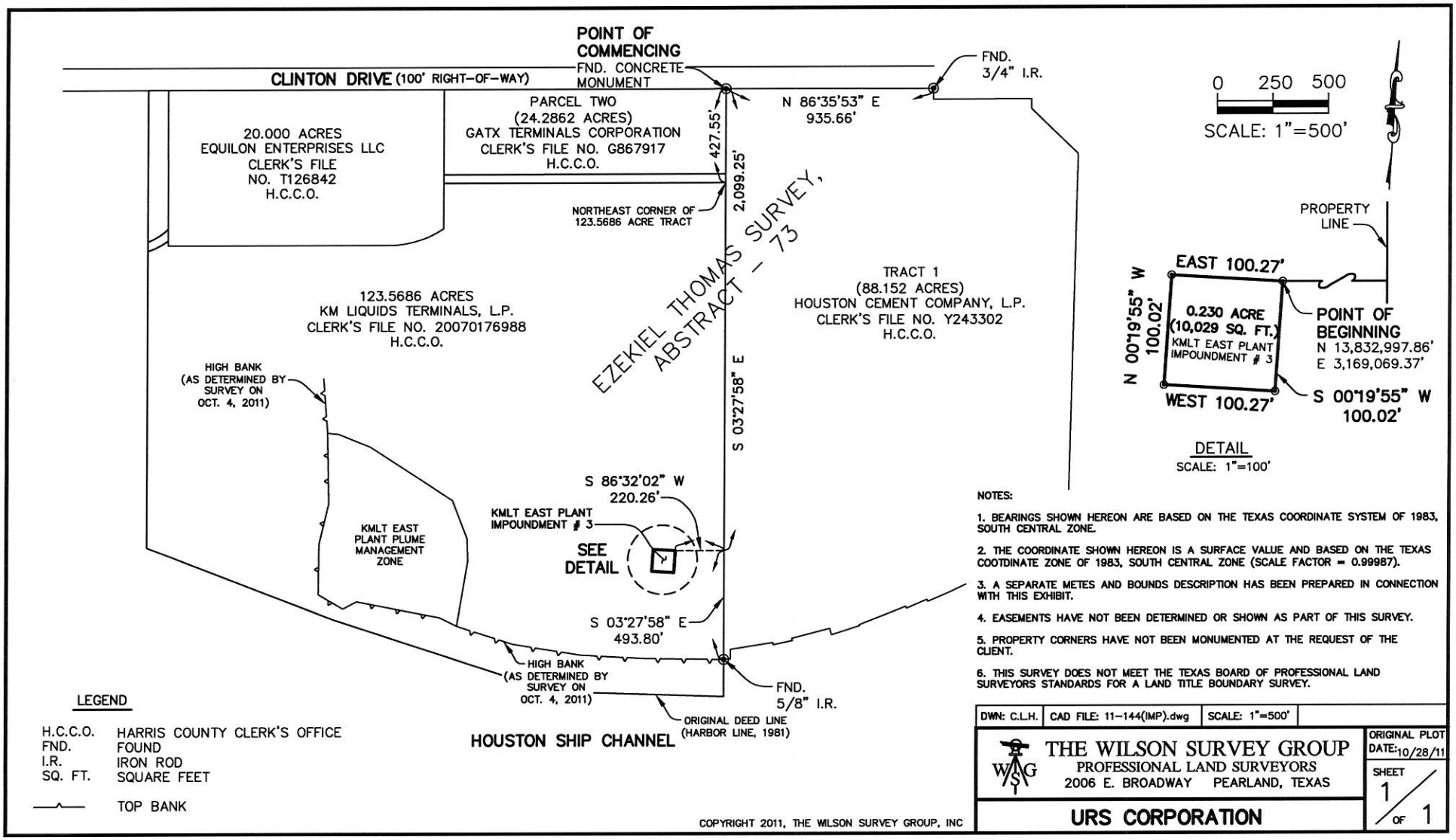
3. A separate exhibit map has been prepared in connection with this description.

The Wilson Survey Group, Inc.
2006 East Broadway, Suite 105
Pearland, Texas 77588
(281) 485-3991
Job No. 11-144

STATE OF TEXAS
REGISTERED
MICHAEL D. WILSON
4821
PROFESSIONAL
LAND SURVEYOR

Michael D. Wilson, R.P.L.S.
Registration No. 4821

10/31/11



LEGEND

H.C.C.O.	HARRIS COUNTY CLERK'S OFFICE
FND.	FOUND
I.R.	IRON ROD
SQ. FT.	SQUARE FEET
—^—	TOP BANK

NOTES:

1. BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE.
2. THE COORDINATE SHOWN HEREON IS A SURFACE VALUE AND BASED ON THE TEXAS COOTDINATE ZONE OF 1983, SOUTH CENTRAL ZONE (SCALE FACTOR = 0.99987).
3. A SEPARATE METES AND BOUNDS DESCRIPTION HAS BEEN PREPARED IN CONNECTION WITH THIS EXHIBIT.
4. EASEMENTS HAVE NOT BEEN DETERMINED OR SHOWN AS PART OF THIS SURVEY.
5. PROPERTY CORNERS HAVE NOT BEEN MONUMENTED AT THE REQUEST OF THE CLIENT.
6. THIS SURVEY DOES NOT MEET THE TEXAS BOARD OF PROFESSIONAL LAND SURVEYORS STANDARDS FOR A LAND TITLE BOUNDARY SURVEY.

DWN: C.L.H.	CAD FILE: 11-144(IMP).dwg	SCALE: 1"=500'

THE WILSON SURVEY GROUP
PROFESSIONAL LAND SURVEYORS
2006 E. BROADWAY PEARLAND, TEXAS

ORIGINAL PLOT DATE: 10/28/11

SHEET 1 OF 1

URS CORPORATION

COPYRIGHT 2011, THE WILSON SURVEY GROUP, INC

KM Liquids Terminals, L.P.
9.508 Acres

Ezekiel Thomas Survey
Abstract No. 73

KMLT East Plant Plume Management Zone

STATE OF TEXAS §

COUNTY OF HARRIS §

METES AND BOUNDS DESCRIPTION of a 9.508 acre tract in the Ezekiel Thomas Survey, Abstract No. 73, Harris County, Texas. Said 9.508 acre tract is in a 123.5686 acre tract as described in a deed to KM Liquids Terminals, L.P. as recorded in Clerk's File No. 20070176988 in the Harris County Clerk's Office and is more particularly described by metes and bounds as follows:

COMMENCING at a concrete monument found in the south right-of-way line of Clinton Drive (based on a width of 100-feet), said point is the northeast corner of a 24.2862 acre tract, called "Parcel Two" as described in a deed to GATX Terminals Corporation as recorded in Clerk's File No. G867917 in the Harris County Clerk's Office, same being the northwest corner of an 88.152 acre tract, called "Tract 1" as described in a deed to Houston Cement Company, L.P. as recorded in Clerk's File No. Y243302 in the Harris County Clerk's Office;

THENCE, South 03°27'58" East, along the east line of said 24.2862 acre tract, same being the west line of said 88.152 acre tract, at a distance of 427.55 feet pass the northeast corner of the aforementioned 123.5686 acre tract and continue for a total distance of 1,870.05 feet to a angle point, a found 5/8-inch iron rod bears South 03°27'58" East, 723.00 feet;

THENCE, South 86°32'02" West, perpendicular to the east line of said 123.5686 acre tract for a distance of 1,226.58 feet to the POINT OF BEGINNING and easterly corner of the herein described tract, said point having a Texas State Plane surface coordinate of N 13,833,165.80', E 3,168,051.03';

THENCE, South 24°24'04" East, along the easterly line of the herein described tract for a distance of 185.77 feet to a point for corner;

THENCE, South 05°29'48" East, continuing along the easterly line of the herein described tract for a distance of 101.04 feet to a point for corner;

THENCE, South 05°58'17" West, continuing along the easterly line of the herein described tract for a distance of 300.42 feet to a point on the northerly high bank of the Houston Ship Channel;

THENCE, along the northerly high bank of said Houston Ship Channel with following courses and distances:

North 66°42'08" West, for a distance of 87.19 feet to a point for corner;
North 82°25'01" West, for a distance of 378.66 feet to a point for corner;
South 58°53'43" West, for a distance of 70.36 feet to a point for corner;
North 62°45'38" West, for a distance of 128.05 feet to a point for corner;
North 02°43'27" West, for a distance of 227.22 feet to a point for corner;
North 09°37'34" East, for a distance of 190.03 feet to a point for corner;
North 04°34'53" West, for a distance of 321.42 feet to the northwest corner of the herein described tract;

THENCE, South 87°54'37" East, along the northerly line of the herein described tract for a distance of 50.19 feet to a point for corner;

THENCE, South 71°14'07" East, continuing along the northerly line of the herein described tract for a distance of 152.21 feet to a point for corner;

THENCE, South 60°00'24" East, continuing along the northerly line of the herein described tract for a distance of 444.27 feet to the POINT OF BEGINNING; containing a computed area of 9.508 acres (414,173 square feet).

NOTES:

1. The bearings and coordinate shown hereon are based on the Texas Coordinate System of 1983, South Central Zone (scale factor 0.99987).

2. The corners of this tract have not been monumented at the request of the client.

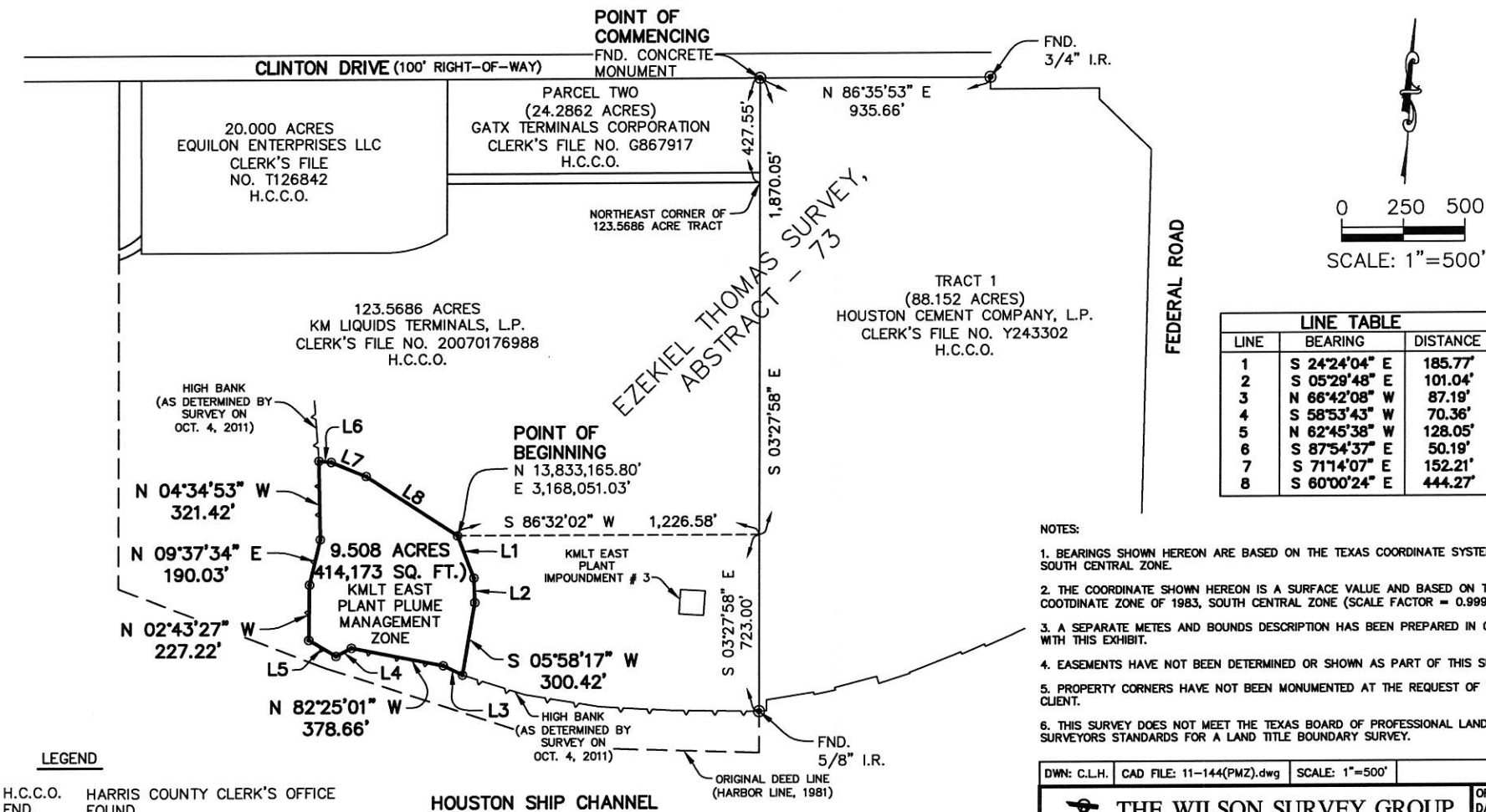
3. A separate exhibit map has been prepared in connection with this description.

The Wilson Survey Group, Inc.
2006 East Broadway, Suite 105
Pearland, Texas 77588
(281) 485-3991
Job No. 11-144



Michael D. Wilson, R.P.L.S.
Registration No. 4821

10/31/11



LINE TABLE		
LINE	BEARING	DISTANCE
1	S 24°24'04" E	185.77'
2	S 05°29'48" E	101.04'
3	N 66°42'08" W	87.19'
4	S 58°53'43" W	70.36'
5	N 62°45'38" W	128.05'
6	S 87°54'37" E	50.19'
7	S 71°14'07" E	152.21'
8	S 60°00'24" E	444.27'

NOTES:

1. BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE.
2. THE COORDINATE SHOWN HEREON IS A SURFACE VALUE AND BASED ON THE TEXAS COOTDINATE ZONE OF 1983, SOUTH CENTRAL ZONE (SCALE FACTOR = 0.99987).
3. A SEPARATE METES AND BOUNDS DESCRIPTION HAS BEEN PREPARED IN CONNECTION WITH THIS EXHIBIT.
4. EASEMENTS HAVE NOT BEEN DETERMINED OR SHOWN AS PART OF THIS SURVEY.
5. PROPERTY CORNERS HAVE NOT BEEN MONUMENTED AT THE REQUEST OF THE CLIENT.
6. THIS SURVEY DOES NOT MEET THE TEXAS BOARD OF PROFESSIONAL LAND SURVEYORS STANDARDS FOR A LAND TITLE BOUNDARY SURVEY.

LEGEND

H.C.C.O.	HARRIS COUNTY CLERK'S OFFICE
FND.	FOUND
I.R.	IRON ROD
SQ. FT.	SQUARE FEET
—^—	TOP BANK

DWN: C.L.H. | CAD FILE: 11-144(PMZ).dwg | SCALE: 1"=500'

THE WILSON SURVEY GROUP
PROFESSIONAL LAND SURVEYORS
2006 E. BROADWAY PEARLAND, TEXAS

ORIGINAL PLOT DATE: 10/28/11

SHEET 1 OF 1

URS CORPORATION

COPYRIGHT 2011, THE WILSON SURVEY GROUP, INC

Exhibit B
Plume Management Zone Maintenance and Monitoring Requirements

Facility monitoring will consist of semi-annual groundwater monitoring of the approved plume management zone well network with annual reporting to the TCEQ. More detail regarding the facility monitoring and maintenance can be found in the TCEQ-approved Response Action Plan for the East Plant of the Galena Park Terminal (August 2007).

RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas

JUL 12 2012

Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

FILED
2012 JUL 12 PM 2:19
Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Zak Covar, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 24, 2014

RECEIVED

Mr. John Kennedy
Project Manager, Environmental Remediation
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval - *Response Action Plan Addendum – Central Plant*, dated January 20, 2014
Kinder Morgan Liquids Terminals, LLC – Galena Park
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054
EPA ID No. TXD026481523; RN 100237452, CN 601545940

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has completed the review of the above referenced report received by the Remediation Division on March 11, 2014. Based on the TCEQ review, the RAP fulfills the requirements of 30 Texas Administrative Code (TAC) §350.94. The approved RAP proposes continued monitoring and active groundwater recovery at Plume Management Zone (PMZ) designated wells until the concentrations of constituents of concern meet residential protective concentration levels. Please implement the RAP, and if applicable, submit a Response Action Effectiveness Report (RAER) in accordance with the schedule proposed in the approved RAP. Upon attainment of the response objectives, a Response Action Completion Report (RACR) must be submitted, in accordance with 30 TAC §350.95. The approved RAP also contains documentation fulfilling the requirements of 30 TAC §350.94(k), which includes a proposed monitoring and reporting schedule for post-response action care activities required under Remedy Standard B.

The RAP contains proposed institutional control language sufficient to fulfill the requirements of 30 TAC §350.111. Proof of filing the institutional control must be submitted to the TCEQ within one-hundred-twenty (120) days of the date of this letter in accordance with 30 TAC §350.33(f)(4)(C)(i).

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the report.

Questions concerning this letter should be directed to me at (512) 239- 2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit an original and one copy on CD of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP/CA Section,
Remediation Division
Texas Commission on Environmental Quality

MH/mdh

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

VCP-CA Section, MC 127
Remediation Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

RETURN SERVICE REQUESTED

OFFICIAL BUSINESS
STATE OF TEXAS
PENALTY FOR
PRIVATE USE

Presort
First Class Mail
ComBasPrice

U.S. POSTAGE PITNEY BOWES
ZIP 78753 $ 000.40°
02 1M
0001375722 JUL 02 2014

46 EQU-SSB 77547

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Stephanie Bergeron Perdue, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 10, 2018

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval of

- *Draft Revised Response Action Plan for TCI Plant,* dated January 15, 2018.
- *Draft Revised Response Action Plan, East Plant Gate 6 Area to the 2014 RAP,* dated March 5, 2018
- *Draft Response Action Plan, Old Pump House (OPH) No. 5 Area of Concern, (East Plant),* dated March 28, 2018;

Kinder Morgan Liquids Terminals, LLC - Galena Park;
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054;
EPA ID No. TXD026481523;
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced Response Action Plans (RAPs) received by the Remediation Division on January 24, March 6, and April 2, 2018, respectively. Based on the TCEQ review, the Draft RAPs fulfill the requirements of 30 Texas Administrative Code (TAC) §350.94. The TCEQ hereby approves Draft RAP with the following conditions:

- Within one-hundred-twenty (120) days from the date of this letter please submit the above referenced Response Action Plans (RAPs) as part of a Class 3 Permit Modification application. The Modification to the Permit shall incorporate proposed response actions for the OPH No. 5 Area of Concern, East Plant Gate 6 Area, and the TCI Plant, and any other areas at the Galena Park site in which the response action will take more than 3 years to complete. Please submit an original and three copies of the Class 3 Permit Modification application to the IHW Permits Section at mail code MC130.
- The TCEQ recommends that the Implementation Schedule for the submittal of proof of institutional controls (ICs) in the form of deed notice be consistent between RAPs. For example, proof of filing be submitted within 120 days of RAP approval in accordance with 30 TAC §350.33.
- Since the CP Attachment A maps for the final draft permit will be in black and white the TCEQ recommends that the designated monitoring well location for point-of-exposure well, attenuation monitoring, etc., have a different symbol so the different well can be easily distinguished from one another.
- Revise the deed Notice language in Appendix 4 of the RAPs to include the following information as required by 30 TAC §350.111 and per TCEQ Guidance RG-366/TRRP 16 *Institutional Controls under TRRP*:

- A metes and bounds description of the portion(s) of the affected property to which the IC applies;
- A plat map clearly demarcating the portion(s) of the affected property to which the IC applies. The map must contain a north arrow, a correlating map scale, and a legend identifying any used symbols or abbreviations;
- Both the metes and bounds and plat map need to be certified by a registered professional land surveyor or registered by the Texas Bard of Professional Surveying attesting to the accuracy of the descriptions.
- A list of constituents of concern for each environmental media that contain concentrations above their respective protective concentration levels (PCLs).
- A description of any monitoring and maintenance requirements of the physical controls and/or ICs, or compliance with health and safety plans.
- The TCEQ Program and identifier number which should be SWR No. 30573.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the plan.

Questions concerning this letter should be directed to me at (512) 239-2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MH/bk

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 29, 2017

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval of Response Action Plan
Draft Addendum Response Action Plan, West Plant, dated October 27, 2017
Kinder Morgan Liquids Terminals, LLC - Galena Park;
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054;
EPA ID No. TXD026481523;
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced Response Action Plan (RAP) received by the Remediation Division on October 30, 2017. The Draft Addendum Response Action Plan was prepared to incorporate soil and groundwater impacts at the former Vopak Terminal Galena Park, Inc. (VTGP) into the TCEQ approved plume management zone (PMZ) for the West Plant on the Kinder Morgan Liquids Terminals, LLC (Kinder Morgan) Galena Park Terminal. Kinder Morgan purchased the VTGP property on February 7, 2015. Since the impacted soil and groundwater from the VTGP shall be incorporated into the existing West Plant PMZ, the existing deed notice shall be modified to incorporate the affected soils and groundwater from the VTGP, and expand the West Plant PMZ boundary. The response action shall include continued semiannual groundwater monitoring within the expanded PMZ, continued groundwater recovery in the southeast corner of the West Plant PMZ, and annual reporting.

Based on the TCEQ review, the Draft Addendum RAP fulfills the requirements of 30 Texas Administrative Code (TAC) §350.94. The TCEQ hereby approves Draft Addendum RAP with the following conditions:

1. If the proposed response action for the revised West Plant PMZ is determined to be longer than 3 years to achieve cleanup goals, then the West Plant PMZ shall need to be incorporated into the Permit/Compliance Plan corrective action program as part of the Class 3 Modification application. As specified in the TCEQ November 9, 2016 letter the due date for submittal of the above reference Class 3 Permit Modification application is deferred until assessment at Gate 6 is completed. At that time, a new deadline will be re-established for submittal of the application to include changes to the corrective action program.
2. Please proceed with implementation of the Draft Addendum RAP, and submittal of required reports in accordance with the schedule proposed in the approved Addendum RAP. Upon attainment of the response objectives, a Response Action Completion Report (RACR) must be submitted, in accordance with 30 TAC §350.95.
3. The approved Draft Addendum RAP contains proposed institutional control language sufficient to fulfill the requirements of 30 TAC §350.111. Proof of filing of the

institutional controls must be submitted within 120 days of the date of this letter in accordance with §350.33(f)(4)(C)(i) regarding Remedy Standard B groundwater response action PMZ.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the plan.

Questions concerning this letter should be directed to me at (512) 239-2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MH/bk

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION				REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION	
Site Name:	**KM Liquids Terminals LLC - Galena Park Terminal**			Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No	
Address 1:	**906 Clinton Drive**			Program Area:	**IHW CORRECTIVE ACTION**
Address 2:				Mail Code:	**MC-127**
City:	**Galena Park**	State:	**Texas**	Is This A New Site To This Program Area? ☐ Yes ☑ No	
Zip Code:	**77547**	County:	**Harris**	**TCEQ Facility ID No.:**	**30573**
TCEQ Region:	**Region 12 - Houston**			**--Leave This Field Blank--**	**--Leave This Field Blank--**

DOCUMENT(S) IDENTIFICATION

	PHASE OF REMEDIATION	DOCUMENT NAME
1.	**REMEDIATION**	**RESPONSE ACTION PLAN (RAP) REVISION**
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name:	**Johnny Kennedy**						
Company:	**KM Liquids Terminals LLC**	Phone Number:	**(713) 654-6035**		Fax Number:		
Address 1:	**1500 Clinton Drive**	City:	**Galena Park**	State:	**Texas**	Zip Code:	**77547**
Address 2:		Email Address:	[redacted]				

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name:	**Ryan Carroll**						
Company:	**Tetra Tech, Inc.**	Phone Number:	**(832)-251-5160**		Fax Number:		
Address 1:	**1500 CityWest Blvd.**	City:	**Houston**	State:	**Texas**	Zip Code:	**77042**
Address 2:		Email Address:	[redacted]				

TCEQ INTERNAL USE ONLY

Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**RAP REV**	4.	
2.		5.	
3.			

KINDER MORGAN
KM Liquids Terminals LLC

June 12, 2024

Ms. Maria Sifuentes-Chavez
Project Manager, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality
Building D, MC-127
12100 Park 35 Circle
Austin, Texas 78753

Re: Report Transmittal – Response Action Plan Addendum, Central Plant
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
ISWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA I.D. No. TXD026481523

Dear Ms. Sifuentes-Chavez:

Please find enclosed one hard copy and one electronic copy of the Response Action Plan (RAP) Addendum for the Central Plant Waste Management Area (WMA) located in the Central Plant on the KM Liquids Terminals LLC (KMLT) Galena Park Terminal.

The RAP Addendum is being submitted to make a minor adjustment to monitoring well network and upgradient plume management boundary. Based on these minor revisions, the RAP Addendum only includes documentation related to the changes and does not include the entire RAP Addendum document in this submittal. This 2024 RAP Addendum was prepared to update the 2014 RAP Addendum, with the following information:

- Removal of upgradient well MW-41 (which was destroyed) from the sampling plan. MW-38 will remain as the upgradient well. Groundwater analytical data for MW-38 presented in the Annual Corrective Action Program Reports for the last four years demonstrates MW-38 remains the appropriate background well.
- Adjusted/updated the Plume Management Zone (PMZ) northern boundary based on MW-38 as the upgradient well. Figures 2D (PMZ Map), 3A (Monitoring and Sampling Points) and 5A (Post-Response Action Care Sampling Points) have been updated to reflect the slight PMZ boundary change.
- Included the filed institutional control for Central Plant for reference.

KMLT is proposing to include the RAP Addendum for Central Plant as part of the renewal of the Hazardous Waste Permit and Compliance Plan.

If you have any questions regarding this submittal or require additional information, please feel free to contact me at (713) 654-6035, or if you wish you can e-mail me at [redacted]

Sincerely,
KM Liquids Terminals LLC



Johnny Kennedy
Remediation Manager

Enclosure

cc: Waste Program Manager – TCEQ Region 12, Houston, Texas

RESPONSE ACTION PLAN ADDENDUM

CENTRAL PLANT

KM LIQUIDS TERMINALS LLC

GALENA PARK TERMINAL
906 CLINTON DRIVE
GALENA PARK, HARRIS COUNTY, TEXAS

Prepared for:

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, TX 77547

Prepared by:

1500 CITYWEST BLVD., SUITE 1000
HOUSTON, TEXAS 77042

JUNE 12, 2024

A Report Prepared for:

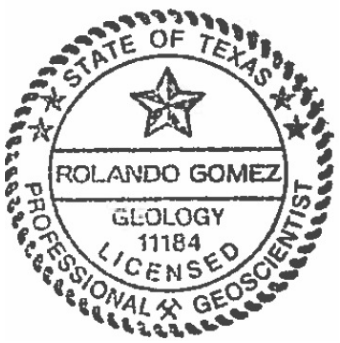
KM Liquids Terminals LLC
Galena Park, TX

Galena Park Terminal
Central Plant Response Action Plan Addendum

June 12, 2024

Prepared by:

Ryan F. Carroll
Senior Project Manager



Rolando Gomez, P.G.
Senior Project Manager

1500 CityWest Boulevard
Suite 1000
Houston, Texas 77042
p| 832.251.5160

ATTACHMENTS

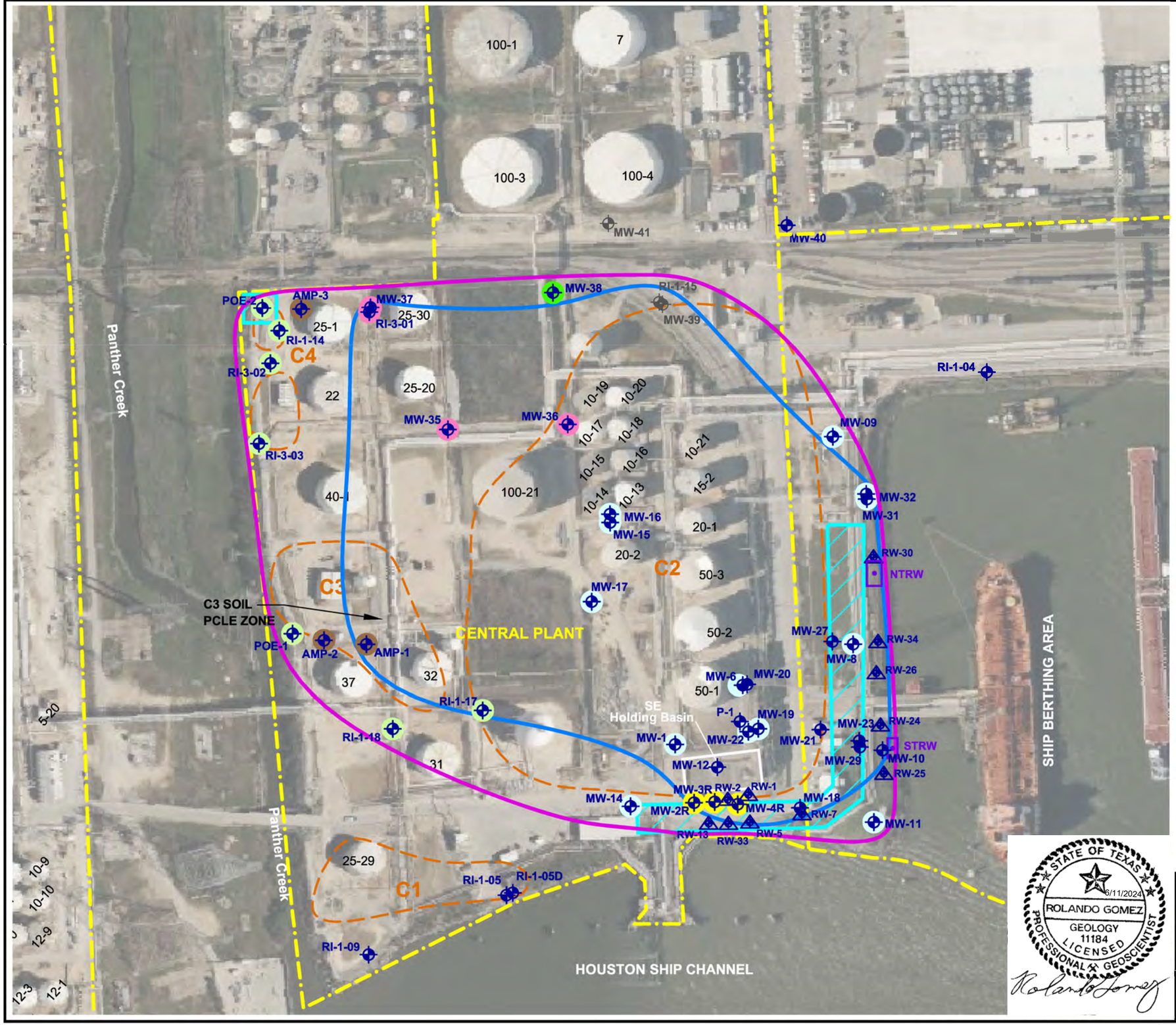
Attachment 2D	Plume Management Zone Map
Attachment 3A	Monitoring and Sampling Points Map
Attachment 5A	Post-Response Action Care Sampling Points Map

APPENDICES

Appendix 3	Deed Notice

Attachment 2D

Plume Management Zone Map



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- WELL PLUGGED AND ABANDONED OR DESTROYED
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- APPROXIMATE LOCATION OF GROUNDWATER RECOVERY SYSTEM
- APPROXIMATE LOCATION OF RECOVERY TRENCH IN THE SANDY CHANNEL FILL (NTRW - NORTH TRENCH RECOVERY WELL STRW - SOUTH TRENCH RECOVERY WELL)
- SOIL and GROUNDWATER PCLE ZONE
- PLUME MANAGEMENT ZONE

PMZ MONITORING WELLS

- UPGRADIENT WELL
- SOURCE WELL
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE (POE) WELL
- ATTENUATION MONITORING POINT (AMP) WELL

NOTE:

SAMPLES NOT COLLECTED FROM RECOVERY WELLS, RECOVERY TRENCHES, OR WELLS WITH NAPL PRESENT PER THE COMPLIANCE PLAN.

Source:

2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
6/11/2024
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

TETRA TECH

Title: **Plume Management Zone**

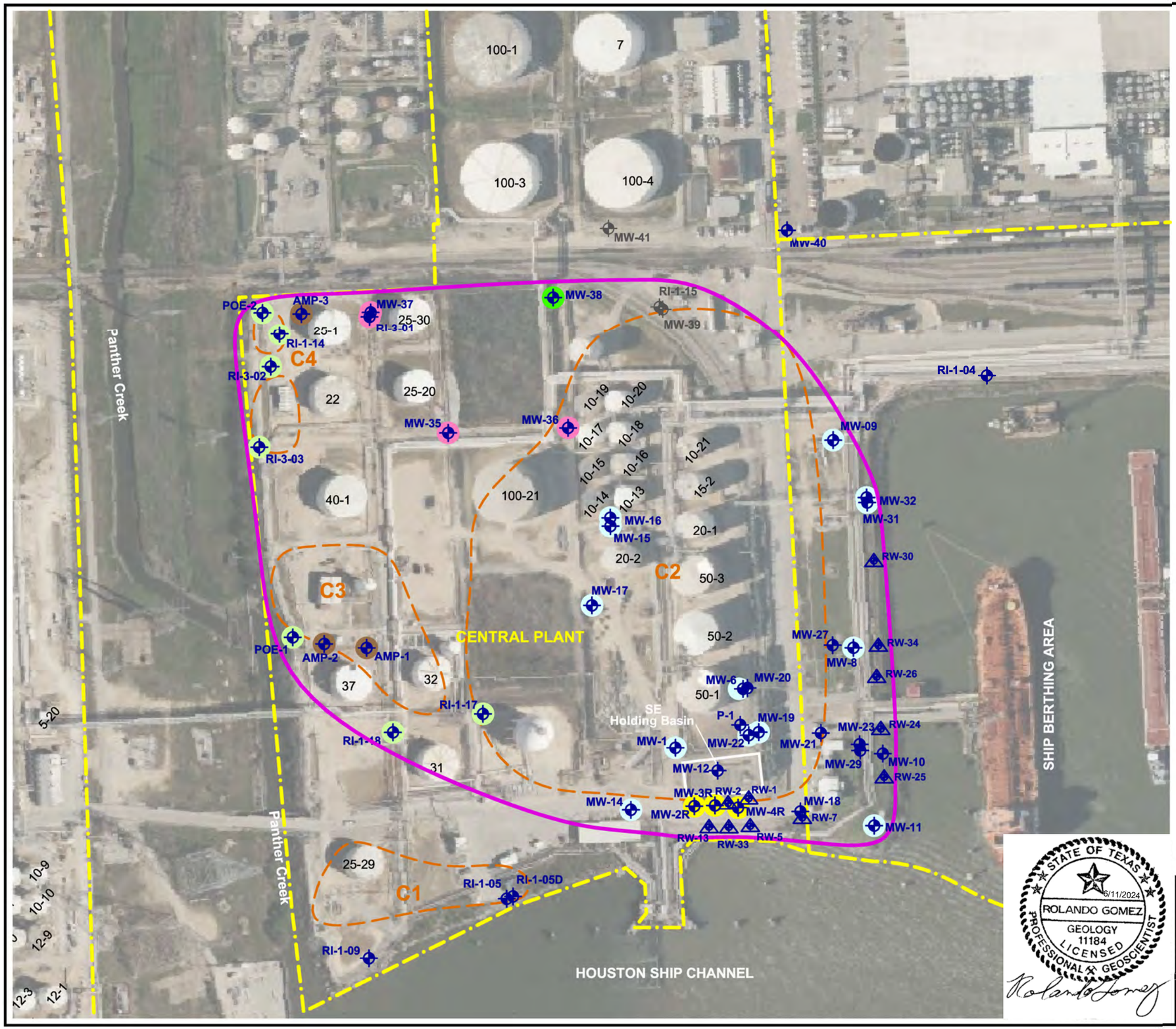
Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: **KMLT**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	4-16-14	25015231	Plume Management Zone Map.dwg	2D
	Chk'd by: RP	Date: 4-16-14			

Attachment 3A

Monitoring and Sampling Points Map



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- WELL PLUGGED AND ABANDONED OR DESTROYED
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- PLUME MANAGEMENT ZONE

PMZ MONITORING WELLS

- UPGRADIENT WELL
- SOURCE WELL
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE (POE) WELL
- ATTENUATION MONITORING POINT (AMP) WELL

Source:
2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
6/11/2024
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

TETRA TECH

Title: **Monitoring and Sampling Points**

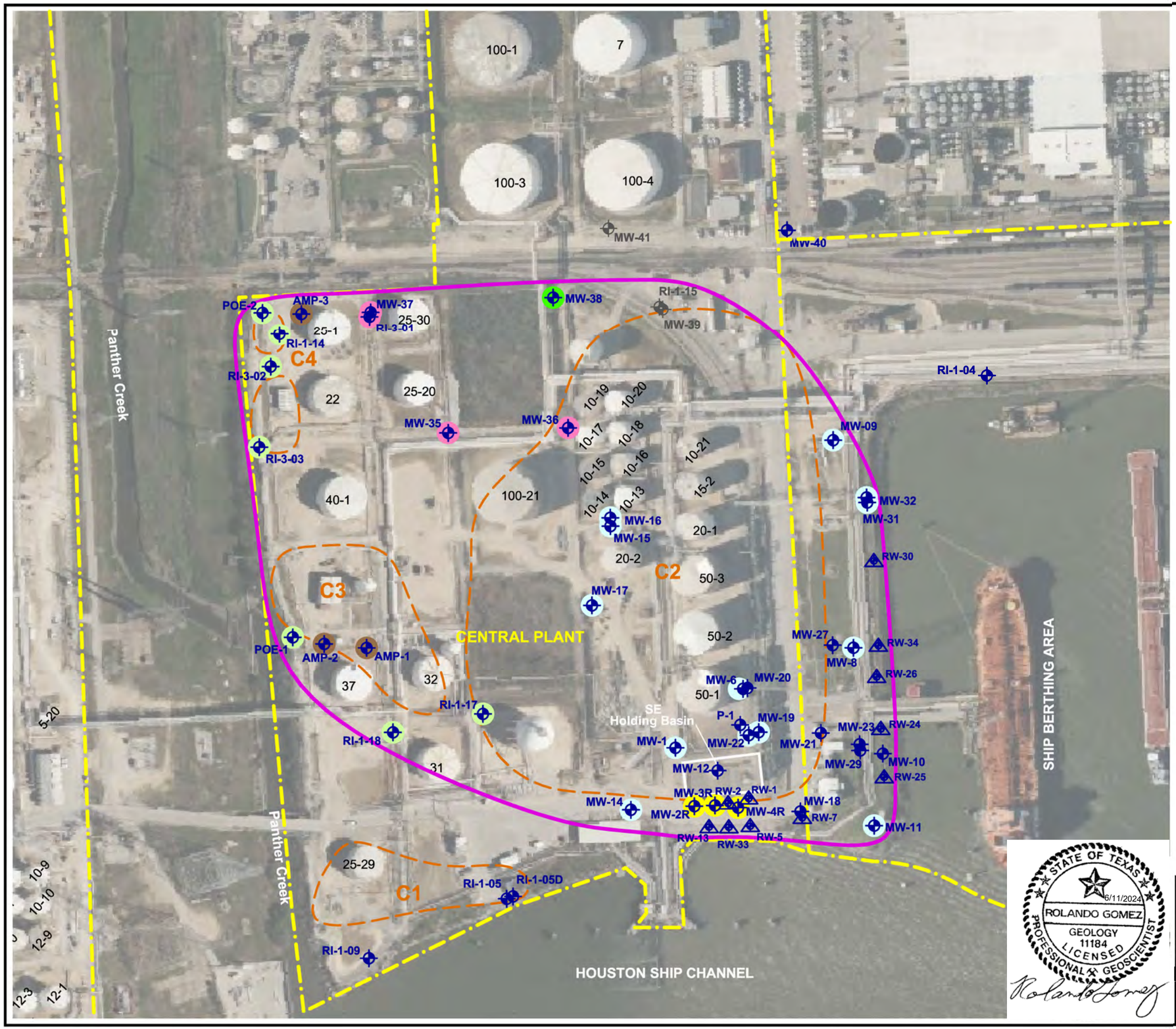
Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: **KMLT**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	4-16-14	25015231	Monitoring and Sampling Points.dwg	3A
	Chk'd by: RP	Date: 4-16-14			

Attachment 5A

Post-Response Action Care Sampling Points Map



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- WELL PLUGGED AND ABANDONED OR DESTROYED
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- PLUME MANAGEMENT ZONE

PMZ MONITORING WELLS

- UPGRADIENT WELL
- SOURCE WELL
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE (POE) WELL
- ATTENUATION MONITORING POINT (AMP) WELL

Source:
2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST
6/11/2024

TETRA TECH

Title: **PRAC Sampling Points**

Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	4-16-14	25015231	PRAC Sampling Points.dwg	5A
	Chk'd by: RP	Date: 4-16-14			

Appendix 3

Institutional Controls

KINDER MORGAN

August 11, 2014

Ms. Maureen Hatfield, P.G., Project Manager
Texas Commission on Environmental Quality
Team 1, VCP-CA Section,
Remediation Division, MC-127
12100 Park 35 Circle
Austin, TX 78753

Re: *Executed Copy of the Deed Notice – Response Action Plan Addendum – Central Plant*
Galena Park Terminal
KM Liquids Terminals LLC
Galena Park, Texas
TCEQ SWR No. 30573

Dear Ms. Hatfield:

Attached please find the certified copy of the deed notice providing institutional control for the KM Liquids Terminals LLC (KMLT) Galena Park Terminal Central Plant Area in Galena Park, Texas.as required by the Response Action Plan (RAP) Addendum dated March 20, 2014. The RAP Addendum was approved by the Texas Commission on Environmental Quality (TCEQ) by letter dated June 24, 2014.

The deed notice was filed with the Harris County Courthouse Clerk's Office on July 30, 2014, within 120 days as per the RAP Addendum. The deed notice provides institutional control for the Plume Management Zone (PMZ) established at the Central Plant Area of the Terminal, and includes Exhibit A (legal property description) and Exhibit B (meets and bounds descriptions and plat maps of the PMZ).

If you have any questions regarding the information presented in this submittal, please do not hesitate to contact me at (713) 920-8423.

Sincerely,
KM Liquids Terminals LLC



Johnny Kennedy, P.G.
Remediation Project Manager

cc: Mr. Jason Ybarra, Waste Program Manager - TCEQ, Region 12 Office, Houston, Texas
Raaj U. Patel, P.G., Program Manager - URS Corporation

906 Clinton Drive ***Galena Park, TX 77547*** ***Ph: 713-920-8423***
Fax: 713-472-7660

25
Notice
F

20140334044
07/30/2014 RP1 $112.00

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

P
Lee

Lee
To the
Public

A legal property description used in the last recorded vesting deed, covering the Property that includes the entire recorded tract of land held by the owner executing this deed notice, is attached hereto and incorporated herein by reference as Exhibit A.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

RP 092-29-0278

METES AND BOUNDS DESCRIPTION for a 28.4814 acre tract of land extending over, through, along and across a called 31.96 acre tract of land (Tract B), and a called 2.01 acre tract (Tract No. 2), as recorded in Volume 1163, Page 515 , Deed Records of Harris County, Texas, and the residue of a 123.5686 acre tract of land, as recorded in File No. 20070176988, Film Code 041-65-1336, Official Public Records of Real Property, Harris County, Texas, said tract being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

D

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.

BEGINNING in the East property line of said 2.01 acre tract (Tract No. 2), said "POINT OF BEGINNING" being South 03°25'40" East, along said East property line, a distance of 146.58 feet from the calculated Northeast corner of said 2.01 acre tract (Tract No. 2), said Northeast corner being at the intersection of the South right-of-way line of Union Pacific Railroad and the West property line of said 123.5686 acre tract, said "POINT OF BEGINNING" having coordinates N=13,832,233.24, E=3,166,211.22;

THENCE, South 39°37'03" East, a distance of 140.35 feet to a point;

THENCE, a distance of 293.98 feet, along the arc of a curve to the right, having a radius of 475.00 feet, a delta angle of 35°27'38", and a chord bearing of South 21°53'13" East, a distance of 289.31 feet to a point;

THENCE, South 04°09'24" East, a distance of 287.20 feet to a point; THENCE, South 02°34'21" East, a distance of 132.48 feet to a point; THENCE, South 00°39'05" West, a distance of 140.48 feet to a point;

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

THENCE, a distance of 144.61 feet, along the arc of a curve to the right, having a radius of 70.00 feet, a delta angle of 93°48'37", and a chord bearing of South 47°33'24" West, a distance of 102.23 feet to a point;

THENCE, North 85°32'18" West, a distance of 223.05 feet to a point; THENCE, South 89°47'15" West, a distance of 113.35 feet to a point; THENCE, North 84°13'50" West, a distance of 153.90 feet to a point;

THENCE, a distance of 182.43 feet, along the arc of a curve to the right, having a radius of 750.00 feet, a delta angle of 13°56'12", and a chord bearing of North 77°15'44" West, a distance of 181.98 feet to a point;

THENCE, North 70°17'39" West, a distance of 59.38 feet to a point;

THENCE, a distance of 279.53 feet, along the arc of a curve to the right, having a radius of 1,500.00 feet, a delta angle of 10°40'38", and a chord bearing of North 64°57'19" West, a distance of 279.13 feet to a point;

THENCE, North 59°37'00" West, a distance of 35.46 feet to a point;

THENCE, a distance of 345.62 feet, along the arc of a curve to the right, having a radius of 375.00 feet, a delta angle of 52°48'25", and a chord bearing of North 33°12'48" West, a distance of 333.52 feet to a point;

THENCE, North 06°48'35" West, a distance of 515.05 feet to a point;

THENCE, a distance of 122.18 feet, along the arc of a curve to the right, having a radius of 75.00 feet, a delta angle of 93°20'14", and a chord bearing of North 39°51'32" East, a distance of 109.11 feet to a point;

THENCE, North 86°31'39" East, a distance of 342.26 feet to a point; THENCE, North 87°49'36" East, a distance of 379.30 feet to a point;

THENCE, a distance of 60.41 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 11°32'13", and a chord bearing of South 86°24'18" East, a distance of 60.31 feet to a point;

THENCE, South 80°38'11" East, a distance of 57.43 feet to a point;

THENCE, a distance of 214.78 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 41°01'09", and a chord bearing of South 60°07'37" East, a distance of 210.22 feet to a point;
THENCE, South 39°37'03" East, a distance of 19.88 feet to the POINT OF BEGINNING and containing 1,240,669 square feet or 28.4814 acres of land.

The certified meets and bounds description and corresponding plat maps of the Affected Property for groundwater (referred to as the Plume Management Zone) are attached hereto and incorporated herein by reference as Exhibit B.

The constituents of concern (COCs) in groundwater at the Affected Property (the Plume Management Zone),

RP 092-29-0279

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

defined here as exceeding TRRP Protective Concentration Levels (PCLs) for residential and commercial/industrial land use, are summarized on the attached Table 1.

This notice is required for the following reasons:

> ***The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC 350.33(f)(4). The undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit B provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.***

As of the date of this Notice, the record owner of fee title to the Property is KM Liquids Terminals, L.P. with an address of 1001 Louisiana St., Suite 1000, Houston, Texas 77002.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 22nd day of July, 2014.

KM Liquids Terminals LLC

By: _____

Name: Jeffery A. Hersperger

Title: General Manager

STATE OF TEXAS

RP-2014-298780

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

HARRIS COUNTY

BEFORE ME, on this the 22 day of July, 2014 personally appeared [name] Jeffrey Hersperger [title] General Manager [company] KinderMorgan known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 22 day of July, 2014.

Notary Public in and for the State of Texas,
County of Harris

My Commission Expires: 11/6/16

Marla J Tarwater

MARLA J TARWATER
My Commission Expires
November 6, 2016

Return ✓✓
Johnny Kennedy, P.G.
Remediation Project Manager
KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, TX 77547

RP-892-29-0281

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Table 1

Groundwater Constituents of Concern (COCs)
Central Plant
KM Liquids Terminals LLC
Galena Park, Texas

COC
Acenaphthene
Benzene
Benzo(a)anthracene
bis(2-chloroethyl)ether
Butylbenzylphthalate
Carbazole
Chlorobenzene
m&p-cresol
2,4-D
Dibenzofuran
cis-1,2-Dichloroethene
2,4-Dichlorophenol
2,4-Dimethylphenol
Ethylbenzene
Fluoranthene
Fluorene
Lead
2-Methylphenol
Naphthalene
Phenanthrene
Pyrene
Tetrachloroethene
Trichloroethene
Toluene
1,2,3-Trichloropropane
Vinyl Chloride
Xylenes

RP-892-29-0782

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP-092-29-0783

EXHIBIT A

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

20070176988
03/23/2007 RP2 $64.00

SPECIAL WARRANTY DEED AND ASSIGNMENT

STATE OF TEXAS §
§ KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF HARRIS §

THAT, FOR TEN DOLLARS ($10.00) and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, **KINDER MORGAN LIQUIDS TERMINALS LLC**, a Delaware limited liability company ("Grantor"), whose address is 500 Dallas, Suite 1000, Houston, Texas 77002, does hereby grant, bargain, sell, convey, assign, set over, and deliver unto **KM LIQUIDS TERMINALS, L.P.**, a Delaware limited partnership ("Grantee"), whose address is 500 Dallas, Suite 1000, Houston, Texas 77002, all of Grantor's right, title, and interest in and to the property, rights, and interests described below (collectively, the "Property"):

A. That certain real property and real property interests described in those certain instruments and documents recorded in the real property records of Harris County, Texas which are more particularly described on Exhibit A attached hereto, together with all buildings, improvements and fixtures thereon;

B. Those certain easements, tenements, hereditaments, privileges and appurtenances in any way belonging to the property described in Item 1 above, including, without limitation, Grantor's right, title and interest, if any, in and to (a) any land to the midpoint of the bed of any highway, street, road or avenue, open or proposed, in front of, abutting or adjoining any such property, (b) any land lying in or under the bed of any creek, stream, bayou or river running through, abutting or adjacent to such property, (c) any riparian, appropriative or other water rights of Grantor appurtenant to such property and relating to surface or subsurface waters, (d) all wastewater (sewer) treatment capacity and all water capacity assigned to such property, (e) any oil, gas or other minerals or mineral rights relating to such property or to the surface or subsurface thereof owned by Grantor, (f) any strips, gores or pieces of property abutting, bounding or which are adjacent or contiguous to such property and (g) all easements, right-of-ways, rights of ingress or egress and reversionary interests benefiting such property; and

C. Without limiting the foregoing, all other rights, titles, interests (of whatever kind or character, whether legal or equitable, whether vested or contingent, and whether now owned or hereafter acquired by operation of law or otherwise) of Grantor in and to any of the property described in paragraphs A or B above and/or that otherwise relate to the properties, interests or items described in paragraphs A and B above, even though Grantor's rights, titles, and interest in

RP-2007-0176988

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

same may be incorrectly described in, or a description of such rights, titles and interests be omitted from, Exhibit A.

TO HAVE AND TO HOLD the Property unto Grantee and its successors and assigns to WARRANT AND FOREVER DEFEND all and singular title to the Property unto Grantee, it successors and assigns, against every person whomsoever lawfully claiming the same or any part thereof by, through or under Grantor, but not otherwise.

This Special Warranty Deed and Assignment is subject to the following terms and conditions:

1. Pursuant to that certain Contribution and Assumption Agreement (the "Contribution Agreement") dated September 1, 2004 by and between Grantor and Grantee, Grantor conveyed the Property to Grantor. Grantor and Grantee omitted to record this Special Warranty Deed and Assignment, but it is hereby clarified that this instrument with all of its terms and provisions, shall be effective as of the date of the Contribution Agreement at 9:00 a.m. Houston, Texas time on September 1, 2004 (the "Effective Time").

2. The terms, covenants and conditions hereof shall be binding upon and inure to the benefit of Grantor and Grantee, and their successors and assigns, and such terms, covenants and conditions shall be covenants running with the land.

3. This instrument is subject to the terms and conditions of (a) the instruments and agreements referred to in Exhibit A hereto and (b) the instruments and agreements which constitute the record chain of title into Grantor. Grantee agrees to be bound by and assume all obligations and rights created by said instruments, assignments and by recorded agreements related thereto.

4. Anything in this instrument to the contrary notwithstanding, this instrument shall not assign any of the Property or any benefits arising thereunder or resulting therefrom that (a) are not assignable, in whole or in part, or (b) require the consent or approval of the counter-party for the valid assignment thereof and such consent or approval has not been obtained on or before the Effective Time. If any such consents are not obtained before the Effective Time, Grantor and Grantee will use their reasonable best efforts to take such actions as may be possible without violation or breach of such Property or any instrument or agreement relating to such Property to effectively grant to Grantee the economic benefits of, and impose the economic burdens of, such Property.

[SIGNATURE PAGE FOLLOWS]

RP 092-29-0785

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

[ACKNOWLEDGMENTS PAGE TO SPECIAL WARRANTY DEED
AND ASSIGNMENT– PAGE 1 OF 1]

STATE OF TEXAS

COUNTY OF HARRIS

The foregoing instrument was acknowledged before me on this March 12th, 2007, by Jeffrey R. Armstrong, the President of KINDER MORGAN LIQUIDS TERMINALS LLC, a Delaware limited liability company, on behalf of the limited liability company.

Janice D. Sanford
Notary Public, State of Texas

JANICE D SANFORD
My Commission Expires
October 19, 2008

STATE OF TEXAS

COUNTY OF HARRIS

The foregoing instrument was acknowledged before me on this March 12th, 2007, by Jeffrey R. Armstrong the President of KM Liquids Partners GP LLC, the general partner of KM LIQUIDS TERMINALS, L.P., a Delaware limited partnership, on behalf of said limited partnership.

Janice D. Sanford
Notary Public, State of Texas

JANICE D SANFORD
My Commission Expires
October 19, 2008

HOUSTON\1771385.3

RP-2007-29-10785

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29 0707

Exhibit A

Grantor	Date	Instrument	Volume/Page	Abstract Survey	County		
Fee Property							
The Texas Company	04/18/1952	Deed	2433/332	Ezekiel Thomas A-73	Harris	92.429 acres	
Phillips Petroleum Company	11/25/1953	Deed	2690/551	Wm Vince A-78	Harris	34.21/33.88253 acres 111.4137 acres	#76-007
James E. Hughes	09/30/1954	Deed	2833/92	Wm Vince A-78	Harris	.898 acres	#76-007
Crown Central Petroleum Corp.	11/10/1954	Deed	2860/668	Wm Vince A-78	Harris	1.256 acres	#76-007
Merle Moore Garrett et vir	04/07/1966	Deed	C288395	Ezekiel Thomas A-73	Harris	17.66 & 69.31248 acres	
Coastal State Marketing, Inc.	10/07/1970	Deed	8170/368	James Seymour A-698	Harris	Outlot 115 of Subdivision Deepwater	#76-007
Industrial Development Corp.	07/31/1972	Deed	148-22-1361	James Seymour A-698	Harris	10 ac -Outlot 116 of Subdivision Deepwater	#76-007
GATX Corporation	07/01/1975	Deed	H408295	Ezekiel Thomas A-73	Harris	49.15, 92.49, 86.9787 acres, less 1.316 & 5.85 acres sold	#76-007
Premier Petrochemical Company	04/04/1977	Deed	162-06-0655	Wm Vince A-78	Harris	42.816 acres	#76-007
Crown Central Petroleum Corp.	11/23/1981	Deed	H253023	Wm Vince A-78	Harris	3.31 acres	#76-027
Southern Pacific RR Company	05/20/1986	Deed	047-730-634	Ezekiel Thomas A-73	Harris	1.6148 acres	
South State Terminals Company	2/11/1981	SWD	178-86-2366	Ezekiel Thomas A-73	Harris	463.8705 Acres, 316.0157, 24.2862, 123.5686	
Easements/Leases/Agreements							
Atlantic Richfield Company	03/21/1973	Easement	S445836	Wm Vince A-78	Harris*	Assigned to GATX - 4/21/1997	
Arco Pipe Line Company	08/23/1985	Easement	K456740	Ezekiel Thomas A-73	Harris		#88-005
Arco Pipe Line Company	03/08/1985	Lease	Unrecorded	Ezekiel Thomas A-73	Harris	Yr-Yr	#88-004
Arco Pipe Line Company	09/15/1988	Easement	M022984	Ezekiel Thomas A-73	Harris		#88-030
Arco Pipe Line Company	03/16/1983	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	60' ROAD	#88-006
Arco Pipe Line Company	02/05/1990	Bill of Sale	Unrecorded	Ezekiel Thomas A-73	Harris	Rd Crossing Permit - Assigned	#88-007 #88-109

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

IP 092-29-0788

Arco Pipe Line Company	05/07/1996	Agreement	R939743	Ezekiel Thomas A-73	Harris*	10-yr	#76-016
Arco Pipe Line Company	05/17/2000	Easement	U394364	Ezekiel Thomas A-73	Harris		#88-109
Arco Pipe Line Company	05/29/1990	Easement	M653243	Ezekiel Thomas A-73	Harris *		
Arco Pipe Line Company	02/24/1993	Agreement	Unrecorded	William Vince A-78	Harris	Rt.of 1st Refusal - 60 days In-Rental - Consent	#76-017
GATX Terminals Corporation	03/18/1992	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris *	outside GATX	#88-025
GATX Terminals Corporation	06/26/1992	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris	#88-1631	#88-005
Champion Paper & Fibre Co. etal	04/16/1952	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris	In-Rental	#88-010
Champion Paper & Fibre Co. etal	09/12/1960	Easement	4199/340	William Vince A-78	Harris	Assigned to GATX - 4/21/1997	
US Plywood-Champion Papers Inc.	02/08/1972	Easement	S445836	Wm Vince A-78	Harris*	Admendment -In-Rental - $8,400./mo. Orig. doc not	
Texmark Chemicals Inc.	03/17/1998	Lease	Unrecorded	Ezekiel Thomas A-73	Harris	in file	#88-015
Texaco Inc.	01/14/1977	Lease		Ezekiel Thomas A-73	Harris	Yr-Yr	
Olin Corporation	05/14/1971	Easement	D344165	James Seymour A-698	Harris		#76-050
The Texas Company	01/02/1935	Acquired Assets		Ezekiel Thomas A-73	Harris		
The Texas Company	03/27/1935	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris		
The Texas Company	10/03/1944	Agreement	1163/515	Ezekiel Thomas A-73	Harris		
Equilon Enterprises LLC	03/04/2004	Easement	X789010	James Seymour A-698	Harris		
Equilon Enterprises LLC	03/04/2004	Easement	X789012	James Seymour A-698	Harris		
Texas Pipe Line Co.	06/05/1968	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	60 days notice - Grantor	#88-065
Southernwestern Bell Telephone	01/01/1995	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris *	didn't execute	#88-082
Industrial Gas Supply Corp.	02/03/1997	Bill of Sale	Unrecorded	Ezekiel Thomas A-73	Harris	295' of 14" pipe	#88-084
Lyondell-Citgo Refining Co. Ltd.	12/05/1997	Easement	Unrecorded	William Vince A-78	Harris *	3rd Party Con.	#88-094
Industrial Gas Supply Corp.	12/09/1997	Assignment	Unrecorded	Ezekiel Thomas A-73	Harris	Bill of Sale	#88-106
Texaco Lubricants Co. N. A.	12/23/1997	Easement	S815798	Ezekiel Thomas A-73	Harris *		
Newpark Shipbuilding Pasadena	04/26/2000	Easement	U394365	Wm Vince A-78	Harris*		
Newpark Shipbuilding Pasadena	03/08/2002	Easement	Unrecorded	Wm Vince A-78	Harris *		
Newpark Shipbuilding Pasadena	01/16/2003	Easement	W387764	Wm Vince A-78	Harris *		
Dynegy Midstream Services,LP	06/22/1905	Easement	U682561	W.Harris/R.Wilson A-31	Harris		
Horton & Horton, Inc.,	04/25/1956	Agreement	3213/498	William Vince A-78	Harris		
Phillips Petroleum Company	11/25/1953	Easement	2690/614	William Vince A-78	Harris		
Phillips Petroleum Company	04/27/1971	Easement	D344166	James Seymour A-698	Harris	Granted to 2-Mile Co.	#76-055
Phillips Petroleum Company	09/24/1934	Easement	R029608	Ezekiel Thomas A-73	Harris		#76-053
John Bludworth Marine, Inc.	01/26/1988	Agreement	L561640	William Vince A-78	Harris		#76-044

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN

Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Houston Lighting & Power Co.	07/02/1996	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	(96-011)	
Houston Lighting & Power Co.	00/00/1984	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	(GTP84-69)	#88-032
Houston Lighting & Power Co.	12/14/1988	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	CP #G88-016	
Houston Lighting & Power Co.	01/30/1989	Easement	M056938	Ezekiel Thomas A-73	Harris		#88-031
Houston Lighting & Power Co.	04/03/1998	Easement	S964776	Wm. Vince A-78	Harris	Citgo Connect	
Reliant Energy HL & P	06/12/2001	Easement	V148790	Wm Vince A-78	Harris	Unable to locate file - recorded 7/1/2001	
Reliant Energy HL & P	10/17/2001	Easement	V380487	Wm. Vince A-78	Harris		
CenterPoint Energy Houston Electric, LLC	02/04/2003	Easement	W466455	Ezekiel Thomas A-73	Harris		
CenterPoint Energy Houston Electric, LLC	05/20/2003	Easement	W732005	Harris & Wilson A-31	Harris		
Tejas South Pipeline Partnership	03/22/1996	Easement	RS44482	Wm Vince A-78	Harris		

Harris County Road Crossings Permits

Commissioner's Court Harris Co.	06/05/1984	Permit	CC Vol. 121	William Vince A-78	Harris		#84-220
Commissioner's Court Harris Co.	07/14/1987	Permit	CC Vol. 134	Ezekiel Thomas A-73	Harris	Clinton Dr. Assigned to GATX 2/5/1990	
Commissioner's Court Harris Co.	02/24/1998	Permit	CC Vol.187	William Vince A-78	Harris		
Commissioner's Court Harris Co.	05/14/1996	Permit	CC Vol. 179	William Vince A-78	Harris		#76-073
Commissioner's Court Harris Co.	08/19/1982	Permit	CC Vol. 115	William Vince A-78	Harris	Jefferson Rd.	
Commissioner's Court Harris Co.	09/21/2001	Permit	Unrecorded	Ezekiel Thomas A-73	Harris	Clinton Dr.	
Commissioner's Court Harris Co.	04/08/1982	Permit	CC Vol. 114	James Seymour A-698	Harris	Jefferson Rd.	#76-036
Commissioner's Court Harris Co.	04/01/1971	Permit	CC Vol	James Seymour A-698	Harris	Jefferson Rd.	#76-034
Commissioner's Court Harris Co.	04/08/1982	Permit	CC Vol. 114	James Seymour A-698	Harris	Davison	#76-035
Commissioner's Court Harris Co.	04/22/1971	Permit	CC Vol. 72	James Seymour A-698	Harris	Jackson Ave.& Davison	#76-037
Commissioner's Court Harris Co.	09/27/1994	Permit	CC Vol.172	James Seymour A-698	Harris	N. Witter Rd.	#76-038
Commissioner's Court Harris Co.	?	Permit	CC Vol 115		Harris		#76-055
Commissioner's Court Harris Co.	01/29/1975	Permit		Wm Vince A-78	Harris	Richey & Red Bluff Access Roads - Assigned to GATX 4/21/1997	
Harris County Public Infrastructure Department Engineering Division - Permit Group	10/16/2001	Permit	Authorization # 7-0021003-1	Ezekiel Thomas A-73	Harris	Fiber Optic Cable Clinton Dr.	

Harris County Public Infrastructure Department Engineering Division - Permit Group	01/22/2002	Permit	Authorization # 7-0021153-9	Wm Vince A-78	Harris	1207/1208 N. Witter

Harris County Flood Control District Permit

Harris Co.Flood Control Dist.	01/03/2000	Permit #01-43-03		W.Harris/R.Wilson A-31	Harris	
Harris Co.Flood Control Dist.	01/07/2000	Permit		Ezekiel Thomas A-73	Harris	
Harris Co.Flood Control Dist.	03/13/2002	Permit		Ezekiel Thomas A-73	Harris	
Harris Co.Flood Control Dist.	10/25/2002	Permit #01-58-20		Ezekiel Thomas A-73	Harris	

Miscellaneous Licenses/Permits

Arco Midcon LLC	04/24/2002	License	V821733	Ezekiel Thomas A-73	Harris	Ck consent
Arco Midcon LLC	01/09/2003	License	W345157	Ezekiel Thomas A-73	Harris	Ck consent
Army Corps of Engineers	06/10/1969	Permit #W-N-243-41-7946			Harris	
Army Corps of Engineers	05/29/1990	Permit #14114(01)/123	S445836		Harris	Assigned to GATX 4/21/1997
Army Corps of Engineers	06/25/1998	Permit #14114(3)/540		Harris & Wilson A-31	Harris	Notify
Army Corps of Engineers	12/29/1999	Permit #14114(4)/606		Ezekiel Thomas A-73	Harris	Notify
Army Corps of Engineers	03/25/2002				Harris	
Army Corps of Engineers	11/07/2002	Permit #14114(4)/771		Harris & Wilson A-31	Harris	Notify

Port of Houston - Licenses/Permits/Agreements

Port of Houston Authority	12/07/1971	License	#71-175	Wm Vince A-78	Harris*	Expires 5/31/2009	#76-059-B
Port of Houston Authority	01/01/1995	License	#90-0251	William Vince A-78	Harris*	(4) 6" lines Exps. 12/31/2004	#76-072
Port of Houston Authority	07/08/1994	Permit	#94-109 & 94-100		Harris*	Dredged Material Disposal Agreement	#88-072/73
Port of Houston Authority	02/01/1999	License	#98-0358	Ezekiel Thomas A-73 & Callahan & Vince A-9	Harris*	Exps. 1/31/2009	#88-112
Port of Houston Authority	02/01/1996	License	#96-0026	William Vince A-78 & James Seymore A-698	Harris*	Expires 1/31/2006	#76-060 (88-089)

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Southern Pacific Trans. Company	12/28/1984	License	#S202959	Ezekiel Thomas A-73	Harris*	Rental - $110/yr Assned to Strong Capital I - 6/22/2001	#88-057
Southern Pacific Trans. Company	12/28/1984	License	#S202960	Ezekiel Thomas A-73	Harris*	Rental - $110/yr Assned to Strong Capital I - 6/22/2001	#88-058
Texas & New Orleans RR Co.	06/01/1938	License	#S126803	Ezekiel Thomas A-73	Harris*	Rental - $95/yr	#88-059
Southern Pacific Trans. Company	02/28/1996	License		Ezekiel Thomas A-73	Harris*		#88-085
Southern Pacific Trans. Company	02/28/1996	License	#716915	Ezekiel Thomas A-73	Harris*		#88-079
Southern Pacific Trans. Company	02/26/1996	License	#716921	Ezekiel Thomas A-73	Harris*		#88-062
Union Pacific Railroad	04/28/1998	License	#204766	Ezekiel Thomas A-73	Harris*	Orig. doc. (6) p/s 1 sold to Longhorn - 6/29/1998	
Union Pacific Railroad	06/29/1998	License	#205903		Harris*	Supple. Agmt 5/22/2000 10yr - Pd $29,000. 1 time fee	#88-096
Union Pacific Railroad	02/18/1998	License	#203791 (Folder # 1658-71)		Harris*	Consent letter only in file	
Union Pacific Railroad Formerly Southern Pacific RR Co.	05/16/1996	License	#S206691 (Folder #0150535)	Ezekiel Thomas A-73	Harris*	No original license in file Assnd to Strong Capital 6/22/01- $388./yr	#88-056
Union Pacific Railroad	07/22/1988	License	#S209253 (Folder #0192621)		Harris*	No original license in file Assnd to Strong Capital I 6/22/01- $606./yr	#88-055
Southern Pacific Trans. Company	06/05/1983	Agreement	#FW T-31788		Harris*		#88-060
Southern Pacific Trans. Company	11/01/1978	Agreement	#T-19507	Ezekiel Thomas A-73	Harris*		#88-060 #76-084
Southern Pacific Trans. Company	03/27/1974	Agreement	#174833	Ezekiel Thomas A-73	Harris*	Rental - $1,150/yr	#88-061
Southern Pacific Trans. Company	?	Agreement		Ezekiel Thomas A-73	Harris*		#88-063
Union Pacific Railroad	08/29/1998	Agreement	Folder #1717-85 Project #1725	Ezekiel Thomas A-73	Harris*	Doc. in file not signed - 1 time fee	#88-095

HLP/CenterPoint Agreements/Licenses

Houston Lighting & Power Co.	06/04/1986	Agreement	P.S. 101-1 Map A-17 Ref#S-18	Ezekiel Thomas A-73	Harris	Permission to extend RR Spur across Deepwater	#88-034
Houston Lighting & Power Co.	05/11/1990	Agreement	P.S. 101-1 Map A-17	Ezekiel Thomas A-73	Harris	Permission to pave a 2'X190' area	#88-035

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29-0792

Houston Lighting & Power Co.	03/08/1993	Agreement			Harris*	13 poles - $1,150./yr	#88-023
CenterPoint Energy Houston	08/28/1997	Agreement			Harris*	$1,150./yr	#76-084
Houston Lighting & Power Co.	03/12/1998	License		William Vince A-78	Harris *	Rental - $1,150./yr	
Houston Lighting & Power Co.	03/17/1998	License			Harris *	Signed 7/7/1998	#88-100
Reliant Energy HL & P	01/17/2000	Agreement		Ezekiel Thomas A-73	Harris		

City Franchises/Ordinances

City of Pasadena	10/07/1971	Franchise #97-110	S445836		Harris*	Exp. 10/6/2021 - Annual rental $25./yr Assigned to GATX 4/21/1997	
City Commission of The City of Galena Park	01/22/1993	Franchise		Ezekiel Thomas A-73	Harris*	Exp. 1/20/2003 Doc. for a 10yr term	#88-019
City Commission of The City of Galena Park	02/17/1998	Ordinance	#98-03		Harris	$500./annual fee	
Industrial Dist.City of Pasadena	11/21/1997	Ordinance	#97-229	James Seymour A-698	Harris	Rental expired 2003	#76-067

Industrial District Contracts

City of Houston, Texas	11/15/1987	Contract		Ezekiel Thomas A-73	Harris *	Rental expired 1997 - Ordinance # 77-2212	

[illegible] OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS [illegible] AND UNENFORCEABLE UNDER FEDERAL LAW
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in file number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

MAR 23 2007

COUNTY CLERK
HARRIS COUNTY TEXAS

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Sang Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Filed for record Oct. 26, 1944, at 10.40 O'clock A.M. Recorded Oct. 30, 1944, at 11.55 O'clock A.M.
W. D. MILLER, Clerk County Court, Harris County, Texas. By Olga Newberry Deputy.

No. 219548

The Texas Company To General American Transportation Corp.

Deed & Map.

State of Texas, County of Harris. Know all men by these presents:

That The Texas Company, a Delaware corporation, with a permit to do business in Texas, is the owner of certain land in Harris County, Texas, described as follows:

About two hundred seventy-three and sixty-three one hundredths (273.63) acres out of a league of land originally granted to Ezekiel Thomas on the North side of Buffalo Bayou, Harris County, Texas, described by meetes and bounds as follows: Beginning at the intersection of the west line of a tract of land conveyed by G. L. Noble to The Texas Company, by a deed dated May 10, 1915, and recorded in Volume 351 at page 464, of the Deed Records in the office of the Clerk of the County of Harris Texas, , , with the north bank of Buffalo Bayou; thence North along the said west line thirty-nine hundred and seventy-four varas, or eleven thousand and thirty-nine (11039) feet, to a concrete monument on the west line; thence west one thousand sixty-six (1066) feet to a concrete monument for corner; thence south eleven thousand four hundred and fifty-nine (11459) feet to a concrete monument in the north bank of Buffalo Bayou; thence down said Bayou with its meanders to the place of beginning; except a right-of-way eighty (80) feet in width conveyed by P. S. Griffith to the T. & N. O. Railway Company by deed dated September 29, 1916, recorded in Volume 371, Page 268, of the Deed Records of the said Clerk; and except a right-of-way for a public road sixty (60) feet in width conveyed by said P. S. Griffith to the County of Harris across said tract of land, said right-of-way deed being recorded in Volume 375, page 188, of the Deed Records of said Clerk as extended by a subsequent right-of-way by The Texas Company to said County of Harris; That The Texas Company, hereinafter called "Grantor", for an in consideration of the sum of Ten Dollars ($10.00) and other good and valuable considerations to it paid by General American Transportation Corporation, a New York corporation, hereinafter called "Grantee", has granted, sold and conveyed, and by these presents, does grant, sell, and convey unto said General American Transportation Corporation, subject to the reservations and exceptions hereinafter set out, two tracts out of the land described above and two additional tracts, all four of which tracts are described as follows: Tract (A) All that part of the said described land lying south of the hundred (100) foot right-of-way of the road known as Clinton Public Road, and North of the north line of the right-of-way of the Texas and New Orleans Railroad Company (S.P.RR.Co.) containing sixteen and ninety-one hundredths (16.91) acres, more or less; Tract (B) All that part of said land first above described lying south of the said right-of-way of the Texas and New Orleans Railroad Company (S.P.R.R. Co) containing thirty-one and ninety-six hundredths (31.96) acres, more or less; and the two tracts of land adjacent to and east of the above described tracts (A) and (B), which are more accurately described as follows:

Tract No. (1) Beginning at the northeast corner aforedescribed tract (A); thence in an easterly direction along the South line of the hundred (100) foot right-of-way of the road known as Clinton Public Road to a point where a line parallel to, and seventy-four (74) feet east of, the east line of said aforedescribed tract (A) would intersect the said south line; thence in a southerly direction parallel to, and seventy-four (74) feet east of, the east line of the sadd land of aforedescribed tract (A) to the north line of the right-of-way of the Texas and New Orleans Railroad Company (S.P.R.R.Co.); thence in a westerly direction along the said north line of the said right-of-way seventy-four (74) feet to the southeast corner of aforedescribed

Clerk's Notes—Art. 4606.

RP-2014-0823

1163/515
10-03-1944
11-17-1944

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

tract (A); thence in a northerly direction along east line of aforedescribed tract (A) to the point of beginning. Containing one and seventeen hundredths (1.170) acres, more or less; Tract No. (2) beginning at the northeast corner of aforedescribed tract (B); thence in an easterly direction along the south line of the right-of-way of the Texas and New Orleans Railroad Company (S.P. R. R.Co) to a point where a line parallel to, and seventy-four (74) feet east of, the east line of aforedescribed tract (B) would intersect the said south line; thence in a southerly direction parallel to and seventy-four (74) feet east of, the east line of aforedescribed tract (B) to the north bank of Buffalo Bayou; thence in a westerly direction along the said north bank to the southeast corner of aforedescribed tract (B); thence in a northerly direction along the said east line of the aforedescribed tract (B) to the point of beginning. Containing two and one hundredth (2.01) acres, more or less; all as shown on the print of grantor's drawing 15-1060 attached hereto, together with all and singular the rights (including riparian rights) and appurtenances thereto in anywise belonging. The above described four tracts comprising a tract eleven hundred forty (1140) feet wide measured along the south line of Clinton Road by nineteen hundred forty (1940) feet more or less on the east side and twenty-three hundred and seventy-four (2374) feet, more or less, on the west side running from the said south line of Clinton Road to the north bank of Buffalo Bayou (Houston Ship Channel) excepting an eighty (80) foot right-of-way owned and occupied by the Texas and New Orleans Railroad Company, consisting of fifty-two and five hundredths (52.05) acres, more or less, said four tracts being also the same tracts covered by agreements dated January 2, 1935 and March 27, 1936 between The Texas Company and General American Tank Storage and Terminal Company, Inc., and General American Tank Car Corporation.

Grantor reserves and excepts from this conveyance, for itself, its successors and assigns, all rights to oil, gas and other minerals in and under said above described tracts of land, together with the right to drill, mine and operate on the said above described property for such oil, gas or other minerals, provided, however, that in the exercise of such rights, grantors its successors and assigns, shall not damage or interfere with any buildings, pipes, structures, or equipment of any kind or character of Grantee, its successors and assigns, on said above described property, or with the business conducted or to be conducted thereon by grantee, its successors and assigns, and shall reimburse grantee, its successors and assigns, for any and all damages or expenses incurred by or resulting from the exercise of said rights by grantor, its successors and assigns. Grantor also reserves to itself, its successors and assigns forever a right-of-way to lay, maintain, repair and replace two pipe lines across the above described tracts of land, and/or along the western boundary of said tracts of land to connect with grantor's land adjoining the above described property on the east, the location of said right-of-way being shown on the print of grantor's drawing 15-1060, attached hereto and made a part hereof.

This conveyance is subject to: (a) General taxes, special assessments and all other taxes, assessments and licenses whatsoever applicable to the above described tracts of land, and all buildings and improvements thereon (except those owned by other parties) and to the business conducted or to be conducted thereon covering the calendar year 1935 and subsequent years. (b) The rights of all persons claiming by, through or under the grantee herein; also the rights of all persons claiming by, through or under General American Tank Storage & Terminal Co., Inc. a Louisiana corporation, which heretofore assigned to the grantee all of its right, title and interest, in, to and under those certain agreements dated January 2, 1935, and March 27, 1936, hereinafter more particularly described. (c) The rights, grants, privileges, and easements insofar as they cover and affect the above described tracts of land, granted or conveyed by the following described instruments, viz: (1) Pipe line right-of-way grant, dated February 6, 1920, from The Texas Company to Sinclair Cudahy Pipe Line Co., recorded in Book 442, Page 511, in the Clerk's Office of Harris County, Texas, with a supplement thereto dated May 29, 1920;

Clerk's Notes—Art. 4606.

RP 092-29-0794

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

(2) Pipe line right-of-way grant, dated August 4, 1920, from The Texas Company to American Petroleum Company; (3) Pipe line right-of-way grant, acknowledged September 11, 1920, from The Texas Company to The Texas Pipe Line Company; (4) Telegram and telephone line right-of-way grant, dated March 2, 1923, from The Texas Company to Sinclair Pipe Line Company, recorded in Book 529, Page 277, in the Clerk's office of Harris County, Texas; (5) Transmission line right-of-way grant, dated April 10, 1923, from The Texas Company to Houston Lighting & Power Company; (6) Deed, dated May 16, 1925, from The Texas Company to Northside Belt Railway Company deeding two and forty-five hundredths (2.45) acres of land out of the Ezekiel Thomas survey in Harris County, Texas; (7) Pipe line right-of-way grant, dated January 18, 1927, from The Texas Company to Houston Gulf Gas Company, recorded in Book 725, Page 160, in the Clerk's Office of Harris County, Texas; (8) Pipe Line right-of-way grant, dated dated December 21, 1925, from The Texas Company to Houston Pipe Lines Company, recorded in Book 659, Page 122, in the Clerk's office of Harris County, Texas, which was later assigned to Houston Natural Gas Co.; (9) Quitclaim deed to right-of-way, dated May 4, 1927, from The Texas Company to County of Harris, Texas, recorded in Book 704, Page 217, in the Clerk's office of Harris County, Texas; (10) Spur track right, dated September 22, 1927, from The Texas Company to Texas & New Orleans Railroad Company; (11) Pipe line right-of-way grant, dated November 28, 1927, from The Texas Company to Dixie Gulf Gas Company, recorded in Book 725, Page 175, in the Clerk's office of Harris County, Texas; (12) Telegraph and telephone right-of-way, dated March 16, 1928, from The Texas Company to Dixie Gulf Gas Company; (13) Pipe line right-of-way grant, dated November 22, 1928, from The Texas Company to Houston Gulf Gas Company, recorded in Book 725, page 602, in the Clerk's office of Harris County, Texas; (14) Telegraph and telephone right-of-way grant, dated January 9, 1931, from The Texas Company to United Pipe Line Corporation (15) Pipe line right-of-way grant, dated May 22, 1931, from The Texas Company to Sinclair Texas Pipe Line Company; (16) Grant of right to construct and operate tunnel and riser shaft pipe manifold and other appurtenances, dated May 22, 1931, from The Texas Company to Sinclair Texas Pipe Line Company, as modified by letter dated May 22, 1931, from Sinclair Texas Pipe Line Company to The Texas Company; (17) Deed to one and sixty-three hundredths (1.63) acres of land, dated September 16, 1916, from The Texas Company to Texas & New Orleans Railroad Company; (18) Deed of right-of-way, dated December 4, 1916, from The Texas Company to County of Harris, Texas; (19) Electrical distributing line right-of-way, dated February 20, 1930, from The Texas Company to Houston Lighting and Power Company; (20) Right-of-way grant, dated September 12, 1925, from The Texas Company to Houston Lighting & Power Company, recorded in Volume 572, Page 455, in the Clerk's office of Harris County, Texas; (21) Pipe Line right-of-way grant, dated September 29, 1921, from The Texas Company to The Texas Pipe Line Company; (22) Power line right-of-way grant, dated August 4, 1920, from The Texas Pipe Line Company to American Petroleum Company. To have and to hold the above described premises, together with all and singular the rights (including riparian rights) and appurtenances thereto in anywise belonging, unto the said General American Transportation Corporation, Grantee herein, its successors and assigns, forever, subject to the reservations, exceptions, easements, rights-of-way, and grants as hereinabove set forth. And The Texas Company, Grantor herein, does hereby bind itself, its successors and assigns, to warrant and forever defend all and singular the said premises unto the said General American Transportation Corporation, grantee herein, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, subject to the reservations, exceptions, easements, right-of-way, and grants as hereinabove set forth. This deed is executed and delivered by The Texas Company, grantor herein, under and pursuant to that certain agreement dated January 2, 1935, and that certain supplemental agreement dated March 27, 1936, both of said agreements relating to the sale and purchase of the above described

1163

RP 092-29-0795

Clerk's Notes—Art. 4606.

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

tracts of land, said agreements having been entered into between The Texas Company, grantor herein, General American Tank Storage & Terminal Co., Inc. a Louisiana corporation, and General American Tank Car Corporation, a West Virginia corporation, and all the right, title and interest of said General American Tank Storage & Terminal Co., Inc., in, to and under said agreements having been heretofore assigned, transferred and set over to and being now vested in the Grantee herein. In witness whereof The Texas Company, Grantor herein, has caused these presents to be signed by its proper officers thereunto authorized and its corporate seal hereunto affixed, this 3rd day of October, A.D. 1944.

The Texas Company, By: H.W. Dodge, Vice President. Attest: W.G. Elicker Asst. Secretary (Seal) (Stamps Can. $244.20)

State of New York, County of New York. Before me, the undersigned authority, on this day personally appeared H.W. Dodge and W.G. Elicker personally known to me to be the Vice President and Asst. Secretary of The Texas Company, a Delaware corporation, and to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same for the purposes and consideration therein expressed, in the capacities therein stated, and as the act and deed of said corporation. Given under my hand and seal of office, this 3rd day of October, A. D. 1944.

Harris A. Smith, Notary Public in and for New York County, N.Y. Notary Public, Queens County Clk's' No. 2113, Registers No. 269-SC5 N.Y. Co. Clerk's No. 957, Registers No. 536-S5.

My Commission Expires March 30, 1945. (Seal)

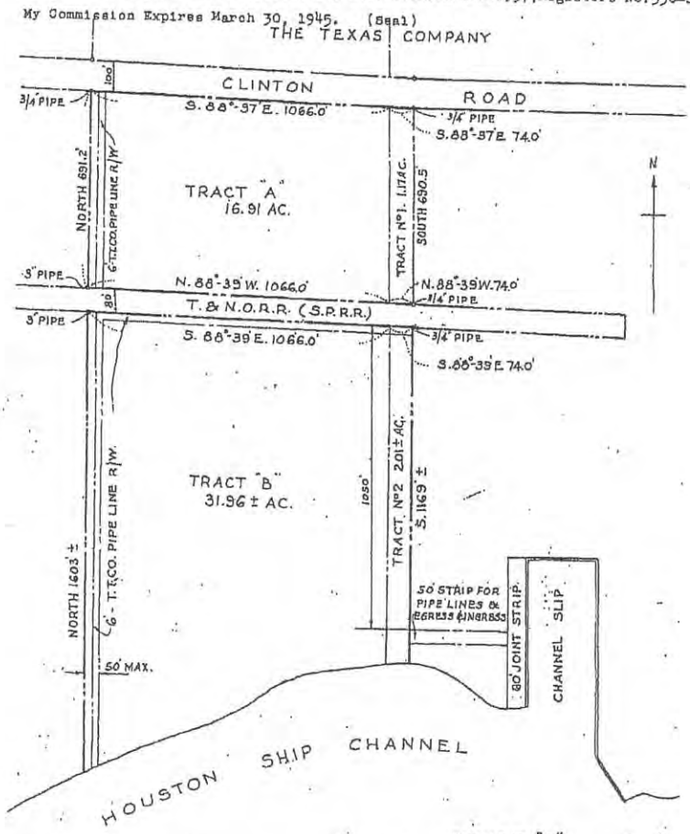


EXHIBIT "Q"

THE TEXAS COMPANY
MAP SHOWING
LAND CONVEYED BY T.T. CO. TO
GENERAL AMERICAN TRANSPORTATION CO.
HOUSTON WORKS
SCALE 1" = 300'
JUNE 21, 1944
15-1060

S41247

Clerk's Notes—Art. 4606.

RP 092-29-0796

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP-092-29-0797

EXHIBIT B

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

April 22, 2014

STATE OF TEXAS

COUNTY OF HARRIS

METES AND BOUNDS DESCRIPTION FOR
KMLT CENTRAL PLANT PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUIDS TERMINALS LLC
AND KM LIQUIDS TERMINALS, L.P.

Metes and bounds description for a 28.4814 acre tract of land extending over, through, along and across a called 31.96 acre tract of land (Tract B), and a called 2.01 acre tract (Tract No. 2), as recorded in Volume 1163, Page 515 , Deed Records of Harris County, Texas, and the residue of a 123.5686 acre tract of land, as recorded in File No. 20070176988, Film Code 041-65-1336, Official Public Records of Real Property, Harris County, Texas, said tract being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.

BEGINNING in the East property line of said 2.01 acre tract (Tract No. 2), said "POINT OF BEGINNING" being South 03°25'40" East, along said East property line, a distance of 146.58 feet from the calculated Northeast corner of said 2.01 acre tract (Tract No. 2), said Northeast corner being at the intersection of the South right-of-way line of Union Pacific Railroad and the West property line of said 123.5686 acre tract, said "POINT OF BEGINNING" having coordinates N=13,832,233.24, E=3,166,211.22;

THENCE, South 39°37'03" East, a distance of 140.35 feet to a point;

THENCE, a distance of 293.98 feet, along the arc of a curve to the right, having a radius of 475.00 feet, a delta angle of 35°27'38", and a chord bearing of South 21°53'13" East, a distance of 289.31 feet to a point;

THENCE, South 04°09'24" East, a distance of 287.20 feet to a point;

THENCE, South 02°34'21" East, a distance of 132.48 feet to a point;

THENCE, South 00°39'05" West, a distance of 140.48 feet to a point;

THENCE, a distance of 144.61 feet, along the arc of a curve to the right, having a radius of 70.00 feet, a delta angle of 93°48'37", and a chord bearing of South 47°33'24" West, a distance of 102.23 feet to a point;

THENCE, North 85°32'18" West, a distance of 223.05 feet to a point;

THENCE, South 89°47'15" West, a distance of 113.35 feet to a point;

THENCE, North 84°13'50" West, a distance of 153.90 feet to a point;

THENCE, a distance of 182.43 feet, along the arc of a curve to the right, having a radius of 750.00 feet, a delta angle of 13°56'12", and a chord bearing of North 77°15'44" West, a distance of 181.98 feet to a point;

THENCE, North 70°17'39" West, a distance of 59.38 feet to a point;

THENCE, a distance of 279.53 feet, along the arc of a curve to the right, having a radius of 1,500.00 feet, a delta angle of 10°40'38", and a chord bearing of North 64°57'19" West, a distance of 279.13 feet to a point;

THENCE, North 59°37'00" West, a distance of 35.46 feet to a point;

THENCE, a distance of 345.62 feet, along the arc of a curve to the right, having a radius of 375.00 feet, a delta angle of 52°48'25", and a chord bearing of North 33°12'48" West, a distance of 333.52 feet to a point;

URS/4388/4388201A

RP-092-29-0798

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

THENCE, North 06°48'35" West, a distance of 515.05 feet to a point;

THENCE, a distance of 122.18 feet, along the arc of a curve to the right, having a radius of 75.00 feet, a delta angle of 93°20'14", and a chord bearing of North 39°51'32" East, a distance of 109.11 feet to a point;

THENCE, North 86°31'39" East, a distance of 342.26 feet to a point;

THENCE, North 87°49'36" East, a distance of 379.30 feet to a point;

THENCE, a distance of 60.41 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 11°32'13", and a chord bearing of South 86°24'18" East, a distance of 60.31 feet to a point;

THENCE, South 80°38'11" East, a distance of 57.43 feet to a point;

THENCE, a distance of 214.78 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 41°01'09", and a chord bearing of South 60°07'37" East, a distance of 210.22 feet to a point;

THENCE, South 39°37'03" East, a distance of 19.88 feet to the **POINT OF BEGINNING** and containing 1,240,669 square feet or 28.4814 acres of land.

Plat attached.

Lucien C. Schaffer 4-23-14
Lucien C. Schaffer, Jr. R.P.L.S. No. 4803

STATE OF TEXAS
REGISTERED
LUCIEN C. SCHAFFER, JR.
4803
PROFESSIONAL
LAND SURVEYOR

RP-092-29-0799

URS/4388/4388201A

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

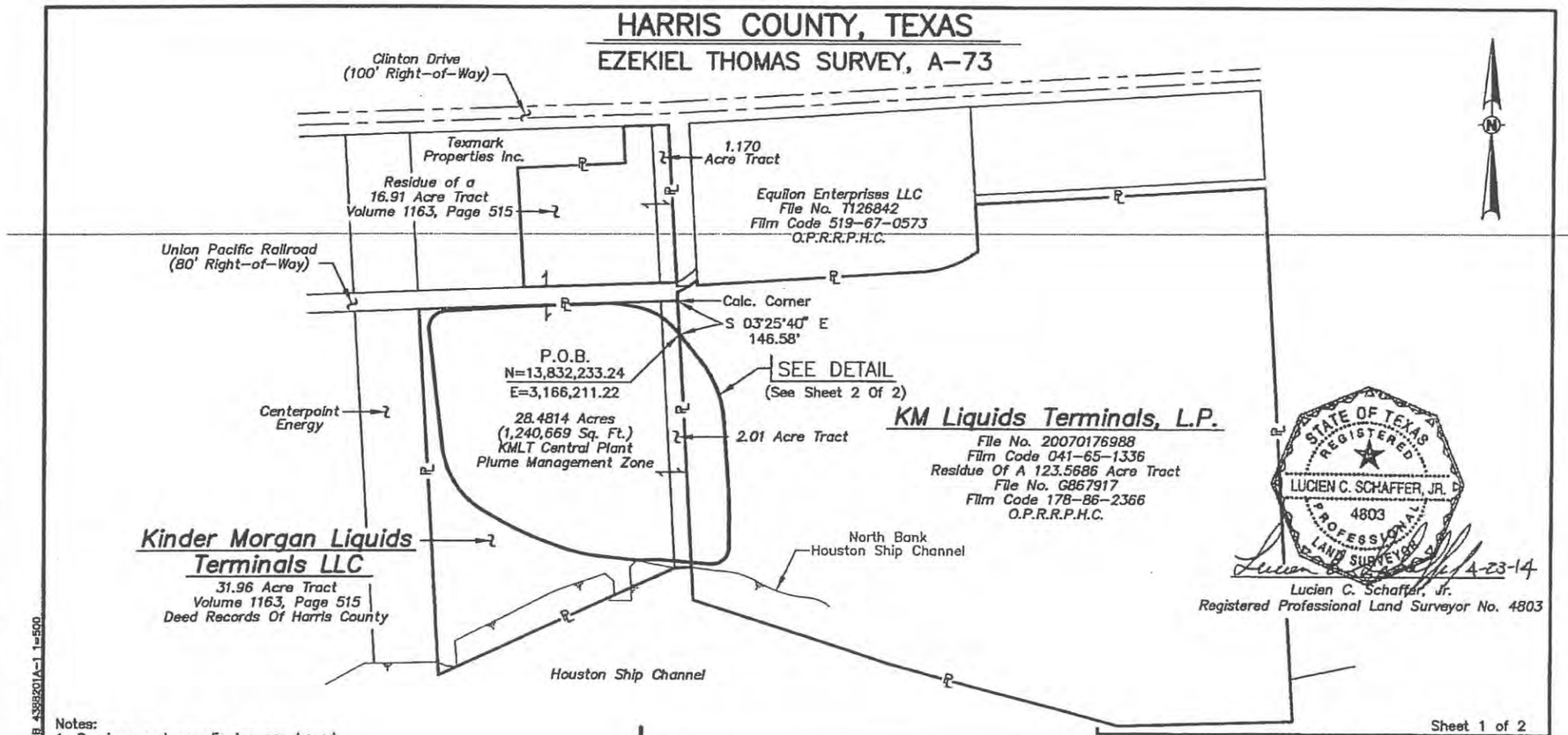
Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29-0800

HARRIS COUNTY, TEXAS

EZEKIEL THOMAS SURVEY, A-73



Notes:
1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented at The Request of The Client.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

File Date: 04/23/14 09:05 TRB 4388201A-1 1=500

Sheet 1 of 2

NO.	DATE	REVISION	BY

GULLETT & ASSOCIATES, INC.
7705 S. LOOP E. HOUSTON, TEXAS 77012
(713) 644-3219
Firm No. TX 100884-00

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-5699 FAX: (713) 789-8404

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUID TERMINALS LLC &
KM LIQUIDS TERMINALS, L.P.
HARRIS COUNTY, TEXAS

DRAWN BY: TRB	DATE: 03/14	CA-4388-001
CHECKED BY: G&A	DATE: 03/14	
SCALE: 1"=500'	W.O.	CAD FILE: 4388201A-1 REV. 0

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

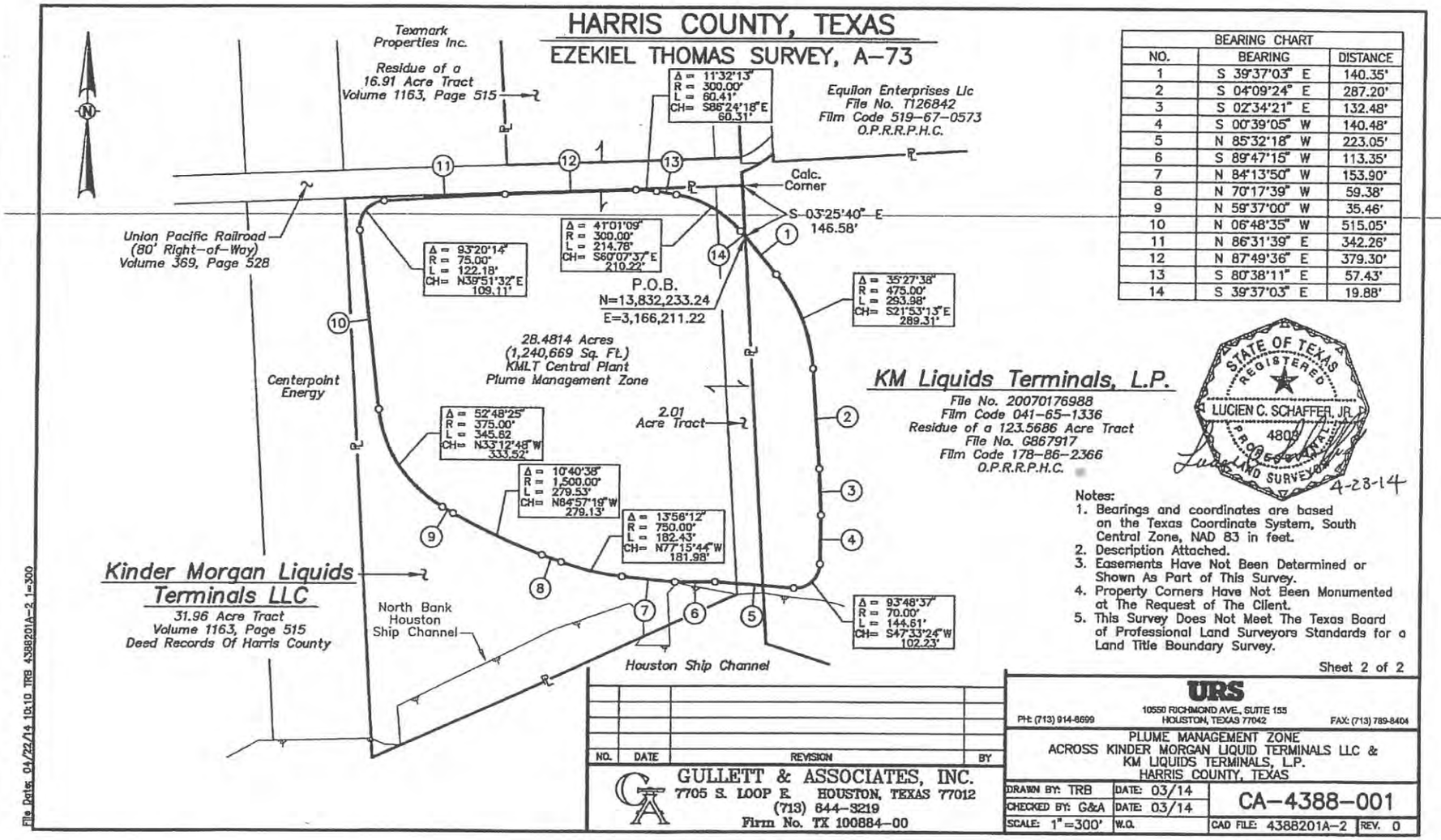
Song Thi Ngan Tran Deputy

SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29-0801

HARRIS COUNTY, TEXAS
EZEKIEL THOMAS SURVEY, A-73



BEARING CHART		
NO.	BEARING	DISTANCE
1	S 39°37'03" E	140.35'
2	S 04°09'24" E	287.20'
3	S 02°34'21" E	132.48'
4	S 00°39'05" W	140.48'
5	N 85°32'18" W	223.05'
6	S 89°47'15" W	113.35'
7	N 84°13'50" W	153.90'
8	N 70°17'39" W	59.38'
9	N 59°37'00" W	35.46'
10	N 06°48'35" W	515.05'
11	N 86°31'39" E	342.26'
12	N 87°49'36" E	379.30'
13	S 80°38'11" E	57.43'
14	S 39°37'03" E	19.88'

STATE OF TEXAS REGISTERED LUCIEN C. SCHAFFER, JR. 4809 PROFESSIONAL LAND SURVEYOR
4-28-14

Notes:
1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented at The Request of The Client.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

Sheet 2 of 2

File Date: 04/22/14 10:10 TRB 4388201A-2 1=300

NO.	DATE	REVISION	BY

GULLETT & ASSOCIATES, INC.
7705 S. LOOP E. HOUSTON, TEXAS 77012
(713) 644-3219
Firm No. TX 100884-00

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-8699 FAX: (713) 789-8404

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUID TERMINALS LLC &
KM LIQUIDS TERMINALS, L.P.
HARRIS COUNTY, TEXAS

DRAWN BY: TRB	DATE: 03/14	CA-4388-001
CHECKED BY: G&A	DATE: 03/14	
SCALE: 1"=300'	W.O.	CAD FILE: 4388201A-2 REV. 0

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Exhibit B
Plume Management Zone Maintenance and Monitoring Requirements

Facility monitoring will consist of semi-annual groundwater monitoring of the approved plume management zone well network with annual reporting to the Texas Commission on Environmental Quality (TCEQ). More detail regarding the facility monitoring and maintenance can be found in the TCEQ-approved Response Action Plan Addendum for the Central Plant of the Galena Park Terminal (March 2014).

RP 092-29-0002

RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP-092-22-0803

FILED
2014 JUL 30 AM 11:39
Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas

JUL 30 2014

Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN **Deputy**

COUNTY COURT OF HARRIS COUNTY, TEXAS

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Zak Covar, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 24, 2014

RECEIVED

Mr. John Kennedy
Project Manager, Environmental Remediation
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval - *Response Action Plan Addendum – Central Plant*, dated January 20, 2014
Kinder Morgan Liquids Terminals, LLC – Galena Park
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054
EPA ID No. TXD026481523; RN 100237452, CN 601545940

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has completed the review of the above referenced report received by the Remediation Division on March 11, 2014. Based on the TCEQ review, the RAP fulfills the requirements of 30 Texas Administrative Code (TAC) §350.94. The approved RAP proposes continued monitoring and active groundwater recovery at Plume Management Zone (PMZ) designated wells until the concentrations of constituents of concern meet residential protective concentration levels. Please implement the RAP, and if applicable, submit a Response Action Effectiveness Report (RAER) in accordance with the schedule proposed in the approved RAP. Upon attainment of the response objectives, a Response Action Completion Report (RACR) must be submitted, in accordance with 30 TAC §350.95. The approved RAP also contains documentation fulfilling the requirements of 30 TAC §350.94(k), which includes a proposed monitoring and reporting schedule for post-response action care activities required under Remedy Standard B.

The RAP contains proposed institutional control language sufficient to fulfill the requirements of 30 TAC §350.111. Proof of filing the institutional control must be submitted to the TCEQ within one-hundred-twenty (120) days of the date of this letter in accordance with 30 TAC §350.33(f)(4)(C)(i).

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the report.

Questions concerning this letter should be directed to me at (512) 239- 2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit an original and one copy on CD of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP/CA Section,
Remediation Division
Texas Commission on Environmental Quality

MH/mdh

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

VCP-CA Section, MC 127
Remediation Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

RETURN SERVICE REQUESTED

OFFICIAL BUSINESS
STATE OF TEXAS
PENALTY FOR
PRIVATE USE

Presort
First Class Mail
ComBasPrice

U.S. POSTAGE PITNEY BOWES
ZIP 78753 $ 000.40°
02 1M
0001375722 JUL 02 2014

46 EQU-SSB 77547

KINDER MORGAN

August 11, 2014

Ms. Maureen Hatfield, P.G., Project Manager
Texas Commission on Environmental Quality
Team 1, VCP-CA Section,
Remediation Division, MC-127
12100 Park 35 Circle
Austin, TX 78753

Re: *Executed Copy of the Deed Notice – Response Action Plan Addendum – Central Plant*
Galena Park Terminal
KM Liquids Terminals LLC
Galena Park, Texas
TCEQ SWR No. 30573

Dear Ms. Hatfield:

Attached please find the certified copy of the deed notice providing institutional control for the KM Liquids Terminals LLC (KMLT) Galena Park Terminal Central Plant Area in Galena Park, Texas.as required by the Response Action Plan (RAP) Addendum dated March 20, 2014. The RAP Addendum was approved by the Texas Commission on Environmental Quality (TCEQ) by letter dated June 24, 2014.

The deed notice was filed with the Harris County Courthouse Clerk's Office on July 30, 2014, within 120 days as per the RAP Addendum. The deed notice provides institutional control for the Plume Management Zone (PMZ) established at the Central Plant Area of the Terminal, and includes Exhibit A (legal property description) and Exhibit B (meets and bounds descriptions and plat maps of the PMZ).

If you have any questions regarding the information presented in this submittal, please do not hesitate to contact me at (713) 920-8423.

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Project Manager

cc: Mr. Jason Ybarra, Waste Program Manager - TCEQ, Region 12 Office, Houston, Texas
Raaj U. Patel, P.G., Program Manager - URS Corporation

906 Clinton Drive ***Galena Park, TX 77547*** ***Ph: 713-920-8423***
Fax: 713-472-7660

25
Notice
F

20140334044
07/30/2014 RP1 $112.00

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

P
Lee

Lee
To the
Public

A legal property description used in the last recorded vesting deed, covering the Property that includes the entire recorded tract of land held by the owner executing this deed notice, is attached hereto and incorporated herein by reference as Exhibit A.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

RP 092-29-0278

METES AND BOUNDS DESCRIPTION for a 28.4814 acre tract of land extending over, through, along and across a called 31.96 acre tract of land (Tract B), and a called 2.01 acre tract (Tract No. 2), as recorded in Volume 1163, Page 515 , Deed Records of Harris County, Texas, and the residue of a 123.5686 acre tract of land, as recorded in File No. 20070176988, Film Code 041-65-1336, Official Public Records of Real Property, Harris County, Texas, said tract being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

D

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.

BEGINNING in the East property line of said 2.01 acre tract (Tract No. 2), said "POINT OF BEGINNING" being South 03°25'40" East, along said East property line, a distance of 146.58 feet from the calculated Northeast corner of said 2.01 acre tract (Tract No. 2), said Northeast corner being at the intersection of the South right-of-way line of Union Pacific Railroad and the West property line of said 123.5686 acre tract, said "POINT OF BEGINNING" having coordinates N=13,832,233.24, E=3,166,211.22;

THENCE, South 39°37'03" East, a distance of 140.35 feet to a point;

THENCE, a distance of 293.98 feet, along the arc of a curve to the right, having a radius of 475.00 feet, a delta angle of 35°27'38", and a chord bearing of South 21°53'13" East, a distance of 289.31 feet to a point;

THENCE, South 04°09'24" East, a distance of 287.20 feet to a point; THENCE, South 02°34'21" East, a distance of 132.48 feet to a point; THENCE, South 00°39'05" West, a distance of 140.48 feet to a point;

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

THENCE, a distance of 144.61 feet, along the arc of a curve to the right, having a radius of 70.00 feet, a delta angle of 93°48'37", and a chord bearing of South 47°33'24" West, a distance of 102.23 feet to a point;

THENCE, North 85°32'18" West, a distance of 223.05 feet to a point; THENCE, South 89°47'15" West, a distance of 113.35 feet to a point; THENCE, North 84°13'50" West, a distance of 153.90 feet to a point;

THENCE, a distance of 182.43 feet, along the arc of a curve to the right, having a radius of 750.00 feet, a delta angle of 13°56'12", and a chord bearing of North 77°15'44" West, a distance of 181.98 feet to a point;

THENCE, North 70°17'39" West, a distance of 59.38 feet to a point;

THENCE, a distance of 279.53 feet, along the arc of a curve to the right, having a radius of 1,500.00 feet, a delta angle of 10°40'38", and a chord bearing of North 64°57'19" West, a distance of 279.13 feet to a point;

THENCE, North 59°37'00" West, a distance of 35.46 feet to a point;

THENCE, a distance of 345.62 feet, along the arc of a curve to the right, having a radius of 375.00 feet, a delta angle of 52°48'25", and a chord bearing of North 33°12'48" West, a distance of 333.52 feet to a point;

THENCE, North 06°48'35" West, a distance of 515.05 feet to a point;

THENCE, a distance of 122.18 feet, along the arc of a curve to the right, having a radius of 75.00 feet, a delta angle of 93°20'14", and a chord bearing of North 39°51'32" East, a distance of 109.11 feet to a point;

THENCE, North 86°31'39" East, a distance of 342.26 feet to a point; THENCE, North 87°49'36" East, a distance of 379.30 feet to a point;

THENCE, a distance of 60.41 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 11°32'13", and a chord bearing of South 86°24'18" East, a distance of 60.31 feet to a point;

THENCE, South 80°38'11" East, a distance of 57.43 feet to a point;

THENCE, a distance of 214.78 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 41°01'09", and a chord bearing of South 60°07'37" East, a distance of 210.22 feet to a point;
THENCE, South 39°37'03" East, a distance of 19.88 feet to the POINT OF BEGINNING and containing 1,240,669 square feet or 28.4814 acres of land.

The certified meets and bounds description and corresponding plat maps of the Affected Property for groundwater (referred to as the Plume Management Zone) are attached hereto and incorporated herein by reference as Exhibit B.

The constituents of concern (COCs) in groundwater at the Affected Property (the Plume Management Zone),

RP 092-29-0779

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

defined here as exceeding TRRP Protective Concentration Levels (PCLs) for residential and commercial/industrial land use, are summarized on the attached Table 1.

This notice is required for the following reasons:

> ***The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC 350.33(f)(4). The undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit B provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.***

As of the date of this Notice, the record owner of fee title to the Property is KM Liquids Terminals, L.P. with an address of 1001 Louisiana St., Suite 1000, Houston, Texas 77002.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 22nd day of July, 2014.

KM Liquids Terminals LLC

By: _____

Name: Jeffery A. Hersperger

Title: General Manager

STATE OF TEXAS

RP-2014-298760

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

HARRIS COUNTY

BEFORE ME, on this the 22 day of July, 2014 personally appeared [name] Jeffrey Hersperger [title] General Manager [company] KinderMorgan known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 22 day of July, 2014.

Notary Public in and for the State of Texas,
County of Harris

My Commission Expires: 11/6/16

Marla J Tarwater

MARLA J TARWATER
My Commission Expires
November 6, 2016

Return ✓✓
Johnny Kennedy, P.G.
Remediation Project Manager
KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, TX 77547

RP-092-29-0281

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN
Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

Table 1

Groundwater Constituents of Concern (COCs)
Central Plant
KM Liquids Terminals LLC
Galena Park, Texas

COC
Acenaphthene
Benzene
Benzo(a)anthracene
bis(2-chloroethyl)ether
Butylbenzylphthalate
Carbazole
Chlorobenzene
m&p-cresol
2,4-D
Dibenzofuran
cis-1,2-Dichloroethene
2,4-Dichlorophenol
2,4-Dimethylphenol
Ethylbenzene
Fluoranthene
Fluorene
Lead
2-Methylphenol
Naphthalene
Phenanthrene
Pyrene
Tetrachloroethene
Trichloroethene
Toluene
1,2,3-Trichloropropane
Vinyl Chloride
Xylenes

RP-692-29-0782

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP-092-29-0783

EXHIBIT A

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

20070176988
03/23/2007 RP2 $64.00

SPECIAL WARRANTY DEED AND ASSIGNMENT

STATE OF TEXAS §
§ KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF HARRIS §

THAT, FOR TEN DOLLARS ($10.00) and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, **KINDER MORGAN LIQUIDS TERMINALS LLC**, a Delaware limited liability company ("Grantor"), whose address is 500 Dallas, Suite 1000, Houston, Texas 77002, does hereby grant, bargain, sell, convey, assign, set over, and deliver unto **KM LIQUIDS TERMINALS, L.P.**, a Delaware limited partnership ("Grantee"), whose address is 500 Dallas, Suite 1000, Houston, Texas 77002, all of Grantor's right, title, and interest in and to the property, rights, and interests described below (collectively, the "Property"):

A. That certain real property and real property interests described in those certain instruments and documents recorded in the real property records of Harris County, Texas which are more particularly described on Exhibit A attached hereto, together with all buildings, improvements and fixtures thereon;

B. Those certain easements, tenements, hereditaments, privileges and appurtenances in any way belonging to the property described in Item 1 above, including, without limitation, Grantor's right, title and interest, if any, in and to (a) any land to the midpoint of the bed of any highway, street, road or avenue, open or proposed, in front of, abutting or adjoining any such property, (b) any land lying in or under the bed of any creek, stream, bayou or river running through, abutting or adjacent to such property, (c) any riparian, appropriative or other water rights of Grantor appurtenant to such property and relating to surface or subsurface waters, (d) all wastewater (sewer) treatment capacity and all water capacity assigned to such property, (e) any oil, gas or other minerals or mineral rights relating to such property or to the surface or subsurface thereof owned by Grantor, (f) any strips, gores or pieces of property abutting, bounding or which are adjacent or contiguous to such property and (g) all easements, right-of-ways, rights of ingress or egress and reversionary interests benefiting such property; and

C. Without limiting the foregoing, all other rights, titles, interests (of whatever kind or character, whether legal or equitable, whether vested or contingent, and whether now owned or hereafter acquired by operation of law or otherwise) of Grantor in and to any of the property described in paragraphs A or B above and/or that otherwise relate to the properties, interests or items described in paragraphs A and B above, even though Grantor's rights, titles, and interest in

RP 032-29-0784

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

same may be incorrectly described in, or a description of such rights, titles and interests be omitted from, Exhibit A.

TO HAVE AND TO HOLD the Property unto Grantee and its successors and assigns to WARRANT AND FOREVER DEFEND all and singular title to the Property unto Grantee, it successors and assigns, against every person whomsoever lawfully claiming the same or any part thereof by, through or under Grantor, but not otherwise.

This Special Warranty Deed and Assignment is subject to the following terms and conditions:

1. Pursuant to that certain Contribution and Assumption Agreement (the "Contribution Agreement") dated September 1, 2004 by and between Grantor and Grantee, Grantor conveyed the Property to Grantor. Grantor and Grantee omitted to record this Special Warranty Deed and Assignment, but it is hereby clarified that this instrument with all of its terms and provisions, shall be effective as of the date of the Contribution Agreement at 9:00 a.m. Houston, Texas time on September 1, 2004 (the "Effective Time").

2. The terms, covenants and conditions hereof shall be binding upon and inure to the benefit of Grantor and Grantee, and their successors and assigns, and such terms, covenants and conditions shall be covenants running with the land.

3. This instrument is subject to the terms and conditions of (a) the instruments and agreements referred to in Exhibit A hereto and (b) the instruments and agreements which constitute the record chain of title into Grantor. Grantee agrees to be bound by and assume all obligations and rights created by said instruments, assignments and by recorded agreements related thereto.

4. Anything in this instrument to the contrary notwithstanding, this instrument shall not assign any of the Property or any benefits arising thereunder or resulting therefrom that (a) are not assignable, in whole or in part, or (b) require the consent or approval of the counter-party for the valid assignment thereof and such consent or approval has not been obtained on or before the Effective Time. If any such consents are not obtained before the Effective Time, Grantor and Grantee will use their reasonable best efforts to take such actions as may be possible without violation or breach of such Property or any instrument or agreement relating to such Property to effectively grant to Grantee the economic benefits of, and impose the economic burdens of, such Property.

[SIGNATURE PAGE FOLLOWS]

RP-092-29-0785

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

[ACKNOWLEDGMENTS PAGE TO SPECIAL WARRANTY DEED
AND ASSIGNMENT– PAGE 1 OF 1]

STATE OF TEXAS

COUNTY OF HARRIS

The foregoing instrument was acknowledged before me on this March 12th, 2007, by Jeffrey R. Armstrong, the President of KINDER MORGAN LIQUIDS TERMINALS LLC, a Delaware limited liability company, on behalf of the limited liability company.

Janice D. Sanford
Notary Public, State of Texas

JANICE D SANFORD
My Commission Expires
October 19, 2008

STATE OF TEXAS

COUNTY OF HARRIS

The foregoing instrument was acknowledged before me on this March 12th, 2007, by Jeffrey R. Armstrong the President of KM Liquids Partners GP LLC, the general partner of KM LIQUIDS TERMINALS, L.P., a Delaware limited partnership, on behalf of said limited partnership.

Janice D. Sanford
Notary Public, State of Texas

JANICE D SANFORD
My Commission Expires
October 19, 2008

HOUSTON\1771385.3

RP-2007-29-0785

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29 0787

Exhibit A

Grantor	Date	Instrument	Volume/Page	Abstract Survey	County		
Fee Property							
The Texas Company	04/18/1952	Deed	2433/332	Ezekiel Thomas A-73	Harris	92.429 acres	
Phillips Petroleum Company	11/25/1953	Deed	2690/551	Wm Vince A-78	Harris	34.21/33.88253 acres 111.4137 acres	#76-007
James E. Hughes	09/30/1954	Deed	2833/92	Wm Vince A-78	Harris	.898 acres	#76-007
Crown Central Petroleum Corp.	11/10/1954	Deed	2860/668	Wm Vince A-78	Harris	1.256 acres	#76-007
Merle Moore Garrett et vir	04/07/1966	Deed	C288395	Ezekiel Thomas A-73	Harris	17.66 & 69.31248 acres	
Coastal State Marketing, Inc.	10/07/1970	Deed	8170/368	James Seymour A-698	Harris	Outlot 115 of Subdivision Deepwater	#76-007
Industrial Development Corp.	07/31/1972	Deed	148-22-1361	James Seymour A-698	Harris	10 ac -Outlot 116 of Subdivision Deepwater	#76-007
GATX Corporation	07/01/1975	Deed	H408295	Ezekiel Thomas A-73	Harris	49.15, 92.49, 86.9787 acres, less 1.316 & 5.85 acres sold	#76-007
Premier Petrochemical Company	04/04/1977	Deed	162-06-0655	Wm Vince A-78	Harris	42.816 acres	#76-007
Crown Central Petroleum Corp.	11/23/1981	Deed	H253023	Wm Vince A-78	Harris	3.31 acres	#76-027
Southern Pacific RR Company	05/20/1986	Deed	047-730-634	Ezekiel Thomas A-73	Harris	1.6148 acres	
South State Terminals Company	2/11/1981	SWD	178-86-2366	Ezekiel Thomas A-73	Harris	463.8705 Acres, 316.0157, 24.2862, 123.5686	
Easements/Leases/Agreements							
Atlantic Richfield Company	03/21/1973	Easement	S445836	Wm Vince A-78	Harris*	Assigned to GATX - 4/21/1997	
Arco Pipe Line Company	08/23/1985	Easement	K456740	Ezekiel Thomas A-73	Harris		#88-005
Arco Pipe Line Company	03/08/1985	Lease	Unrecorded	Ezekiel Thomas A-73	Harris	Yr-Yr	#88-004
Arco Pipe Line Company	09/15/1988	Easement	M022984	Ezekiel Thomas A-73	Harris		#88-030
Arco Pipe Line Company	03/16/1983	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	60' ROAD	#88-006
Arco Pipe Line Company	02/05/1990	Bill of Sale	Unrecorded	Ezekiel Thomas A-73	Harris	Rd Crossing Permit - Assigned	#88-007 #88-109

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas
Song Thi Ngan Tran
SONG THI NGAN TRAN Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

Arco Pipe Line Company	05/07/1996	Agreement	R939743	Ezekiel Thomas A-73	Harris*	10-yr	#76-016
Arco Pipe Line Company	05/17/2000	Easement	U394364	Ezekiel Thomas A-73	Harris		#88-109
Arco Pipe Line Company	05/29/1990	Easement	M653243	Ezekiel Thomas A-73	Harris *		
Arco Pipe Line Company	02/24/1993	Agreement	Unrecorded	William Vince A-78	Harris	Rt.of 1st Refusal - 60 days	#76-017
GATX Terminals Corporation	03/18/1992	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris *	In-Rental - Consent outside GATX	#88-025
GATX Terminals Corporation	08/26/1992	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris	#88-1631	#88-005
Champion Paper & Fibre Co. etal	04/16/1952	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris	In-Rental	#88-010
Champion Paper & Fibre Co. etal	09/12/1960	Easement	4199/340	William Vince A-78	Harris		
US Plywood-Champion Papers Inc.	02/08/1972	Easement	S445836	Wm Vince A-78	Harris*	Assigned to GATX - 4/21/1997	
Texmark Chemicals Inc.	03/17/1998	Lease	Unrecorded	Ezekiel Thomas A-73	Harris	Admendment -In-Rental - $8,400./mo. Orig. doc not in file	#88-015
Texaco Inc.	01/14/1977	Lease		Ezekiel Thomas A-73	Harris	Yr-Yr	
Olin Corporation	05/14/1971	Easement	D344165	James Seymour A-698	Harris		#76-050
The Texas Company	01/02/1935	Acquired Assets		Ezekiel Thomas A-73	Harris		
The Texas Company	03/27/1936	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris		
The Texas Company	10/03/1944	Agreement	1163/515	Ezekiel Thomas A-73	Harris		
Equilon Enterprises LLC	03/04/2004	Easement	X789010	James Seymour A-698	Harris		
Equilon Enterprises LLC	03/04/2004	Easement	X789012	James Seymour A-698	Harris		
Texas Pipe Line Co.	06/05/1968	Easement	Unrecorded	Ezekiel Thomas A-73	Harris		#88-065
Southernwestern Bell Telephone	01/01/1995	Agreement	Unrecorded	Ezekiel Thomas A-73	Harris *	60 days notice - Grantor didn't execute	#88-082
Industrial Gas Supply Corp.	02/03/1997	Bill of Sale	Unrecorded	Ezekiel Thomas A-73	Harris	295' of 14" pipe	#88-084
Lyondell-Citgo Refining Co. Ltd.	12/05/1997	Easement	Unrecorded	William Vince A-78	Harris *	3rd Party Con.	#88-094
Industrial Gas Supply Corp.	12/09/1997	Assignment	Unrecorded	Ezekiel Thomas A-73	Harris	Bill of Sale	#88-106
Texaco Lubricants Co. N. A.	12/23/1997	Easement	S815798	Ezekiel Thomas A-73	Harris *		
Newpark Shipbuilding Pasadena	04/26/2000	Easement	U394365	Wm Vince A-78	Harris*		
Newpark Shipbuilding Pasadena	03/08/2002	Easement	Unrecorded	Wm Vince A-78	Harris *		
Newpark Shipbuilding Pasadena	01/16/2003	Easement	W387764	Wm Vince A-78	Harris *		
Dynergy Midstream Services,LP	06/22/1905	Easement	U682581	W.Harris/R.Wilson A-31	Harris		
Horton & Horton, Inc.,	04/25/1956	Agreement	3213/498	William Vince A-78	Harris		
Phillips Petroleum Company	11/25/1953	Easement	2690/614	William Vince A-78	Harris		
Phillips Petroleum Company	04/27/1971	Easement	D344166	James Seymour A-698	Harris	Granted to 2-Mile Co.	#76-055
Phillips Petroleum Company	08/24/1994	Easement	RO28009	Ezekiel Thomas A-73	Harris		#76-053
John Studworth Marine, Inc.	01/26/1988	Agreement	L561640	William Vince A-78	Harris		#76-044

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

Houston Lighting & Power Co.	07/02/1996	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	(96-011)	
Houston Lighting & Power Co.	00/00/1984	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	(GTP84-69)	#88-032
Houston Lighting & Power Co.	12/14/1988	Easement	Unrecorded	Ezekiel Thomas A-73	Harris	CP #G88-016	
Houston Lighting & Power Co.	01/30/1989	Easement	M056938	Ezekiel Thomas A-73	Harris		#88-031
Houston Lighting & Power Co.	04/03/1998	Easement	S964776	Wm. Vince A-78	Harris	Citgo Connect	
Reliant Energy HL & P	06/12/2001	Easement	V148790	Wm Vince A-78	Harris	Unable to locate file - recorded 7/1/2001	
Reliant Energy HL & P	10/17/2001	Easement	V380487	Wm. Vince A-78	Harris		
CenterPoint Energy Houston Electric, LLC	02/04/2003	Easement	W466455	Ezekiel Thomas A-73	Harris		
CenterPoint Energy Houston Electric, LLC	05/20/2003	Easement	W732005	Harris & Wilson A-31	Harris		
Tejas South Pipeline Partnership	03/22/1996	Easement	R944482	Wm Vince A-78	Harris*		

Harris County Road Crossings Permits

Commissioner's Court Harris Co.	06/05/1984	Permit	CC Vol. 121	William Vince A-78	Harris		#84-220
Commissioner's Court Harris Co.	07/14/1987	Permit	CC Vol. 134	Ezekiel Thomas A-73	Harris	Clinton Dr. Assigned to GATX 2/5/1990	
Commissioner's Court Harris Co.	02/24/1998	Permit	CC Vol.187	William Vince A-78	Harris		
Commissioner's Court Harris Co.	05/14/1996	Permit	CC Vol. 179	William Vince A-78	Harris		#76-073
Commissioner's Court Harris Co.	08/19/1982	Permit	CC Vol. 115	William Vince A-78	Harris	Jefferson Rd.	
Commissioner's Court Harris Co.	09/21/2001	Permit	Unrecorded	Ezekiel Thomas A-73	Harris	Clinton Dr.	
Commissioner's Court Harris Co.	04/08/1982	Permit	CC Vol. 114	James Seymour A-698	Harris	Jefferson Rd.	#76-036
Commissioner's Court Harris Co.	04/01/1971	Permit	CC Vol	James Seymour A-698	Harris	Jefferson Rd.	#76-034
Commissioner's Court Harris Co.	04/08/1982	Permit	CC Vol. 114	James Seymour A-698	Harris	Davison	#76-035
Commissioner's Court Harris Co.	04/22/1971	Permit	CC Vol. 72	James Seymour A-698	Harris	Jackson Ave.& Davison	#76-037
Commissioner's Court Harris Co.	09/27/1994	Permit	CC Vol.172	James Seymour A-698	Harris	N. Witter Rd.	#76-038
Commissioner's Court Harris Co.	?	Permit	CC Vol 115		Harris		#76-055
Commissioner's Court Harris Co.	01/29/1975	Permit		Wm Vince A-78	Harris	Richey & Red Bluff Access Roads - Assigned to GATX 4/21/1997	
Harris County Public Infrastructure Department Engineering Division - Permit Group	10/16/2001	Permit	Authorization # 7-0021003-1	Ezekiel Thomas A-73	Harris	Fiber Optic Cable Clinton Dr.	

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Harris County Public Infrastructure Department Engineering Division - Permit Group	01/22/2002	Permit	Authorization # 7-0021153-9	Wm Vince A-78	Harris	1207/1208 N. Witter

Harris County Flood Control District Permit

Harris Co.Flood Control Dist.	01/03/2000	Permit #01-43-03		W.Harris/R.Wilson A-31	Harris	
Harris Co.Flood Control Dist.	01/07/2000	Permit		Ezekiel Thomas A-73	Harris	
Harris Co.Flood Control Dist.	03/13/2002	Permit		Ezekiel Thomas A-73	Harris	
Harris Co.Flood Control Dist.	10/25/2002	Permit #01-58-20		Ezekiel Thomas A-73	Harris	

Miscellaneous Licenses/Permits

Arco Midcon LLC	04/24/2002	License	V821733	Ezekiel Thomas A-73	Harris	Ck consent
Arco Midcon LLC	01/09/2003	License	W345157	Ezekiel Thomas A-73	Harris	Ck consent
Army Corps of Engineers	06/10/1969	Permit #W-N-243-41-7946			Harris	
Army Corps of Engineers	05/29/1990	Permit #14114(01)/123	S445836		Harris	Assigned to GATX 4/21/1997
Army Corps of Engineers	06/25/1998	Permit #14114(3)/540		Harris & Wilson A-31	Harris	Notify
Army Corps of Engineers	12/29/1999	Permit #14114(4)/606		Ezekiel Thomas A-73	Harris	Notify
Army Corps of Engineers	03/25/2002				Harris	
Army Corps of Engineers	11/07/2002	Permit #14114(4)/771		Harris & Wilson A-31	Harris	Notify

Port of Houston - Licenses/Permits/Agreements

Port of Houston Authority	12/07/1971	License	#71-175	Wm Vince A-78	Harris*	Expires 5/31/2009	#76-059-B
Port of Houston Authority	01/01/1995	License	#90-0251	William Vince A-78	Harris*	(4) 6" lines Exps. 12/31/2004	#76-072
Port of Houston Authority	07/08/1994	Permit	#94-109 & 94-100		Harris*	Dredged Material Disposal Agreement	#88-072/73
Port of Houston Authority	02/01/1999	License	#98-0358	Ezekiel Thomas A-73 & Callahan & Vince A-9	Harris*	Exps. 1/31/2009	#88-112
Port of Houston Authority	02/01/1996	License	#96-0026	William Vince A-78 & James Seymore A-698	Harris*	Expires 1/31/2006	#76-060 (88-089)

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Southern Pacific Trans. Company	12/28/1984	License	#S202959	Ezekiel Thomas A-73	Harris*	Rental - $110/yr Assned to Strong Capital I - 6/22/2001	#88-057
Southern Pacific Trans. Company	12/28/1984	License	#S202960	Ezekiel Thomas A-73	Harris*	Rental - $110/yr Assned to Strong Capital I - 6/22/2001	#88-058
Texas & New Orleans RR Co.	06/01/1938	License	#S126803	Ezekiel Thomas A-73	Harris*	Rental - $95/yr	#88-059
Southern Pacific Trans. Company	02/28/1996	License		Ezekiel Thomas A-73	Harris*		#88-085
Southern Pacific Trans. Company	02/28/1996	License	#716915	Ezekiel Thomas A-73	Harris*		#88-079
Southern Pacific Trans. Company	02/26/1996	License	#716921	Ezekiel Thomas A-73	Harris*		#88-062
Union Pacific Railroad	04/28/1998	License	#204766	Ezekiel Thomas A-73	Harris*	Orig. doc. (6) p/s 1 sold to Longhorn - 6/29/1998	
Union Pacific Railroad	06/29/1998	License	#205903		Harris*	Supple. Agmt 5/22/2000 10yr - Pd $29,000. 1 time fee	#88-096
Union Pacific Railroad	02/18/1998	License	#203791 (Folder # 1658-71)		Harris*	Consent letter only in file	
Union Pacific Railroad Formerly Southern Pacific RR Co.	05/16/1996	License	#S206691 (Folder #0150535)	Ezekiel Thomas A-73	Harris*	No original license in file Assnd to Strong Capital 6/22/01- $388./yr	#88-056
Union Pacific Railroad	07/22/1988	License	#S209253 (Folder #0192621)		Harris*	No original license in file Assnd to Strong Capital I 6/22/01- $606./yr	#88-055
Southern Pacific Trans. Company	06/05/1983	Agreement	#FW T-31788		Harris*		#88-060
Southern Pacific Trans. Company	11/01/1978	Agreement	#T-19607	Ezekiel Thomas A-73	Harris*		#88-060 #76-084
Southern Pacific Trans. Company	03/27/1974	Agreement	#174833	Ezekiel Thomas A-73	Harris*	Rental - $1,150/yr	#88-061
Southern Pacific Trans. Company	?	Agreement		Ezekiel Thomas A-73	Harris*		#88-063
Union Pacific Railroad	08/29/1998	Agreement	Folder #1717-85 Project #1725	Ezekiel Thomas A-73	Harris*	Doc. in file not signed - 1 time fee	#88-095

HLP/CenterPoint Agreements/Licenses

Houston Lighting & Power Co.	06/04/1986	Agreement	P.S. 101-1 Map A-17 Ref#S-18	Ezekiel Thomas A-73	Harris	Permission to extend RR Spur across Deepwater	#88-034
Houston Lighting & Power Co.	05/11/1990	Agreement	P.S. 101-1 Map A-17	Ezekiel Thomas A-73	Harris	Permission to pave a 2'X190' area	#88-035

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

Houston Lighting & Power Co.	03/08/1993	Agreement			Harris*	13 poles - $1,150./yr	#88-023
CenterPoint Energy Houston	08/28/1997	Agreement			Harris*	$1,150./yr	#76-084
Houston Lighting & Power Co.	03/12/1998	License		William Vince A-78	Harris *	Rental - $1,150./yr	
Houston Lighting & Power Co.	03/17/1998	License			Harris *	Signed 7/7/1998	#88-100
Reliant Energy HL & P	01/17/2000	Agreement		Ezekiel Thomas A-73	Harris		

City Franchises/Ordinances

City of Pasadena	10/07/1971	Franchise #97-110	S445836		Harris*	Exp. 10/6/2021 - Annual rental $25./yr Assigned to GATX 4/21/1997	
City Commission of The City of Galena Park	01/22/1993	Franchise		Ezekiel Thomas A-73	Harris*	Exp. 1/20/2003 Doc. for a 10yr term	#88-019
City Commission of The City of Galena Park	02/17/1998	Ordinance	#98-03		Harris	$500./annual fee	
Industrial Dist.City of Pasadena	11/21/1997	Ordinance	#97-229	James Seymour A-698	Harris	Rental expired 2003	#76-067

Industrial District Contracts

City of Houston, Texas	11/15/1987	Contract		Ezekiel Thomas A-73	Harris *	Rental expired 1997 - Ordinance # 77-2212	

[illegible] OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS [illegible] AND UNENFORCEABLE UNDER FEDERAL LAW
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in file number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

MAR 23 2007

COUNTY CLERK
HARRIS COUNTY TEXAS

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Sang Thi Ngan Tran
SONG THI NGAN TRAN

Deputy

COUNTY COURT OF HARRIS COUNTY, TEXAS

Filed for record Oct. 26, 1944, at 10.40 O'clock A.M. Recorded Oct. 30, 1944, at 11.55 O'clock A.M.
W. D. MILLER, Clerk County Court, Harris County, Texas. By Olga Neuhaus Deputy.

No. 219548

The Texas Company To General American Transportation Corp.

Deed & Map.

State of Texas, County of Harris. Know all men by these presents:

That The Texas Company, a Delaware corporation, with a permit to do business in Texas, is the owner of certain land in Harris County, Texas, described as follows:

About two hundred seventy-three and sixty-three one hundredths (273.63) acres out of a league of land originally granted to Ezekiel Thomas on the North side of Buffalo Bayou, Harris County, Texas, described by meetes and bounds as follows: Beginning at the intersection of the west line of a tract of land conveyed by G. L. Noble to The Texas Company, by a deed dated May 10, 1915, and recorded in Volume 351 at page 464, of the Deed Records in the office of the Clerk of the County of Harris Texas, , with the north bank of Buffalo Bayou; thence North along the said west line thirty-nine hundred and seventy-four varas, or eleven thousand and thirty-nine (11039) feet, to a concrete monument on the west line; thence west one thousand sixty-six (1066) feet to a concrete monument for corner; thence south eleven thousand four hundred and fifty-nine (11459) feet to a concrete monument in the north bank of Buffalo Bayou; thence down said Bayou with its meanders to the place of beginning; except a right-of-way eighty (80) feet in width conveyed by P. S. Griffith to the T. & N. O. Railway Company by deed dated September 29, 1916, recorded in Volume 371, Page 268, of the Deed Records of the said Clerk; and except a right-of-way for a public road sixty (60) feet in width conveyed by said P. S. Griffith to the County of Harris across said tract of land, said right-of-way deed being recorded in Volume 375, page 188, of the Deed Records of said Clerk as extended by a subsequent right-of-way by The Texas Company to said County of Harris; That The Texas Company, hereinafter called "Grantor", for an in consideration of the sum of Ten Dollars ($10.00) and other good and valuable considerations to it paid by General American Transportation Corporation, a New York corporation, hereinafter called "Grantee", has granted, sold and conveyed, and by these presents, does grant, sell, and convey unto said General American Transportation Corporation, subject to the reservations and exceptions hereinafter set out, two tracts out of the land described above and two additional tracts, all four of which tracts are described as follows:

Tract (A) All that part of the said described land lying south of the hundred (100) foot right-of-way of the road known as Clinton Public Road, and North of the north line of the right-of-way of the Texas and New Orleans Railroad Company (S.P.RR.Co.) containing sixteen and ninety-one hundredths (16.91) acres, more or less; Tract (B) All that part of said land first above described lying south of the said right-of-way of the Texas and New Orleans Railroad Company (S.P.R.R. Co) containing thirty-one and ninety-six hundredths (31.96) acres, more or less; and the two tracts of land adjacent to and east of the above described tracts (A) and (B), which are more accurately described as follows:

Tract No. (1) Beginning at the northeast corner aforedescribed tract (A); thence in an easterly direction along the South line of the hundred (100) foot right-of-way of the road known as Clinton Public Road to a point where a line parallel to, and seventy-four (74) feet east of, the east line of said aforedescribed tract (A) would intersect the said south line; thence in a southerly direction parallel to, and seventy-four (74) feet east of, the east line of the sadd land of aforedescribed tract (A) to the north line of the right-of-way of the Texas and New Orleans Railroad Company (S.P.R.R.Co.); thence in a westerly direction along the said north line of the said right-of-way seventy-four (74) feet to the southeast corner of aforedescribed

Clerk's Notes—Art. 4606.

RP-092-29-0293

1163/515
10-03-1944
11-17-1944

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

tract (A); thence in a northerly direction along east line of aforedescribed tract (A) to the point of beginning. Containing one and seventeen hundredths (1.170) acres, more or less; Tract No. (2) beginning at the northeast corner of aforedescribed tract (B); thence in an easterly direction along the south line of the right-of-way of the Texas and New Orleans Railroad Company (S.P. R. R.Co) to a point where a line parallel to, and seventy-four (74) feet east of, the east line of aforedescribed tract (B) would intersect the said south line; thence in a southerly direction parallel to and seventy-four (74) feet east of, the east line of aforedescribed tract (B) to the north bank of Buffalo Bayou; thence in a westerly direction along the said north bank to the southeast corner of aforedescribed tract (B); thence in a northerly direction along the said east line of the aforedescribed tract (B) to the point of beginning. Containing two and one hundredth (2.01) acres, more or less; all as shown on the print of grantor's drawing 15-1060 attached hereto, together with all and singular the rights (including riparian rights) and appurtenances thereto in anywise belonging. The above described four tracts comprising a tract eleven hundred forty (1140) feet wide measured along the south line of Clinton Road by nineteen hundred forty (1940) feet more or less on the east side and twenty-three hundred and seventy-four (2374) feet, more or less, on the west side running from the said south line of Clinton Road to the north bank of Buffalo Bayou (Houston Ship Channel) excepting an eighty (80) foot right-of-way owned and occupied by the Texas and New Orleans Railroad Company, consisting of fifty-two and five hundredths (52.05) acres, more or less, said four tracts being also the same tracts covered by agreements dated January 2, 1935 and March 27, 1936 between The Texas Company and General American Tank Storage and Terminal Company, Inc., and General American Tank Car Corporation.

Grantor reserves and excepts from this conveyance, for itself, its successors and assigns, all rights to oil, gas and other minerals in and under said above described tracts of land, together with the right to drill, mine and operate on the said above described property for such oil, gas or other minerals, provided, however, that in the exercise of such rights, grantor, its successors and assigns, shall not damage or interfere with any buildings, pipes, structures, or equipment of any kind or character of Grantee, its successors and assigns, on said above described property, or with the business conducted or to be conducted thereon by grantee, its successors and assigns, and shall reimburse grantee, its successors and assigns, for any and all damages or expenses incurred by or resulting from the exercise of said rights by grantor, its successors and assigns. Grantor also reserves to itself, its successors and assigns forever a right-of-way to lay, maintain, repair and replace two pipe lines across the above described tracts of land, and/or along the western boundary of said tracts of land to connect with grantor's land adjoining the above described property on the east, the location of said right-of-way being shown on the print of grantor's drawing 15-1060, attached hereto and made a part hereof.

This conveyance is subject to: (a) General taxes, special assessments and all other taxes, assessments and licenses whatsoever applicable to the above described tracts of land, and all buildings and improvements thereon (except those owned by other parties) and to the business conducted or to be conducted thereon covering the calendar year 1935 and subsequent years. (b) The rights of all persons claiming by, through or under the grantee herein; also the rights of all persons claiming by, through or under General American Tank Storage & Terminal Co., Inc. a Louisiana corporation, which heretofore assigned to the grantee all of its right, title and interest, in, to and under those certain agreements dated January 2, 1935, and March 27, 1936, hereinafter more particularly described. (c) The rights, grants, privileges, and easements insofar as they cover and affect the above described tracts of land, granted or conveyed by the following described instruments, viz: (1) Pipe line right-of-way grant, dated February 6, 1920, from The Texas Company to Sinclair Cudahy Pipe Line Co., recorded in Book 442, Page 511, in the Clerk's Office of Harris County, Texas, with a supplement thereto dated May 29, 1920;

Clerk's Notes—Art. 4606.

RP 092-29-0794

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

(2) Pipe line right-of-way grant, dated August 4, 1920, from The Texas Company to American Petroleum Company; (3) Pipe line right-of-way grant, acknowledged September 11, 1920, from The Texas Company to The Texas Pipe Line Company; (4) Telegram and telephone line right-of-way grant, dated March 2, 1923, from The Texas Company to Sinclair Pipe Line Company, recorded in Book 529, Page 277, in the Clerk's office of Harris County, Texas; (5) Transmission line right-of-way grant, dated April 10, 1923, from The Texas Company to Houston Lighting & Power Company; (6) Deed, dated May 16, 1925, from The Texas Company to Northside Belt Railway Company deeding two and forty-five hundredths (2.45) acres of land out of the Ezekiel Thomas survey in Harris County, Texas; (7) Pipe line right-of-way grant, dated January 18, 1927, from The Texas Company to Houston Gulf Gas Company, recorded in Book 725, Page 160, in the Clerk's Office of Harris County, Texas; (8) Pipe Line right-of-way grant, dated dated December 21, 1925, from The Texas Company to Houston Pipe Lines Company, recorded in Book 659, Page 122, in the Clerk's office of Harris County, Texas, which was later assigned to Houston Natural Gas Co.; (9) Quitclaim deed to right-of-way, dated May 4, 1927, from The Texas Company to County of Harris, Texas, recorded in Book 704, Page 217, in the Clerk's office of Harris County, Texas; (10) Spur track right, dated September 22, 1927, from The Texas Company to Texas & New Orleans Railroad Company; (11) Pipe line right-of-way grant, dated November 28, 1927, from The Texas Company to Dixie Gulf Gas Company, recorded in Book 725, Page 175, in the Clerk's office of Harris County, Texas; (12) Telegraph and telephone right-of-way, dated March 16, 1928, from The Texas Company to Dixie Gulf Gas Company; (13) Pipe line right-of-way grant, dated November 22, 1928, from The Texas Company to Houston Gulf Gas Company, recorded in Book 725, page 602, in the Clerk's office of Harris County, Texas; (14) Telegraph and telephone right-of-way grant, dated January 9, 1931, from The Texas Company to United Pipe Line Corporation (15) Pipe line right-of-way grant, dated May 22, 1931, from The Texas Company to Sinclair Texas Pipe Line Company; (16) Grant of right to construct and operate tunnel and riser shaft pipe manifold and other appurtenances, dated May 22, 1931, from The Texas Company to Sinclair Texas Pipe Line Company, as modified by letter dated May 22, 1931, from Sinclair Texas Pipe Line Company to The Texas Company; (17) Deed to one and sixty-three hundredths (1.63) acres of land, dated September 16, 1916, from The Texas Company to Texas & New Orleans Railroad Company; (18) Deed of right-of-way, dated December 4, 1916, from The Texas Company to County of Harris, Texas; (19) Electrical distributing line right-of-way, dated February 20, 1930, from The Texas Company to Houston Lighting and Power Company; (20) Right-of-way grant, dated September 12, 1925, from The Texas Company to Houston Lighting & Power Company, recorded in Volume 572, Page 455, in the Clerk's office of Harris County, Texas; (21) Pipe Line right-of-way grant, dated September 29, 1921, from The Texas Company to The Texas Pipe Line Company; (22) Power line right-of-way grant, dated August 4, 1920, from The Texas Pipe Line Company to American Petroleum Company. To have and to hold the above described premises, together with all and singular the rights (including riparian rights) and appurtenances thereto in anywise belonging, unto the said General American Transportation Corporation, Grantee herein, its successors and assigns, forever, subject to the reservations, exceptions, easements, rights-of-way, and grants as hereinabove set forth. And The Texas Company, Grantor herein, does hereby bind itself, its successors and assigns, to warrant and forever defend all and singular the said premises unto the said General American Transportation Corporation, grantee herein, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, subject to the reservations, exceptions, easements, right-of-way, and grants as hereinabove set forth. This deed is executed and delivered by The Texas Company, grantor herein, under and pursuant to that certain agreement dated January 2, 1935, and that certain supplemental agreement dated March 27, 1936, both of said agreements relating to the sale and purchase of the above described

1163

RP 092-29-0795

Clerk's Notes—Art. 4606.

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

tracts of land, said agreements having been entered into between The Texas Company, grantor herein, General American Tank Storage & Terminal Co., Inc. a Louisiana corporation, and General American Tank Car Corporation, a West Virginia corporation, and all the right, title and interest of said General American Tank Storage & Terminal Co., Inc., in, to and under said agreements having been heretofore assigned, transferred and set over to and being now vested in the Grantee herein. In witness whereof The Texas Company, Grantor herein, has caused these presents to be signed by its proper officers thereunto authorized and its corporate seal hereunto affixed, this 3rd day of October, A.D. 1944.

The Texas Company, By: H.W. Dodge, Vice President. Attest: W.G. Elicker Asst. Secretary (Seal) (Stamps Can: $244.20)

State of New York, County of New York. Before me, the undersigned authority, on this day personally appeared H.W. Dodge and W.G. Elicker personally known to me to be the Vice President and Asst. Secretary of The Texas Company, a Delaware corporation, and to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same for the purposes and consideration therein expressed, in the capacities therein stated, and as the act and deed of said corporation. Given under my hand and seal of office, this 3rd day of October, A. D. 1944.

Harris A. Smith, Notary Public in and for New York County, N.Y. Notary Public, Queens County Clk's No. 2113, Register's No. 269-R65 N.Y.Co. Clerk's No. 957, Registers No. 536-R5.

My Commission Expires March 30, 1945. (Seal)

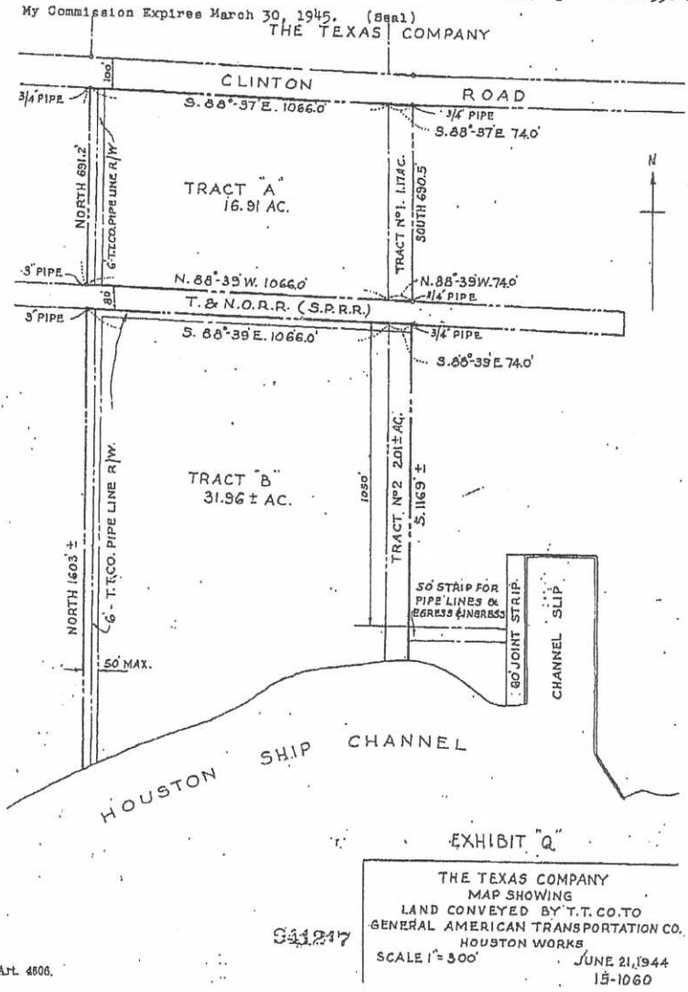


EXHIBIT "Q"

THE TEXAS COMPANY
MAP SHOWING
LAND CONVEYED BY T.T. CO. TO
GENERAL AMERICAN TRANSPORTATION CO.
HOUSTON WORKS
SCALE 1" = 300' JUNE 21, 1944
15-1060

54247

Clerk's Notes—Art. 4606.

RP-092-29-0796

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29-0797

EXHIBIT B

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

April 22, 2014

STATE OF TEXAS

COUNTY OF HARRIS

METES AND BOUNDS DESCRIPTION FOR
KMLT CENTRAL PLANT PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUIDS TERMINALS LLC
AND KM LIQUIDS TERMINALS, L.P.

Metes and bounds description for a 28.4814 acre tract of land extending over, through, along and across a called 31.96 acre tract of land (Tract B), and a called 2.01 acre tract (Tract No. 2), as recorded in Volume 1163, Page 515 , Deed Records of Harris County, Texas, and the residue of a 123.5686 acre tract of land, as recorded in File No. 20070176988, Film Code 041-65-1336, Official Public Records of Real Property, Harris County, Texas, said tract being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.

BEGINNING in the East property line of said 2.01 acre tract (Tract No. 2), said "POINT OF BEGINNING" being South 03°25'40" East, along said East property line, a distance of 146.58 feet from the calculated Northeast corner of said 2.01 acre tract (Tract No. 2), said Northeast corner being at the intersection of the South right-of-way line of Union Pacific Railroad and the West property line of said 123.5686 acre tract, said "POINT OF BEGINNING" having coordinates N=13,832,233.24, E=3,166,211.22;

THENCE, South 39°37'03" East, a distance of 140.35 feet to a point;

THENCE, a distance of 293.98 feet, along the arc of a curve to the right, having a radius of 475.00 feet, a delta angle of 35°27'38", and a chord bearing of South 21°53'13" East, a distance of 289.31 feet to a point;

THENCE, South 04°09'24" East, a distance of 287.20 feet to a point;

THENCE, South 02°34'21" East, a distance of 132.48 feet to a point;

THENCE, South 00°39'05" West, a distance of 140.48 feet to a point;

THENCE, a distance of 144.61 feet, along the arc of a curve to the right, having a radius of 70.00 feet, a delta angle of 93°48'37", and a chord bearing of South 47°33'24" West, a distance of 102.23 feet to a point;

THENCE, North 85°32'18" West, a distance of 223.05 feet to a point;

THENCE, South 89°47'15" West, a distance of 113.35 feet to a point;

THENCE, North 84°13'50" West, a distance of 153.90 feet to a point;

THENCE, a distance of 182.43 feet, along the arc of a curve to the right, having a radius of 750.00 feet, a delta angle of 13°56'12", and a chord bearing of North 77°15'44" West, a distance of 181.98 feet to a point;

THENCE, North 70°17'39" West, a distance of 59.38 feet to a point;

THENCE, a distance of 279.53 feet, along the arc of a curve to the right, having a radius of 1,500.00 feet, a delta angle of 10°40'38", and a chord bearing of North 64°57'19" West, a distance of 279.13 feet to a point;

THENCE, North 59°37'00" West, a distance of 35.46 feet to a point;

THENCE, a distance of 345.62 feet, along the arc of a curve to the right, having a radius of 375.00 feet, a delta angle of 52°48'25", and a chord bearing of North 33°12'48" West, a distance of 333.52 feet to a point;

URS/4388/4388201A

RP 092-29-0798

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

THENCE, North 06°48'35" West, a distance of 515.05 feet to a point;

THENCE, a distance of 122.18 feet, along the arc of a curve to the right, having a radius of 75.00 feet, a delta angle of 93°20'14", and a chord bearing of North 39°51'32" East, a distance of 109.11 feet to a point;

THENCE, North 86°31'39" East, a distance of 342.26 feet to a point;

THENCE, North 87°49'36" East, a distance of 379.30 feet to a point;

THENCE, a distance of 60.41 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 11°32'13", and a chord bearing of South 86°24'18" East, a distance of 60.31 feet to a point;

THENCE, South 80°38'11" East, a distance of 57.43 feet to a point;

THENCE, a distance of 214.78 feet, along the arc of a curve to the right, having a radius of 300.00 feet, a delta angle of 41°01'09", and a chord bearing of South 60°07'37" East, a distance of 210.22 feet to a point;

THENCE, South 39°37'03" East, a distance of 19.88 feet to the **POINT OF BEGINNING** and containing 1,240,669 square feet or 28.4814 acres of land.

Plat attached.

Lucien C. Schaffer, Jr. 4-23-14
Lucien C. Schaffer, Jr. R.P.L.S. No. 4803

STATE OF TEXAS
REGISTERED
LUCIEN C. SCHAFFER, JR.
4803
PROFESSIONAL
LAND SURVEYOR

RP-092-29-0799

URS/4388/4388201A

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

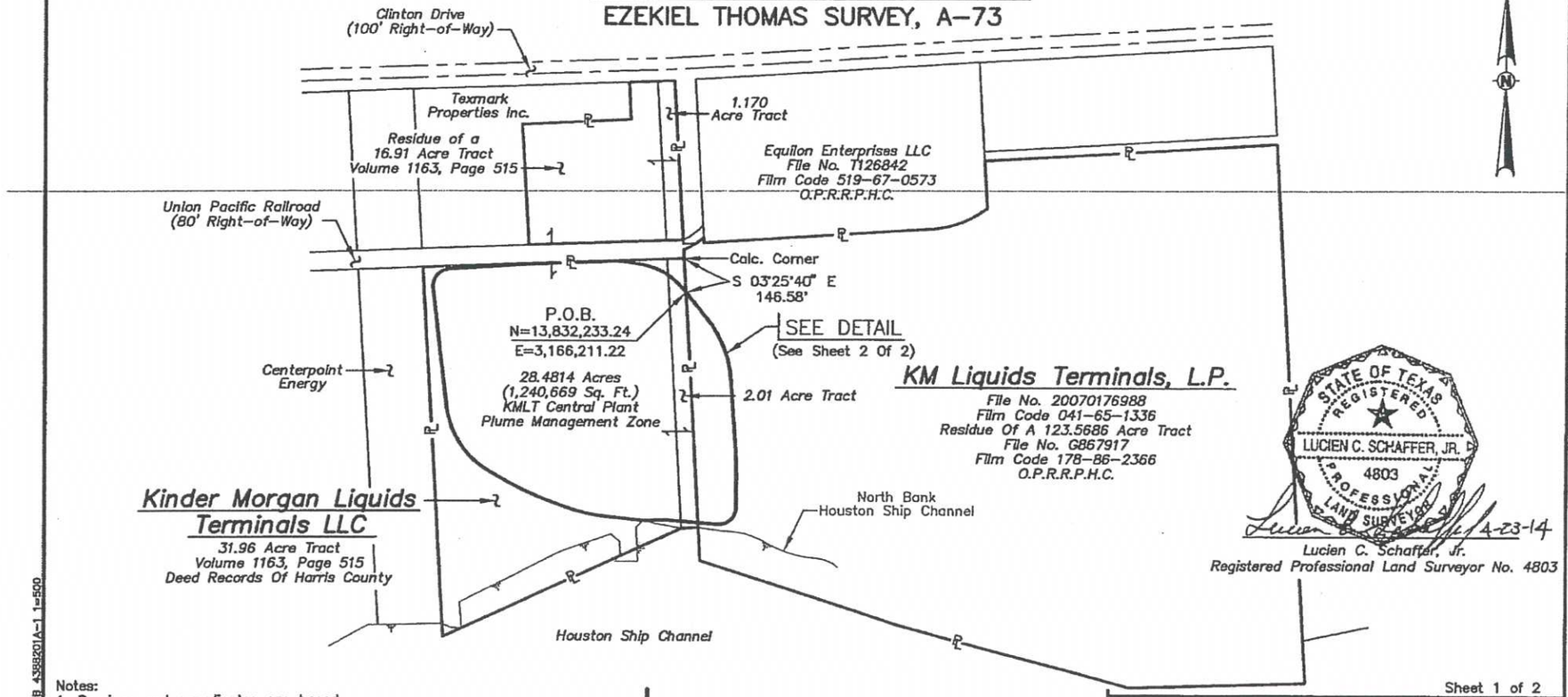
Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29-0800

HARRIS COUNTY, TEXAS

EZEKIEL THOMAS SURVEY, A-73



Notes:
1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented at The Request of The Client.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

File Date: 04/23/14 09:05 TRB 4388201A-1 1=500

Sheet 1 of 2

NO.	DATE	REVISION	BY

GULLETT & ASSOCIATES, INC.
7705 S. LOOP E. HOUSTON, TEXAS 77012
(713) 644-3219
Firm No. TX 100884-00

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-5699 FAX: (713) 789-8404

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUID TERMINALS LLC &
KM LIQUIDS TERMINALS, L.P.
HARRIS COUNTY, TEXAS

DRAWN BY: TRB	DATE: 03/14	CA-4388-001
CHECKED BY: G&A	DATE: 03/14	
SCALE: 1"=500'	W.O.	CAD FILE: 4388201A-1 REV. 0

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

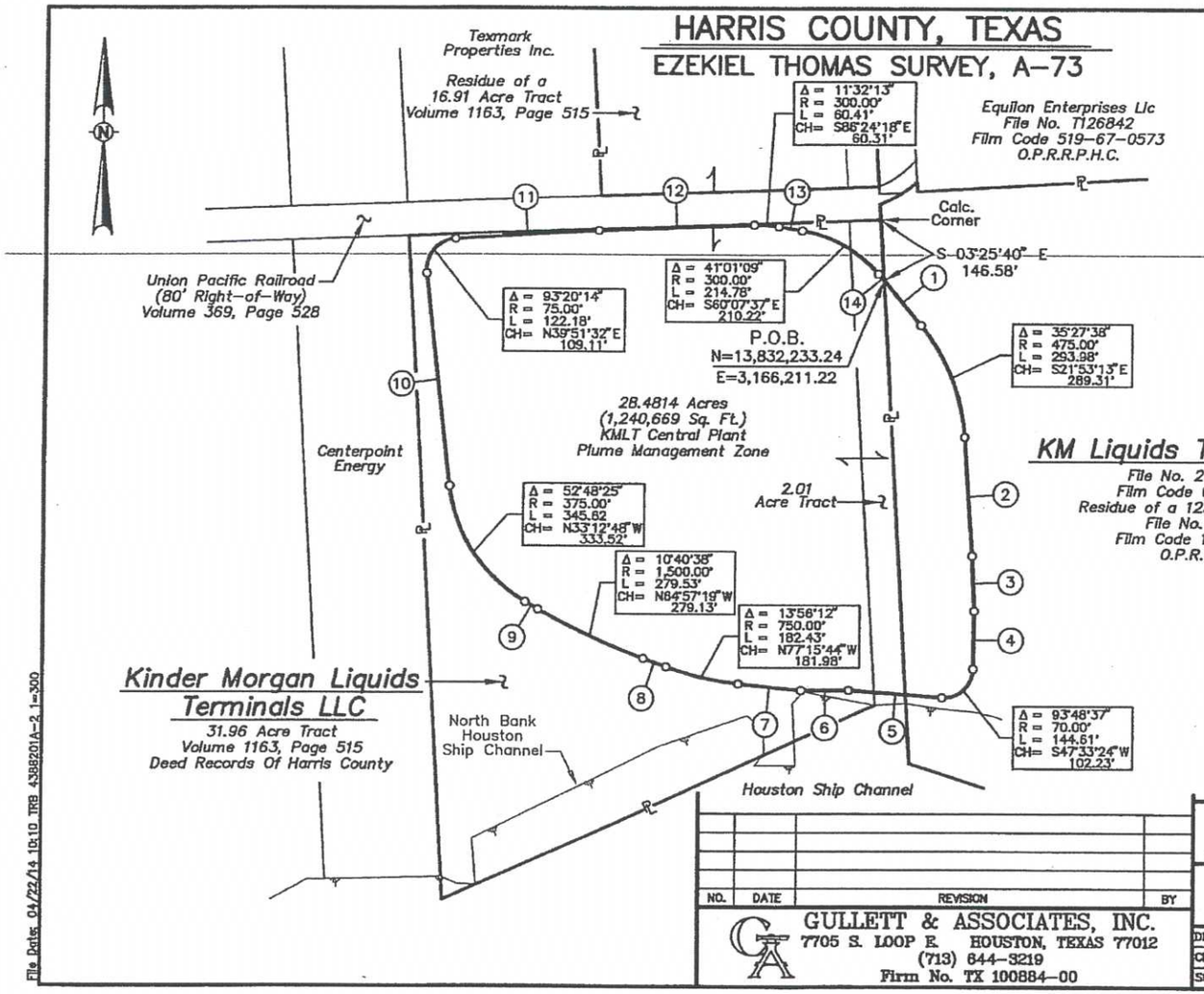
Song Thi Ngan Tran Deputy

SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP 092-29-0801

HARRIS COUNTY, TEXAS
EZEKIEL THOMAS SURVEY, A-73



BEARING CHART		
NO.	BEARING	DISTANCE
1	S 39°37'03" E	140.35'
2	S 04°09'24" E	287.20'
3	S 02°34'21" E	132.48'
4	S 00°39'05" W	140.48'
5	N 85°32'18" W	223.05'
6	S 89°47'15" W	113.35'
7	N 84°13'50" W	153.90'
8	N 70°17'39" W	59.38'
9	N 59°37'00" W	35.46'
10	N 06°48'35" W	515.05'
11	N 86°31'39" E	342.26'
12	N 87°49'36" E	379.30'
13	S 80°38'11" E	57.43'
14	S 39°37'03" E	19.88'

STATE OF TEXAS REGISTERED LUCIEN C. SCHAFFER, JR. 4809 PROFESSIONAL LAND SURVEYOR
4-23-14

Notes:
1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 in feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented at The Request of The Client.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

Sheet 2 of 2

File Date: 04/22/14 10:10 TRB 4388201A-2 1=300

NO.	DATE	REVISION	BY

GULLETT & ASSOCIATES, INC.
7705 S. LOOP E. HOUSTON, TEXAS 77012
(713) 844-3219
Firm No. TX 100884-00

URS
10550 RICHMOND AVE., SUITE 155 HOUSTON, TEXAS 77042
PH: (713) 914-8699 FAX: (713) 789-8404

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUID TERMINALS LLC & KM LIQUIDS TERMINALS, L.P.
HARRIS COUNTY, TEXAS

DRAWN BY: TRB	DATE: 03/14	CA-4388-001
CHECKED BY: G&A	DATE: 03/14	
SCALE: 1"=300'	W.O.	CAD FILE: 4388201A-2 REV. 0

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran Deputy

SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

Exhibit B
Plume Management Zone Maintenance and Monitoring Requirements

Facility monitoring will consist of semi-annual groundwater monitoring of the approved plume management zone well network with annual reporting to the Texas Commission on Environmental Quality (TCEQ). More detail regarding the facility monitoring and maintenance can be found in the TCEQ-approved Response Action Plan Addendum for the Central Plant of the Galena Park Terminal (March 2014).

RP 092-29-0002

RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran **Deputy**
SONG THI NGAN TRAN

COUNTY COURT OF HARRIS COUNTY, TEXAS

RP-092-27-0803

FILED
2014 JUL 30 AM 11:39
Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas

JUL 30 2014

Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

Any provision herein which restrict the sale, rental or use of the described Real Property because of color or race is invalid and unenforceable under the Federal Law. Confidential information may have been redacted from the document in compliance with the Public Information Act.

A Certified Copy
Attest: 7/31/2014
Stan Stanart, County Clerk
Harris County, Texas

Song Thi Ngan Tran
SONG THI NGAN TRAN **Deputy**

COUNTY COURT OF HARRIS COUNTY, TEXAS



RESPONSE ACTION PLAN - ADDENDUM

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park, Texas

Prepared For:

KM Liquids Terminals LLC
Galena Park, Texas

Prepared By:

URS Corporation
Houston, Texas

Project No. 25015861
March 2014

KINDER MORGAN

March 20, 2014

Mr. Kirk Coulter, P.G., Project Manager
Texas Commission on Environmental Quality
Corrective Action Team, VCP-CA Section
Remediation Division, MC-127
12100 Park 35 Circle
Austin, TX 78753

Re: *Response Action Plan Addendum – Central Plant Galena Park Terminal*
KM Liquids Terminals LLC
Galena Park, Texas
TCEQ SWR No. 30573

Dear Mr. Coulter:

Attached please find the Response Action Plan (RAP) Addendum for the KM Liquids Terminals LLC (KMLT) Galena Park Terminal Central Plant area in Galena Park, Texas. The RAP Addendum prepared by URS Corporation (URS) presents additional data and a revised ground water remedial strategy developed subsequent to the original RAP approved by the Texas Commission on Environmental Quality (TCEQ) on November 1, 2007.

The RAP Addendum summarizes PMZ well installation and additional surface soil and groundwater data collected based on the response actions proposed in the 2007 RAP. In addition, the RAP Addendum presents a revised remedial strategy of on-site containment and recovery of affected ground water in the northwest corner of Central Plant. The revised strategy was developed in response to the off-site landowner's denial of KMLT's request for a downgradient point of exposure well in the adjacent right-of-way and deed recordation of the area as commercial/industrial land use. The RAP Addendum details the groundwater recovery system installed and currently operating at the KMLT Galena Park Central Plant.

If you have any questions regarding the information presented in this submittal, please do not hesitate to contact me at (713) 920-8423.

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Project Manager

cc: Waste Program Manager - TCEQ, Region 12 Office
Raaj U. Patel, P.G., Program Manager - URS Corporation

906 Clinton Drive ***Galena Park, TX 77547*** ***Ph: 713-920-8423***
Fax: 713-472-7660

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) SWR #30573
check one: __Initial submittal for this on-site property X Subsequent submittal for this on-site property
Report date: March 20, 2014 TCEQ Region No.: 12

TCEQ Program (check one)

- [X] Corrective Action (Mail Code 127)
- [ ] Voluntary Cleanup Program (Mail Code 221)
- [ ] RPR Section (Mail Code 137)
- [ ] Superfund PRP Lead (Mail Code 143)
- [ ] Municipal Solid Waste Permits (Mail Code 124)

On-Site Property Information

On-Site Property Name: KM Liquids Terminals LLC
Street no. 906 Pre dir: Street name Clinton Street type: Drive Post dir:
City: Galena Park County: Harris County Code: 101 Zip: 77547
Nearest street intersection or location description: Holland Avenue

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29°43'45"
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95°13'31"

Off-Site Affected Property Information

Off-Site Affected Property Name:
Physical Address:
Street no. Pre dir: Street name Street type: Post dir:
City: County: County Code: Zip:

[X] Check if no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: KM Liquids Terminals LLC
Contact Person: Mr. Johnny Kennedy, PG Title: Remediation Project Manager
Mailing Address: 906 Clinton Drive
City: Galena Park State: TX Zip: 77547 E-mail address: [redacted]
Phone: (713) 920-8423 Fax: (713) 472-7660

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person: [signature] Name, print: Johnny Kennedy, PG Date: 3/19/14

Professional Signatures and Seals

Professional Geoscientist

Raaj U. Patel, P.G.	Texas License No.: 1014	07/31/2014
Professional Geoscientist	**Geoscientist License number**	**Expiration date**
Raaj U. Patel	3-20-14	
Signature	**Date**	
(713) 914-6422	(713) 789-8404	[redacted]
Telephone number	**FAX number**	**E-mail**

Professional Engineer

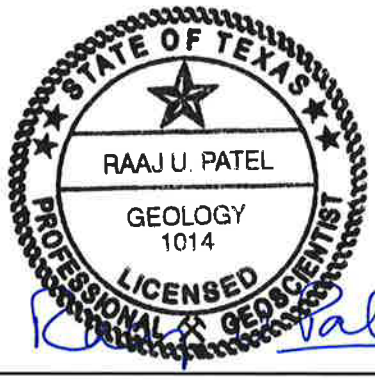
Professional Engineer	**P.E. License number**	**Expiration date**
Signature	Date	
Telephone number	**FAX number**	**E-mail**

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



Raaj U. Patel 3/20/14

RAP Executive Summary	ID No.: SWR #30573
	Report Date: March 20, 2014

Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and PCLE zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

Background

This Response Action Plan (RAP) Addendum has been prepared for Solid Waste Management Unit (SWMU) groups C1, C2, and C3 at the Central Plant area of the KM Liquids Terminals LLC (KMLT) Galena Park Terminal to present additional data collected following approval of the 2007 RAP (URS, 2007). The 2007 RAP discussed response actions for four Central Plant SWMU Groups: C1, C2, C3, and C4, that were identified and investigated in the 2004 site-wide Affected Property Assessment Report (APAR; Arcadis, 2004) as depicted on **Attachment 1A-1**.

The purpose of this RAP Addendum, as discussed in more detail below, is to provide additional surface and subsurface soil data that impact response actions discussed for soil and revise the remedial strategy of a Plume Management Zone (PMZ) for affected groundwater containment and recovery in the northwest corner of the Central Plant. Analytical data collected following submittal of the 2007 RAP are provided in **Appendix 2**.

Proposed Response Actions for Soil

Multiple response actions were proposed for the surface soil Protective Concentration Level Exceedance (PCLE) zones identified in the Central Plant – SWMU Group C1, C2, and C3 in the 2007 RAP (URS, 2007). Due to varied chemical and physical properties of the COCs, the spatial distribution of PCL exceedances, and physical site conditions, specific response actions were proposed to protect human health and the environment, including excavation, resampling to assess attenuation, and establishment of a PMZ where excavation is impracticable (URS, 2007). Where impractical for removal due to existing Terminal infrastructure, or where soil constituents of concern (COCs) were also pervasive in groundwater without exceeding the total soil combined ($^{Tot}Soil_{Comb}$) PCL in soil, surface soils were proposed to be included as part of the Central Plant PMZ. This remains the proposed path forward for these PCLE zones. However, prior to conducting the response actions for the remainder of the surface soil PCLE zones, resampling was conducted to confirm current concentration levels. **Attachment 2A-1** depicts the previously identified surface soil impacted locations, and **Table 2-1** in **Appendix 2** provides a summary of the surface soil resampling data. The results of the resampling analytical data indicated the concentrations of COCs had attenuated below the critical PCL. Based on these resampling data, the response actions for the soils in Central Plant SWMU C1, most of SWMU C2, and three locations in SWMU C3 soil meet a Remedy Standard A closure approach and **No Further Action (NFA) is proposed in these PCLE zones**.

Three surface soil locations with prior PCL exceedances on the eastern side of SWMU Group C2 (Attachment 2A-1) were not resampled due to existing infrastructure. However, soils are located under concrete, and therefore, the pathway for direct contact is incomplete. These locations, in addition to the southeast portion of SWMU C3 where excavation is impractical due to existing infrastructure, will be included as part of the Central Plant PMZ under Remedy Standard B.

Two locations in the southeast corner of SWMU C2 exceeded soil to air inhalation exposure pathway, $^{Air}Soil_{Inh\text{-}V}$ PCL for benzene when evaluated during the 2004 APAR. A Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated for benzene for the soil to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the Occupational Safety and Health Administration (OSHA) permissible exposure level (PEL) for benzene for the TRRP Risk Based Exposure Level (RBEL) in the Tier 2

calculation in accordance with Texas Administrative Code (TAC) §350.74(b). The Tier 2 PCL was not exceeded. No further action is proposed for these two locations. The Tier 2 PCL calculation spreadsheet for the soil to air inhalation pathway is provided as **Table 3-1** in **Appendix 3**.

Proposed Response Actions for Groundwater

The 2007 RAP (URS, 2007) provides a more detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater PCLE zones were identified for the groundwater ingestion pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway, and compliance with worker safety air exposure levels TAC§350.74 to address the groundwater to air inhalation pathway for site workers. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1). The PMZ will also incorporate the existing Compliance Plan (CP 50054) recovery well and trench network along the surface water frontage of the ship berthing area and the Houston Ship Channel (HSC). A map showing the PMZ and associated monitoring wells is included as **Attachment 2D**.

The potentiometric surface for Central Plant shows a south-southeast trending hydraulic mound, with groundwater flow to the east, southeast, south and west. The potentiometric surface maps from the February 2008 and latest gauging event in April 2013 are included as **Attachment 1A-2** and **Attachment 1A-3**, respectively. Groundwater flow to the east, southeast, and south is toward the Compliance Plan recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. Groundwater flow to the west is toward the CenterPoint Energy Right-Of-Way (CPROW). As a result of the outward flow from the hydraulic mound in the Central Plant, the proposed PMZ will monitor for potential COC migration to the surface water to the east, southeast and south, and to the CPROW to the west. Therefore, the PMZ will utilize different PCLs depending on the off-site migration route and the potential receptors.

Approved ecological and human health groundwater to surface water (^{SW}GW) PCLs were calculated in the 2007 RAP. The ^{SW}GW PCLs will also serve as Attenuation Action Levels (AALs) for the PMZ to the east, southeast, and south of the hydraulic high and along the surface water frontage. For groundwater flow to the west of the hydraulic mound toward the CPROW, the applicable groundwater PCLs are the $^{GW}GW_{Ing}$ PCLs. Attenuation Monitoring Point (AMP) wells AMP-1, AMP-2, AMP-3, and Point of Exposure (POE) monitoring wells, POE-1, and POE-2 were installed in January 2008 on the west side of Central Plant to effectively monitor this component of groundwater flow. Groundwater sampling of the PMZ wells for westward migration toward the CPROW, including the newly-installed AMP and POE wells, was performed in February 2008 and in April/May 2013. The analytical data are summarized in **Table 2-2 (Appendix 2)**. The analytical data obtained was used to calculate AALs for the western PMZ boundary toward the CPROW.

During the February 2008 groundwater sampling activities, bis(2-chloroethyl)ether was detected at a concentration that exceeded the critical PCL in monitoring well POE-2, located near the northwest boundary of the PMZ. Resampling was performed in April 2008, January 2010, and September 2010, which confirmed the PCL exceedance of bis(2-chloroethyl)ether in this well. Although there is no known source and this COC was not detected in any adjacent monitoring wells, a groundwater recovery system, which incorporated POE-2 as a recovery well, was installed and activated in December 2011 to provide capture at the KMLT property line. As of December 1, 2013, POE-2 was recovering groundwater at an average rate of 0.63 gallons per minute (gpm). To-date, approximately 583,000 gallons of groundwater have been recovered since activation of the recovery system. Schematics of the groundwater recovery system are shown on **Attachment 2A-2** and **Attachment 2A-3**.

RAP Executive Summary

ID No.: SWR #30573

Report Date: March 20, 2014

In conjunction with the active recovery, monthly sampling of POE-2 for bis(2-chloroethyl)ether commenced in May 2012. The concentration versus time graph for POE-2 and bis(2-chloroethyl)ether is included as **Attachment 1B**. The current bis(2-chloroethyl)ether concentration has decreased to below the critical PCL but still exceeds the residential PCL. Active groundwater recovery and monthly sampling for POE-2 will continue until sufficient data have been collected to show that the bis(2-chloroethyl)ether concentration remains below the residential PCL. Following this, KMLT will notify the TCEQ of its intent to discontinue operation of the recovery well and include semi-annual monitoring of POE-2 under the PMZ sampling program.

What is the selected remedy standard for this affected property? X A X B

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Surface soil	VOCs, SVOCs, Metals				X		
Subsurface Soil	VOCs, SVOCs, Metals				X		
Groundwater	VOCs, SVOCs, 2,4-D, and Lead	X *(see note below)*			X		

An existing groundwater recovery system, consisting of recovery wells and recovery trenches, is currently in operation at the former SEHB area per Compliance Plan CP-50054. An additional recovery system was activated at POE-2 to recover groundwater impacted by bis(2-chloroethyl)ether.

Is there a media that contains a PCLE zone that is not addressed in this RAP? ____ yes X no
If yes, provide justification for not addressing the PCLE zone in this RAP.

On-site land use: [ ] Residential [X] Commercial/Industrial
Off-site land use: [ ] Residential [X] Commercial/Industrial (check all that apply)

Is this a re-submittal or revision of a previous RAP? X Yes ___ No
If yes, explain why the RAP is being revised or resubmitted.

This addendum to the 2007 RAP is being submitted to revise the remedial strategy for affected groundwater to containment and recovery in the northwest corner of the Central Plant. This RAP Addendum also includes surface soil resampling data collected subsequent to the approval of the 2007 RAP indicating NFA for multiple surface soil PCLE zones. Groundwater sampling data were also collected subsequent to the 2007 RAP approval. The data was used to calculate AALs for the AMPs at

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).
[2] If a modified groundwater response objective is proposed, check the type(s) of proposed modifications.

the Site.

Were all the appropriate notifications made in accordance with §350.55? ___ Yes X No
If no, explain why notifications were not made:

Not applicable as affected groundwater is being captured in the northwest corner of the KMLT Central Plant and no response action is proposed for the off-site property.

Response Action Plan Addendum
Central Plant Chronology
Kinder Morgan Liquid Terminals, LP
Galena Park, Texas

December 23, 2013 – Plugging and abandonment of MW-39 and RI-1-15 was performed for the expansion of the railroad easement at the northeast portion of the Central Plant.

April 30, 2013 – Groundwater sampling of the Point of Exposure (POE), Attenuation Monitoring Point (AMP), and monitoring wells on the western portion of Central Plant was performed.

April 6-8, 2008 – Confirmation soil sampling was performed.

February 5-6, 2008 – Groundwater sampling of the POE, AMP, and monitoring wells on the western portion of Central Plant was performed.

January 29-31, 2008 – Installation of Point of Exposure (POE) wells POE-1 through POE-2 and Attenuation Monitoring Points (AMP) AMP-1 through AMP-3.

November 1, 2007 – The Response Action Plan (RAP) was approved by the TCEQ.

August 3, 2007 – The RAP for the Central Plant Plant was submitted to TCEQ.

February 7, 2007 – The APAR was approved by the TCEQ.

October 7, 2004 – The Affected Property Assessment Report (APAR) was submitted to the TCEQ.

September 8, 2003 – The sixth of six semiannual reports was submitted conveying groundwater monitoring for SWMU Group C4.

March 2, 2001 – Kinder Morgan Liquids Terminal, LLC purchased the Galena Park facility from GATX Terminals Corporation.

October 11, 2000 – The RFI was tentatively approved for SWMU Group C4, but new monitoring wells as well as semiannual monitoring for two years was requested.

June 14, 2000 – GATX submitted the RFI Addendum Report for SWMU Group C4.

March 30, 2000 – GATX submitted the RFI Addendum Report for SWMU Groups C1, C2, and C3.

July 31, 1998 – GATX submitted its six-volume Phase II RFI.

September 16, 1997 – GATX contracted Geraghty & Miller to perform the RFI.

April 15, 1997 – GATX submitted the Phase I RFI report, summarizing the status of the SWMUs.

September 24, 1996 – The TNRCC approved the RFI Workplan.

July 19, 1996 – GATX submitted the RFI Workplan.

August 1993 – The groundwater interception system was installed in the Central Plant and began operation.

April 13, 1992 – The RCRA Facility Assessment (RFA) was issued for the SWMUs.

April to May, 1989 – A facility inspection took place and a number of SWMUs were identified.

1989 – The "Aboveground oil-water separator" (misnomer) was installed. This unit is now a part of SWMU Group C3. The Container Storage Building was placed in service. It is now part of SWMU Group C4.

1987 – The Southeast Holding Basin was closed and capped.
May 20, 1986 – An order was issued by the TWC regarding the initial discovery of possible releases from hazardous waste management units at the GATX Galena Park Facility.

1985 – Lift Station No. 4 and the Southeast Holding Basin Sump (now parts of SWMU Group C2) were brought into operation, and the Southeast Holding Basin was removed from service.

1980s – Tanks 26 and 82 were decommissioned and demolished.

1980 – The Below Ground Oil/Water Separator was installed as a part of what is now referred to as SWMU Group C1.

1975 – The Southeast Holding Basin was placed in service to receive wastewater. This unit was the main unit in what is now SWMU Group C2.

1945 – The Central Plant Stormwater Drainage System and T/TR #4, the beginning of what is now SWMU Group C2, were brought into operation.

1944 – Aerial photographs were taken that reveal that GATX has a surface impoundment in the northwestern part of the Central Plant. This impoundment was designated "Impoundment #1" in the RFA and is now part of SWMU Group C4.

1938 – Tanks 116, 117, 50m and 51 were constructed in the Central Plant. These tanks are now part of SWMU Group C1. Tank 25-1, now part of SWMU Group C4, was also constructed. Tanks 3-9 and 32, now part of SWMU Group C3 were constructed.

1930s – Tank 26 and Tank 82, now part of SWMU Group C2, were constructed for product storage use.

1933 or 1934 – GATX purchased the Central Plant tank farm from Texaco.

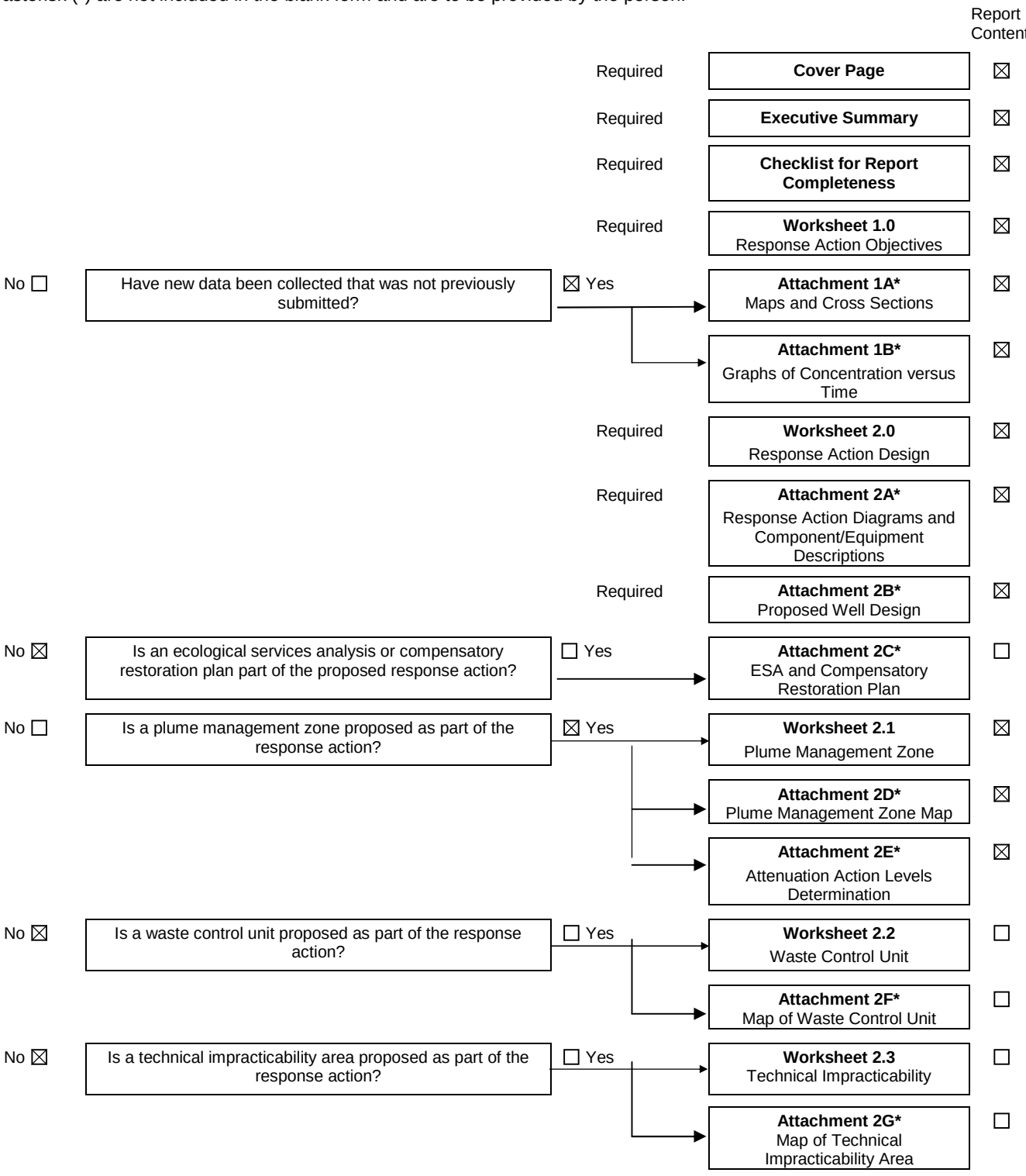
1928 – The Galena Signal Oil Company sold the property that now comprises the North, East and Central Plants to the Texas Company, the predecessor of Texaco.

Checklist for Report Completeness

ID No.: SWR #30573

Report Date: March 20, 2014

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.



Checklist for Report Completeness	ID No.: SWR #30573
	Report Date: March 20, 2014

				Report Contents
No ☐	Is the response action a remedy standard B?	☒ Yes →	**Worksheet 2.4** Institutional Controls	☒
		Required	**Worksheet 3.0** Performance Measures and Potential Problems	☒
		Required	**Worksheet 3.1** Monitoring and Sampling	☒
		Required	**Attachment 3A*** Map of Monitoring and Sampling Points	☒
		Required	**Worksheet 3.2** Operation and Maintenance	☒
		Required	**Worksheet 4.0** Confirmation Sampling Plan	☒
		Required	**Attachment 4A*** Map of Confirmation Sampling Points	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Worksheet 5.0** Post Response Action Care	☒
		→	**Attachment 5A*** Map of PRAC Monitoring and Sampling Points	☒
		→	**Attachment 5B*** PRAC Costs	☐
No ☒	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes →	**Attachment 5C*** Small Business Affidavit	☐
		Required	**Worksheet 6.0** Implementation Schedule	☒
		Required	**Appendix 1*** References	☒
No ☐	Was any data collected that was not previously reported?	☒ Yes →	**Appendix 2*** Data Tables and Boring Logs	☒
No ☒	Were any studies or tests conducted?	☒ Yes →	**Appendix 3*** Studies and Tests Documentation	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Appendix 4*** Proposed Institutional Controls	☒
No ☒	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes →	**Appendix 5*** Landowner Concurrence	☐
No ☒	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes →	**Appendix 6*** Sampling Procedures	☐
No ☒	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☒	Was approval received from the TCEQ regarding the use of different rules to address a media?	☐ Yes →	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Use this worksheet to describe the objectives for the response action in each media.

Response Action Objectives

List the environmental media to which this applies Soils
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Multiple response actions were proposed for the surface soil PCLE zones identified in the Central Plant – SWMU C1, C2, and C3 in the 2007 RAP (URS, 2007). Based on the PCL exceedance, the nature of the COC, and site conditions encountered, specific response actions were proposed to protect human health and the environment including excavation, resampling to assess attenuation, and establishment of a PMZ where excavation is impracticable (URS, 2007). Where impractical for removal due to existing Terminal infrastructure (locations II-082, II-075, and II-059 in SWMU C2 and as stated in the approved 2007 RAP nine locations in the areas of Tank 32 and 37 in the southeast portion of SWMU C3), surface soils were proposed to be included as part of the Central Plant PMZ under Remedy Standard B. This remains the proposed path forward for these PCLE zones. However, prior to conducting the proposed response actions for the remainder of the soil PCLE zones, resampling was conducted in 2005 and 2008 to confirm current concentration levels. **Attachment 2A-1** depicts the soil PCLE zones, and **Table 2-1** in **Appendix 2** provides a summary of the surface soil resampling data. The results of the resampling analytical data indicated the concentrations of COCs had attenuated below the critical PCL. Based on these resampling data, the response actions for the soils in Central Plant SWMU C1, most of SWMU C2, and locations CB-36, CB-38, and CB-39 in SWMU C3 soil meet a Remedy Standard A closure approach and no further action is proposed in these PCLE zones.

Two locations (A2SB-5 and A2SB-13) in SWMU C2 exceeded soil to air inhalation exposure pathway, $^{Air}Soil_{Inh\text{-}V}$ PCL for benzene at concentrations of 430 mg/kg and 97 mg/kg, respectively, when evaluated during the 2004 APAR. However, when evaluated using the most updated PCL from June 29, 2012, only the benzene concentration in A2SB-5 exceeded the Tier 1 $^{Air}Soil_{Inh\text{-}v}$ PCL of 141 mg/kg. A Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated for benzene for the soil to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA permissible exposure level (PEL) for benzene for the TRRP Risk Based Exposure Level (RBEL) in the Tier 2 calculation in accordance with TAC §350.74(b). The soil benzene concentration for A2SB-5 is lower than the calculated Tier 2 PCL of 24,300 mg/kg and is therefore protective of worker safety air exposure levels. No further action is proposed for these two locations. The Tier 2 PCL calculation spreadsheet for the soil to air inhalation pathway is provided as **Table 3-1** in **Appendix 3**.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Not applicable.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The areas of the $^{Tot}Soil_{Comb}$ PCLE zones in surface soil identified in the APAR (Arcadis, 2004) have attenuated to below the critical PCL based on resampling data collected in 2005 and 2008. Two areas, impractical for removal due to existing Terminal infrastructure, will be managed in a PMZ approved for the groundwater PCLE zone as discussed in the 2007 RAP (URS, 2007). These areas include soil sample

locations Il-082, Il-075, and Il-059 in SWMU C2 and nine locations in the areas of Tank 32 and 37 in the southeast portion of SWMU C3. Two additional soil sample locations (A2SB-5 and A2SB-13) exceeded soil to air inhalation exposure pathway PCL, $^{Air}Soil_{Inh\text{-}V}$, for benzene at concentrations of 430 mg/kg and 97 mg/kg, respectively, when evaluated during the 2004 APAR but do not exceed the Tier 2 PCL of 24,300 mg/kg for worker safety. The PMZ will be implemented and the area deed recorded within 180 days of the approval of this RAP Addendum.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

Not Applicable – Physical controls are not proposed as a soil response action. However, certain COCs in soil will be addressed in the groundwater PMZ which will require deed recordation activities.

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

Resampling of the benzene (as an indicator COC) and arsenic surface soil PCLE zones indicated the COCs are below the critical PCL (**Table 2-1**). Additionally, two locations (A2SB-5 and A2SB-13) that exceeded the Tier 1 PCL for the soil to air inhalation exposure pathway did not exceed the calculated Tier 2 PCL (**Table 3-1**). Therefore, an NFA is proposed for locations CB-9 and Il-068 in SWMU C1; A2SB-5 and A2SB-13 in SWMU C2; and CB-36, CB-38, and CB-39 in SWMU C3.

Locations Il-082, Il-075, and Il-059 in SWMU C2 and nine locations in the areas of Tank 32 and 37 in the southeast portion of SWMU C3, as stated in the approved 2007 RAP, will be managed in the PMZ. Proposed routine groundwater sampling of the Compliance Plan analytes (VOCs, SVOCs, and metals) will be used to evaluate COC concentrations in groundwater and verify stability of the plume.

Response Action Objectives

List the environmental media to which this applies Groundwater
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Groundwater Response Action Remedy Standard B – PMZ and Compliance with Worker Safety Air Exposure Levels

The 2007 RAP (URS, 2007) provides a more detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater PCLE zones were identified for the groundwater ingestion pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway, and compliance with worker safety air exposure levels (TAC §350.74) to address the groundwater to air inhalation pathway for site workers. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1). The PMZ will also incorporate the existing Compliance Plan (CP 50054) recovery well

and trench network along the surface water frontage of the ship berthing area and the HSC by utilizing some of the strategic existing Compliance Plan monitoring wells to monitor groundwater concentrations for PMZ compliance and relying on the Compliance Plan recovery wells and trench network to effect withdrawal, treatment and/or containment of contaminated groundwater and LNAPL per the objectives of the Compliance Plan.

Groundwater sampling data collected as part of the APAR indicated that concentrations of benzene, naphthalene, and vinyl chloride exceed the Tier 1 $^{Air}GW_{Inh\text{-}V}$ PCLs at the locations as depicted on Attachment 2A-2 of the 2007 RAP (URS, 2007). Tier 2 PCLs were calculated for benzene, naphthalene, and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene, naphthalene, and vinyl chloride for the TRRP RBELs in the Tier 2 calculation in accordance with TAC §350.74(b). Currently, monitoring wells MW-10, MW-12, MW-20, and MW-23 contain LNAPL and have not been sampled. The LNAPL is being recovered as part of the existing Compliance Plan (CP 50054) recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. The current concentrations of benzene, naphthalene, and vinyl chloride in the other monitoring wells from the July 2013 Compliance Monitoring event do not exceed the Tier 2 PCLs and are protective of worker safety air exposure levels (**Table 2-3** in **Appendix 2**). The Tier 2 PCL calculation spreadsheets for the groundwater to air inhalation pathway are provided as **Table 3-2** through **Table 3-5** in **Appendix 3**. As stated in the paragraph above, potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures, in general accordance with TAC§350.74(b)(1).

The potentiometric surface for Central Plant shows a south-southeast trending hydraulic mound, with groundwater flow to the east, southeast, south and west. The potentiometric surface maps from the February 2008 and latest gauging event in April 2013 are included as **Attachment 1A-2**, and **Attachment 1A-3**, respectively. Groundwater flow to the east, southeast, and south is toward the Compliance Plan recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. Groundwater flow to the west is toward the CPROW. As a result of the outward flow from the hydraulic mound in the Central Plant, the proposed PMZ will monitor for potential COC migration to the surface water to the east, southeast and south, and to the CPROW to the west. Therefore, the PMZ will utilize different PCLs depending on the off-site migration route and the potential receptors.

Approved ecological and human health groundwater to surface water (^{SW}GW) PCLs were calculated in the 2007 RAP. The ^{SW}GW PCLs will also serve as AALs for the PMZ to the east, southeast, and south of the hydraulic high and along the surface water frontage. For groundwater flow to the west of the hydraulic mound toward the CPROW, the applicable groundwater PCLs are the Residential $^{GW}GW_{Ing}$ PCLs. Monitoring wells AMP-1, AMP-2, AMP-3, POE-1, and POE-2 were installed in January 2008 on the west side of Central Plant to effectively monitor this component of groundwater flow. AMP-1 and AMP-2 and POE-1 shown on Attachment 2D were completed in the uppermost groundwater-bearing unit in order to effectively monitor the potential for COC leaching from soils to groundwater in the SWMU Group C3 soils area depicted on Attachment 2A-1, and to monitor downgradient COC concentrations in the groundwater migrating westward from MW-17. Additionally, existing monitoring wells RI-1-17 and RI-1-18 may also serve as POE wells due to slight variations in the groundwater flow direction in this area. AMP-3 was installed approximately midway between MW-37 and the western property boundary. POE-2 was installed west of AMP-3 outside of the soil and groundwater PCLE, approximately 15 feet or 2-years travel time from the western property boundary of Central Plant. These wells were screened in the same groundwater-bearing unit as MW-37. In addition, three additional existing monitoring wells along the western property boundary (RI-1-14, RI-3-02, and RI-3-03) will be incorporated into the PMZ as POE wells to more effectively monitor the western property boundary. Groundwater sampling of the PMZ wells for westward migration toward the CPROW, including the newly-installed AMP and POE wells, was performed in February 2008 and in April/May 2013. The analytical data are summarized in **Table 2-2** in **Appendix 2**. **Appendix 2** provides copies of the boring logs and monitoring well construction diagrams for the monitoring wells installed as part of the approved PMZ and groundwater analytical data. The

analytical data obtained were used to calculate AALs for the western PMZ boundary toward the CPROW. A review of the analytical data showed residential PCL exceedances for benzene, 1,1-dichloroethene, trans-1,2-dichloroethene, tetrachloroethylene (PCE), trichloroethene (TCE), vinyl chloride, benzo(a)pyrene, dibenzofuran, 2-methylnaphthalene, and naphthalene in the source wells MW-35, MW-36, and/or MW-37. The benzene concentration in MW-17 also currently exceeds the residential PCL, as reported in the January 2014 Semiannual Corrective Action Program Report (GES, 2014). AALs were calculated for benzene due to the PCL exceedances observed in MW-37 and MW-17. The AAL calculations are included in **Attachment 2E**.

During the February 2008 groundwater sampling activities, bis(2-chloroethyl)ether was detected at a concentration that exceeded the critical PCL in monitoring well POE-2, located near the northwest boundary of the PMZ. This PCL exceedance of bis(2-chloroethylether) has only been observed at this location and not in surrounding monitoring wells. Resampling was performed in April 2008, January 2010, and September 2010, which confirmed the PCL exceedance of bis(2-chloroethyl)ether in this well. A groundwater recovery system, which incorporated POE-2 as a recovery well, was installed and activated in December 2011 to provide capture at the KMLT property line. As of December 1, 2013, POE-2 was recovering groundwater at an average rate of 0.63 gallons per minute (gpm). To-date, approximately 583,000 gallons of groundwater has been recovered since activation of the recovery system. Schematics of the groundwater recovery system are shown on **Attachment 2A-2** and **Attachment 2A-3**.

Monthly sampling of POE-2 for bis(2-chloroethyl)ether commenced in May 2012. The concentration versus time graph for POE-2 and bis(2-chloroethyl)ether is included as **Attachment 1B** and the analytical laboratory reports are included in **Appendix 2**. The current bis(2-chloroethyl)ether concentration has decreased to below the critical PCL but still exceeds the residential PCL. Active groundwater recovery and monthly sampling for POE-2 will continue until sufficient data have been collected to show that the bis(2-chloroethyl)ether concentration remains below the residential PCL. Following this, KMLT will notify the TCEQ of its intent to discontinue operation of the recovery well and include semi-annual monitoring of POE-2 under the PMZ sampling program..

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Details on the management of collected purge water produced during approved PMZ sampling activities are provided in the 2007 RAP (URS, 2007). Groundwater recovered during operation of the recovery system is currently managed through the KMLT wastewater treatment system. Precaution will be taken when performing remediation well O&M activities to measure vapors from open monitoring wells and minimize exposure to groundwater, as necessary. These activities will be managed through the KMLT permitting process using KMLT's O&M Procedures, which are equivalent to the TRRP referenced health and safety plan (HASP).

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The groundwater recovery system on the northwest portion of the plant at POE-2 has been operational since December 2011 and providing groundwater capture at the property line in this location. Active groundwater recovery and monthly sampling for POE-2 will continue until sufficient data have been collected to show that the bis(2-chloroethyl)ether concentration remains below the residential PCL. Following this, KMLT will notify the TCEQ of its intent to discontinue operation of the recovery well and include semi-annual monitoring of POE-2 under the PMZ sampling program. The recovery system is currently being inspected weekly to confirm the system is operating as intended and that a cone of depression is being maintained at the property line to effectively capture groundwater from migrating

offsite. Additional discussion regarding the 'reasonable time frame' for the response actions is provided in the 2007 RAP (URS, 2007).

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies: Sandy Channel Fill (SCF)/Upper Naturally Transmissive Unit (UNTU)

Repeat this section for each groundwater-bearing unit for which a different response action is proposed.

Groundwater classification ____ 1 __X__ 2 ____ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? __X__ Yes ____ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? __X__ Yes ____ No

If yes, complete the appropriate portions of this report.

If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

The groundwater response action is to establish a PMZ and perform recovery of the groundwater at POE-2 located in the northwest corner of the Central Plant. The PMZ is an exposure prevention approach that reduces the risk of exposure through the use of institutional control mechanisms (e.g., deed recordation and administrative controls) that prohibits the use of groundwater and restricts and monitors work activities in the areas of the PMZ. The PMZ will utilize a monitoring program to verify that the plume is stable or decreasing in concentration. An existing Compliance Plan recovery well and trench network operates along the surface water frontage of the ship berthing area and the HSC in the southeast part of the Central Plant in the vicinity of the former SEHB. This recovery system captures the dissolved-phase COCs and light non-aqueous phase liquids (LNAPL). The applicable PCLs in this area of the PMZ are the ^{SW}GW PCLs. Existing analytical data show COC concentrations do not exceed the lower of the human health or ecological ^{SW}GW PCLs calculated for the Central Plant. Monitoring wells located between the recovery well and trench network will serve as the most downgradient POE wells and will help ensure the recovery well and trench network continue effective capture of the groundwater plume in this area. The AMP and POE monitoring wells on the western property boundary serve as monitoring points for the potential migration of COCs offsite to the CPROW. The applicable PCLs in this area are the Residential $^{GW}GW_{Ing}$ PCLs. AALs were calculated for the AMP wells and are provided in **Attachment 2E**.

The purpose of the recovery system in the northwest corner of the Central Plant at POE-2 is to capture any COC at the property line and remove it from groundwater, thereby eliminating the potential for migrating offsite. This recovery system may also promote conditions that are conducive to monitored natural attenuation of COCs.

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh\text{-}V}$) is exceeded.

The 2007 RAP provides a discussion of the response action related to the groundwater to air inhalation pathway for groundwater concentrations in excess of the $^{Air}GW_{Inh\text{-}V}$ PCL. Prior to conducting air monitoring for these COCs, Tier 2 PCLs were calculated for benzene, naphthalene, and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene, naphthalene, and vinyl chloride for the TRRP RBELs in the Tier 2 calculation. Currently, monitoring wells MW-10, MW-12, MW-20, and MW-23 contain LNAPL and have not been sampled. The LNAPL is being recovered as part of the existing Compliance Plan (CP

50054) recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. The current concentrations of benzene, naphthalene, and vinyl chloride in the other monitoring wells from the July 2013 Compliance Monitoring event do not exceed the Tier 2 PCLs and are protective of worker safety air exposure levels (**Table 2-3** in **Appendix 2**). The Tier 2 PCL calculation spreadsheet (**Table 3-2** through **Table 3-5**) for the groundwater to air inhalation pathway is provided in **Appendix 3**. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

The groundwater to surface water pathway is detailed in the 2007 RAP. Approved ecological and human health ^{SW}GW PCLs were calculated and included in Attachment 2E with supporting documentation provided in Appendix 2 in the 2007 RAP (URS, 2007). AALs have not been derived for these POE or upgradient AMP wells since there are no defined source areas associated with the Central Plant groundwater PCLE zone. Historically, COC concentrations have been well below the ^{SW}GW PCLs (lowest of the human health or ecological). Therefore, the ^{SW}GW PCLs will serve as the AALs for the PMZ in this area.

Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

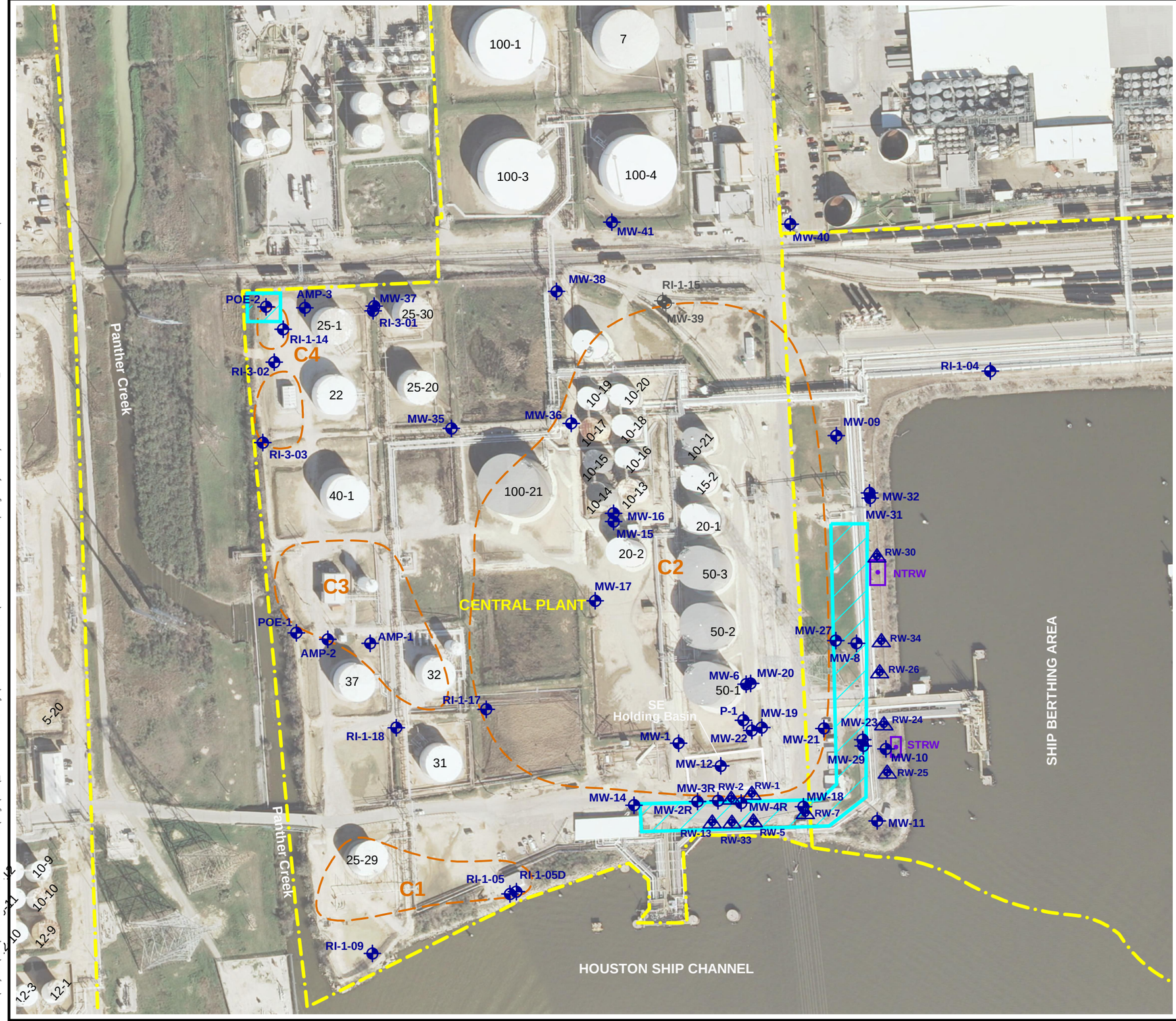
Human and ecological receptor exposure prevention through an approved PMZ is discussed in the 2007 RAP (URS, 2007).

The recovery system at the northwest corner of the Central Plant at POE-2 is intended to act as a barrier to prevent groundwater from migrating offsite to the west onto the CPROW property. By keeping the groundwater PCLE zone from migrating offsite, human and ecological receptors on the CPROW property will not be exposed to the groundwater PCLE zone.

ATTACHMENT 1A

Site Map and Potentiometric Surface Maps

- 1A-1 - Site Map
- 1A-2 - Potentiometric Surface Map (February 2008)
- 1A-3 - Potentiometric Surface Map (April 2013)



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- WELL PLUGGED AND ABANDONED (DECEMBER 2013)
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- APPROXIMATE LOCATION OF GROUNDWATER RECOVERY SYSTEM
- APPROXIMATE LOCATION OF RECOVERY TRENCH IN THE SANDY CHANNEL FILL (NTRW - NORTH TRENCH RECOVERY WELL STRW - SOUTH TRENCH RECOVERY WELL)

Source:

2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

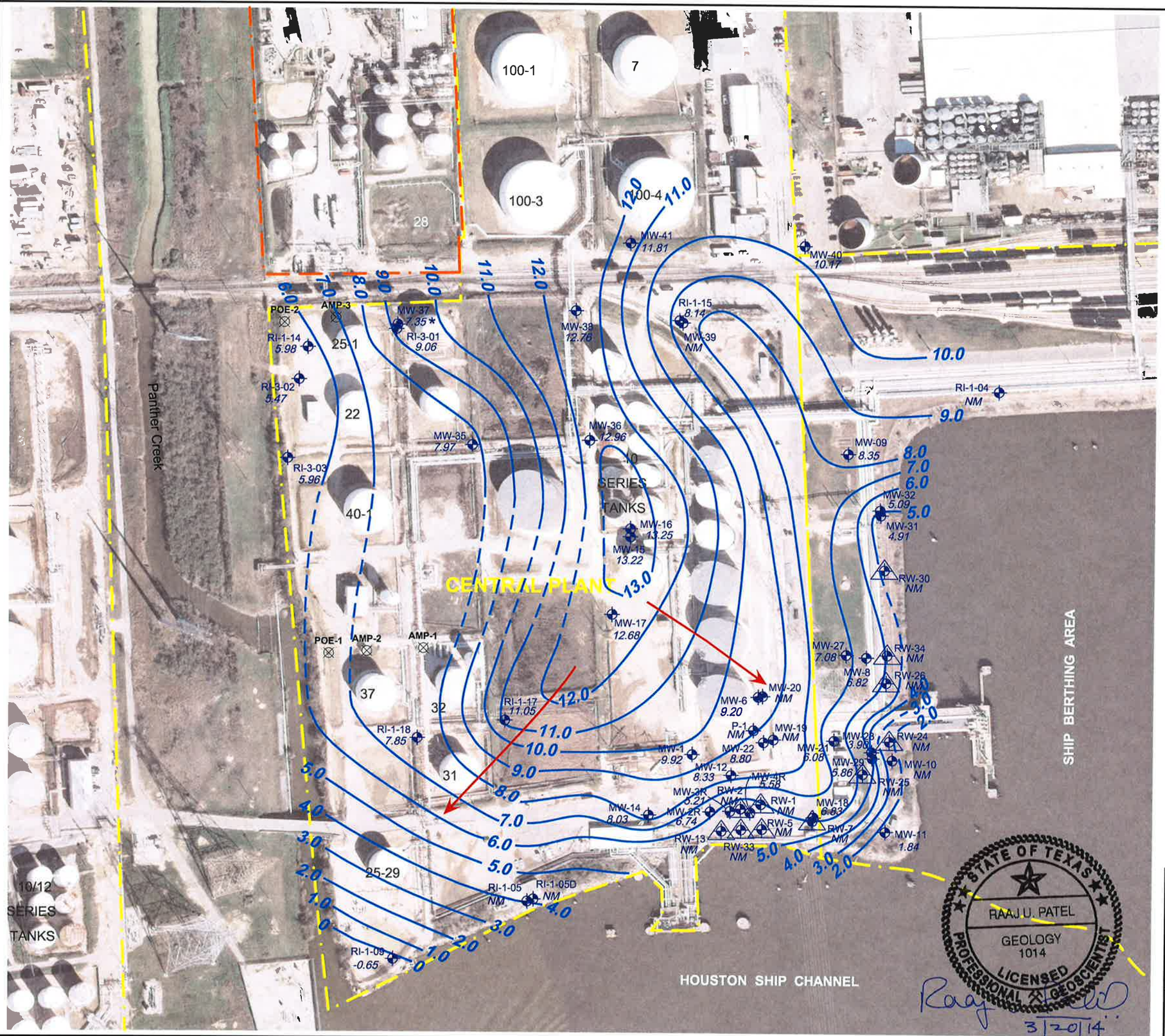
Title: **Site Map**

Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	1-21-14	25015231	Site Map.dwg	1A-1
	Chk'd by: RP	Date: 1-21-14			

File: O:\Projects\ELM\25009736.KM.GolenaPark TX.08\Dwgs\CAD_Central Pont Drawings\2013 RAP Addendum\Attach 1A-1 – Site Map.dwg Layout: Layout1 User: Susan_Forrest Plotted: Feb 19, 2014 – 4:48pm



NORTH

LEGEND:

- COMPLIANCE PLAN RECOVERY WELL
- MONITOR WELL LOCATION
- NEW PMZ MONITOR WELL LOCATION (NOT YET SURVEYED)
- 10.00 - GROUNDWATER ELEVATION
- 10.0 - GROUNDWATER CONTOUR - 1 FT INTERVAL (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- NM - DEPTH TO WATER NOT MEASURED
- * - GROUNDWATER ELEVATION NOT USED TO CONTOUR POTENTIOMETRIC SURFACE MAP DUE TO ANOMOLOUS READING

0 50 100 200

APPROXIMATE SCALE IN FEET

Source:

2012 HGAC Aerial Imagery
NAD83 Texas State Planes, South Central Zone, US Feet
Site figure details obtained from KMLT Galena Park APAR (Arcadis 2004).

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
3/20/14

URS
10550 RICHMOND AVE., STE 150
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

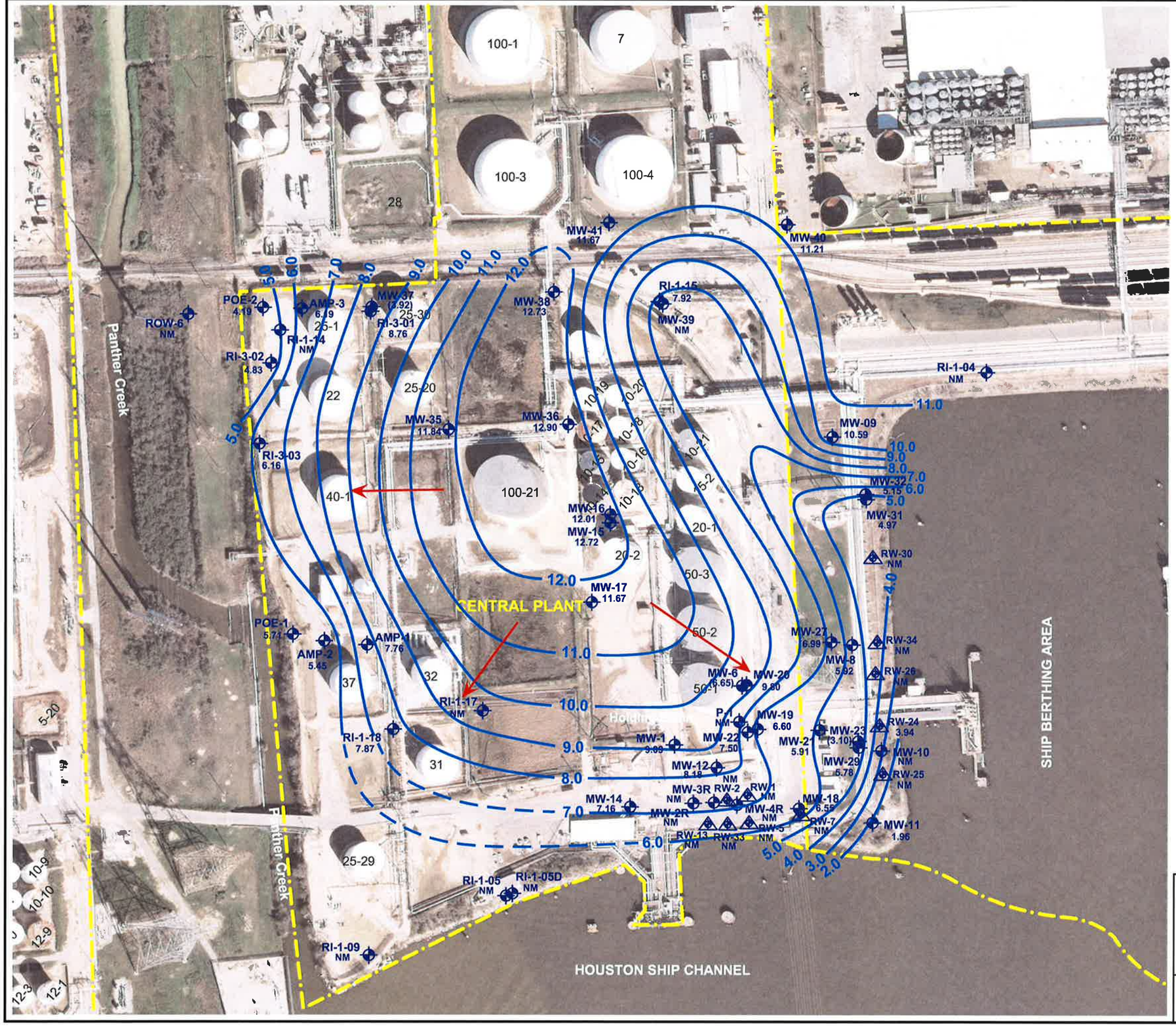
Title: **Potentiometric Surface Map February 11 - 13, 2008**

Project: RAP ADDENDUM
CENTRAL PLANT
KMLIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
As Shown	SJF	5-14-08	25009736	Central Plant-Potentiometric-Feb 2008.dwg	1A-2
	Chk'd by: RUP	Date: 5-14-08			

File: G:\Projects\ELM_25009736.KM.GalenaPark TX.08\Dwgs\CAD_Central Pont Drawings\2013 RAP Addendum\Attach 1A-2 - Potentiometric Surface Map - Feb 2008.dwg Layout: Central User: Susan_Forrest Plotted: Mar 18, 2014 - 4:50pm



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- RI-1-04 - Monitoring Well Locaiton
- 12.34 - Groundwater Elevation in Feet (MSL)
- (10.01) - Parenthesis Indicate Groundwater Elevation Not Used in Contouring this Event
- NM - Groundwater Elevation Not Measured
- 12.0 - Groundwater Contour (1 ft. Interval)
- Groundwater Flow Direction

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

3/20/14

Source:

2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Potentiometric Surface Map April 29, 2013**

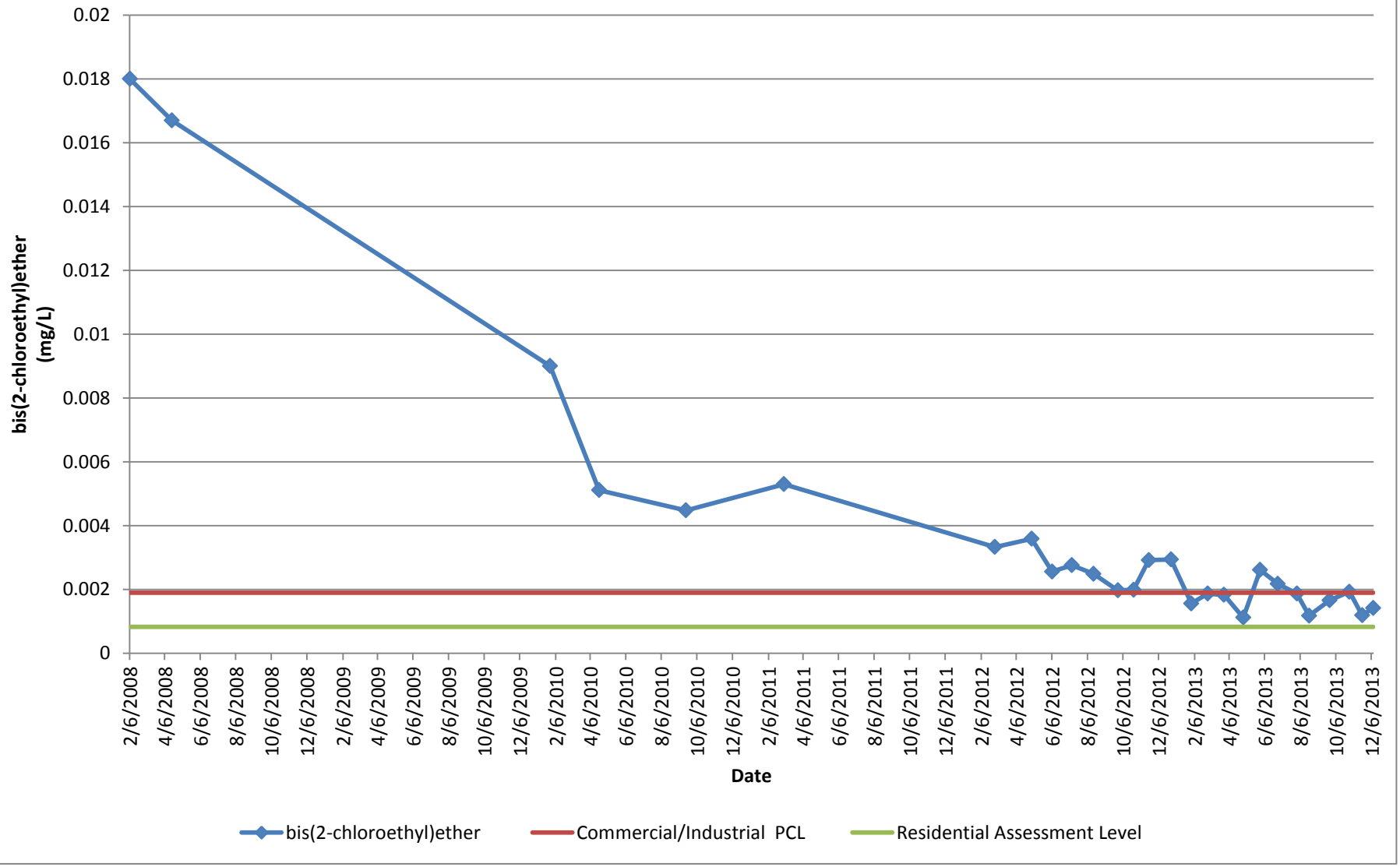
Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	1-21-14	25015231	Potetniometric Surface Map-April 2013.dwg	1A-3
	Chk'd by: RP	Date: 1-21-14			

File: O:\Projects\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_Central Plant Drawings\2013 RAP Addendum\Attach 1A-3 - Potentiometric Surface Map - April 2013.dwg Layout: Layout1 User: Susan_Forrest Plotted: Mar 18, 2014 - 4:51pm

Attachment 1B
bis(2-chloroethyl)ether Concentrations over Time
POE-2



Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Soils

List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

Multiple response actions were proposed for the surface soil PCLE zones identified in the Central Plant – SWMU C1, C2, and C3 in the 2007 RAP (URS, 2007). Based on the PCL exceedance, the nature of the COC, and site conditions encountered, specific response actions were proposed to protect human health and the environment including excavation, resampling to assess attenuation, and establishment of a PMZ where excavation is impracticable (URS, 2007). Where impractical for removal due to existing Terminal infrastructure (locations Il-082, Il-075, and Il-059 in SWMU C2 and as stated in the approved 2007 RAP, nine locations in the areas of Tank 32 and 37 in the southeast portion of SWMU C3) surface soils were proposed to be included as part of the Central Plant PMZ under Remedy Standard B. This remains the proposed path forward for these PCLE zones. However, prior to conducting the proposed response actions for the remainder of the soil PCLE zones, resampling was conducted in 2005 and 2008 to confirm current concentration levels. **Attachment 2A-1** depicts the soil PCLE zones, and **Table 2-1** in **Appendix 2** provides a summary of the surface soil resampling data. The results of the resampling analytical data indicated the concentrations of COCs had attenuated below the critical PCLs. Based on these resampling data, the response actions for the soils in Central Plant SWMU C1, most of SWMU C2, and locations CB-36, CB-38, and CB-39 in SWMU C3 soil meet a Remedy Standard A closure approach and therefore, NFA is proposed in these PCLE zones.

Two locations (A2SB-5 and A2SB-13) in SWMU C2 exceeded soil to air inhalation exposure pathway, $^{Air}Soil_{Inh\text{-}V}$ PCL for benzene at concentrations of 430 mg/kg and 97 mg/kg, respectively, when evaluated during the 2004 APAR. However, when evaluated using the most updated PCL from June 29, 2012, only the benzene concentration in A2SB-5 exceeded the Tier 1 $^{Air}Soil_{Inh\text{-}v}$ PCL of 141 mg/kg. A Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated for benzene for the soil to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PEL for benzene for the TRRP RBEL in the Tier 2 calculation in accordance with TAC §350.74(b). The soil benzene concentration for A2SB-5 is lower than the calculated Tier 2 PCL of 24,300 mg/kg and is therefore protective of worker safety air exposure levels. NFA is proposed for these two locations. The Tier 2 PCL calculation spreadsheet for the soil to air inhalation pathway is provided as **Table 3-1** in **Appendix 3**.

Surface Soil Response Action Remedy Standard A - Resampling

In the APAR (Arcadis, 2004), two COCs (benzene and toluene) were identified in the surface soil in SWMU C1 exceeding the critical PCLs. Toluene was detected above the critical PCL in boring location CB-12 in the 0-2 feet below ground surface (ft bgs) depth interval. Arcadis conducted a resampling event of select soil locations on February 7, 2005. The toluene concentration at CB-12 was below the detection limit (<0.00152 mg/kg) during this resampling event. Benzene was detected above the PCL in boring locations Il-068 [0.5-2.5 feet below ground surface (ft bgs)] in 1997, CB-9 (0-2 ft bgs and 4-5 ft bgs) in 2002, and CB-12 (0-2 ft bgs) in 2002. The analytical data from the 2005 Arcadis resampling event indicated that benzene concentrations had decreased to below the detection limit at these locations, with the exception of the 4-5 ft bgs depth interval at CB-9, where the benzene concentration exceeded the critical PCL of 0.013 mg/kg. URS resampled Il-068 and CB-9 in April 2008. Benzene was below the detection limit at Il-068 (0.5-2.5 ft bgs) and CB-9 (0-2 ft bgs) at concentrations of <0.0031

mg/kg and <0.0029 mg/kg, respectively. Benzene was detected at a concentration of 0.0122 mg/kg at CB-9 (4-6 ft bgs), which is below the critical PCL. Therefore, based on these two confirmatory sampling events, a NFA is being requested for the surface soil PCLE zone identified at SWMU C1.

In the 2004 APAR, arsenic was detected in surface soil above the critical PCL in soil borings CB-36 (0-2 ft bgs), CB-38 (0-2 ft bgs and 4-5 ft bgs), and CB-39 (0-2 ft bgs) at SWMU C3. CB-38 was resampled in February 2005 by Arcadis, which confirmed the critical PCL exceedances in this location. URS resampled locations CB-36, CB-38, and CB-39 in April 2008. Analytical results from the April 2008 sampling event indicated that arsenic concentrations in these three locations have decreased to below the critical PCL of 5.9 mg/kg. Therefore, a NFA is being requested for the surface soil PCLE zone at SWMU C3.

Surface Soil Response Action Remedy Standard B - PMZ

Nine COCs were identified in the surface soil in SWMU C2 in the 2004 APAR (Arcadis, 2004). Excavation of surface soil was proposed in the 2007 RAP (URS, 2007) for soil boring locations Il-059, Il-075, and Il-082. However, excavation could not be performed at these locations due to existing infrastructure. These locations are currently covered by concrete and asphalt along the main road for access and egress to the Central Plant, which eliminates the direct contact exposure pathway ($^{Tot}Soil_{Comb}$). Benzene concentrations in surface soil boring locations A2SB-5 (0-0.5 ft bgs) and A2SB-15 (0-0.5 ft bgs) exceeded the 2007 $^{Air}Soil_{Inh\text{-}V}$ PCL at 430 mg/kg and 97 mg/kg. A Tier 2 PCL was calculated for benzene for the soil to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PEL for benzene for the TRRP RBEL in the Tier 2 calculation in accordance with TAC §350.74(b). The soil benzene concentrations for these two locations are lower than the calculated Tier 2 PCLs; therefore, the soil concentrations are protective of worker safety air exposure levels. The surface soils for these locations are proposed to be included as part of the Central Plant PMZ to monitor the migration of the COCs to groundwater.

With the exception of soil boring locations CB-36, CB-38, and CB-39 at SWMU C3 where an NFA is being requested as discussed above, the PCL exceedances in other locations within the SWMU will be managed under the Central Plant PMZ for multiple COCs, as stated in the approved 2007 RAP.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

Not applicable.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
Not applicable			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not applicable.

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Groundwater

List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

The 2007 RAP (URS, 2007) provides a detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater PCLE zones were identified for the groundwater ingestion exposure pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway and compliance with worker safety air exposure levels to address the groundwater to air inhalation pathway for site workers, as necessary, in accordance with TAC §350.74. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Groundwater sampling data collected as part of the APAR indicated that concentrations of benzene, naphthalene, and vinyl chloride exceed the Tier 1 $^{Air}GW_{Inh\text{-}V}$ PCLs at the locations as depicted on Attachment 2A-2 of the 2007 RAP (URS, 2007). Tier 2 PCLs were calculated for benzene, naphthalene, and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene, naphthalene, and vinyl chloride for the TRRP RBELs in the Tier 2 calculation in accordance with TAC §350.74(b). Currently, monitoring wells MW-10, MW-12, MW-20, and MW-23 contain LNAPL and have not been sampled. The LNAPL is being recovered as part of the existing Compliance Plan (CP 50054) recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. The current concentrations of benzene, naphthalene, and vinyl chloride in the other monitoring wells from the July 2013 Compliance Monitoring event do not exceed the Tier 2 PCLs and are protective of worker safety air exposure levels (**Table 2-3** in **Appendix 2**). The Tier 2 PCL calculation spreadsheets for the groundwater to air inhalation pathway are provided as **Table 3-2** through **Table 3-5** in **Appendix 3**. As stated in the paragraph above, potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures, in general accordance with TAC§350.74(b)(1).

Though some COC concentration levels are currently above groundwater ingestion PCLs, the uppermost groundwater-bearing units at the Terminal are not in use and do not have a reasonably anticipated future beneficial use. Therefore, the applicable groundwater exposure pathways and associated PCLs are the groundwater to surface water pathway (^{SW}GW PCLs) to the HSC and the groundwater ingestion ($^{GW}GW_{Ing}$ PCLs) pathway for migration to the CPROW off-site property. Approved ecological and human health ^{SW}GW PCLs were calculated and included in the 2007 RAP (URS, 2007).

As discussed in the 2007 RAP, the Central Plant PMZ will encompass and monitor the downgradient extent of the soil and groundwater PCLE zone. **Attachment 2D** presents a conceptual design of the

PMZ depicting the existing monitoring wells in the Central Plant area and the locations for the newly installed AMP and POE wells that were proposed in the 2007 RAP. Two existing monitoring wells, MW-38 and MW-41, serve as upgradient monitoring wells. Current monitoring wells sampled as part of the Compliance Plan include point of compliance wells MW-2R through MW-4R and corrective action observation wells MW-1 through MW-4, MW-6, MW-8, MW-9, MW-11, MW-14 through MW-19, MW-21, MW-22, MW-29, MW-31 and MW-32. These Compliance Plan monitoring wells are included as part of the PMZ to monitor the eastern, southeastern, and southern extents of the PMZ in the area of the former SEHB and the groundwater recovery well and trench network. Compliance Plan monitoring wells downgradient of the recovery well and trench network also serve as POE wells along the surface water frontage of the ship berthing area and the HSC. Corrective observations wells MW-10, MW-12, MW-20, MW-23, and MW-27 were proposed to be included as part of the PMZ monitoring well network in the 2007 RAP. However, these observation wells contain LNAPL and are proposed to be removed from the PMZ monitoring network. The LNAPL from these monitoring wells is being recovered as part of the existing Compliance Plan (CP 50054) that includes a recovery well and trench network along the surface water frontage of the ship berthing area and the HSC.

The PMZ also addresses the westward component of groundwater flow toward the CPROW utilizing existing monitoring wells (RI-3-01 through RI-3-03, RI-1-14, RI-1-17 and RI-1-18) and newly installed monitoring wells AMP-1, AMP-2, AMP-3, POE-1, and POE-2 (Attachment 2D). The new AMP and POE wells were installed in January 2008. **Appendix 2** provides copies of the boring logs and monitoring well construction diagrams. In general, the westward groundwater migration pathway includes a southern component (west of monitoring well MW-17) and a northern component (west of monitoring well MW-37).

The southern component of the westward migration pathway will include management of the SWMU C2 surface and subsurface soil PCLE zones and monitoring of potential westward migration of groundwater COCs from the area of monitoring well MW-17. Monitoring wells AMP-1 and AMP-2 and POE-1 were completed in the uppermost groundwater-bearing unit in order to effectively monitor the potential for COC leaching from soils to groundwater in the SWMU C3 soils area, and to monitor downgradient COC concentrations in the groundwater migrating westward from the area of MW-17. Additionally, existing monitoring wells RI-1-17 and RI-1-18 may also serve as POE wells due to slight variations in the groundwater flow direction in this area.

The northern component of the westward migration pathway will monitor the potential westward migration of COCs in the groundwater PCLE zone in the area of monitoring well MW-37 (**Attachment 2D**). Monitoring well AMP-3 was installed approximately midway between MW-37 and the western property boundary. POE-2 was installed west of AMP-3 outside of the soil and groundwater PCLE, approximately 15 feet from the western property boundary of the Central Plant. These wells were screened in the same groundwater-bearing unit as MW-37. In addition, three additional existing monitoring wells along the western property boundary (RI-1-14, RI-3-02, and RI-3-03) were incorporated into the PMZ as POE wells to more effectively monitor the western property boundary.

The applicable groundwater PCLs for these westward flow components of the PMZ are the $^{GW}GW_{Ing}$ PCLs. Groundwater sampling of the PMZ wells for westward migration toward the CPROW, including the newly-installed AMP and POE wells, was performed in February 2008 and in April/May 2013. The analytical data are summarized in **Table 2-2**. **Appendix 2** provides copies of groundwater analytical laboratory reports. The analytical data obtained were used to calculate AALs for the western PMZ boundary toward the CPROW. A review of the analytical data showed residential PCL exceedances for benzene, 1,1-dichloroethene, trans-1,2-dichloroethene, tetrachloroethylene (PCE), trichloroethene (TCE), vinyl chloride, benzo(a)pyrene, dibenzofuran, 2-methylnaphthalene, and naphthalene in the source wells MW-35, MW-36, and/or MW-37. The benzene concentration in MW-17 also currently exceeds the residential PCL, as reported in the January 2014 Semiannual Corrective Action Program Report (GES, 2014). AALs were calculated for benzene due to PCL exceedances observed in MW-37 and MW-17. The AAL calculations are included in **Attachment 2E**.

During the May 2013 sampling event, 2,4-D was detected above its PCL in POE well RI-3-02 on the northwestern portion of the Site. Since 2,4-D has never been detected in RI-3-02, resampling was performed in August and September 2013 to confirm the PCL exceedance. The results of the resampling events show that 2,4-D was below the sample detection limit during both resampling events. The resampling results are summarized on **Table 2-2**.

During the February 2008 groundwater sampling activities, bis(2-chloroethyl)ether was detected at a concentration that exceeded the critical PCL in monitoring well POE-2, located near the northwest boundary of the PMZ. Resampling was performed in April 2008, January 2010, and September 2010, which confirmed the PCL exceedance of bis(2-chloroethyl)ether in this well. A groundwater recovery system, which incorporated POE-2 as a recovery well, was installed and activated in December 2011 to provide capture at the KMLT property line. As of December 1, 2013, POE-2 was recovering groundwater at an average rate of 0.63 gallons per minute (gpm). To-date, approximately 583,000 gallons of groundwater has been recovered since activation of the recovery system. Schematics of the groundwater recovery system are shown on **Attachment 2A-2** and **Attachment 2A-3**.

Monthly sampling of POE-2 for bis(2-chloroethyl)ether commenced in May 2012. The concentration versus time graph for POE-2 and bis(2-chloroethyl)ether is included as **Attachment 1B** and analytical laboratory results are provided in **Appendix 2**. The current bis(2-chloroethyl)ether concentration has decreased to below the critical PCL but still exceeds the residential PCL. Active groundwater recovery and monthly sampling for POE-2 will continue until sufficient data have been collected to show that the bis(2-chloroethyl)ether concentration decreases to remains below the residential PCL. Following this, KMLT will notify the TCEQ of its intent to discontinue operation of the recovery well and include semi-annual monitoring of POE-2 under the PMZ sampling program.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

The groundwater recovery system, which incorporates POE-2 as a recovery well, was installed in the northwest portion of the Central Plant and activated in December 2011 to provide capture at the KMLT property line in this area. Schematics of the groundwater recovery system are shown on **Attachment 2A-2** and **Attachment 2A-3**.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not applicable.

Plume Management Zone	RAP Worksheet 2.1	Page 1 of 3
Associated Information: Attachments 2D, 2E	ID No.: SWR #30573	Report Date: March 20, 2014

Complete this worksheet when a PMZ is proposed as part of the response action. Include in Attachment 2D a map of the proposed PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone. If a PMZ is not proposed, do not submit this worksheet.

Groundwater-bearing unit Sandy Channel Fill (SCF)/Upper Naturally Transmissive Unit
Repeat this worksheet for each groundwater-bearing unit for which a PMZ is proposed.
Groundwater classification X 2 ____ 3

Provide justification as to why the PMZ is appropriate in accordance with §350.33(f)(4)(A). Include supporting documentation in Attachment 2E.

A detailed discussion regarding the adequacy of the PMZ as a response action is detailed in the 2007 RAP (URS, 2007). The recovery system at the northwest corner of the Central Plant is intended to act as a barrier to prevent groundwater with very low concentrations of bis(2-chloroethyl)ether from migrating offsite to the west onto the CPROW property..

Is the alternate POE proposed to be beyond the current limits of the PCLE zone? ____ Yes X No
If yes, how far? _____ (§350.37(l) or (m) as applicable)
Is it to be off-site? ____ Yes X No
On an off-site property that currently does not contain a residential-based groundwater PCLE zone?
____ Yes X No

If yes and this is a Class 2 groundwater, provide the basis for concluding that this groundwater does not have a reasonably anticipated future beneficial use (§350.37(l)(3)).

Not Applicable – Alternate POEs are not proposed beyond the property boundary.

Is NAPL present? X Yes ____ No
If so, describe how the response action will achieve the performance criteria in §350.33(f)(4)(E).

Refer to 2007 RAPLNAPL is being monitored and recovered under requirements of the Galena Park Compliance Plan CP-50054

If this is a Class 2 groundwater, explain how the response action will ensure that leachate from the surface soil and subsurface soil PCLE zones will not increase concentration of COCs greater than the current measured concentrations (at time of RAP submittal). (§350.33(a)(2))

Surface Soil Remedy Standard A Response Action - Resampling

Resampling was conducted in April 2008 to confirm surface soil PCLE zone concentrations presented in the APAR (Arcadis, 2004) for benzene and arsenic. Analytical data were below the critical PCLs for these COCs; therefore, a NFA is proposed for the surface soil PCLE zones at SWMU C1 and C3. **Attachment 2A-1** provides the Proposed Soil Response Actions, and **Table 2-1** summarizes the resampling data collected at CB-9, CB-36, CB-38, CB-39, and Il-068.

Surface Soil Remedy Standard B Response Action – PMZ

Nine COCs were identified in the soil in SWMU C2 in the 2004 APAR (Arcadis, 2004). Excavation could not be performed at Il-059, Il-075, and Il-082 due to existing infrastructure. These locations are currently covered by concrete or asphalt of the access road to Central Plant, which eliminates the direct contact exposure pathway ($^{Tot}Soil_{Comb}$). Benzene concentrations in surface soil boring locations A2SB-5 (0-0.5 ft bgs) and A2SB-15 (0-0.5 ft bgs) exceeded the 2007 $^{Air}Soil_{Inh\text{-}V}$ PCL but are below the calculated Tier 2 PCL for worker safety. The surface soils for these locations is proposed to be included as part of the Central Plant PMZ to monitor the migration of the COCs to groundwater. Additionally, surface soil at several locations at SWMU C3 (see **Attachment 2A-1**) with multiple COC PCL exceedances were not able to be excavated due to existing infrastructure and will also be managed under the Central Plant PMZ as stated in the approved 2007 RAP. A depiction of the revised Plume Management Zone Map is

provided as **Attachment 2D**.

Provide the basis that the COCs will not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachment 2E.

The basis for the elimination of a pathway for COCs, at concentrations above the critical PCL, to migrate beyond the downgradient boundary of the PMZ is provided in the 2007 RAP (URS, 2007). The recovery system in the northwest corner of the Central Plant is intended to prevent groundwater with very low concentrations of bis(2-chloroethyl)ether from migrating beyond the downgradient boundary of the PMZ and offsite to the west onto the CPROW property.

Describe the methods used to determine that there are no artificial penetrations which can allow COCs to migrate from the groundwater PCLE zone to currently unaffected groundwater-bearing units. Include supporting documentation in Attachment 2E.

Refer to 2007 RAP.

List the attenuation action level determined for each attenuation monitoring point. Illustrate the proposed attenuation monitoring points and the groundwater PCLE zone on the map in Attachment 2D. Include all calculations and other methods of determining the attenuation action levels in Attachment 2E.

COC	Attenuation Monitoring Point (well number)	Attenuation Action Level (mg/L)	Attenuation Action Level limited by $^{Air}GW_{Inh\text{-}V}$ or existing COC concentration? Y/N
Eastern, Southeastern, and Southern Migration Pathway			
See Notes Below			Y (see notes below)
Western Migration Pathway			
Benzene	AMP-1	0.032	N
	AMP-2	0.011	N
	AMP-3	0.010	N

Notes:

1) AALs were not calculated for groundwater COCs potentially migrating to the east, southeast and south of the hydraulic mound toward the ship berthing area and the HSC. The applicable groundwater exposure pathway along this surface water frontage is the groundwater to surface pathway, and the applicable PCLs are the ^{SW}GW PCLs that were developed in the 2007 RAP. Since there is no clearly identifiable source for the groundwater plume, and the fact that the ground water plume extends throughout the SWMU C2 area all the way to the Compliance Plan groundwater remediation system along the surface water frontage (Attachment 2D), the calculated ^{SW}GW PCLs are the AALs at the upgradient AMP wells and as the critical PCLs at the POE wells. Because groundwater COC concentrations have historically been well below the applicable ^{SW}GW PCLs, the use of the ^{SW}GW PCLs as AALs is a very conservative approach to monitor the effectiveness of the Central Plant PMZ to protect

potential off-site human or ecological receptors along the ground water to surface water migration pathway.

2) The AAL for vinyl chloride is limited by the Tier 2 $^{Air}GW_{Inh\text{-}V}$ at MW-3R, MW-4R, MW-12, and MW-19 within the Compliance Plan groundwater remediation system. The AAL for vinyl chloride at these locations is 435 mg/L.

Waste Control Unit	RAP Worksheet 2.2	Page 1 of 1
Associated Information: Attachment 2F	ID No.: SWR #30573	Report Date: March 20, 2014

Use this worksheet to document the use of a waste control unit to modify the groundwater response actions (§350.33(f)(2)). Provide a map in Attachment 2F of the waste control unit overlying the PCLE zone. Include proposed institutional controls in Appendix 4. If this modification does not apply, do not submit this worksheet.

Is the waste control unit an existing unit? ____ Yes X No
If yes, provide: the permit number N/A
description _____
status ____ active ____ closed

Describe how the existing or proposed WCU meets the definition set forth in §350.4(a)(91).

Not Applicable

If the WCU is proposed, identify any applicable permitting process that must be completed prior to operation of the WCU.

Not Applicable

Has the applicable permit been pursued yet? ____ Yes ____ No
If not, when will this be initiated?

Not Applicable

Technical Impracticability	RAP Worksheet 2.3 Page 1 of 1	
Associated Information: Attachment 2G	ID No.: SWR #30573	Report Date: March 20, 2014

Use this worksheet to justify the use of technical impracticability (TI) to modify the groundwater response objectives. Also complete Worksheet 2.2 to propose a plume management zone for the TI area. Include a map of the groundwater PCLE zone and area of technical impracticability in Attachment 2G. Include in the attachment any other documentation needed to make the justification. If technical impracticability is not proposed as part of the response action, do not submit this worksheet.

Describe the groundwater PCLE zone and demonstrate in accordance with *Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration* (EPA OSWER Directive 9234.2-25), unless otherwise approved by TCEQ, why it is technically impractical to reduce the COC concentrations to the critical PCLs, taking into account all currently available remediation technologies, and hydrogeologic and chemical-specific factors. Identify the specific COCs and list the PCLs that cannot be achieved.

Not applicable

Are there groundwater COCs in excess of the critical PCLs beyond the TI area? ___ Yes ___ No
If yes, make sure removal/decontamination actions are documented in Worksheet 1.0.

Will actions be required or already completed to prevent COC migration outside the area of technical impracticability and/or outside the existing boundary of the groundwater PCLE zone?
____ Yes ____ No
If yes, make sure removal/decontamination actions are documented in Worksheet 1.0.

Institutional Control	RAP Worksheet 2.4 Page 1 of 1	
Associated Information: Appendices 4, 5	ID No.: SWR #30573	Report Date: March 20, 2014

Complete this worksheet if an institutional control will be used as part of the response action. Include a draft of the proposed institutional controls in Appendix 4. Provide a list of landowners from whom landowner concurrence will be requested, as necessary, in Appendix 5.
Specify the property for which this applies. KMLT Central Plant, Galena Park, Texas
Repeat this worksheet for each different property for which an institutional control will be used.

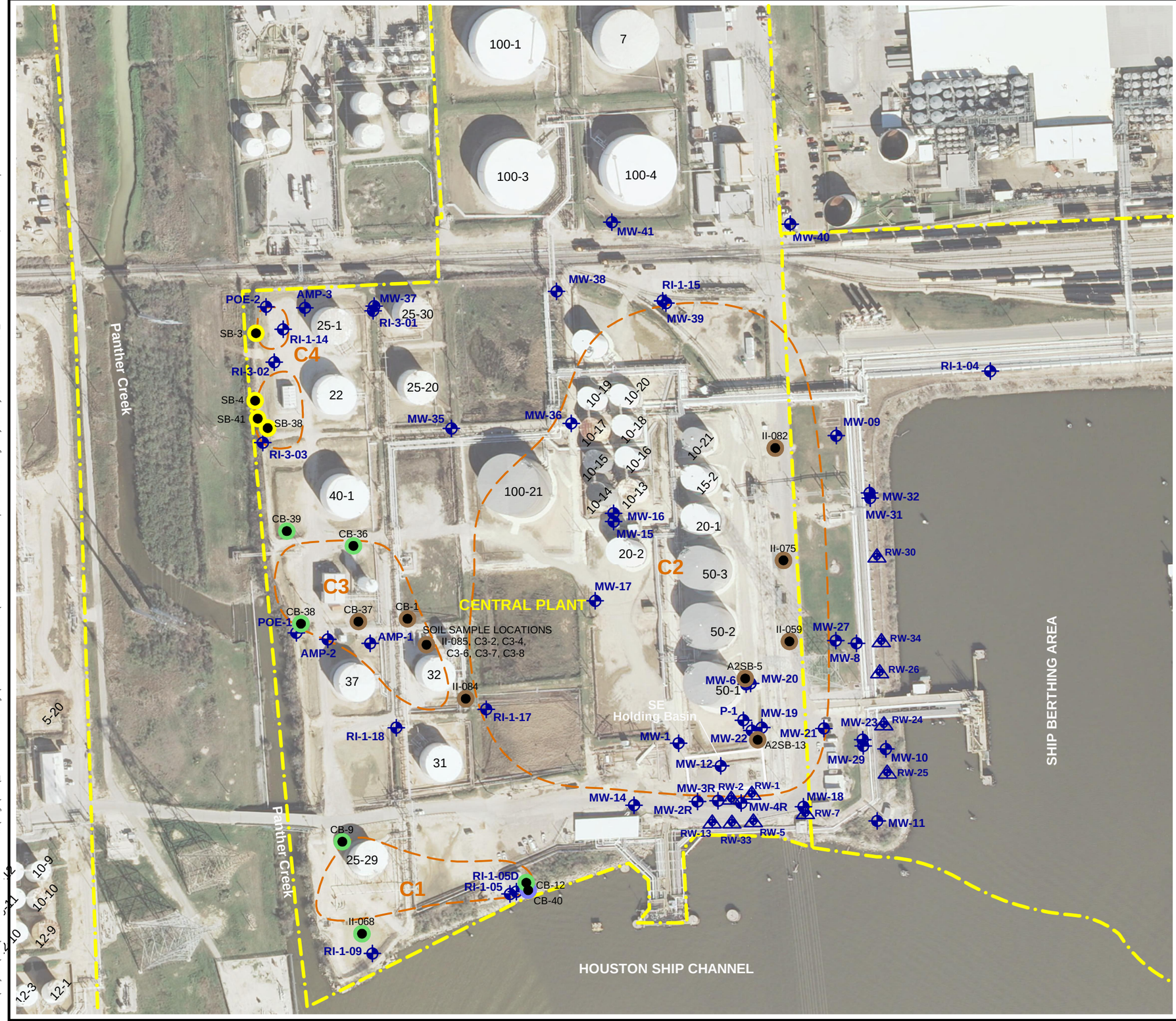
Institutional Control	Type of Institutional Control[1]				Property Ownership		Anticipated Filing Date[2]
	Deed Notice	Restrictive Covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))	X				X		Within 120 days of RAP Addendum approval
Document use of physical or institutional control under Remedy Standard B §350.31(g))	X				X		Within 120 days of RAP Addendum approval
Document notice of on-going long term response action (§350.31(h))							
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))	X				X		Within 120 days of RAP Addendum approval
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(l))	X				X		Within 120 days of RAP Addendum approval
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							

[1] Check the appropriate box(es) to indicate the type of institutional control required for the proposed response action.
[2] Specify date or amount of time after RAP approval.

ATTACHMENT 2A

Response Action Diagrams & Component/Equipment Descriptions

- 2A-1 – Soil Response Actions
- 2A-2 – Recovery System Layout Map
- 2A-3 – Central Plant - Detailed Pipe Connections



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- PREVIOUS SOIL SAMPLE LOCATION AS DEPICTED IN APAR (ARCADIS 2004)

SOIL RESPONSE ACTIONS

- INCLUDE AS PART OF PMZ

NO FURTHER ACTION

- BASED ON TIER 2 PCL CALCULATION (LEAD)
- BASED ON SPLP ANALYSIS
- BASED ON 2005 AND/OR 2008 RE-SAMPLE

Source:

2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Soil Response Actions**

Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	12-9-13	25015231	Soil Response Actions.dwg	2A-1
	Chk'd by: RP	Date: 12-9-13			

File: O:\Projects\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_Central Pont Drawings\2013 RAP Addendum\Attach 2A-1 – Soil Response Actions.dwg Layout: Layout1 User: Susan_Forrest Plotted: Feb 19, 2014 – 4:46pm



LEGEND

- TEXMARK PROPERTY LINE
- KENDER MORGAN PROPERTY LINE
- HDPE DISCHARGE LINE
- CARBON STEEL DISCHARGE LINE
- AIR LINE
- RECOVERY WELL LOCATION
- B - BALL VALVE
- C - CHECK VALVE
- D - BALL VALVE DRAIN
- TRENCH
- UNION

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	JA/NAB	3-18-14
	Chk'd by: RP	Date: 3-18-14

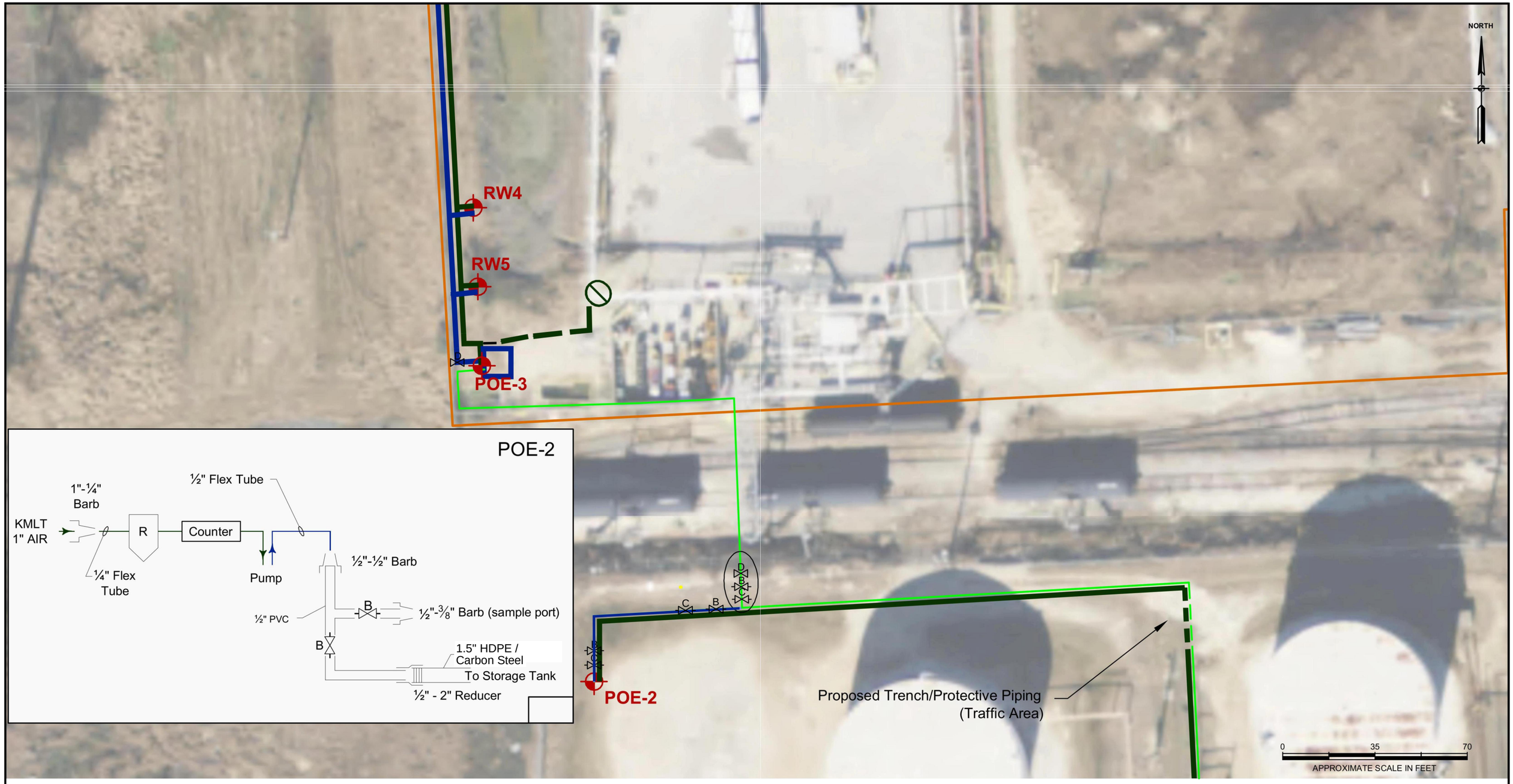
Title: **Central Plant Groundwater Recovery System**

Project: RAP ADDENDUM
CENTRAL PLANT
GALENA PARK, TEXAS

Client: **KMLT**

Project No.:	File Name:	Figure:
25015231	Central Plant - Recovery System Map.dwg	**2A-2**

File: K:\ELM\25009931.KMLT.Texmark 08\Dwgs\CAD\Fig 3 – KM – West Plant – Recovery System Map.dwg Layout: Zoomed-In User: Corey_Kelly Plotted: Jul 12, 2011 – 3:28pm



LEGEND

- TEXMARK PROPERTY LINE
- HDPE DISCHARGE LINE
- CARBON STEEL DISCHARGE LINE
- AIR LINE
- RECOVERY WELL LOCATION
- 650 GALLON POLY TANK AND BOOSTER PUMP
- PLANT AIR CONNECTION LOCATION
- B - BALL VALVE
- C - CHECK VALVE
- D - BALL VALVE DRAIN
- S - SOLENOID VALVE
- TRENCH
- R - REGULATOR

Source:
HGAC Digital Imagery 2010
NAD 83 Texas State Plane, South Central Zone, US Foot

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Detailed Pipe Connections Central Plant**

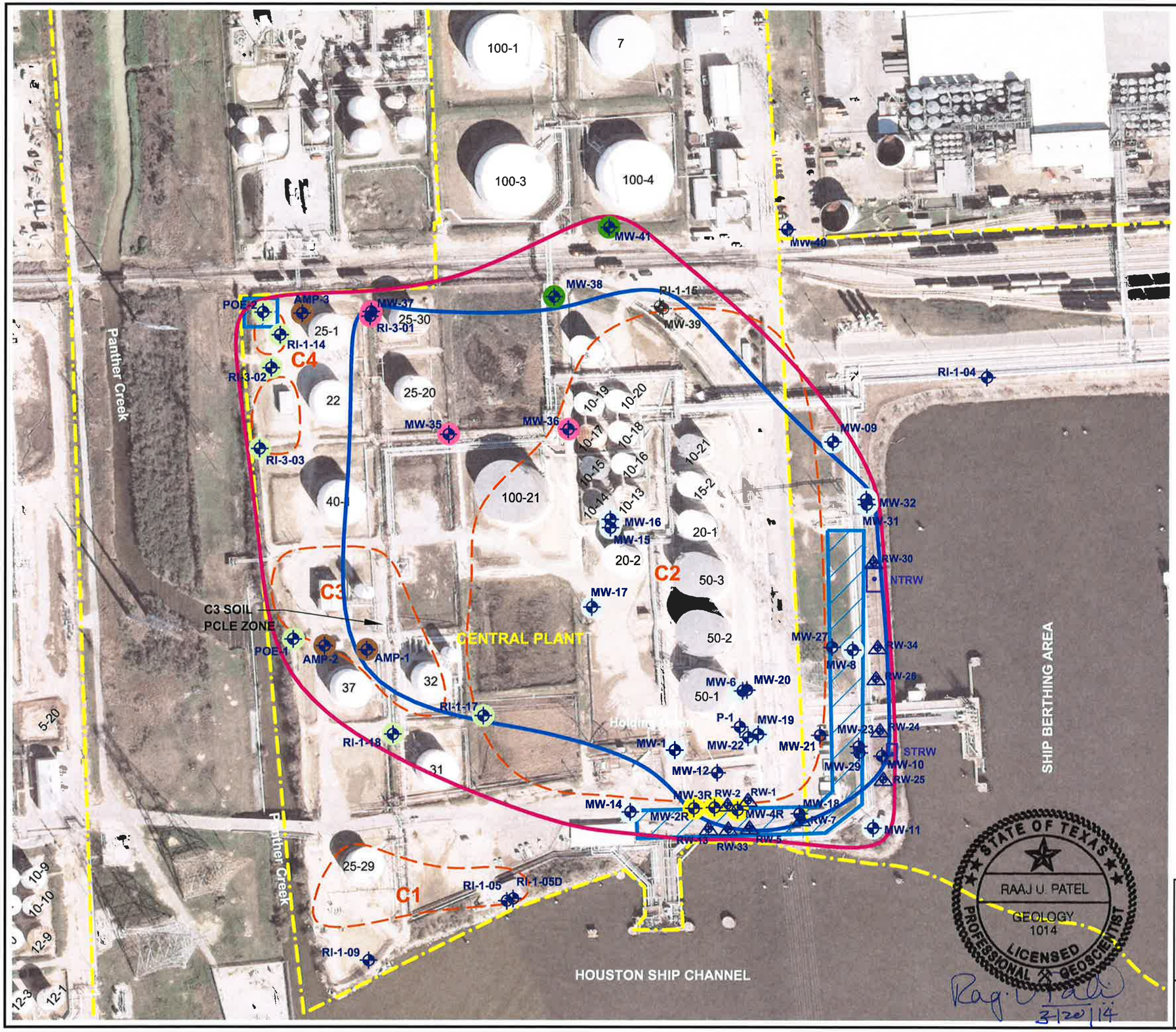
Project: CENTRAL PLANT
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Figure:
AS SHOWN	JA/SJF	07-7-11	25014675	Central Recovery Sys.dwg	2A-3
	Chk'd by: RP	Date: 07-7-11			

ATTACHMENT 2D

Plume Management Zone Map



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- WELL PLUGGED AND ABANDONED
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- APPROXIMATE LOCATION OF GROUNDWATER RECOVERY SYSTEM
- APPROXIMATE LOCATION OF RECOVERY TRENCH IN THE SANDY CHANNEL FILL (NTRW - NORTH TRENCH RECOVERY WELL STRW - SOUTH TRENCH RECOVERY WELL)
- SOIL and GROUNDWATER PCLE ZONE
- PLUME MANAGEMENT ZONE

PMZ MONITORING WELLS

- UPGRADIENT WELL
- SOURCE WELL
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE (POE) WELL
- ATTENUATION MONITORING POINT (AMP) WELL

NOTE:

SAMPLES NOT COLLECTED FROM RECOVERY WELLS, RECOVERY TRENCHES, OR WELLS WITH NAPL PRESENT PER THE COMPLIANCE PLAN.

Source:

2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
PROFESSIONAL GEOSCIENTIST
LICENSED

3-20-14

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF	1-21-14
	Chk'd by: RP	Date: 1-21-14

Title: **Plume Management Zone**

Project: RAP ADDENDUM
CENTRAL PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: **KMLT**

Project No.:	File Name:	Attachment:
25015231	Plume Management Zone Map.dwg	**2D**

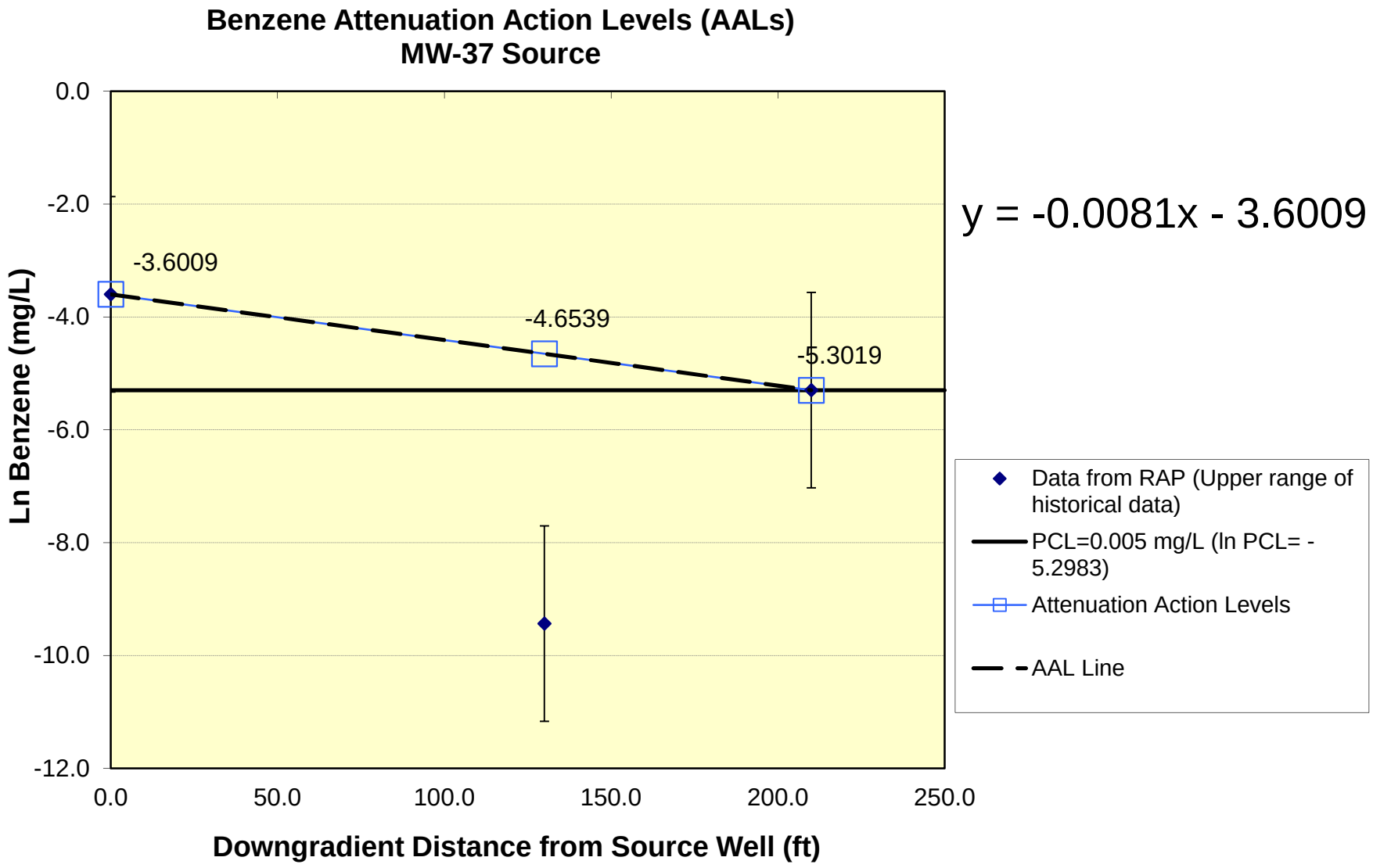
File: G:\Projects\ELM\250097736.KM.GalenaPark TX.08\Dwgs\CAD_Central Plant Drawings\2013 RAP Addendum\Attach 2D - Plume Management Zone Map.dwg Layout: Layout1 User: Susan_Forrest Plotted: Mar 18, 2014 - 4:52pm

Attachment 2E-1A
Response Action Plan Addendum
Benzene Attenuation Action Levels
Central Plant
Kinder Morgan Liquids Terminals, LP
Galena Park, Texas

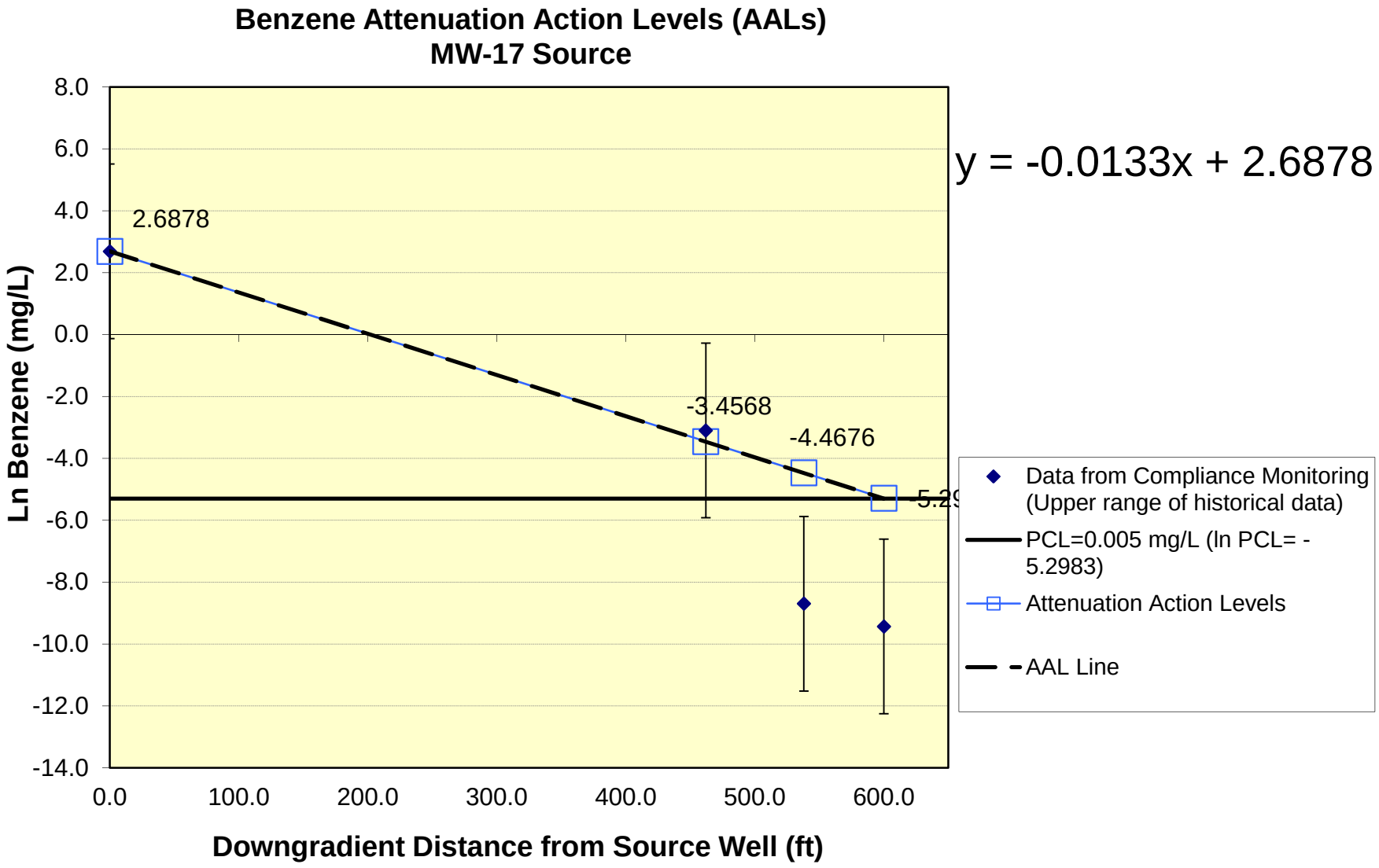
Well ID	Downgradient Distance from Source Well (ft.)	Upper range historical Benzene Conc. (mg/L) (a)	Upper range historical Natural Log Benzene Conc. (mg/L)	Natural Log Attenuation Action Level (mg/L)	Benzene Attenuation Action Level (mg/L)
MW-37	0.0	0.0273	-3.6	-3.6009	0.027
AMP-3	130.0	< 0.00008	-9.4	-4.6539	0.010
POE-2	210.0	0.005	-5.3	-5.3019	0.005

Well ID	Downgradient Distance from Source Well (ft.)	Upper range historical Benzene Conc. (mg/L)	Upper range historical Natural Log Benzene Conc. (mg/L)	Natural Log Attenuation Action Level (mg/L)	Benzene Attenuation Action Level (mg/L)
MW-17	0.0	14.7	2.7	2.6878	14.699
AMP-1	462.0	0.045	-3.1	-3.4568	0.032
AMP-2	538.0	0.000167	-8.7	-4.4676	0.011
POE-1	600.0	< 0.00008	-9.4	-5.2922	0.005

Attachment 2E-1B
Response Action Plan Addendum
Benzene Attenuation Action Levels Graph
Central Plant
Kinder Morgan Liquids Terminals, LP
Galena Park, Texas



Attachment 2E-1C
Response Action Plan Addendum
Benzene Attenuation Action Levels Graph
Central Plant
Kinder Morgan Liquids Terminals, LP
Galena Park, Texas



Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that will be used to determine if reasonable progress is being made by the response action in a timely manner. Use these measures to document effectiveness of the response action in the RAER.

Groundwater Remedy Standard B Response Action - PMZ

A more detailed discussion of the PMZ is provided in the 2007 RAP (URS, 2007).

The groundwater recovery system was activated in December 2011 and groundwater capture has been maintained in the northwest corner of the Central Plant at POE-2. In order to continually ensure groundwater capture in the area is occurring, the recovery well is inspected weekly to maintain proper pump operation and record discharge rates.
The PCLE zone and recovery system will undergo periodic post-response action care evaluation to verify that the PMZ response action care monitoring program is being conducted as described in Worksheet 5.0 of this RAP.

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: Plume Management Zone – See 2007 RAP

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	

Response Action Name/Designation: Recovery System

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
Pneumatic pump failure	Release of potentially affected groundwater outside the property line		X	Weekly inspection of pumps and counter readings to calculate weekly discharge rates would mitigate the potential problem from having a long-term impact to the CPROW.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
Piping/connection failure on recovery system	Release of potentially affected groundwater to the environment		X	Weekly inspection, maintenance, and repair/replacement of equipment components related to the recovery system will help insure proper operation and performance and mitigate a release to the environment.

Monitoring and Sampling	RAP Worksheet 3.1 Page 1 of 4	
Associated Information: Attachment 3A	ID No.: SWR #30573	Report Date: March 20, 2014

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Surface Soil							
Subsurface Soil							
Groundwater	Compliance Plan analytes for one, then revise COC list and send to TCEQ for approval.		In accordance with previsions specified in the Terminal Compliance Plan and/or using EPA approved sampling methods.	Existing and proposed PMZ wells shown on **Attachment 3A**	SCF/UNTU groundwater-bearing unit	Compliance Plan analytical methods	Semi-annually
	Recovery System		Weekly Inspections	POE-2	SCF/UNTU groundwater-bearing unit	Inspection and flow measurements	Weekly
Surface water							
Sediment							
Air	Not applicable unless groundwater concentrations exceed Tier 2 $^{Air}GW_{Inh\text{-}V.}$						
Other Media (specify)							

Explain the reasons for the above-listed monitoring and sampling plan.

Groundwater Response Action Remedy Standard B – PMZ and Compliance with Worker Safety Air Exposure Levels

The 2007 RAP (URS, 2007) provides a more detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

PCLE zones were identified for the groundwater ingestion pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway, and compliance with worker safety air exposure levels TAC§350.74) to address the groundwater to air inhalation pathway for site workers. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1). The PMZ will also incorporate the existing Compliance Plan (CP 50054) recovery well and trench network along the surface water frontage of the ship berthing area and the HSC by utilizing some of the strategic existing Compliance Plan monitoring wells to monitor groundwater concentrations for PMZ compliance and relying on the Compliance Plan recovery wells and trench network to effect withdrawal, treatment and/or containment of contaminated groundwater and LNAPL per the objectives of the Compliance Plan.

Groundwater sampling data collected as part of the APAR indicated that concentrations of benzene, naphthalene, and vinyl chloride exceed the Tier 1 $^{Air}GW_{Inh\text{-}V}$ PCLs at the locations as depicted on Attachment 2A-2 of the 2007 RAP (URS, 2007). Tier 2 PCLs were calculated for benzene, naphthalene, and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene, naphthalene, and vinyl chloride for the TRRP RBELs in the Tier 2 calculation in accordance with TAC §350.74(b). Currently, PMZ monitoring wells MW-10, MW-12, MW-20, and MW-23 contain LNAPL and have not been sampled. The LNAPL is being recovered as part of the existing Compliance Plan (CP 50054) recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. The current concentrations of benzene, naphthalene, and vinyl chloride in the other monitoring wells from the July 2013 Compliance Monitoring event do not exceed the Tier 2 PCLs and are protective of worker safety air exposure levels (**Table 2-3** in **Appendix 2**). The Tier 2 PCL calculation spreadsheets for the groundwater to air inhalation pathway are provided as **Table 3-2** through **Table 3-5** in **Appendix 3**. As stated in the paragraph above, potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures, in general accordance with TAC§350.74(b)(1).

The potentiometric surface for Central Plant shows a south-southeast trending hydraulic mound, with groundwater flow to the east, southeast, south and west. The potentiometric surface map from the February 2008 and latest gauging event in April 2013 are included as **Attachment 1A-2** and **Attachment 1A-3**, respectively. Groundwater flow to the east, southeast, and south is toward the Compliance Plan recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. Groundwater flow to the west is toward the CPROW. As a result of the outward flow from the hydraulic mound in the Central Plant, the proposed PMZ will monitor for potential COC migration to the surface water to the east, southeast and south, and to the CPROW to the west. Therefore, the PMZ will utilize different PCLs depending on the off-site migration route and the potential receptors.

Approved ecological and human health groundwater to surface water (^{SW}GW) PCLs were calculated in the 2007 RAP. The ^{SW}GW PCLs will also serve as AALs for the PMZ to the east, southeast, and south of the hydraulic high and along the surface water frontage. As part of the PMZ sampling program for this exposure pathway, groundwater samples will be collected semiannually and analyzed for the Compliance Plan analytes for one year (two sampling events). Once sufficient data is obtained, Kinder Morgan will propose a revised list of analytes for the PMZ monitoring wells which are not subject to the requirements of the Compliance Plan for approval by the TCEQ. Source monitoring wells, MW-39 and RI-1-15, were plugged and abandoned in December 2013 to accommodate expansion of the railroad easement in the area. The monitoring wells were sampled prior to plugging and abandonment. The analytical results are summarized in **Table 2-2** and analytical laboratory results are provided in **Appendix 2**. The analytical results reported in the 2004 APAR (Arcadis, 2004) for monitoring well MW-39 had PCL exceedances for trichloroethene (TCE), tetrachloroethene (PCE), and vinyl chloride while monitoring well RI-1-15 had PCL exceedances for vinyl chloride.

Groundwater sampling performed in February 2008 (**Table 2-2**) showed that the PCE concentration in MW-39 and vinyl chloride concentration in RI-1-15 exceeded their respective PCLs, but the other PCL exceedances reported in the APAR were no longer observed. Prior to plugging and abandonment, MW-39 and RI-1-15 were resampled in December 2013. The results of the sampling indicated that the concentrations of PCE in MW-39 and vinyl chloride in RI-1-15 had decreased to below their respective PCLs. No other PCL exceedances were observed, with the exception of bis(2-ethylhexyl)phthalate in MW-39. The concentration of bis(2-ethylhexyl)phthalate in MW-39 was 0.0346 mg/L, which exceeds the critical PCL of 0.006 mg/L. It was detected in MW-39 at a concentration of 0.002 mg/L in February 2008 and subsequently qualified as non-detect following data validation. Bis(2-ethylhexyl)phthalate was not evaluated in MW-39 during the APAR investigation because it was not expected to be a COC in that area and MW-39 is upgradient of SWMU C2. Additionally, bis(2-ethylhexyl)phthalate is known to be a common laboratory and field contaminant. Therefore, the PCL exceedance during the December 2013 sampling is believed to be an anomaly. KMLT does not plan to replace MW-39 and RI-1-15 and proposes to remove them from the PMZ sampling program.

For groundwater flow to the west of the hydraulic mound toward the CPROW, the applicable groundwater PCLs are the $^{GW}GW_{Ing}$ PCLs. Monitoring wells AMP-1, AMP-2, AMP-3, POE-1, and POE-2 were installed in January 2008 on the west side of Central Plant to effectively monitor this component of groundwater flow. AMP-1 and AMP-2 and POE-1 shown on Attachment 2D were completed in the uppermost groundwater-bearing unit in order to effectively monitor the potential for COC leaching from soils to groundwater in the SWMU Group C3 soils area, and to monitor downgradient COC concentrations in the groundwater migrating westward from MW-17. Additionally, existing monitoring wells RI-1-17 and RI-1-18 may also serve as POE wells due to slight variations in the groundwater flow direction in this area. AMP-3 was installed approximately midway between MW-37 and the western property boundary. POE-2 was installed west of AMP-3 outside of the soil and groundwater PCLE, approximately 15 feet or 2-years travel time from the western property boundary of Central Plant. These wells were screened in the same groundwater-bearing unit as MW-37. In addition, three additional existing monitoring wells along the western property boundary (RI-1-14, RI-3-02, and RI-3-03) will be incorporated into the PMZ as POE wells to more effectively monitor the western property boundary. Groundwater sampling of the PMZ wells for westward migration toward the CPROW, including the newly-installed AMP and POE wells, was performed in February 2008 and in April/May 2013. The analytical data are summarized in **Table 2-2**. **Appendix 2** provides copies of the boring logs and monitoring well construction diagrams for the monitoring wells installed as part of the approved PMZ and groundwater analytical data. The analytical data obtained were used to calculate AALs for AMP-1, AMP-2, and AMP-3 for the western PMZ boundary toward the CPROW. A review of the analytical data showed residential PCL exceedances for benzene, 1,1-dichloroethene, trans-1,2-dichloroethene, tetrachloroethylene (PCE), trichloroethene (TCE), vinyl chloride, benzo(a)pyrene, dibenzofuran, 2-methylnaphthalene, and naphthalene in the source wells MW-35, MW-36, and/or MW-37. The benzene concentration in MW-17 also currently exceeds the residential PCL, as reported in the January 2014 Semiannual Corrective Action Program Report (GES, 2014). AALs were calculated for benzene for AMP-1, AMP-2, and AMP-3 due to the benzene PCL exceedances observed in MW-37 and MW-17. The AAL calculations are included in **Attachment 2E**. As part of the PMZ sampling program for this exposure pathway, groundwater samples will be collected semiannually and analyzed for the Compliance Plan analytes for one year (two sampling events). Once sufficient data is obtained, Kinder Morgan will propose a revised list of analytes for the PMZ monitoring wells which are not subject to the requirements of the Compliance Plan for approval by the TCEQ.

During the May 2013 sampling event, 2,4-D was detected above its PCL in POE well RI-3-02 on the northwestern portion of the Site. Since 2,4-D has never been detected in RI-3-02, resampling was performed in August and September 2013 to confirm the PCL exceedance. The results of the resampling events show that 2,4-D was below the sample detection limit in both cases. The resampling results are summarized on **Table 2-2**.

During the February 2008 groundwater sampling activities, bis(2-chloroethyl)ether was detected at a concentration that exceeded the critical PCL in monitoring well POE-2, located near the northwest boundary of the PMZ. Resampling was performed in April 2008, January 2010, and September 2010, which confirmed the PCL exceedance of bis(2-chloroethyl)ether in this well. A groundwater recovery system, which incorporated POE-2 as a recovery well, was installed and activated in December 2011 to provide capture at the KMLT property line. As of December 1, 2013,

POE-2 was recovering groundwater at an average rate of 0.63 gallons per minute (gpm). To-date, approximately 583,000 gallons of groundwater has been recovered since activation of the recovery system. Schematics of the groundwater recovery system are shown on **Attachment 2A-2**.

Monthly sampling of POE-2 for bis(2-chloroethyl)ether commenced in May 2012. The concentration versus time graph for POE-2 and bis(2-chloroethyl)ether is included as **Attachment 1B** and the analytical laboratory reports are provided in **Appendix 2**. The current bis(2-chloroethyl)ether concentration has decreased to below the critical PCL but still exceeds the residential PCL. Active groundwater recovery and monthly sampling for POE-2 will continue until sufficient data have been collected to show that the bis(2-chloroethyl)ether concentration remains below the residential PCL. Following this, KMLT will notify the TCEQ of its intent to discontinue operation of the recovery well and include semi-annual monitoring of POE-2 under the PMZ sampling program.

Use this worksheet to describe the operation and maintenance (O&M) activities for each response action. In situations where the response action consists of more than one major component, for clarity one worksheet can be completed for each major component.

Response Action Name/Designation: Plume Management Zone
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

Refer to 2007 RAP.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

Not applicable

List the routine tasks required to operate the response action.

Not applicable

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Not applicable

Response Action Name/Designation: Compliance with Worker Safety Air Exposure Levels
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

Tier 2 PCLs have been calculated to demonstrate compliance with worker safety air exposure levels for site workers in accordance with TAC §350.74. Groundwater sampling data for the Compliance Monitoring program indicates that current and historical concentrations are below the calculated Tier 2 PCLs, and therefore, are protective of the worker safety air exposure levels, with the exception of monitoring wells MW-12, MW-20, and MW-23, which contain LNAPL and have not been sampled. The LNAPL is being recovered as part of the existing Compliance Plan (CP 50054) recovery well and trench network along the surface water frontage of the ship berthing area and the HSC. Groundwater concentrations will be compared to the Tier 2 PCLs semiannually for monitoring wells that do not contain LNAPL. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Terminal's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

Semi-annual groundwater monitoring activities as described for the PMZ will be used to monitor the exposure pathway.

List the routine tasks required to operate the response action.

Semi-annual groundwater monitoring activities as described for the PMZ will be used to monitor the exposure pathway.

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Semi-annual groundwater monitoring activities as described for the PMZ will be used to monitor the exposure pathway.

Response Action Name/Designation: Recovery System

List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

The groundwater recovery system in the northwest corner of the Central Plant will be continuously operated to maintain affected groundwater capture upgradient of the CPROW property. Proposed weekly inspections will ensure pumps remain operational and that adequate recovery volumes are maintained by the system. Inspection activities would also include confirmation that all system components are operating in accordance with design requirements.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The primary consideration is to ensure that the pneumatic pump remains operational and the actuation levels of the pump remain set at a depth to create adequate drawdown in the well in order to promote groundwater capture. Obtaining periodic counter readings will confirm adequate groundwater volumes are being recovered by the system. Other key operating parameters include inspecting air supply connections, gauges, and lines for pneumatic pump operation and discharge lines and connections for effluent water.

List the routine tasks required to operate the response action.

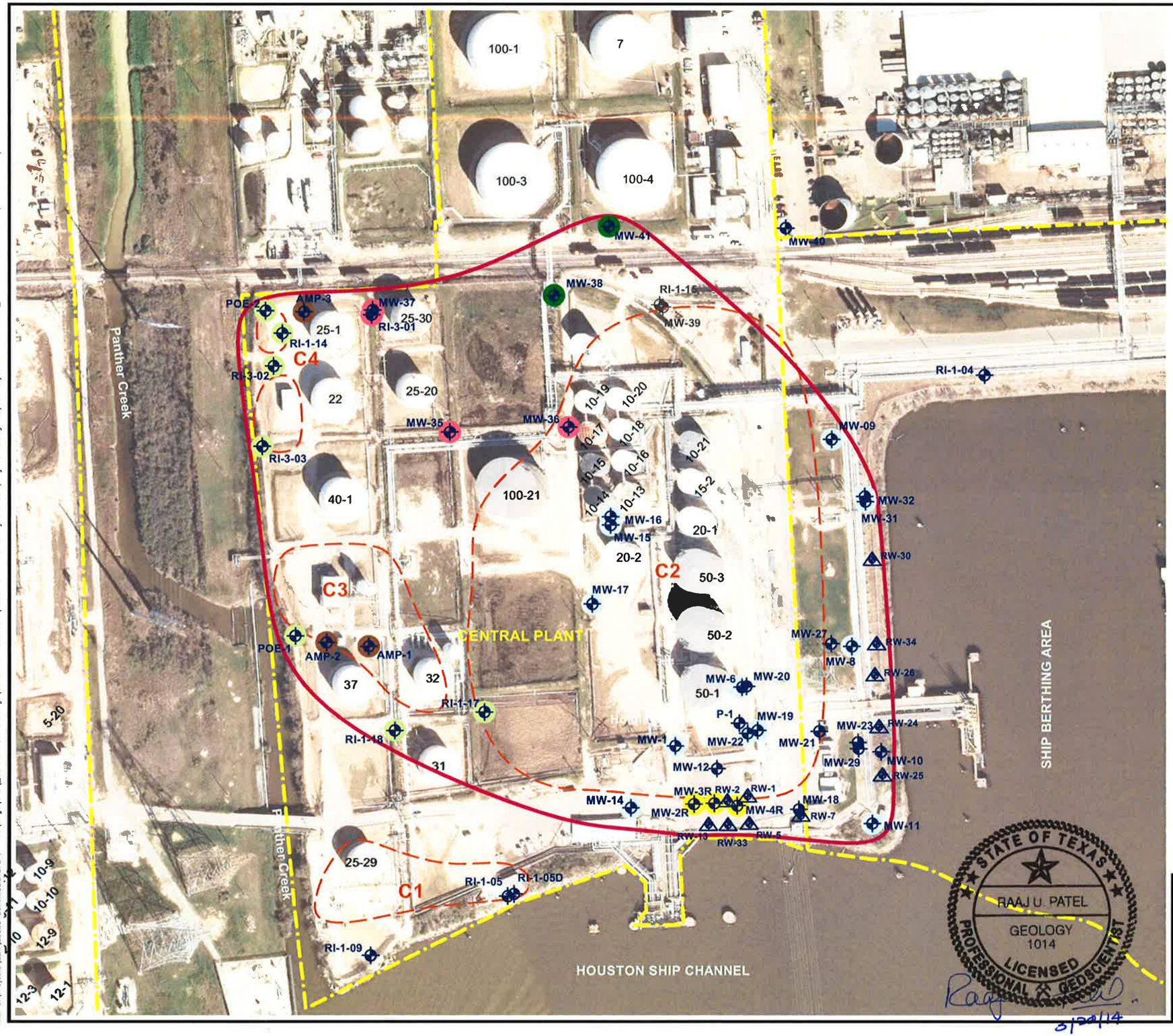
Inspect air connections, gauges, and lines; inspect discharge line and connections; and obtain counter readings.

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Routinely replace lines/fittings, as needed.
Troubleshoot pumps for fouling if the counter readings show decreasing trends and an increase in line pressure is observed.
O&M described in the preceding sections is performed on a weekly basis when the system is operational.

ATTACHMENT 3A

Map of Monitoring and Sampling Points



NORTH

0 100 200 400

APPROXIMATE SCALE IN FEET

LEGEND

- COMPLIANCE PLAN RECOVERY WELL
- MONITORING WELL LOCATION
- WELL PLUGGED AND ABANDONED
- SOLID WASTE MANAGEMENT UNIT (SWMU) AS DEPICTED IN APAR (ARCADIS 2004)
- PLUME MANAGEMENT ZONE

PMZ MONITORING WELLS

- UPGRADIENT WELL
- SOURCE WELL
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE (POE) WELL
- ATTENUATION MONITORING POINT (AMP) WELL

Source:
2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

Raaj Patel
3/20/14

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: Monitoring and Sampling Points					
Project: RAP ADDENDUM CENTRAL PLANT KM LIQUIDS TERMINALS LLC GALENA PARK, TEXAS					
Client: KMLT					
Scale: AS SHOWN	Drawn by: SJF	Date: 1-21-14	Project No.: 25015231	File Name: Monitoring and Sampling Points.dwg	Attachment: 3A
	Chk'd by: RP	Date: 1-21-14			

File: O:\Projects\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_Central Plant Drawings\2013 RAP Addendum\Attach 3A - Monitoring and Sampling Points.dwg Layout: Layout1 User: Susan_Forrest Plotted: Feb 19, 2014 - 4:45pm

Confirmation Sampling Plan	RAP Worksheet 4.0 Page 1 of 1	
Associated Information: Attachment 4A	ID No.: SWR #30573	Report Date: March 20, 2014

List the COCs and other parameters that will be sampled to confirm completion of the response action. Illustrate the monitoring or sampling locations in Attachment 4A. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided. If needed, describe the sample collection and handling methods, if not previously provided, in Appendix 6.

Media	COC[1]	Other parameter (specify)	Sampling Method	Sampling points[2]	Depth/height (ft.)	Analytical Method	Sampling Frequency
Surface Soil							
Subsurface Soil							
Groundwater							
Surface water							
Sediment							
Air							
Other media (specify)							

Explain the reasons for the above-listed sampling plan. Discuss statistical or geostatistical methodology(ies) which will be applied, if any, in the data collection process. Discuss any assumptions made in the statistical/geostatistical assessment, and how they will be met.

Not Applicable – Excavation not conducted as a response action. Therefore, confirmation sampling is not applicable.

[1] Specify either a specific COC or type of COC (such as VOCs, metals).
[2] Specify the sampling point to the degree it is known, (for example, MW-1, or near former boring #2).

Post-Response Action Care	RAP Worksheet 5.0	Page 1 of 2
Associated Information: Attachments 5A-5C	ID No.: SWR #30573	Report date: March 20, 2014

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) 30 years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

Refer to 2007 RAP.

What is the foreseeable land use during the post-response action care period? Industrial

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

The Terminal will continue to operate as an industrial property for the foreseeable future. A deed notice documenting the PMZ and groundwater use restrictions will be filed in the county property records. Ongoing operation of the Terminal is not anticipated to interfere with the monitoring program or pose a threat to human health or the environment as a result of potential exposures to COCs in the PCLE zone.

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

Post-response action care (PRAC) activities will consist of the following:

1. Perform groundwater monitoring of the PMZ monitoring wells (**Attachment 5A**) for COCs specified in Worksheet 3.1.
2. Compare concentration results of monitoring events to AALs listed in Worksheet 2.1 and calculated Tier 2 PCLs for the groundwater to air exposure pathway.
3. Note any other significant observations from monitoring events that could be indicative of an increase in plume size or concentration or migration that could result in exposure to COCs.
4. Assess the effectiveness of the monitoring program, taking into account updated groundwater flow and concentration data obtained from semi-annual sampling events, to determine whether any revisions to the groundwater monitoring program (e.g., addition/removal of COCs or wells to be monitored, or increased/decreased sampling frequency) are recommended.
5. Operate and maintain recovery system to ensure capture is occurring in northwest corner of the Central Plant by inspecting system and measuring groundwater recovery volumes on a weekly basis.
6. Verify that institutional controls remain effective (e.g., groundwater use restriction).
7. Provide recommendations regarding any additional activities needed to address any issues observed in items 1 to 5, including considerations of additional response actions if necessary.
8. Submit Post Response Action Care Reports (PRACR) to TCEQ documenting these activities.

It is proposed that the initial frequency of the groundwater monitoring (line item 1 from above) be semi-annual and the remainder of the activities will be addressed through annual reporting. If, in the future, data supports the concept of increasing or decreasing the frequency of any of these activities, a revised schedule will be proposed to TCEQ for approval at that time.

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? X Yes ____ No

If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies Not Applicable per 30 TAC §350.33(f)(4)(F)(ii)(III)

Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? Not applicable

What is the total estimated cost for a third party to perform PRAC activities? Not applicable

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

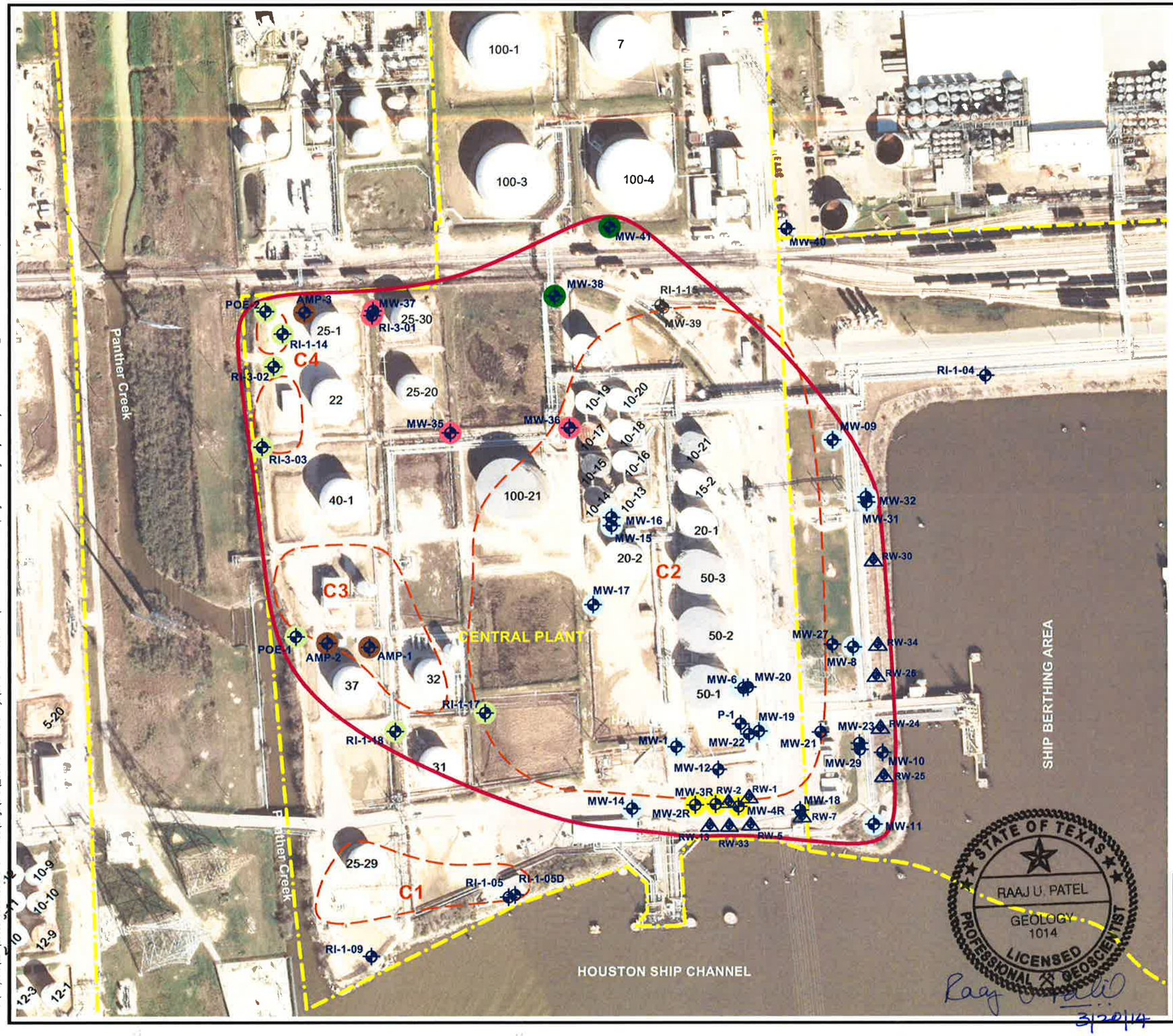
Not applicable

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___ Yes X No

If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

ATTACHMENT 5A

Map of PRAC Monitoring and Sampling Points



Source:
2012 HGAC Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
Raaj U. Patel
3/20/14

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF	1-21-14
	Chk'd by: RP	Date: 1-21-14

Title: **PRAC Sampling Points**

Project: RAP ADDENDUM CENTRAL PLANT KM LIQUIDS TERMINALS LLC GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Attachment:
25015231	PRAC Sampling Points.dwg	5A

File: O:\Projects\ELV\25009736.KM GalenaPark TX.08\Dwge\CAD_Central Pant Drawings\2013 RAP Addendum\Attach 5A - PRAC Sampling Points.dwg Layout: Layout1 User: Susan_Forrest Plotted: Feb 19, 2014 - 4:44pm

Implementation Schedule	RAP Worksheet 6.0 Page 1 of 1	
	ID No.: SWR #30573	Report Date: March 20, 2014

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	Start	Finish	Duration
File Institutional Control (Deed Notice) for PMZ	Upon TCEQ approval of RAP Addendum	Within 120 days of TCEQ approval of RAP Addendum	120 days
File Institutional Control (Deed Notice for Industrial Land U	Upon TCEQ approval of RAP Addendum	Within 120 days of TCEQ approval of RAP Addendum	120 days

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	Submittal date
Response Action Effectiveness Report (RAER)	
RAER submittal number 1	N/A
RAER submittal number 2	
RAER submittal number 3	
Response Action Completion Report (RACR)	Within 180 days of completion of Response Action
Post-Response Action Care Report (PRACR)	
PRACR submittal number 1	Estimated 2nd Quarter 2016
PRACR submittal number 2	Estimated 2nd Quarter 2017
PRACR submittal number 3	Estimated 2nd Quarter 2018

Appendix 1
References

APPENDIX 1
REFERENCES

Arcadis U.S., Inc. Affected Property Assessment Report, Kinder Morgan Terminals, LLC, Galena Park, October 2004.

Arcadis U.S., Inc. Examination of Selected Soil PCLE Zones Identified in the Plant-Wide APAR. KM Liquids Terminals, LP. August 2005.

Environmental Protection Agency (EPA). Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. April 1996.

Groundwater and Environmental Services, Inc. (GES). Semiannual Corrective Action Program Report, July 1 – December 31, 2013. January 20, 2014.

Texas Risk Reduction Rules. 30 Texas Administrative Code (TAC), Chapter 335, Subchapter S.

Texas Commission on Environmental Quality. APAR Comments Letter. KM Liquids Terminals, LP, Galena Park, Texas. October 5, 2005.

URS. 2007. Response Action Plan, Central Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas. August 3, 2007.

Appendix 2
Data Tables and Boring Logs

- Table 2-1: Soil Resampling Summary Table
- Table 2-2: Groundwater Summary Table
- Table 2-3: Groundwater Data Summary for Inhalation Pathway Evaluation
- Boring logs:
    - AMP-1
    - AMP-2
    - AMP-3
    - POE-1
    - POE-2

On CD:

- 2008 Soil Resampling Analytical Data (Xenco Laboratories) and Data Usability Summary
- 2008 and 2013 Groundwater PMZ Sampling Analytical Data (Xenco Laboratories and TestAmerica, Inc.) and Data Usability Summary
- 2008 through 2013 Groundwater Sampling Analytical Data for POE-2 (Xenco Laboratories and TestAmerica, Inc.)
- August and September 2013 Groundwater Resampling Analytical Data for RI-3-02 (TestAmerica, Inc.)
- December 2013 Groundwater Sampling Analytical Data for MW-39 and RI-1-15 (TestAmerica,Inc.)

Table 2-1
Soil Resampling Summary Table
Central Plant RAP Addendum
Kinder Morgan Liquids Terminals
Galena Park, TX

	$^{Tot}Soil_{Comb}$ (a) mg/kg	$^{GW}Soil_{Ing}$ (b) mg/kg	$^{Air}Soil_{Inh\text{-}V}$ (c) mg/kg	CB-36 0-2 ft. 4/04/08	CB-9 0-2 ft. 4/03/08	CB-9 4-6 ft. 4/03/08	II-068 0.5-2.5 ft. 4/03/08	CB-38 0-2 ft. 4/04/08	CB-38 4-5 ft. 4/08/08	CB-39 0-2 ft. 4/04/08
Benzene	1.1E+02	1.3E-02	1.4E+02	NS	<0.0029	0.0122	<0.0031	NS	NS	NS
Arsenic	2.0E+02	5.9 (d)	N/A	1.83	NS	NS	NS	4.61	1.64	2.78

Notes:
(a) $^{Tot}Soil_{Comb}$ Tier 1 Commercial/Industrial combined ingestion
(b) $^{GW}Soil_{Ing}$ Tier 1 Commercial/Industrial soil to groundwater ingestion
(c) $^{Air}Soil_{Inh\text{-}V}$ PCL - Tier 1 Commercial/Industrial soil to air inhalation pathway, applicable to subsurface soil sample CB-9 (4-6 ft) only.
(d) Texas Specific background Concentration §350.50 (m)

Table 2-2
Groundwater Summary Table
Central Plant RAP Addendum
Kinder Morgan Liquids Terminal
Galena Park, Texas

					Sample Location	CP-AMP-1	CP-AMP-1	CP-AMP-2	CP-AMP-2	CP-AMP-3	CP-AMP-3	CP-MW-35	CP-MW-35	CP-MW-36	CP-MW-36	CP-MW-37	CP-MW-37
					Sample Date	2/6/2008	5/1/2013	2/6/2008	5/1/2013	2/6/2008	4/30/2013	2/5/2008	4/30/2013	2/6/2008	2/6/2008	2/5/2008	4/30/2013
					Sample ID	CP-AMP-1-020608	AMP-1	CP-AMP-2-020608	AMP-2	CP-AMP-3-020608	AMP-3	CP-MW-35-020508	MW-35	CP-MW-36-020608	CP-DUP-1-020608	CP-MW-37-020508	MW-37
Analyte	**CAS No.**	**Residential $^{GW}GW_{Ing}$**	**Comm/Ind $^{GW}GW_{Ing}$**	**Units**													
Lead	7439-92-1	1.50E-02	1.50E-02	mg/l		**0.002**	*<0.000733*	**0.002**	*<0.000733*	**0.002 J**	*<0.000733*	*<0.001*	**0.00154 J**	*<0.001*	**0.001 J**	*0.001 U*	*<0.000733*
2,4-D	94-75-7	7.00E-02	7.00E-02	mg/l		*<5.2e-005*	*<3.81e-005*	*<5.2e-005*	*<3.81e-005*	*<5.2e-005*	*<3.81e-005*	**7.4e-005 J**	*<3.81e-005*	**9.8e-005 J**	**0.000108 J**	**0.000313 J**	*<3.81e-005*
Acetone	67-64-1	2.20E+01	6.57E+01	mg/l		*<0.02 JL*	*<0.00099*	*<0.02 JL*	*<0.00099*	*<0.02*	*<0.00099*	*<0.02*	*<0.099*	*<0.02 JL*	*<0.02 JL*	*<0.02*	*<0.00099*
Benzene	71-43-2	5.00E-03	5.00E-03	mg/l		**0.045**	**0.00499**	*<0.001*	**0.000167 J**	*<0.001*	*<8e-005*	**0.497**	**0.667**	**0.051**	**0.065**	**0.014**	**0.0273**
Butanone, 2-	78-93-3	1.47E+01	4.38E+01	mg/l		*<0.01*	*<0.00076*	*<0.01*	*<0.00076*	*<0.01*	*<0.00076*	*<0.01*	*<0.076*	*<0.01*	*<0.01*	*<0.01*	*<0.00076*
Carbon disulfide	75-15-0	2.44E+00	7.30E+00	mg/l		*<0.01*	*<0.00024*	*<0.01*	*<0.00024*	*<0.01*	*<0.00024*	*<0.01*	**0.102**	*<0.01*	*<0.01*	*<0.01*	**0.000453 J**
Chlorobenzene	108-90-7	1.00E-01	1.00E-01	mg/l		**0.006**	**0.00872**	*<0.001*	**0.000892 J**	*<0.001*	*<0.00012*	*<0.001*	*<0.012*	**0.001 J**	**0.001 J**	**0.001 J**	**0.000935 J**
Chloroform	67-66-3	2.44E-01	7.30E-01	mg/l		*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.013*	*<0.001*	*<0.001*	*<0.001*	*<0.00013*
Dichloroethane, 1,2-	107-06-2	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.00014*	*<0.001*	*<0.00014*	*<0.001*	*<0.00014*	*<0.001*	*<0.014*	**0.001 J**	*<0.001*	**0.001 J**	**0.000231 J**
Dichloroethene, 1,1-	75-35-4	7.00E-03	7.00E-03	mg/l		*<0.001*	*<0.00019*	*<0.001*	*<0.00019*	*<0.001*	*<0.00019*	**0.181**	**0.219**	**0.014**	**0.012**	*<0.001*	*<0.00019*
Dichloroethene, trans-1,2	156-60-5	1.00E-01	1.00E-01	mg/l		*<0.001*	*<9e-005*	*<0.001*	*<9e-005*	*<0.001*	*<9e-005*	**0.594**	**0.723**	**0.02**	**0.019**	*<0.001*	*<9e-005*
Dichloropropane, 1,2-	78-87-5	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.00016*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016*	*<0.001*	*<0.016*	*<0.001*	*<0.001*	*<0.001*	*<0.00016*
Ethylbenzene	100-41-4	7.00E-01	7.00E-01	mg/l		*<0.001*	*0.000279 U*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	**0.112**	**0.188**	**0.003 J**	**0.005**	*<0.001*	**0.000445 J**
Methyl-2-Pentanone, 4-	108-10-1	1.96E+00	5.84E+00	mg/l		*<0.01*	*<0.00045*	*<0.01*	*<0.00045*	*<0.01*	*<0.00045*	*<0.01*	*<0.045*	*<0.01*	*<0.01*	*<0.01*	*<0.00045*
Methylene chloride	75-09-2	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.00015*	*<0.001*	*<0.00015*	*<0.001*	*<0.00015*	*<0.001*	*<0.015*	*<0.001*	*<0.001*	*<0.001*	*<0.00015*
n-Hexane	110-54-3	1.47E+00	4.38E+00	mg/l		---	*<0.00016*	---	*<0.00016*	---	*<0.00016*	---	*<0.016*	---	---	---	**0.000842 J**
Styrene	100-42-5	1.00E-01	1.00E-01	mg/l		*<0.001*	*<7e-005*	*<0.001*	*<7e-005*	*<0.001*	*<7e-005 R*	*<0.001*	*<0.007*	*<0.001*	*<0.001*	*<0.001*	*<7e-005*
Tetrachloroethylene	127-18-4	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	**1.74**	**0.0602 J**	**15.1**	**14.6**	*<0.001*	*<0.00013*
Toluene	108-88-3	1.00E+00	1.00E+00	mg/l		*0.002 U*	**0.000706 J**	*<0.001*	*<0.00015*	*0.001 U*	*<0.00015*	**0.499**	**0.675**	*0.011 U*	*0.009 U*	*0.004 U*	**0.002**
Trichloroethene	79-01-6	5.00E-03	5.00E-03	mg/l		**0.002 J**	*<0.00018*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018*	**8.91**	**2.02**	**5.69**	**6.49**	*<0.001*	*<0.00018*
Trichloropropane, 1,2,3-	96-18-4	3.04E-05	6.81E-05	mg/l		*<0.001*	*<0.00029*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029*	*<0.001*	*<0.029*	*<0.001*	*<0.001*	*<0.001*	*<0.00029*
Vinyl acetate	108-05-4	2.44E+01	7.30E+01	mg/l		*<0.01*	*<0.00021*	*<0.01*	*<0.00021*	*<0.01*	*<0.00021*	*<0.01*	*<0.021*	*<0.01*	*<0.01*	*<0.01*	*<0.00021*
Vinyl chloride	75-01-4	2.00E-03	2.00E-03	mg/l		*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011 JL*	**0.891**	**2.28 JL**	**0.014**	**0.011**	*<0.001*	*<0.00011 JL*
Xylene, m- and p-	179601-23-1	1.00E+01	1.00E+01	mg/l		**0.003 J**	**0.00103 J**	*<0.002*	*<0.00017*	*<0.002*	*<0.00017*	**0.163**	**0.261**	*<0.002*	*<0.002*	*<0.002*	**0.00243**
Xylene, o-	95-47-6	1.00E+01	1.00E+01	mg/l		*<0.001*	**0.000465 J**	*<0.001*	**0.000286 J**	*<0.001*	*<0.00012*	**0.07**	**0.119**	*<0.001*	*<0.001*	**0.001 J**	**0.00704**
Acenaphthene	83-32-9	1.47E+00	4.38E+00	mg/l		*<0.005*	*<0.0016*	*<0.001*	*<0.00016*	*<0.001*	*<0.0016*	**0.285**	*<0.008*	**0.001 J**	*<0.001*	*<0.001*	**0.000487 J**
Acenaphthylene	208-96-8	1.47E+00	4.38E+00	mg/l		*<0.005*	*<0.0016*	*<0.001*	*<0.00016*	*<0.001*	*<0.0016*	*<0.01*	*<0.008*	*<0.001*	*<0.001*	*<0.001*	*<0.00016*
Aniline (Phenylamine, Aminobenzene)	62-53-3	1.60E-01	3.59E-01	mg/l		*<0.005 JL*	*<0.0012*	*<0.001 JL*	*<0.00012*	*<0.001 JL*	*<0.0012*	*<0.01 JL*	*<0.006*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00012*
Anthracene	120-12-7	7.33E+00	2.19E+01	mg/l		*<0.005*	*<0.0044*	*<0.001*	*<0.00044*	*<0.001*	*<0.0044*	*<0.01*	**0.0224 J**	*<0.001*	*<0.001*	*<0.001*	*<0.00044*
Benzo(a)anthracene	56-55-3	1.25E-03	2.80E-03	mg/l		*<0.005*	*<0.0025*	*<0.001*	*<0.00025*	*<0.001*	*<0.0025*	*<0.01*	*<0.0125*	*<0.001*	*<0.001*	*<0.001*	*<0.00025*
Benzo(a)pyrene	50-32-8	2.00E-04	2.00E-04	mg/l		*<0.005*	*<0.0013*	*<0.001*	**0.00106**	*<0.001*	*<0.0013*	*<0.01*	*<0.0065*	*<0.001*	*<0.001*	*<0.001*	*<0.00013*
Benzo(b)fluoranthene	205-99-2	1.25E-03	2.80E-03	mg/l		*<0.005*	*<0.0018*	*<0.001*	*<0.00018*	*<0.001*	*<0.0018*	*<0.01*	*<0.009*	*<0.001*	*<0.001*	*<0.001*	*<0.00018*
Benzo(g,h,i)perylene	191-24-2	7.33E-01	2.19E+00	mg/l		*<0.005*	*<0.0035*	*<0.001*	*<0.00035*	*<0.001*	*<0.0035*	*<0.01*	*<0.0175*	*<0.001*	*<0.001*	*<0.001*	*<0.00035*
Benzo(k)fluoranthene	207-08-9	1.25E-02	2.80E-02	mg/l		*<0.005*	*<0.0016*	*<0.001*	*<0.00016*	*<0.001*	*<0.0016*	*<0.01*	*<0.008*	*<0.001*	*<0.001*	*<0.001*	*<0.00016*
Benzyl alcohol	100-51-6	2.44E+00	7.30E+00	mg/l		*<0.005*	*<0.0051*	*<0.001*	*<0.00051*	*<0.001*	*<0.0051*	*<0.01*	*<0.0255*	*<0.001*	*<0.001*	*<0.001*	*<0.00051*
bis(2-chloroethyl)ether	111-44-4	8.30E-04	1.86E-03	mg/l		*<0.005*	*<0.0018 JL*	*<0.001*	*<0.00018 JL*	*<0.001*	*<0.0018 JL*	*<0.01*	*<0.009 JL*	*<0.001*	*<0.001*	*<0.001*	*<0.00018 JL*
bis(2-ethylhexyl)phthalate	117-81-7	6.00E-03	6.00E-03	mg/l		*0.006 U*	*<0.0059*	*<0.001*	*<0.00059*	*0.008 U*	*<0.0059*	*0.012 U*	*<0.0295*	*0.003 U*	*0.002 U*	*0.005 U*	*<0.00059*
Bromophenylphenyl ether, 4-	101-55-3	6.08E-05	1.36E-04	mg/l		*<0.005*	*<0.0025*	*<0.001*	*<0.00025*	*<0.001*	*<0.0025*	*<0.01*	*<0.0125*	*<0.001*	*<0.001*	*<0.001*	*<0.00025*
Butylbenzylphthalate	85-68-7	4.80E-01	1.08E+00	mg/l		*<0.005*	*<0.0085*	*<0.001*	*<0.00085*	*<0.001*	*<0.0085*	*<0.01*	*<0.0425*	*<0.001*	*<0.001*	*<0.001*	*<0.00085*
Chrysene	218-01-9	1.25E-01	2.80E-01	mg/l		*<0.005*	*<0.0024*	*<0.001*	*<0.00024*	*<0.001*	*<0.0024*	*<0.01*	*<0.012*	*<0.001*	*<0.001*	*<0.001*	*<0.00024*
Dibenz(a,h)anthracene	53-70-3	2.00E-04	2.80E-04	mg/l		*<0.005*	*<0.0029*	*<0.001*	*<0.00029*	*<0.001*	*<0.0029*	*<0.01*	*<0.0145*	*<0.001*	*<0.001*	*<0.001*	*<0.00029*
Dibenzofuran	132-64-9	9.78E-02	2.92E-01	mg/l		*<0.005*	*<0.0016*	*<0.001*	*<0.00016*	*<0.001*	*<0.0016*	**0.142**	**0.308**	*<0.001*	*<0.001*	*<0.001*	**0.000284 J**
Dichlorobenzene, 1,2-	95-50-1	6.00E-01	6.00E-01	mg/l		*<0.005*	*<0.0021*	*<0.001*	*<0.00021*	*<0.001*	*<0.0021*	*<0.01*	*<0.0105*	*<0.001*	*<0.001*	*<0.001*	*<0.00021*
Dichlorophenol, 2,4-	120-83-2	7.33E-02	2.19E-01	mg/l		*<0.005 JL*	*<0.0026 JL*	*<0.001 JL*	*<0.00026 JL*	*<0.001 JL*	*<0.0026 JL*	*<0.01 JL*	*<0.013 JL*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00026 JL*
Dimethylphenol, 2,4-	105-67-9	4.89E-01	1.46E+00	mg/l		*<0.005 JL*	*<0.0018 JL*	*<0.001 JL*	*<0.00018 JL*	*<0.001 JL*	*<0.0018 JL*	*<0.011 JL*	*<0.009 JL*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00018 JL*
Di-n-butylphthalate	84-74-2	2.44E+00	7.30E+00	mg/l		*<0.013*	*<0.0187*	*<0.003*	*<0.00187*	*<0.003*	*<0.0187*	*<0.026*	*<0.0935*	*<0.003*	*<0.003*	*<0.003*	*<0.00187*
Di-n-octylphthalate	117-84-0	9.78E-01	2.92E+00	mg/l		*<0.005*	*<0.0016*	*<0.001*	*<0.00016*	*<0.001*	*<0.0016*	*<0.01*	*<0.008*	*<0.001*	*<0.001*	*<0.001*	*<0.00016*
Fluoranthene	206-44-0	9.78E-01	2.92E+00	mg/l		*<0.005*	*<0.0031*	*<0.001*	**0.000512**	*<0.001*	*<0.0031*	*<0.01*	**0.0278**	*<0.001*	*<0.001*	*<0.001*	*<0.00031*
Fluorene	86-73-7	9.78E-01	2.92E+00	mg/l		*<0.005*	**0.00283 J**	*<0.001*	*<0.00012*	*<0.001*	*<0.0012*	**0.093**	**0.243**	*<0.001*	*<0.001*	*<0.001*	*<0.00012*
Indeno(1,2,3-cd)pyrene	193-39-5	1.25E-03	2.80E-03	mg/l		*<0.005*	*<0.0029*	*<0.001*	*<0.00029*	*<0.001*	*<0.0029*	*<0.01*	*<0.0145*	*<0.001*	*<0.001*	*<0.001*	*<0.00029*
Methylnaphthalene, 2-	91-57-6	9.78E-02	2.92E-01	mg/l		*<0.005*	*<0.0014*	*<0.001*	*<0.00014*	**0.001 J**	*<0.0014*	**0.501**	**0.918**	*<0.001*	*<0.001*	*<0.001*	*<0.00014*
Methylphenol, 2-	95-48-7	1.22E+00	3.65E+00	mg/l		*<0.007 JL*	*<0.0019 JL*	*<0.001 JL*	*<0.00019 JL*	*<0.001 JL*	*<0.0019 JL*	*<0.013 JL*	*<0.0095 JL*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00019 JL*
Methylphenol, 3&4-	106-44-5	1.22E-01	3.65E-01	mg/l		*<0.008 JL*	*<0.0016 JL*	*<0.002 JL*	*<0.00016 JL*	*<0.002 JL*	*<0.0016 JL*	*<0.015 JL*	*<0.008 JL*	*<0.002*	*<0.002 JL*	*<0.002 JL*	*<0.00016 JL*
Naphthalene	91-20-3	4.89E-01	1.46E+00	mg/l		*<0.005*	*<0.0016 JL*	*<0.001*	*0.000661 UJL*	*0.005 U*	**0.00657 JL**	**4.27**	**2.46 JL**	**0.003 J**	*0.002 U*	*<0.001*	*0.000665 UJL*
Phenanthrene	85-01-8	7.33E-01	2.19E+00	mg/l		*<0.006*	*<0.0029*	*<0.001*	*<0.00029*	*<0.001*	*<0.0029*	**0.07**	**0.107**	**0.002 J**	*<0.001*	*<0.001*	**0.00031 J**
Phenol	108-95-2	7.33E+00	2.19E+01	mg/l		*<0.005 JL*	*<0.0014 JL*	*<0.001 JL*	*<0.00014 JL*	*<0.001 JL*	*<0.0014 JL*	*<0.01 JL*	*<0.007 JL*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00014 JL*
Pyrene	129-00-0	7.33E-01	2.19E+00	mg/l		*<0.005 JL*	*<0.0033*	*<0.001 JL*	*<0.00033*	*<0.001 JL*	*<0.0033*	*<0.01 JL*	*<0.0165*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00033*
Pyridine	110-86-1	2.44E-02	7.30E-02	mg/l		*<0.018*	*<0.0024 JL*	*<0.004*	*<0.00024 JL*	*<0.004*	*<0.0024 JL*	*<0.035*	*<0.012 JL*	*<0.004*	*<0.004*	*<0.004*	*<0.00024 JL*
Trichlorophenol, 2,4,6-	88-06-2	2.44E-02	7.30E-02	mg/l		*<0.005 JL*	*<0.0033*	*<0.001 JL*	*<0.00033 JL*	*<0.001 JL*	*<0.0033*	*<0.01 JL*	*<0.0165*	*<0.001 JL*	*<0.001 JL*	*<0.001 JL*	*<0.00033 JL*

Notes:

Residential $^{GW}GW_{Ing}$ PCL - Tier 1 Residential Groundwater-to-Groundwater ingestion pathway.
Comm/Ind $^{GW}GW_{Ing}$ PCL - Tier 1 Commercial/Industrial Groundwater-to-Groundwater ingestion pathway.
PCL - Protective Concentration Level
PCLs from TCEQ TRRP Tier 1 Tables, updated June 29, 2012
J - Estimated value
U - Data qualified as non-detect due to detection a blank sample
-- Not Analyzed
exceeds Tier 1 Commercial/Industrial and Residential PCL
exceeds Tier 1 Residential PCL only

Table 2-2
Groundwater Summary Table
Central Plant RAP Addendum
Kinder Morgan Liquids Terminal
Galena Park, Texas

					Sample Location	CP-MW-38	CP-MW-39	CP-MW-39	CP-MW-41	CP-POE-1	CP-POE-1	CP-POE-2	CP-POE-2	CP-RI-1-14	CP-RI-1-14	CP-RI-1-15	CP-RI-1-15
					Sample Date	2/6/2008	2/6/2008	12/9/2013	2/5/2008	2/6/2008	5/1/2013	2/6/2008	4/30/2013	2/6/2008	5/1/2013	2/6/2008	12/9/2013
					Sample ID	CP-MW-38-020608	CP-MW-39-020608	CP-MW-39-020608	CP-MW-41-020608	CP-POE-1-020608	POE-1	CP-POE-2-020608	POE-2	CP-R1-1-14-020608	R1-1-14	CP-R1-1-15-020608	CP-R1-1-15-020608
Analyte	**CAS No.**	**Residential $^{GW}GW_{Ing}$**	**Comm/Ind $^{GW}GW_{Ing}$**	**Units**													
Lead	7439-92-1	1.50E-02	1.50E-02	mg/l		*<0.001*	*<0.001*	**0.00232 J**	*<0.001*	**0.003**	**0.00114 J**	**0.006**	*<0.000733*	*<0.001*	**0.0013 J**	*<0.001*	**0.00327 J**
2,4-D	94-75-7	7.00E-02	7.00E-02	mg/l		**0.000164 J**	*<5.2e-005*	*<0.000385*	**6.5e-005 J**	*<5.2e-005*	*<3.81e-005*	*<5.2e-005*	*<3.81e-005*	*<5.2e-005*	*<3.81e-005*	**5.4e-005 J**	*<3.85e-005*
Acetone	67-64-1	2.20E+01	6.57E+01	mg/l		*<0.02 JL*	*<0.02 JL*	*<0.000990*	*<0.02*	*<0.02*	*<0.00099*	*<0.02 JL*	*<0.00099*	*<0.02*	**0.00277**	*<0.02*	**0.0108**
Benzene	71-43-2	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.001*	*<0.0000800*	**0.058**	*<0.001*	*<8e-005*	**0.005 J**	**0.000305 J**	*<0.001*	**8.47e-005 J**	*<0.001*	**0.000241**
Butanone, 2-	78-93-3	1.47E+01	4.38E+01	mg/l		*<0.01*	*<0.01*	*<0.000760*	*<0.01*	*<0.01*	*<0.00076*	*<0.01*	*<0.00076*	*<0.01*	*<0.00076*	*<0.01*	*<0.000760*
Carbon disulfide	75-15-0	2.44E+00	7.30E+00	mg/l		*<0.01*	*<0.01*	*<0.000240*	*<0.01*	*<0.01*	*<0.00024*	*<0.01*	*<0.00024*	*<0.01*	*<0.00024*	*<0.01*	*<0.000240*
Chlorobenzene	108-90-7	1.00E-01	1.00E-01	mg/l		*<0.001*	*<0.001*	*<0.000120*	*<0.001*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	*<0.001*	*<0.000120*
Chloroform	67-66-3	2.44E-01	7.30E-01	mg/l		*<0.001*	*<0.001*	*<0.000130*	*<0.001*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.000130*
Dichloroethane, 1,2-	107-06-2	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.001*	*<0.000140*	*<0.001*	**0.001 J**	*<0.00014*	*<0.001*	**0.00115**	*<0.001*	*<0.00014*	*<0.001*	*<0.000140*
Dichloroethene, 1,1-	75-35-4	7.00E-03	7.00E-03	mg/l		*<0.001*	*<0.001*	*<0.000190*	*<0.001*	*<0.001*	*<0.00019*	*<0.001*	*<0.00019*	*<0.001*	*<0.00019*	*<0.001*	*<0.000190*
Dichloroethene, trans-1,2	156-60-5	1.00E-01	1.00E-01	mg/l		*<0.001*	*<0.001*	*<0.0000900*	*<0.001*	*<0.001*	*<9e-005*	*<0.001*	*<9e-005*	*<0.001*	*<9e-005*	*<0.001*	*<0.0000900*
Dichloropropane, 1,2-	78-87-5	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.001*	*<0.000160*	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016*	*<0.001*	*<0.000160*
Ethylbenzene	100-41-4	7.00E-01	7.00E-01	mg/l		*<0.001*	*<0.001*	*<0.000110*	*<0.001*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	*<0.001*	*<0.000110*
Methyl-2-Pentanone, 4-	108-10-1	1.96E+00	5.84E+00	mg/l		*<0.01*	*<0.01*	*<0.000450*	*<0.01*	*<0.01*	*<0.00045*	*<0.01*	*<0.00045*	*<0.01*	*<0.00045*	*<0.01*	*<0.000450*
Methylene chloride	75-09-2	5.00E-03	5.00E-03	mg/l		*<0.001*	*<0.001*	*<0.000150*	*<0.001*	*<0.001*	*<0.00015*	*<0.001*	*<0.00015*	*<0.001*	*<0.00015*	*<0.001*	*<0.000150*
n-Hexane	110-54-3	1.47E+00	4.38E+00	mg/l		---	---	*<0.000160*	---	---	*<0.00016*	---	*<0.00016*	---	*<0.00016*	---	**0.00105**
Styrene	100-42-5	1.00E-01	1.00E-01	mg/l		*<0.001*	*<0.001*	*<0.0000700*	*<0.001*	*<0.001*	*<7e-005*	*<0.001*	*<7e-005*	*<0.001*	*<7e-005*	*<0.001*	*<0.0000700*
Tetrachloroethylene	127-18-4	5.00E-03	5.00E-03	mg/l		*0.002 U*	**0.006**	**0.0014**	*<0.001*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.000130*
Toluene	108-88-3	1.00E+00	1.00E+00	mg/l		*0.001 U*	*0.001 U*	*<0.000150*	*0.002 U*	*<0.001*	*<0.00015*	*0.001 U*	*<0.00015*	*<0.001*	*<0.00015*	*<0.001*	*<0.000150*
Trichloroethene	79-01-6	5.00E-03	5.00E-03	mg/l		**0.005 J**	**0.005 J**	**0.000354 J**	*<0.001*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018*	**0.001 J**	*<0.000180*
Trichloropropane, 1,2,3-	96-18-4	3.04E-05	6.81E-05	mg/l		*<0.001*	*<0.001*	*<0.000290*	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029*	*<0.001*	*<0.000290*
Vinyl acetate	108-05-4	2.44E+01	7.30E+01	mg/l		*<0.01*	*<0.01*	*<0.000210*	*<0.01*	*<0.01*	*<0.00021*	*<0.01*	*<0.00021*	*<0.01*	*<0.00021*	*<0.01*	**0.00014**
Vinyl chloride	75-01-4	2.00E-03	2.00E-03	mg/l		**0.001 J**	*<0.001*	*<0.000110*	*<0.001*	*<0.001*	*<0.00011 JL*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	**0.007**	**0.000875 J**
Xylene, m- and p-	179601-23-1	1.00E+01	1.00E+01	mg/l		*<0.002*	*<0.002*	*<0.000170*	*<0.002*	*<0.002*	*<0.00017*	*<0.002*	*<0.00017*	*<0.002*	*<0.00017*	*<0.002*	**0.000392 J**
Xylene, o-	95-47-6	1.00E+01	1.00E+01	mg/l		*<0.001*	*<0.001*	*<0.000120*	*<0.001*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	*<0.001*	*<0.000120*
Acenaphthene	83-32-9	1.47E+00	4.38E+00	mg/l		*<0.001*	*<0.001*	*<0.000160*	*<0.001*	*<0.001*	**0.00509**	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016*	**0.001 J**	**0.00127**
Acenaphthylene	208-96-8	1.47E+00	4.38E+00	mg/l		*<0.001*	*<0.001*	*<0.000160*	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016*	*<0.001*	*<0.000160*
Aniline (Phenylamine, Aminobenzene)	62-53-3	1.60E-01	3.59E-01	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000120*	*<0.001 JL*	*<0.001*	*<0.00012*	*<0.001 JL*	*<0.00012 JL*	*<0.001*	*<0.00012*	*<0.001*	*<0.000120*
Anthracene	120-12-7	7.33E+00	2.19E+01	mg/l		*<0.001*	*<0.001*	*<0.000440*	*<0.001*	*<0.001*	*<0.00044*	*<0.001*	*<0.00044 JL*	*<0.001*	*<0.00044*	*<0.001*	*<0.000440*
Benzo(a)anthracene	56-55-3	1.25E-03	2.80E-03	mg/l		*<0.001*	*<0.001*	*<0.000250*	*<0.001*	*<0.001*	*<0.00025*	*<0.001*	*<0.00025 JL*	*<0.001*	*<0.00025*	*<0.001*	*<0.000250*
Benzo(a)pyrene	50-32-8	2.00E-04	2.00E-04	mg/l		*<0.001*	*<0.001*	*<0.000130*	*<0.001*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013 JL*	*<0.001*	*<0.00013*	*<0.001*	*<0.000130*
Benzo(b)fluoranthene	205-99-2	1.25E-03	2.80E-03	mg/l		*<0.001*	*<0.001*	*<0.000180*	*<0.001*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018 JL*	*<0.001*	*<0.00018*	*<0.001*	*<0.000180*
Benzo(g,h,i)perylene	191-24-2	7.33E-01	2.19E+00	mg/l		*<0.001*	*<0.001*	*<0.000350*	*<0.001*	*<0.001*	*<0.00035*	*<0.001*	*<0.00035 JL*	*<0.001*	*<0.00035*	*<0.001*	*<0.000350*
Benzo(k)fluoranthene	207-08-9	1.25E-02	2.80E-02	mg/l		*<0.001*	*<0.001*	*<0.000160*	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	**0.000298 JL**	*<0.001*	*<0.00016*	*<0.001*	*<0.000160*
Benzyl alcohol	100-51-6	2.44E+00	7.30E+00	mg/l		*<0.001*	*<0.001*	*<0.000510*	*<0.001*	*<0.001*	*<0.00051*	*<0.001*	*<0.00051 JL*	*<0.001*	*<0.00051*	*<0.001*	*<0.000510*
bis(2-chloroethyl)ether	111-44-4	8.30E-04	1.86E-03	mg/l		*<0.001*	*<0.001*	*<0.000180*	*<0.001*	*<0.001*	*<0.00018 JL*	**0.018**	**0.00112 JL**	*<0.001*	**0.000291 JL**	*<0.001*	*<0.000180*
bis(2-ethylhexyl)phthalate	117-81-7	6.00E-03	6.00E-03	mg/l		*0.006 U*	*0.002 U*	**0.0346**	*0.002 U*	*0.029 U*	*<0.00059*	*0.007 U*	*<0.00059 JL*	**0.002 J**	**0.000617 J**	**0.003 J**	**0.000594 J**
Bromophenylphenyl ether, 4-	101-55-3	6.08E-05	1.36E-04	mg/l		*<0.001*	*<0.001*	*<0.000250*	*<0.001*	*<0.001*	*<0.00025*	*<0.001*	*<0.00025 JL*	*<0.001*	*<0.00025*	*<0.001*	*<0.000250*
Butylbenzylphthalate	85-68-7	4.80E-01	1.08E+00	mg/l		*<0.001*	*<0.001*	*<0.000850*	*<0.001*	*<0.001*	*<0.00085*	*<0.001*	*<0.00085 JL*	*<0.001*	*<0.00085*	*<0.001*	*<0.000850*
Chrysene	218-01-9	1.25E-01	2.80E-01	mg/l		*<0.001*	*<0.001*	*<0.000240*	*<0.001*	*<0.001*	*<0.00024*	*<0.001*	*<0.00024 JL*	*<0.001*	*<0.00024*	*<0.001*	*<0.000240*
Dibenz(a,h)anthracene	53-70-3	2.00E-04	2.80E-04	mg/l		*<0.001*	*<0.001*	*<0.000290*	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029 JL*	*<0.001*	*<0.00029*	*<0.001*	*<0.000290*
Dibenzofuran	132-64-9	9.78E-02	2.92E-01	mg/l		*<0.001*	*<0.001*	*<0.000160*	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016*	*<0.001*	*<0.000160*
Dichlorobenzene, 1,2-	95-50-1	6.00E-01	6.00E-01	mg/l		*<0.001*	*<0.001*	*<0.000210*	*<0.001*	*<0.001*	*<0.00021*	*<0.001*	*<0.00021 JL*	*<0.001*	*<0.00021*	*<0.001*	*<0.000210*
Dichlorophenol, 2,4-	120-83-2	7.33E-02	2.19E-01	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000260*	*<0.001 JL*	*<0.001 JL*	*<0.00026 JL*	*<0.001 JL*	*<0.00026 JL*	*<0.001*	*<0.00026 JL*	*<0.001*	*<0.000260*
Dimethylphenol, 2,4-	105-67-9	4.89E-01	1.46E+00	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000180*	*<0.001 JL*	*<0.001 JL*	*<0.00018 JL*	*<0.001 JL*	*<0.00018 JL*	*<0.001*	*<0.00018 JL*	*<0.001*	*<0.000180*
Di-n-butylphthalate	84-74-2	2.44E+00	7.30E+00	mg/l		*<0.003*	*<0.003*	*<0.00187*	*<0.003*	*<0.003*	*<0.00187*	**0.004 J**	*<0.00187 JL*	*<0.003*	*<0.00187*	*<0.003*	*<0.00187*
Di-n-octylphthalate	117-84-0	9.78E-01	2.92E+00	mg/l		*<0.001*	*<0.001*	**0.00122 J**	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	**0.000587 JL**	*<0.001*	*<0.00016*	*<0.001*	**0.00124 J**
Fluoranthene	206-44-0	9.78E-01	2.92E+00	mg/l		*<0.001*	*<0.001*	*<0.000310*	*<0.001*	*<0.001*	*<0.00031*	*<0.001*	*<0.00031 JL*	*<0.001*	*<0.00031*	*<0.001*	*<0.000310*
Fluorene	86-73-7	9.78E-01	2.92E+00	mg/l		*<0.001*	*<0.001*	*<0.000120*	*<0.001*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012 JL*	*<0.001*	*<0.00012*	*<0.001*	*<0.000120*
Indeno(1,2,3-cd)pyrene	193-39-5	1.25E-03	2.80E-03	mg/l		*<0.001*	*<0.001*	*<0.000290*	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029 JL*	*<0.001*	*<0.00029*	*<0.001*	*<0.000290*
Methylnaphthalene, 2-	91-57-6	9.78E-02	2.92E-01	mg/l		*<0.001*	*<0.001*	*<0.000140*	**0.002 J**	*<0.001*	*<0.00014*	*<0.001*	*<0.00014 JL*	*<0.001*	*<0.00014*	*<0.001*	*<0.000140*
Methylphenol, 2-	95-48-7	1.22E+00	3.65E+00	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000190*	*<0.001 JL*	*<0.001 JL*	*<0.00019 JL*	*<0.001 JL*	*<0.00019 JL*	*<0.001*	*<0.00019 JL*	*<0.001*	*<0.000190*
Methylphenol, 3&4-	106-44-5	1.22E-01	3.65E-01	mg/l		*<0.002 JL*	*<0.002 JL*	*<0.000160*	*<0.002 JL*	*<0.002 JL*	*<0.00016 JL*	*<0.002 JL*	*<0.00016 JL*	*<0.002*	*<0.00016 JL*	*<0.002*	*<0.000160*
Naphthalene	91-20-3	4.89E-01	1.46E+00	mg/l		**0.001 J**	**0.003 J**	*<0.000160*	**0.008**	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016 JL*	*<0.001*	*0.000656 UJL*	*<0.001*	*<0.000160*
Phenanthrene	85-01-8	7.33E-01	2.19E+00	mg/l		**0.002 J**	*<0.001*	*<0.000290*	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029 JL*	*<0.001*	*<0.00029*	*<0.001*	*<0.000290*
Phenol	108-95-2	7.33E+00	2.19E+01	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000140*	*<0.001 JL*	*<0.001 JL*	*<0.00014 JL*	*<0.001 JL*	*<0.00014 JL*	*<0.001*	**0.000152 JL**	*<0.001*	*<0.000140*
Pyrene	129-00-0	7.33E-01	2.19E+00	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000330*	*<0.001 JL*	*<0.001 JL*	*<0.00033*	*<0.001 JL*	*<0.00033 JL*	*<0.001*	*<0.00033*	*<0.001*	*<0.000330*
Pyridine	110-86-1	2.44E-02	7.30E-02	mg/l		*<0.004*	*<0.004*	*<0.000240*	*<0.004*	*<0.004*	*<0.00024 JL*	*<0.004*	*<0.00024 JL*	*<0.004*	*<0.00024 JL*	*<0.004*	*<0.000240*
Trichlorophenol, 2,4,6-	88-06-2	2.44E-02	7.30E-02	mg/l		*<0.001 JL*	*<0.001 JL*	*<0.000330*	*<0.001 JL*	*<0.001 JL*	*<0.00033 JL*	*<0.001 JL*	*<0.00033 JL*	*<0.001*	*<0.00033 JL*	*<0.001*	*<0.000330*

Notes:

Residential $^{GW}GW_{Ing}$ PCL - Tier 1 Residential Groundwater-to-Groundwater ingestion pathway.
Comm/Ind $^{GW}GW_{Ing}$ PCL - Tier 1 Commercial/Industrial Groundwater-to-Groundwater ingestion pathway.
PCL - Protective Concentration Level
PCLs from TCEQ TRRP Tier 1 Tables, updated June 29, 2012
J - Estimated value
U - Data qualified as non-detect due to detection a blank sample
-- Not Analyzed
exceeds Tier 1 Commercial/Industrial and Residential PCL
exceeds Tier 1 Residential PCL only

Table 2-2
Groundwater Summary Table
Central Plant RAP Addendum
Kinder Morgan Liquids Terminal
Galena Park, Texas

					Sample Location	CP-RI-1-17	CP-RI-1-18	CP-RI-1-18	CP-RI-3-01	CP-RI-3-01	CP-RI-3-02	CP-RI-3-02	CP-RI-3-02	CP-RI-3-02	CP-RI-3-03	CP-RI-3-03
					Sample Date	2/5/2008	2/5/2008	5/1/2013	2/5/2008	4/30/2013	2/5/2008	5/1/2013	8/9/2013	9/25/2013	2/5/2008	5/1/2013
					Sample ID	CP-R1-1-17-020508	CP-R1-1-18-020508	R1-1-18	CP-R1-3-01-020508	R1-3-01	CP-R1-3-02-020508	R1-3-02	R1-3-02	R1-3-02	CP-R1-3-03-020508	R1-3-03
Analyte	**CAS No.**	**Residential $^{GW}GW_{Ing}$**	**Comm/Ind $^{GW}GW_{Ing}$**	**Units**												
Lead	7439-92-1	1.50E-02	1.50E-02	mg/l	*0.002 U*	*<0.001*	**0.00164 J**	*<0.001*	*<0.000733*	*<0.001*	*<0.000733*	---	---	*<0.001*	**0.000921 J**
2,4-D	94-75-7	7.00E-02	7.00E-02	mg/l	*<5.3e-005*	*<5.2e-005*	*<3.81e-005*	*<5.2e-005*	**0.000859**	*<5.2e-005*	**0.497**	*<3.77e-005*	*<3.77e-005*	*<5.3e-005*	*<3.81e-005 JL*
Acetone	67-64-1	2.20E+01	6.57E+01	mg/l	*<0.02 JL*	*<0.02*	*<0.00099*	*<0.02*	*<0.00099*	*<0.02*	**0.0205**	**---**	**---**	*<0.02 JL*	**0.00377**
Benzene	71-43-2	5.00E-03	5.00E-03	mg/l	*<0.001*	*<0.001*	*<8e-005*	*<0.001*	*<8e-005*	*<0.001*	**0.000109 J**	**---**	**---**	**0.003 J**	**9.4e-005 J**
Butanone, 2-	78-93-3	1.47E+01	4.38E+01	mg/l	*<0.01*	*<0.01*	*<0.00076*	*<0.01*	*<0.00076*	*<0.01*	*<0.00076*	---	---	*<0.01*	*<0.00076*
Carbon disulfide	75-15-0	2.44E+00	7.30E+00	mg/l	*<0.01*	*<0.01*	**0.0003 J**	*<0.01*	*<0.00024*	*<0.01*	*<0.00024*	---	---	*<0.01*	*<0.00024*
Chlorobenzene	108-90-7	1.00E-01	1.00E-01	mg/l	*<0.001*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	---	---	*<0.001*	*<0.00012*
Chloroform	67-66-3	2.44E-01	7.30E-01	mg/l	*<0.001*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	---	---	*<0.001*	*<0.00013*
Dichloroethane, 1,2-	107-06-2	5.00E-03	5.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00014*	*<0.001*	*<0.00014*	*<0.001*	*<0.00014*	---	---	*<0.001*	*<0.00014*
Dichloroethene, 1,1-	75-35-4	7.00E-03	7.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00019*	*<0.001*	*<0.00019*	*<0.001*	*<0.00019*	---	---	*<0.001*	*<0.00019*
Dichloroethene, trans-1,2	156-60-5	1.00E-01	1.00E-01	mg/l	*<0.001*	*<0.001*	*<9e-005*	*<0.001*	*<9e-005*	*<0.001*	*<9e-005*	---	---	*<0.001*	*<9e-005*
Dichloropropane, 1,2-	78-87-5	5.00E-03	5.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016*	---	---	*<0.001*	*<0.00016*
Ethylbenzene	100-41-4	7.00E-01	7.00E-01	mg/l	*<0.001*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	---	---	*<0.001*	*0.000139 U*
Methyl-2-Pentanone, 4-	108-10-1	1.96E+00	5.84E+00	mg/l	*<0.01*	*<0.01*	*<0.00045*	*<0.01*	*<0.00045*	*<0.01*	*<0.00045*	---	---	*<0.01*	*<0.00045*
Methylene chloride	75-09-2	5.00E-03	5.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00015*	*<0.001*	*<0.00015*	*<0.001*	*<0.00015*	---	---	*<0.001*	*<0.00015*
n-Hexane	110-54-3	1.47E+00	4.38E+00	mg/l	**---**	**---**	*<0.00016*	**---**	*<0.00016*	**---**	*<0.00016*	---	---	**---**	*<0.00016*
Styrene	100-42-5	1.00E-01	1.00E-01	mg/l	*<0.001*	*<0.001*	*<7e-005*	*<0.001*	*<7e-005*	*<0.001*	*<7e-005*	---	---	*<0.001*	*<7e-005*
Tetrachloroethylene	127-18-4	5.00E-03	5.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013*	*<0.001*	**0.000344 J**	**---**	**---**	*<0.001*	*<0.00013*
Toluene	108-88-3	1.00E+00	1.00E+00	mg/l	*0.001 U*	*0.002 U*	*<0.00015*	*0.002 U*	*<0.00015*	*0.002 U*	*<0.00015*	---	---	*0.002 U*	*<0.00015*
Trichloroethene	79-01-6	5.00E-03	5.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018*	---	---	*<0.001*	*<0.00018*
Trichloropropane, 1,2,3-	96-18-4	3.04E-05	6.81E-05	mg/l	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029*	---	---	*<0.001*	*<0.00029*
Vinyl acetate	108-05-4	2.44E+01	7.30E+01	mg/l	*<0.01*	*<0.01*	*<0.00021*	*<0.01*	*<0.00021*	*<0.01*	*<0.00021*	---	---	*<0.01*	*<0.00021*
Vinyl chloride	75-01-4	2.00E-03	2.00E-03	mg/l	*<0.001*	*<0.001*	*<0.00011 JL*	*<0.001*	*<0.00011*	*<0.001*	*<0.00011*	---	---	*<0.001*	*<0.00011*
Xylene, m- and p-	179601-23-1	1.00E+01	1.00E+01	mg/l	*<0.002*	*<0.002*	*<0.00017*	*<0.002*	*<0.00017*	*<0.002*	*<0.00017*	---	---	*<0.002*	*<0.00017*
Xylene, o-	95-47-6	1.00E+01	1.00E+01	mg/l	*<0.001*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012*	---	---	**0.002 J**	*<0.00012*
Acenaphthene	83-32-9	1.47E+00	4.38E+00	mg/l	*<0.001*	*<0.001*	**0.000556**	*<0.001*	**0.000262 JL**	*<0.001*	*<0.00016*	---	---	*<0.001*	*<0.00016*
Acenaphthylene	208-96-8	1.47E+00	4.38E+00	mg/l	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016*	---	---	*<0.001*	*<0.00016*
Aniline (Phenylamine, Aminobenzene)	62-53-3	1.60E-01	3.59E-01	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00012*	*<0.001 JL*	*<0.00012 JL*	*<0.001 JL*	*<0.00012*	---	---	*<0.001 JL*	*<0.00012*
Anthracene	120-12-7	7.33E+00	2.19E+01	mg/l	*<0.001*	*<0.001*	*<0.00044*	*<0.001*	*<0.00044 JL*	*<0.001*	*<0.00044*	---	---	*<0.001*	*<0.00044*
Benzo(a)anthracene	56-55-3	1.25E-03	2.80E-03	mg/l	*<0.001*	*<0.001*	*<0.00025*	*<0.001*	*<0.00025 JL*	*<0.001*	*<0.00025*	---	---	*<0.001*	*<0.00025*
Benzo(a)pyrene	50-32-8	2.00E-04	2.00E-04	mg/l	*<0.001*	*<0.001*	*<0.00013*	*<0.001*	*<0.00013 JL*	*<0.001*	*<0.00013*	---	---	*<0.001*	*<0.00013*
Benzo(b)fluoranthene	205-99-2	1.25E-03	2.80E-03	mg/l	*<0.001*	*<0.001*	*<0.00018*	*<0.001*	*<0.00018 JL*	*<0.001*	*<0.00018*	---	---	*<0.001*	*<0.00018*
Benzo(g,h,i)perylene	191-24-2	7.33E-01	2.19E+00	mg/l	*<0.001*	*<0.001*	*<0.00035*	*<0.001*	*<0.00035 JL*	*<0.001*	*<0.00035*	---	---	*<0.001*	*<0.00035*
Benzo(k)fluoranthene	207-08-9	1.25E-02	2.80E-02	mg/l	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016*	---	---	*<0.001*	*<0.00016*
Benzyl alcohol	100-51-6	2.44E+00	7.30E+00	mg/l	*<0.001*	*<0.001*	*<0.00051*	*<0.001*	*<0.00051 JL*	*<0.001*	*<0.00051*	---	---	*<0.001*	*<0.00051*
bis(2-chloroethyl)ether	111-44-4	8.30E-04	1.86E-03	mg/l	*<0.001*	*<0.001*	*<0.00018 JL*	*<0.001*	*<0.00018 JL*	*<0.001*	*<0.00018 JL*	---	---	*<0.001*	*<0.00018 JL*
bis(2-ethylhexyl)phthalate	117-81-7	6.00E-03	6.00E-03	mg/l	*0.013 U*	*0.008 U*	*<0.00059*	*0.008 U*	*<0.00059 JL*	*0.005 U*	*<0.00059*	---	---	*0.006 U*	*<0.00059*
Bromophenylphenyl ether, 4-	101-55-3	6.08E-05	1.36E-04	mg/l	*<0.001*	*<0.001*	*<0.00025*	*<0.001*	*<0.00025 JL*	*<0.001*	*<0.00025*	---	---	*<0.001*	*<0.00025*
Butylbenzylphthalate	85-68-7	4.80E-01	1.08E+00	mg/l	*<0.001*	*<0.001*	*<0.00085*	*<0.001*	*<0.00085 JL*	*<0.001*	*<0.00085*	---	---	*<0.001*	*<0.00085*
Chrysene	218-01-9	1.25E-01	2.80E-01	mg/l	*<0.001*	*<0.001*	*<0.00024*	*<0.001*	*<0.00024 JL*	*<0.001*	*<0.00024*	---	---	*<0.001*	*<0.00024*
Dibenz(a,h)anthracene	53-70-3	2.00E-04	2.80E-04	mg/l	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029 JL*	*<0.001*	*<0.00029*	---	---	*<0.001*	*<0.00029*
Dibenzofuran	132-64-9	9.78E-02	2.92E-01	mg/l	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	**0.000344 JL**	*<0.001*	*<0.00016*	---	---	*<0.001*	*<0.00016*
Dichlorobenzene, 1,2-	95-50-1	6.00E-01	6.00E-01	mg/l	*<0.001*	*<0.001*	*<0.00021*	*<0.001*	*<0.00021 JL*	*<0.001*	*<0.00021*	---	---	*<0.001*	*<0.00021*
Dichlorophenol, 2,4-	120-83-2	7.33E-02	2.19E-01	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00026 JL*	*<0.001 JL*	*<0.00026 JL*	*<0.001 JL*	**0.00361 JL**	**---**	**---**	*<0.001 JL*	*<0.00026 JL*
Dimethylphenol, 2,4-	105-67-9	4.89E-01	1.46E+00	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00018 JL*	*<0.001 JL*	*<0.00018 JL*	*<0.001 JL*	*<0.00018 JL*	---	---	*<0.001 JL*	*<0.00018 JL*
Di-n-butylphthalate	84-74-2	2.44E+00	7.30E+00	mg/l	*<0.003*	*<0.003*	*<0.00187*	*<0.003*	*<0.00187 JL*	*<0.003*	*<0.00187*	---	---	*<0.003*	*<0.00187*
Di-n-octylphthalate	117-84-0	9.78E-01	2.92E+00	mg/l	*<0.001*	*<0.001*	*<0.00016*	*<0.001*	*<0.00016 JL*	*<0.001*	*<0.00016*	---	---	*<0.001*	*<0.00016*
Fluoranthene	206-44-0	9.78E-01	2.92E+00	mg/l	*<0.001*	*<0.001*	*<0.00031*	*<0.001*	**0.000415 JL**	*<0.001*	**0.000445 J**	**---**	**---**	*<0.001*	*<0.00031*
Fluorene	86-73-7	9.78E-01	2.92E+00	mg/l	*<0.001*	*<0.001*	*<0.00012*	*<0.001*	*<0.00012 JL*	*<0.001*	*<0.00012*	---	---	*<0.001*	*<0.00012*
Indeno(1,2,3-cd)pyrene	193-39-5	1.25E-03	2.80E-03	mg/l	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	*<0.00029 JL*	*<0.001*	*<0.00029*	---	---	*<0.001*	*<0.00029*
Methylnaphthalene, 2-	91-57-6	9.78E-02	2.92E-01	mg/l	*<0.001*	*<0.001*	*<0.00014*	*<0.001*	**0.000198 JL**	*<0.001*	*<0.00014*	---	---	*<0.001*	*<0.00014*
Methylphenol, 2-	95-48-7	1.22E+00	3.65E+00	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00019 JL*	*<0.001 JL*	*<0.00019 JL*	*<0.001 JL*	*<0.00019 JL*	---	---	*<0.001 JL*	*<0.00019 JL*
Methylphenol, 3&4-	106-44-5	1.22E-01	3.65E-01	mg/l	*<0.002 JL*	*<0.002 JL*	*<0.00016 JL*	*<0.002 JL*	*<0.00016 JL*	*<0.002 JL*	*<0.00016 JL*	---	---	*<0.002 JL*	*<0.00016 JL*
Naphthalene	91-20-3	4.89E-01	1.46E+00	mg/l	**0.002 J**	*<0.001*	*<0.00016 JL*	*<0.001*	*0.0013 UJL*	*<0.001*	*0.000682 UJL*	---	---	*<0.001*	**0.000667 JL**
Phenanthrene	85-01-8	7.33E-01	2.19E+00	mg/l	*<0.001*	*<0.001*	*<0.00029*	*<0.001*	**0.00037 JL**	*<0.001*	*<0.00029*	---	---	*<0.001*	*<0.00029*
Phenol	108-95-2	7.33E+00	2.19E+01	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00014 JL*	*<0.001 JL*	*<0.00014 JL*	*<0.001 JL*	*<0.00014 JL*	---	---	*<0.001 JL*	*<0.00014 JL*
Pyrene	129-00-0	7.33E-01	2.19E+00	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00033*	*<0.001 JL*	*<0.00033 JL*	*<0.001 JL*	*<0.00033*	---	---	*<0.001 JL*	*<0.00033*
Pyridine	110-86-1	2.44E-02	7.30E-02	mg/l	*<0.004*	*<0.004*	*<0.00024 JL*	*<0.004*	*<0.00024 JL*	*<0.004*	*<0.00024 JL*	---	---	*<0.004*	*<0.00024 JL*
Trichlorophenol, 2,4,6-	88-06-2	2.44E-02	7.30E-02	mg/l	*<0.001 JL*	*<0.001 JL*	*<0.00033 JL*	*<0.001 JL*	*<0.00033 JL*	*<0.001 JL*	*<0.00033 JL*	---	---	*<0.001 JL*	*<0.00033 JL*

Notes:

Residential $^{GW}GW_{Ing}$ PCL - Tier 1 Residential Groundwater-to-Groundwater ingestion pathway.

Comm/Ind $^{GW}GW_{Ing}$ PCL - Tier 1 Commercial/Industrial Groundwater-to-Groundwater ingestion pathway.

PCL - Protective Concentration Level

PCLs from TCEQ TRRP Tier 1 Tables, updated June 29, 2012

J - Estimated value

U - Data qualified as non-detect due to detection a blank sample

-- Not Analyzed

exceeds Tier 1 Commercial/Industrial and Residential PCL

exceeds Tier 1 Residential PCL only

Table 2-3
Groundwater Data Summary for Inhalation Pathway Evaluation
Central Plant RAP Addendum
Kinder Morgan Liquids Terminal
Galena Park, Texas

		Analyte CAS No.	Benzene 71-43-2	Vinyl chloride 75-01-4	Naphthalene 91-20-3
		Tier 1 $^{Air}GW_{Inh-V}$ PCL	**2.33E+01**	**4.92E-01**	**4.09E+01**
		Tier 2 $^{Air}GW_{Inh-V}$ PCL	**6.71E+03**	**4.35E+02**	**6.54E+05**
Location	**Sample Date**	**Sample ID**			
CP-MW-03R	7/11/2013	CP-MW-3R-071113	0.1	0.17	1.5
CP-MW-04R	7/11/2013	CP-MW-4R-071113	0.41	1.9	0.36
CP-MW-06	7/12/2013	CP-MW-6-071213	190	1.2	0.6
CP-MW-06	7/12/2013	CP-MW-106-071213	190	1.1	0.94
CP-MW-08	7/11/2013	CP-MW-8-071113	89	4.1	1.7 J
CP-MW-15	7/12/2013	CP-MW-15-071213	97	< 0.40	0.058
CP-MW-19	7/12/2013	CP-MW-19-071213	7.9	< 0.10	0.56
CP-MW-21	7/11/2013	CP-MW-21-071113	24	< 0.20	0.59 J
CP-MW-22	7/12/2013	CP-MW-22-071213	6.8	< 0.050	0.95

LOG OF SOIL BORING: **CP AMP-1**

CLIENT: KMLT	JOB No.: 25009736	DATE: January 31, 2008	
SITE: Central Plant - Tank 37 Containment	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA	COORDINATES: N: -	W: -	
RIG TYPE: CME Drill Rig	GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-	
DRILLER: Rochester	INITIAL GROUNDWATER DEPTH: **5'&10' bgs**	TOTAL DEPTH OF BORING: 25' bgs	
LOGGED BY: A. Waddail	DRILLING STARTED: 1630(1-31-08)	DRILLING COMPLETED: 1020(2-1-08)	WELL INSTALLED: 2-1-08
CONDITION: Soil of containment floor			PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	STICK-UP WITH LOCKING PROTECTIVE COVER; 4'x4' CONC. PAD; BENTONITE GROUT; 2-INCH DIA. BLANK PVC CASING; BENTONITE PELLET SEAL; 8-INCH DIA. BOREHOLE						SP		Reddish-brown SAND, fine to very fine grained, with minor gravel and clay, loose, moist
		HA	60/60			13	CL		Black sandy CLAY, very fine to fine grained, soft, plastic, very moist to wet
5	▽								
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT); GRADED FILTER SAND 20/40	HA	60/60			8.2	SP		Black to dark gray SAND, slighlty silty, flowing, saturated - increasing silt with depth, minor gravel and clay
10		HA	60/60			3.5	SM		Dark gray very silty SAND, slightly clayey, flowing, saturated - clay layer, root fragments from 12' to 13' bgs - becomes dark gray with orange (iron oxide) banding, not flowing, wet from 14' to 15' bgs - very silty with intermittent slighlty clayey content at 1' intervals to 20' bgs
15	7" SUMP / BLANK SPACE AND WELL CAP	SB	60/38			6.3			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **CP AMP-1 (CONT'D)**

CLIENT: KMLT | JOB No.: 25009736 | DATE: January 31, 2008

SITE: Central Plant - Tank 37 Containment | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8-inch | MONITOR WELL DIA.: 2-inch

DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA | COORDINATES: N: - | W: -

RIG TYPE: CME Drill Rig | GROUND SURFACE ELEV.: - | TOP OF CASING ELEV.:-

DRILLER: Rochester | INITIAL GROUNDWATER DEPTH: **5'&10' bgs** | TOTAL DEPTH OF BORING: 25' bgs

LOGGED BY: A. Waddail | DRILLING STARTED: 1630(1-31-08) | DRILLING COMPLETED: 1020(2-1-08) | WELL INSTALLED: 2-1-08

CONDITION: Soil of containment floor

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20		SB	60/6				SM		- poor recovery from 20' to 25' bgs
25									Boring terminated at 25 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **CP AMP-2**

CLIENT: KMLT	JOB No.: 25009736	DATE: January 30, 2008	
SITE: Central Plant - Tank 37 Area	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA	COORDINATES: N: -	W: -	
RIG TYPE: CME Drill Rig	GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-	
DRILLER: Rochester	INITIAL GROUNDWATER DEPTH: 7' bgs	TOTAL DEPTH OF BORING: 25' bgs	
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 1600(1-30-08)	DRILLING COMPLETED: 0930(1-31-08)	WELL INSTALLED: 1-31-08
CONDITION: Native Soils		PAGE: 1 OF 2	

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	STICK-UP WITH LOCKING PROTECTIVE COVER; 4'x4' CONC. PAD; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	HA	-				CL		Dark brown CLAY, medium plasticity, stiff, no odors
5	BENTONITE PELLET SEAL					2.2	SM		Light brown silty SAND, soft, low plasticity, no odors
	▽	HA							Light brown SAND, fine grained, well sorted, non-plastic, wet, odors
10	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)					2.1			
		HA					SP		
	GRADED FILTER SAND 20/40								
15						4.8			- no odors
		SB							

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **CP AMP-2 (CONT'D)**

CLIENT: KMLT		JOB No.: 25009736	DATE: January 30, 2008
SITE: Central Plant - Tank 37 Area		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)		BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA		COORDINATES: N: -	W: -
RIG TYPE: CME Drill Rig		GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-
DRILLER: Rochester		INITIAL GROUNDWATER DEPTH: 7' bgs	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 1600(1-30-08)	DRILLING COMPLETED: 0930(1-31-08)	WELL INSTALLED: 1-31-08
CONDITION: Native Soils			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	7" SUMP / BLANK SPACE AND WELL CAP					0	SP / SM		Light brown silty SAND, low plasticity, no odors
		SB					SC		Light brown clayey SAND, soft, medium plasticity, no odors
25						0			- increasing plasticity
									Boring terminated at 25 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **CP AMP-3**

CLIENT: KMLT	JOB No.: 25009736	DATE: January 29, 2008	
SITE: Central Plant - Tank 25-1 Area	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA	COORDINATES: N: -	W: -	
RIG TYPE: CME Drill Rig	GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-	
DRILLER: Rochester	INITIAL GROUNDWATER DEPTH: 23' bgs	TOTAL DEPTH OF BORING: 40' bgs	
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 1030	DRILLING COMPLETED: 1530	WELL INSTALLED: 1-29-08
CONDITION: Native Soils			PAGE: 1 OF 3

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
5	STICK-UP WITH LOCKING PROTECTIVE COVER; 4'x4' CONC. PAD; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	HA	-			2	CH		Gray CLAY, high plasticity, dense, moist, stiff, no odors
		HA							
10		HA				9.9			
15		SB				1.6	CL		Light brown CLAY, medium plasticity, no odors
							CH		Light brown CLAY, moist, no odors, stiff

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **CP AMP-3 (CONT'D)**

CLIENT: KMLT	JOB No.: 25009736	DATE: January 29, 2008	
SITE: Central Plant - Tank 25-1 Area	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA	COORDINATES: N: -	W: -	
RIG TYPE: CME Drill Rig	GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-	
DRILLER: Rochester	INITIAL GROUNDWATER DEPTH: 23' bgs	TOTAL DEPTH OF BORING: 40' bgs	
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 1030	DRILLING COMPLETED: 1530	WELL INSTALLED: 1-29-08
CONDITION: Native Soils			PAGE: 2 OF 3

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	BENTONITE GROUT BENTONITE PELLET SEAL	SB				1.4	CH		- low plasticity - becomes reddish-brown, high plasticity, dense
25	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT) GRADED FILTER SAND 20/40	SB				2.2	SC		Reddish-brown clayey SAND, fine grained, soft, - saturated at 23' bgs
30		SB				1.6	CH		Reddish-brown CLAY, very stiff, high plasticity, no odors - dense to 40' bgs
35	7" SUMP / BLANK SPACE AND WELL CAP	SB				1.4			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: CP POE-1

CLIENT: KMLT | JOB No.: 25009736 | DATE: January 31, 2008

SITE: Central Plant - Tank 37 Area | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8-inch | MONITOR WELL DIA.: 2-inch

DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA | COORDINATES: N: - | W: -

RIG TYPE: Tractor-mounted Power Probe | GROUND SURFACE ELEV.: - | TOP OF CASING ELEV.:-

DRILLER: Rochester | INITIAL GROUNDWATER DEPTH: 10'&20'bgs | TOTAL DEPTH OF BORING: 25' bgs

LOGGED BY: A. Waddail | DRILLING STARTED: 1100 | DRILLING COMPLETED: 1530 | WELL INSTALLED: 1-31-08

CONDITION: Grassy Berm, Very Windy | PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	STICK-UP WITH LOCKING PROTECTIVE COVER; 4'x4' CONC. PAD; 8-INCH DIA. BOREHOLE; BENTONITE GROUT; 2-INCH DIA. BLANK PVC CASING; BENTONITE PELLET SEAL; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT); GRADED FILTER SAND 20/40	HA	60/60			3.8	SM		Reddish-brown silty SAND, slightly clayey, loose, moist
5		HA	60/60			5.7	CL		Reddish-brown silty CLAY, plastic, stiff, moist
10		HA	60/60			6.3	SM		Grayish-brown very silty SAND, very fine grained, slightly clayey, loose, wet - saturated, good dilatancy, some black discoloration, slight odor from 10' to 12' bgs - black, slight odor, fibrous rope material, increasing clay content from 13' to 15' bgs
15		SB	60/51			7.5	CL		Brown silty CLAY, plastic, stiff
							SM		

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: CP POE-1 (CONT'D)

CLIENT: KMLT | JOB No.: 25009736 | DATE: January 31, 2008

SITE: Central Plant - Tank 37 Area | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8-inch | MONITOR WELL DIA.: 2-inch

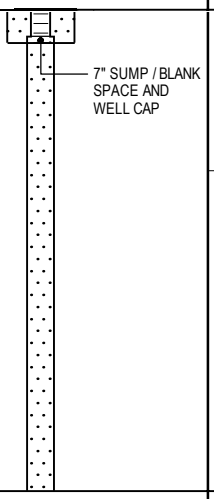
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA | COORDINATES: N: - | W: -

RIG TYPE: Tractor-mounted Power Probe | GROUND SURFACE ELEV.: - | TOP OF CASING ELEV.:-

DRILLER: Rochester | INITIAL GROUNDWATER DEPTH: 10'&20'bgs | TOTAL DEPTH OF BORING: 25' bgs

LOGGED BY: A. Waddail | DRILLING STARTED: 1100 | DRILLING COMPLETED: 1530 | WELL INSTALLED: 1-31-08

CONDITION: Grassy Berm, Very Windy | PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20							SM		Dark gray very silty SAND, slightly clayey, very fine to fine grained, wet - increasing clay content
		SB	60/48			9.4	SC		Dark gray clayey SAND, slightly silty, soft, very fine to fine grained, saturated - wet, not saturated at 22.5' bgs
25									Boring terminated at 25 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: CP POE-2

CLIENT: KMLT	JOB No.: 25009736	DATE: January 29, 2008	
SITE: Central Plant - Tank 25-1 Area	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA	COORDINATES: N: -	W: -	
RIG TYPE: CME Drill Rig	GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-	
DRILLER: Rochester	INITIAL GROUNDWATER DEPTH: 19' bgs	TOTAL DEPTH OF BORING: 40' bgs	
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 1600(1-29-08)	DRILLING COMPLETED: 1130(1-30-08)	WELL INSTALLED: 1-30-08
CONDITION: Native Soils			PAGE: 1 OF 3

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
5	STICK-UP WITH LOCKING PROTECTIVE COVER; 4'x4' CONC. PAD; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	HA	-			20	CH		Dark brown CLAY, high plasticity, moist, stiff, odors observed - becomes black, high plasticity, moist, plasticity, moist, stiff, odors, observed
10		HA				2.0			- becomes black to grayish-brown, medium plasticity, moist, stiff, odors observed
15		HA				3.6			
		SB					CL		Dark brown CLAY, medium plasticity, odors - becomes reddish-brown, no odors

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **CP POE-2 (CONT'D)**

CLIENT: KMLT | JOB No.: 25009736 | DATE: January 29, 2008

SITE: Central Plant - Tank 25-1 Area | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8-inch | MONITOR WELL DIA.: 2-inch

DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA | COORDINATES: N: - | W: -

RIG TYPE: CME Drill Rig | GROUND SURFACE ELEV.: - | TOP OF CASING ELEV.:-

DRILLER: Rochester | INITIAL GROUNDWATER DEPTH: 19' bgs | TOTAL DEPTH OF BORING: 40' bgs

LOGGED BY: R. Kommajosyula | DRILLING STARTED: 1600(1-29-08) | DRILLING COMPLETED: 1130(1-30-08) | WELL INSTALLED: 1-30-08

CONDITION: Native Soils | PAGE: 2 OF 3

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	BENTONITE GROUT	SB				4.2	CL / SM		Light brown silty SAND, soft, low plasticity, no odors
25	BENTONITE PELLET SEAL	SB				6.0	GC		Reddish-brown clayey GRAVEL, rock fragments, medium dense, plasticity, no odors
30	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	SB				3.2	CH		Reddish-brown CLAY, dense, high plasticity, no odors
35	GRADED FILTER SAND 20/40					4.0	SC		Light brown clayey SANDS, soft, medium plasticity

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: CP POE-2 (CONT'D)

CLIENT: KMLT		JOB No.: 25009736	DATE: January 29, 2008
SITE: Central Plant - Tank 25-1 Area		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)		BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and 5' Split-Barrel HSA		COORDINATES: N: -	W: -
RIG TYPE: CME Drill Rig		GROUND SURFACE ELEV.: -	TOP OF CASING ELEV.:-
DRILLER: Rochester		INITIAL GROUNDWATER DEPTH: 19' bgs	TOTAL DEPTH OF BORING: 40' bgs
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 1600(1-29-08)	DRILLING COMPLETED: 1130(1-30-08)	WELL INSTALLED: 1-30-08
CONDITION: Native Soils			PAGE: 3 OF 3

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	7" SUMP / BLANK SPACE AND WELL CAP	SB					SC		
							CL		Reddish-brown CLAY with gravel, stiff
							CH		Reddish-brown CLAY, very stiff, dense
40						3.6			Boring terminated at 40 feet below ground surface.
45									
50									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

Data Usability Summary

To:	Samantha Hon	**Date:**	March 18, 2014
From:	Brenda Basile	**File:**	Kinder Morgan CP RAP 2008 DUS.doc
RE:	Review of Soil Samples Collected 2008	**CC:**	

URS reviewed one data packages from Xenco Laboratories (Houston, Texas) reporting the analytical results for soil samples collected April 3 and April 4, 2008 at the Kinder Morgan Central Plant site. The packages were reviewed for conformance to the requirements of *SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846) and *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13). The purpose of these sample events was to provide data on concentrations of chemicals of concern (COCs) in soil for a Response Action Plan (RAP).

Soil and associated quality control samples were analyzed for benzene using SW-846 8260B - Volatile Organic Compounds by Gas Chromatography-Mass Spectrometry (GC/MS) and for arsenic using SW-846 6020 – Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Data were reviewed as described in the RG-366/TRRP-13 Guidance Document and the results of the review are discussed in this Data Usability Summary (DUS). The reportable data were reviewed. LRCs and ERs were not submitted by Xenco for these samples.

Introduction

Table 1 lists the sample identifications cross-referenced to laboratory identifications and the analyses performed for each sample. No sample data were qualified due to exceedances of quality control criteria.

QC Results

PRESERVATION AND HOLDING TIMES

Samples were received at the laboratory at temperatures less than 6°C. Samples were prepared and analyzed within holding times specified in Chapter Two of SW-846.

CALIBRATIONS

Initial calibration data and instrument performance calibrations (GC/MS tunes) were not submitted in the data packages. Continuing calibration data were not submitted in the data packages. The TCEQ does not require calibration data as part of the data package deliverables.

BLANKS

No analytes were detected in field or laboratory quality control blanks.

SURROGATE RECOVERIES AND INTERNAL STANDARD AREAS

Xenco flags data using statistically derived control limits. Surrogate recoveries were within the default RG-366/TRRP-13 acceptance criteria of 60-140 percent recovery (%R).

LABORATORY CONTROL SAMPLES

Recoveries for laboratory control sample (LCS) were within the default RG-366/TRRP-13 acceptance criteria of 60-140%R for organic analytes.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Batch, or non-project, matrix spike/matrix spike duplicate (MS/MSD) data were not evaluated. No project samples were spiked.

FIELD PRECISION

Field duplicate samples were not collected.

SUMMARY

Analytical data are usable for determining concentrations of COCs in soil at the Kinder Morgan Central Plant Site.

Table 1 Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	6020	8260	Comment
CB-9 0-2 ft	301150-006		X	
CB-9 4-6 ft	301150-007		X	
11-068 0.5-2.5 ft	301150-008		X	
Equip Blank	301150-009	X	X	Equipment Blank
CB-38 0-2 ft	301150-010	X		
CB-38 4-5 ft	301150-011	X		
CB-39 0-2 ft	301150-012	X		
CB-36 0-2 ft	301150-013	X		

Analytical Report 301150

for

URS Corporation

Project Manager: Johnny Kennedy

Kinder Morgan Galena Park

21-APR-08

E84880

11381 Meadowglen, Suite L Houston, TX 77082 Ph:(281) 589-0692 Fax:(281) 589-0695

Texas certification numbers:
Houston, TX T104704215

Florida certification numbers:
Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675
Norcross(Atlanta), GA E87429

South Carolina certification numbers:
Norcross(Atlanta), GA 98015

North Carolina certification numbers:
Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America
Midland - Corpus Christi - Atlanta

21-APR-08

Project Manager: **Johnny Kennedy**
URS Corporation
9801 Westheimer
Suite 101
Houston, TX 77042

Reference: XENCO Report No: **301150**
Kinder Morgan Galena Park
Project Address:

Johnny Kennedy:

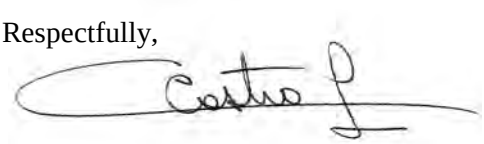
We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 301150. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 301150 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,



Carlos Castro

Managing Director, Texas

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY
Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 301150

URS Corporation, Houston, TX

Kinder Morgan Galena Park

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
WP-16	S	Apr-03-08 10:45	2 - 4 ft	301150-001
WP-1	S	Apr-03-08 12:00	2 - 4 ft	301150-002
WP-3	S	Apr-03-08 14:20	0 - 2 ft	301150-003
WP-3	S	Apr-03-08 14:30	4 - 6 ft	301150-004
WP-2	S	Apr-03-08 15:00	0 - 2 ft	301150-005
CB-9	S	Apr-03-08 15:30	0 - 2 ft	301150-006
CB-9	S	Apr-03-08 15:45	4 - 6 ft	301150-007
11-068	S	Apr-03-08 16:00	0.5 - 2.5 ft	301150-008
Equip. Blank	W	Apr-03-08 16:30		301150-009
CB-38	S	Apr-04-08 08:00	0 - 2 ft	301150-010
CB-38	S	Apr-04-08 08:30	4 - 5 ft	301150-011
CB-39	S	Apr-04-08 09:00	0 - 2 ft	301150-012
CB-36	S	Apr-04-08 09:45	0 - 2 ft	301150-013

Sample Id: **WP-16** Matrix: SOIL Sample Depth: 2 - 4 ft
Lab Sample Id: **301150-001** Date Collected: Apr-03-08 10:45 Date Received: Apr-04-08 17:14

Analytical Method: **VOAs by SW-846 8260** % Moist: 23.81 Prep Method: 5030B
Date Anal: Apr-16-08 20:00 Analyst: KHM Date Prep: Apr-16-08 16:18 Tech: KHM
Anal seq: 720363 Prep seq: 507723

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Tetrachloroethylene	127-18-4	U	0.005	0.007	0.0010	0.001	mg/kg	U	1
Trichloroethene	79-01-6	0.002	0.005	0.007	0.0010	0.001	mg/kg	J	1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:14 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	23.8					%		

Sample Id: **WP-1** Matrix: SOIL Sample Depth: 2 - 4 ft
Lab Sample Id: **301150-002** Date Collected: Apr-03-08 12:00 Date Received: Apr-04-08 17:14

Analytical Method: **SVOCs by EPA 8270C** % Moist: 13.4 Prep Method: 3550B
Date Anal: Apr-10-08 19:42 Analyst: KRB Date Prep: Apr-08-08 09:21 Tech: KRB
Anal seq: 719482 Prep seq: 507131

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-Dinitrotoluene	121-14-2	U	0.333	0.384	0.0436	0.050	mg/kg	U	1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:16 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	13.4					%		

Sample Id: **WP-3** Matrix: SOIL Sample Depth: 0 - 2 ft
Lab Sample Id: **301150-003** Date Collected: Apr-03-08 14:20 Date Received: Apr-04-08 17:14

Analytical Method: **VOAs by SW-846 8260** % Moist: 12.2 Prep Method: 5030B
Date Anal: Apr-16-08 20:21 Analyst: KHM Date Prep: Apr-16-08 16:20 Tech: KHM
Anal seq: 720363 Prep seq: 507723

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Tetrachloroethylene	127-18-4	U	0.005	0.006	0.0010	0.001	mg/kg	U	1
Trichloroethene	79-01-6	U	0.005	0.006	0.0010	0.001	mg/kg	U	1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:18 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	12.2					%		

Sample Id: **WP-3** Matrix: SOIL Sample Depth: 4 - 6 ft
Lab Sample Id: **301150-004** Date Collected: Apr-03-08 14:30 Date Received: Apr-04-08 17:14

Analytical Method: **VOAs by SW-846 8260** % Moist: 20.63 Prep Method: 5030B
Date Anal: Apr-16-08 20:42 Analyst: KHM Date Prep: Apr-16-08 16:22 Tech: KHM
Anal seq: 720363 Prep seq: 507723

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Tetrachloroethylene	127-18-4	U	0.005	0.006	0.0010	0.001	mg/kg	U	1
Trichloroethene	79-01-6	U	0.005	0.006	0.0010	0.001	mg/kg	U	1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:22 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	20.6					%		

Sample Id: **WP-2** Matrix: SOIL Sample Depth: 0 - 2 ft
Lab Sample Id: **301150-005** Date Collected: Apr-03-08 15:00 Date Received: Apr-04-08 17:14

Analytical Method: **SVOCs by EPA 8270C** % Moist: 19.07 Prep Method: 3550B
Date Anal: Apr-10-08 18:56 Analyst: KRB Date Prep: Apr-08-08 09:24 Tech: KRB
Anal seq: 719482 Prep seq: 507131

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-Dinitrotoluene	121-14-2	U	0.333	0.411	0.0436	0.054	mg/kg	U	1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:24 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	19.1					%		

Sample Id: **CB-9** Matrix: SOIL Sample Depth: 0 - 2 ft
Lab Sample Id: **301150-006** Date Collected: Apr-03-08 15:30 Date Received: Apr-04-08 17:14

Analytical Method: **BTEX by SW 8260B** % Moist: 17.9 Prep Method: 5030B
Date Anal: Apr-10-08 19:26 Analyst: ZHO Date Prep: Apr-10-08 15:10 Tech: ZHO
Anal seq: 719821 Prep seq: 507381

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.0010	0.0058	0.0005	0.0029	mg/kg	U	5

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:26 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	17.9					%		

Sample Id: **CB-9** Matrix: SOIL Sample Depth: 4 - 6 ft
Lab Sample Id: **301150-007** Date Collected: Apr-03-08 15:45 Date Received: Apr-04-08 17:14

Analytical Method: **BTEX by SW 8260B** % Moist: 15.4 Prep Method: 5030B
Date Anal: Apr-10-08 19:48 Analyst: ZHO Date Prep: Apr-10-08 15:12 Tech: ZHO
Anal seq: 719821 Prep seq: 507381

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	0.0122	0.0010	0.0058	0.0005	0.0029	mg/kg		5

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:28 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	15.4					%		

Sample Id: **11-068** Matrix: SOIL Sample Depth: 0.5 - 2.5 ft
Lab Sample Id: **301150-008** Date Collected: Apr-03-08 16:00 Date Received: Apr-04-08 17:14

Analytical Method: **BTEX by SW 8260B** % Moist: 20.91 Prep Method: 5030B
Date Anal: Apr-11-08 11:50 Analyst: HDO Date Prep: Apr-11-08 09:10 Tech: HDO
Anal seq: 719805 Prep seq: 507369

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.0010	0.0062	0.0005	0.0031	mg/kg	U	5

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:30 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	20.9					%		

Sample Id: **Equip. Blank** Matrix: WATER Sample Depth:
Lab Sample Id: **301150-009** Date Collected: Apr-03-08 16:30 Date Received: Apr-04-08 17:14

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Apr-16-08 16:10 Analyst: CYE Date Prep: Apr-16-08 16:02 Tech: CYE
Anal seq: 720241 Prep seq: 507642

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1

Analytical Method: **SVOCs by EPA 8270C** % Moist: Prep Method: 3510C
Date Anal: Apr-07-08 22:37 Analyst: KRB Date Prep: Apr-05-08 16:29 Tech: KRB
Anal seq: 719441 Prep seq: 507003

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-Dinitrotoluene	121-14-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Analytical Method: **Total RCRA by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Apr-07-08 15:29 Analyst: MCH Date Prep: Apr-07-08 09:42 Tech: MCH
Anal seq: 719194 Prep seq: 506994

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CB-38** Matrix: SOIL Sample Depth: 0 - 2 ft
Lab Sample Id: **301150-010** Date Collected: Apr-04-08 08:00 Date Received: Apr-04-08 17:14

Analytical Method: **Total RCRA by EPA 6020** % Moist: 14.46 Prep Method: 3050B
Date Anal: Apr-08-08 23:43 Analyst: MCH Date Prep: Apr-08-08 11:00 Tech: MCH
Anal seq: 719415 Prep seq: 507101

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	4.61	0.200	0.219	0.1000	0.109	mg/kg		1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:32 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	14.5					%		

Sample Id: **CB-38** Matrix: SOIL Sample Depth: 4 - 5 ft
Lab Sample Id: **301150-011** Date Collected: Apr-04-08 08:30 Date Received: Apr-04-08 17:14

Analytical Method: **Total RCRA by EPA 6020** % Moist: 18.76 Prep Method: 3050B
Date Anal: Apr-08-08 23:48 Analyst: MCH Date Prep: Apr-08-08 11:00 Tech: MCH
Anal seq: 719415 Prep seq: 507101

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	1.64	0.200	0.241	0.1000	0.121	mg/kg		1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 15:02 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719303 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	18.8					%		

Sample Id: **CB-39** Matrix: SOIL Sample Depth: 0 - 2 ft
Lab Sample Id: **301150-012** Date Collected: Apr-04-08 09:00 Date Received: Apr-04-08 17:14

Analytical Method: **Total RCRA by EPA 6020** % Moist: 16.86 Prep Method: 3050B
Date Anal: Apr-08-08 23:52 Analyst: MCH Date Prep: Apr-08-08 11:00 Tech: MCH
Anal seq: 719415 Prep seq: 507101

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	2.78	0.200	0.219	0.1000	0.109	mg/kg		1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 15:04 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719303 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	16.9					%		

Sample Id: **CB-36** Matrix: SOIL Sample Depth: 0 - 2 ft
Lab Sample Id: **301150-013** Date Collected: Apr-04-08 09:45 Date Received: Apr-04-08 17:14

Analytical Method: **Total RCRA by EPA 6020** % Moist: 14.71 Prep Method: 3050B
Date Anal: Apr-08-08 23:57 Analyst: MCH Date Prep: Apr-08-08 11:00 Tech: MCH
Anal seq: 719415 Prep seq: 507101

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	1.83	0.200	0.219	0.1000	0.110	mg/kg		1

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 15:06 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719303 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	14.7					%		

Sample Id: **506994-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **506994-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **Total RCRA by EPA 6020** % Moist: Prep Method:
Date Anal: Apr-07-08 14:27 Analyst: MCH Date Prep: Apr-07-08 09:42 Tech: MCH
Anal seq: 719194 Prep seq: 506994

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **507003-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **507003-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **SVOCs by EPA 8270C** % Moist: Prep Method: 3510C
Date Anal: Apr-07-08 19:39 Analyst: KRB Date Prep: Apr-05-08 15:26 Tech: KRB
Anal seq: 719441 Prep seq: 507003

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-Dinitrotoluene	121-14-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **507101-1-BLK** Matrix: SOLID Sample Depth:
Lab Sample Id: **507101-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **Total RCRA by EPA 6020** % Moist: Prep Method: 3050B
Date Anal: Apr-08-08 21:00 Analyst: MCH Date Prep: Apr-08-08 11:00 Tech: MCH
Anal seq: 719415 Prep seq: 507101

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Arsenic	7440-38-2	U	0.200	0.200	0.1000	0.100	mg/kg	U	1

Sample Id: **507131-1-BLK** Matrix: SOLID Sample Depth:
Lab Sample Id: **507131-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **SVOCs by EPA 8270C** % Moist: Prep Method: 3550B
Date Anal: Apr-09-08 11:20 Analyst: KRB Date Prep: Apr-08-08 09:00 Tech: KRB
Anal seq: 719482 Prep seq: 507131

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-Dinitrotoluene	121-14-2	U	0.333	0.332	0.0436	0.044	mg/kg	U	1

Sample Id: **507369-1-BLK** Matrix: SOLID Sample Depth:
Lab Sample Id: **507369-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **BTEX by SW 8260B** % Moist: Prep Method: 5030B
Date Anal: Apr-11-08 08:19 Analyst: HDO Date Prep: Apr-11-08 06:38 Tech: HDO
Anal seq: 719805 Prep seq: 507369

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.0010	0.0010	0.0005	0.0005	mg/kg	U	1

Sample Id: **507381-1-BLK** Matrix: SOLID Sample Depth:
Lab Sample Id: **507381-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **BTEX by SW 8260B** % Moist: Prep Method: 5030B
Date Anal: Apr-10-08 09:38 Analyst: ZHO Date Prep: Apr-10-08 08:06 Tech: ZHO
Anal seq: 719821 Prep seq: 507381

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.0010	0.0010	0.0005	0.0005	mg/kg	U	1

Sample Id: **507642-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **507642-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Apr-16-08 12:28 Analyst: CYE Date Prep: Apr-16-08 10:23 Tech: CYE
Anal seq: 720241 Prep seq: 507642

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1

Sample Id: **507723-1-BLK** Matrix: SOLID Sample Depth:
Lab Sample Id: **507723-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Apr-16-08 11:36 Analyst: KHM Date Prep: Apr-16-08 09:28 Tech: KHM
Anal seq: 720363 Prep seq: 507723

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/kg	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/kg	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/kg	U	1

Sample Id: **719301-1-BLK** Matrix: SOLID Sample Depth:
Lab Sample Id: **719301-1-BLK** Date Collected: Date Received: Apr-04-08 17:14

Analytical Method: **Percent Moisture** % Moist: Prep Method:
Date Anal: Apr-07-08 14:00 Analyst: MOR Date Prep: Tech: MOR
Anal seq: 719301 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	U					%	U	

Certificate of Analytical Results 301150

URS Corporation, Houston, TX

Kinder Morgan Galena Park

Sample Id: **719303-1-BLK**	Matrix: SOLID	Sample Depth:	
Lab Sample Id: **719303-1-BLK**	Date Collected:	Date Received: Apr-04-08 17:14	

Analytical Method: **Percent Moisture** % Moist: Prep Method:

Date Anal: Apr-07-08 15:00 Analyst: MOR Date Prep: Tech: MOR

Anal seq: 719303 Prep seq:

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Percent Moisture	TMOIST	U					%	U	

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : Percent Moisture Client : URS Corporation

Work Order #: 301150 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CB-38	Apr. 4, 2008	Apr. 4, 2008				Apr.7, 2008	45	3	P
WP-16	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
CB-39	Apr. 4, 2008	Apr. 4, 2008				Apr.7, 2008	45	3	P
CB-9	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
CB-36	Apr. 4, 2008	Apr. 4, 2008				Apr.7, 2008	45	3	P
CB-9	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
CB-38	Apr. 4, 2008	Apr. 4, 2008				Apr.7, 2008	45	3	P
11-068	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
WP-1	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
WP-2	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
WP-3	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P
WP-3	Apr. 3, 2008	Apr. 4, 2008				Apr.7, 2008	45	4	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : Total RCRA by EPA 6020 Client : URS Corporation

Work Order #: 301150 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CB-38	Apr. 4, 2008	Apr. 4, 2008	Apr. 8, 2008	180	4	Apr.8, 2008	180	0	P
CB-38	Apr. 4, 2008	Apr. 4, 2008	Apr. 8, 2008	180	4	Apr.8, 2008	180	0	P
CB-36	Apr. 4, 2008	Apr. 4, 2008	Apr. 8, 2008	180	4	Apr.8, 2008	180	0	P
Equip. Blank	Apr. 3, 2008	Apr. 4, 2008	Apr. 7, 2008	180	4	Apr.7, 2008	180	0	P
CB-39	Apr. 4, 2008	Apr. 4, 2008	Apr. 8, 2008	180	4	Apr.8, 2008	180	0	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : VOAs by SW-846 8260 Client : URS Corporation

Work Order #: 301150 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
WP-16	Apr. 3, 2008	Apr. 4, 2008				Apr.16, 2008	14	13	P
WP-3	Apr. 3, 2008	Apr. 4, 2008				Apr.16, 2008	14	13	P
WP-3	Apr. 3, 2008	Apr. 4, 2008				Apr.16, 2008	14	13	P
Equip. Blank	Apr. 3, 2008	Apr. 4, 2008				Apr.16, 2008	14	13	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : BTEX by SW 8260B Client : URS Corporation

Work Order #: 301150 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
11-068	Apr. 3, 2008	Apr. 4, 2008				Apr.11, 2008	14	8	P
CB-9	Apr. 3, 2008	Apr. 4, 2008				Apr.10, 2008	14	7	P
CB-9	Apr. 3, 2008	Apr. 4, 2008				Apr.10, 2008	14	7	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : SVOCs by EPA 8270C Client : URS Corporation

Work Order #: 301150 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
WP-1	Apr. 3, 2008	Apr. 4, 2008	Apr. 8, 2008	14	5	Apr.10, 2008	40	2	P
Equip. Blank	Apr. 3, 2008	Apr. 4, 2008	Apr. 5, 2008	7	2	Apr.7, 2008	40	2	P
WP-2	Apr. 3, 2008	Apr. 4, 2008	Apr. 8, 2008	14	5	Apr.10, 2008	40	2	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL(PQL) and above the SQL(MDL).

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

* Outside XENCO'S scope of NELAC Accreditation

Analytical Log

Analytical Method:	Total RCRA by EPA 6020	Batch #:	719194
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
Equip. Blank	301150-009	SMP
	301126-003 D	MD
	301126-003 S	MS
	301126-003 SD	MSD
	506994-1-BKS	BKS
	506994-1-BLK	BLK

Analytical Log

Analytical Method:	Percent Moisture	Batch #:	719301
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
11-068	301150-008	SMP
CB-38	301150-010	SMP
CB-9	301150-006	SMP
CB-9	301150-007	SMP
WP-1	301150-002	SMP
WP-16	301150-001	SMP
WP-2	301150-005	SMP
WP-3	301150-003	SMP
WP-3	301150-004	SMP
	301150-003 D	MD
	719301-1-BLK	BLK

Analytical Log

Analytical Method:	Percent Moisture	Batch #:	719303
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
CB-36	301150-013	SMP
CB-38	301150-011	SMP
CB-39	301150-012	SMP
	301177-001 D	MD
	719303-1-BLK	BLK

Analytical Log

Analytical Method:	Total RCRA by EPA 6020	Batch #:	719415
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
CB-36	301150-013	SMP
CB-38	301150-010	SMP
CB-38	301150-011	SMP
CB-39	301150-012	SMP
	301179-010 D	MD
	301179-010 S	MS
	301179-010 SD	MSD
	507101-1-BKS	BKS
	507101-1-BLK	BLK

Analytical Log

Analytical Method:	SVOCs by EPA 8270C	Batch #:	719441
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
Equip. Blank	301150-009	SMP
	507003-1-BKS	BKS
	507003-1-BLK	BLK
	507003-1-BSD	BSD

Analytical Log

Analytical Method:	SVOCs by EPA 8270C	Batch #:	719482
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
WP-1	301150-002	SMP
WP-2	301150-005	SMP
	300531-013 S	MS
	300531-013 SD	MSD
	507131-1-BKS	BKS
	507131-1-BLK	BLK
	507131-1-BSD	BSD

Analytical Log

Analytical Method:	BTEX by SW 8260B	Batch #:	719805
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
11-068	301150-008	SMP
	300933-001 S	MS
	300933-001 SD	MSD
	507369-1-BKS	BKS
	507369-1-BLK	BLK

Analytical Log

Analytical Method:	BTEX by SW 8260B	Batch #:	719821
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
CB-9	301150-006	SMP
CB-9	301150-007	SMP
	301154-001 S	MS
	301154-001 SD	MSD
	507381-1-BKS	BKS
	507381-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260	Batch #:	720241
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
Equip. Blank	301150-009	SMP
	301246-004 S	MS
	301246-004 SD	MSD
	507642-1-BKS	BKS
	507642-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260	Batch #:	720363
Project Name:	Kinder Morgan Galena Park	Project ID:	
Client Name:	URS Corporation	WO Number:	301150

Client Sample Id	Lab Sample Id	QC Types
WP-16	301150-001	SMP
WP-3	301150-003	SMP
WP-3	301150-004	SMP
	301180-001 S	MS
	301180-001 SD	MSD
	507723-1-BKS	BKS
	507723-1-BLK	BLK

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719805 **Sample:** 300933-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0418	0.0500	84	74-121	
Dibromofluoromethane	0.0458	0.0500	92	80-120	
1,2-Dichloroethane-D4	0.0477	0.0500	95	80-120	
Toluene-D8	0.0536	0.0500	107	81-117	

Lab Batch #: 719805 **Sample:** 300933-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0404	0.0500	81	74-121	
Dibromofluoromethane	0.0454	0.0500	91	80-120	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0449	0.0500	90	81-117	

Lab Batch #: 719805 **Sample:** 301150-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0491	0.0500	98	74-121	
Dibromofluoromethane	0.0458	0.0500	92	80-120	
1,2-Dichloroethane-D4	0.0495	0.0500	99	80-120	
Toluene-D8	0.0535	0.0500	107	81-117	

Lab Batch #: 719805 **Sample:** 507369-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0488	0.0500	98	74-121	
Dibromofluoromethane	0.0477	0.0500	95	80-120	
1,2-Dichloroethane-D4	0.0504	0.0500	101	80-120	
Toluene-D8	0.0509	0.0500	102	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719805 **Sample:** 507369-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0494	0.0500	99	74-121	
Dibromofluoromethane	0.0489	0.0500	98	80-120	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0546	0.0500	109	81-117	

Lab Batch #: 719821 **Sample:** 301150-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0514	0.0500	103	74-121	
Dibromofluoromethane	0.0503	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0535	0.0500	107	80-120	
Toluene-D8	0.0477	0.0500	95	81-117	

Lab Batch #: 719821 **Sample:** 301150-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0488	0.0500	98	74-121	
Dibromofluoromethane	0.0509	0.0500	102	80-120	
1,2-Dichloroethane-D4	0.0529	0.0500	106	80-120	
Toluene-D8	0.0468	0.0500	94	81-117	

Lab Batch #: 719821 **Sample:** 301154-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0499	0.0500	100	74-121	
Dibromofluoromethane	0.0506	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0533	0.0500	107	80-120	
Toluene-D8	0.0481	0.0500	96	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719821 **Sample:** 301154-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0496	0.0500	99	74-121	
Dibromofluoromethane	0.0506	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0522	0.0500	104	80-120	
Toluene-D8	0.0478	0.0500	96	81-117	

Lab Batch #: 719821 **Sample:** 507381-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0460	0.0500	92	74-121	
Dibromofluoromethane	0.0466	0.0500	93	80-120	
1,2-Dichloroethane-D4	0.0454	0.0500	91	80-120	
Toluene-D8	0.0479	0.0500	96	81-117	

Lab Batch #: 719821 **Sample:** 507381-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0492	0.0500	98	74-121	
Dibromofluoromethane	0.0475	0.0500	95	80-120	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0465	0.0500	93	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719441 **Sample:** 301150-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.014	0.050	28	43-116	**
2-Fluorophenol	0.008	0.050	16	21-100	**
Nitrobenzene-d5	0.013	0.050	26	35-114	**
Phenol-d6	0.004	0.050	8	10-94	**
Terphenyl-D14	0.018	0.050	36	33-141	
2,4,6-Tribromophenol	0.015	0.050	30	10-123	

Lab Batch #: 719441 **Sample:** 507003-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.031	0.050	62	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.021	0.050	42	10-94	
Terphenyl-D14	0.047	0.050	94	33-141	
2,4,6-Tribromophenol	0.044	0.050	88	10-123	

Lab Batch #: 719441 **Sample:** 507003-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.038	0.050	76	43-116	
2-Fluorophenol	0.028	0.050	56	21-100	
Nitrobenzene-d5	0.037	0.050	74	35-114	
Phenol-d6	0.018	0.050	36	10-94	
Terphenyl-D14	0.046	0.050	92	33-141	
2,4,6-Tribromophenol	0.038	0.050	76	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719441 **Sample:** 507003-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.040	0.050	80	43-116	
2-Fluorophenol	0.030	0.050	60	21-100	
Nitrobenzene-d5	0.037	0.050	74	35-114	
Phenol-d6	0.021	0.050	42	10-94	
Terphenyl-D14	0.046	0.050	92	33-141	
2,4,6-Tribromophenol	0.044	0.050	88	10-123	

Lab Batch #: 719482 **Sample:** 300531-013 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.23	1.66	74	30-115	
2-Fluorophenol	1.15	1.66	69	25-121	
Nitrobenzene-d5	1.21	1.66	73	23-120	
Phenol-d6	1.20	1.66	72	24-113	
Terphenyl-D14	1.50	1.66	90	18-137	
2,4,6-Tribromophenol	1.36	1.66	82	19-122	

Lab Batch #: 719482 **Sample:** 300531-013 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.29	1.66	78	30-115	
2-Fluorophenol	1.17	1.66	70	25-121	
Nitrobenzene-d5	1.29	1.66	78	23-120	
Phenol-d6	1.24	1.66	75	24-113	
Terphenyl-D14	1.53	1.66	92	18-137	
2,4,6-Tribromophenol	1.45	1.66	87	19-122	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719482 **Sample:** 301150-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.762	1.66	46	30-115	
2-Fluorophenol	0.602	1.66	36	25-121	
Nitrobenzene-d5	0.654	1.66	39	23-120	
Phenol-d6	0.590	1.66	36	24-113	
Terphenyl-D14	0.764	1.66	46	18-137	
2,4,6-Tribromophenol	0.705	1.66	42	19-122	

Lab Batch #: 719482 **Sample:** 301150-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.34	1.66	81	30-115	
2-Fluorophenol	1.17	1.66	70	25-121	
Nitrobenzene-d5	1.29	1.66	78	23-120	
Phenol-d6	1.10	1.66	66	24-113	
Terphenyl-D14	1.37	1.66	83	18-137	
2,4,6-Tribromophenol	1.35	1.66	81	19-122	

Lab Batch #: 719482 **Sample:** 507131-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.34	1.67	80	30-115	
2-Fluorophenol	1.23	1.67	74	25-121	
Nitrobenzene-d5	1.30	1.67	78	23-120	
Phenol-d6	1.25	1.67	75	24-113	
Terphenyl-D14	1.65	1.67	99	18-137	
2,4,6-Tribromophenol	1.48	1.67	89	19-122	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719482 **Sample:** 507131-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.36	1.66	82	30-115	
2-Fluorophenol	1.23	1.66	74	25-121	
Nitrobenzene-d5	1.31	1.66	79	23-120	
Phenol-d6	1.11	1.66	67	24-113	
Terphenyl-D14	1.63	1.66	98	18-137	
2,4,6-Tribromophenol	1.37	1.66	83	19-122	

Lab Batch #: 719482 **Sample:** 507131-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.40	1.66	84	30-115	
2-Fluorophenol	1.28	1.66	77	25-121	
Nitrobenzene-d5	1.33	1.66	80	23-120	
Phenol-d6	1.23	1.66	74	24-113	
Terphenyl-D14	1.64	1.66	99	18-137	
2,4,6-Tribromophenol	1.51	1.66	91	19-122	

Lab Batch #: 720241 **Sample:** 301150-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0434	0.0500	87	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0541	0.0500	108	80-120	
Toluene-D8	0.0467	0.0500	93	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 720241 **Sample:** 301246-004 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0448	0.0500	90	86-115	
Dibromofluoromethane	0.0471	0.0500	94	86-118	
1,2-Dichloroethane-D4	0.0521	0.0500	104	80-120	
Toluene-D8	0.0452	0.0500	90	88-110	

Lab Batch #: 720241 **Sample:** 301246-004 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0437	0.0500	87	86-115	
Dibromofluoromethane	0.0484	0.0500	97	86-118	
1,2-Dichloroethane-D4	0.0516	0.0500	103	80-120	
Toluene-D8	0.0457	0.0500	91	88-110	

Lab Batch #: 720241 **Sample:** 507642-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0436	0.0500	87	86-115	
Dibromofluoromethane	0.0469	0.0500	94	86-118	
1,2-Dichloroethane-D4	0.0501	0.0500	100	80-120	
Toluene-D8	0.0468	0.0500	94	88-110	

Lab Batch #: 720241 **Sample:** 507642-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0479	0.0500	96	86-115	
Dibromofluoromethane	0.0469	0.0500	94	86-118	
1,2-Dichloroethane-D4	0.0528	0.0500	106	80-120	
Toluene-D8	0.0457	0.0500	91	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 720363 **Sample:** 301150-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0621	0.0500	124	74-121	**
Dibromofluoromethane	0.0482	0.0500	96	80-120	
1,2-Dichloroethane-D4	0.0520	0.0500	104	80-120	
Toluene-D8	0.0551	0.0500	110	81-117	

Lab Batch #: 720363 **Sample:** 301150-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0527	0.0500	105	74-121	
Dibromofluoromethane	0.0451	0.0500	90	80-120	
1,2-Dichloroethane-D4	0.0504	0.0500	101	80-120	
Toluene-D8	0.0494	0.0500	99	81-117	

Lab Batch #: 720363 **Sample:** 301150-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0546	0.0500	109	74-121	
Dibromofluoromethane	0.0450	0.0500	90	80-120	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0489	0.0500	98	81-117	

Lab Batch #: 720363 **Sample:** 301180-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0513	0.0500	103	74-121	
Dibromofluoromethane	0.0488	0.0500	98	80-120	
1,2-Dichloroethane-D4	0.0490	0.0500	98	80-120	
Toluene-D8	0.0506	0.0500	101	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 720363 **Sample:** 301180-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0525	0.0500	105	74-121	
Dibromofluoromethane	0.0517	0.0500	103	80-120	
1,2-Dichloroethane-D4	0.0511	0.0500	102	80-120	
Toluene-D8	0.0485	0.0500	97	81-117	

Lab Batch #: 720363 **Sample:** 507723-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0497	0.0500	99	74-121	
Dibromofluoromethane	0.0538	0.0500	108	80-120	
1,2-Dichloroethane-D4	0.0515	0.0500	103	80-120	
Toluene-D8	0.0475	0.0500	95	81-117	

Lab Batch #: 720363 **Sample:** 507723-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0512	0.0500	102	74-121	
Dibromofluoromethane	0.0505	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0533	0.0500	107	80-120	
Toluene-D8	0.0468	0.0500	94	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 719805 **Sample:** 507369-1-BKS **Matrix:** Solid
Date Analyzed: 04/11/2008 **Date Prepared:** 04/11/2008 **Analyst:** HDO
Reporting Units: mg/kg **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.0010	0.1000	0.0892	89	66-142	

Lab Batch #: 719821 **Sample:** 507381-1-BKS **Matrix:** Solid
Date Analyzed: 04/10/2008 **Date Prepared:** 04/10/2008 **Analyst:** ZHO
Reporting Units: mg/kg **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.0010	0.1000	0.0865	87	66-142	

Lab Batch #: 719194 **Sample:** 506994-1-BKS **Matrix:** Water
Date Analyzed: 04/07/2008 **Date Prepared:** 04/07/2008 **Analyst:** MCH
Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

Total RCRA by EPA 6020 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Arsenic	<0.002	0.050	0.052	104	75-125	

Lab Batch #: 719415 **Sample:** 507101-1-BKS **Matrix:** Solid
Date Analyzed: 04/08/2008 **Date Prepared:** 04/08/2008 **Analyst:** MCH
Reporting Units: mg/kg **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

Total RCRA by EPA 6020 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Arsenic	<0.100	5.00	5.58	112	70-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Lab Batch #: 720241 **Sample:** 507642-1-BKS **Matrix:** Water

Date Analyzed: 04/16/2008 **Date Prepared:** 04/16/2008 **Analyst:** CYE

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.005	0.050	0.045	90	66-142	
Tetrachloroethylene	<0.005	0.050	0.052	104	71-125	
Trichloroethene	<0.005	0.050	0.047	94	62-137	

Lab Batch #: 720363 **Sample:** 507723-1-BKS **Matrix:** Solid

Date Analyzed: 04/16/2008 **Date Prepared:** 04/16/2008 **Analyst:** KHM

Reporting Units: mg/kg **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.005	0.050	0.051	102	66-142	
Tetrachloroethylene	<0.005	0.050	0.052	104	71-125	
Trichloroethene	<0.005	0.050	0.056	112	62-137	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Kinder Morgan Galena Park

Work Order #: 301150 **Project ID:**

Analyst: KRB **Date Prepared:** 04/08/2008 **Date Analyzed:** 04/09/2008

Lab Batch ID: 719482 **Sample:** 507131-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOCs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-Dinitrotoluene	<0.044	1.67	1.46	87	1.66	1.49	90	2	35-152	25	

Analyst: KRB **Date Prepared:** 04/05/2008 **Date Analyzed:** 04/07/2008

Lab Batch ID: 719441 **Sample:** 507003-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOCs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-Dinitrotoluene	<0.001	0.050	0.045	90	0.05	0.045	90	0	60-116	38	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan Galena Park

Work Order # : 301150 **Project ID:**

Lab Batch ID: 719805 **QC- Sample ID:** 300933-001 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 04/11/2008 **Date Prepared:** 04/11/2008 **Analyst:** HDO
Reporting Units: mg/kg

BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Benzene	0.0170	0.5906	0.5771	95	0.5523	0.5167	90	5	66-142	25	

Lab Batch ID: 719821 **QC- Sample ID:** 301154-001 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 04/10/2008 **Date Prepared:** 04/10/2008 **Analyst:** ZHO
Reporting Units: mg/kg

BTEX by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Benzene	<0.0057	0.5518	0.5571	101	0.5265	0.4216	80	23	66-142	25	

Lab Batch ID: 719482 **QC- Sample ID:** 300531-013 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 04/10/2008 **Date Prepared:** 04/08/2008 **Analyst:** KRB
Reporting Units: mg/kg

SVOCs by EPA 8270C Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
2,4-Dinitrotoluene	<0.381	1.91	1.60	84	1.90	1.65	87	4	40-130	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan Galena Park

Work Order # : 301150 **Project ID:**

Lab Batch ID: 719194 **QC- Sample ID:** 301126-003 S **Batch #:** 1 **Matrix:** Water
Date Analyzed: 04/07/2008 **Date Prepared:** 04/07/2008 **Analyst:** MCH
Reporting Units: mg/L

Total RCRA by EPA 6020 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Arsenic	<0.002	0.050	0.049	98	0.050	0.050	100	2	75-125	25	

Lab Batch ID: 719415 **QC- Sample ID:** 301179-010 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 04/08/2008 **Date Prepared:** 04/08/2008 **Analyst:** MCH
Reporting Units: mg/kg

Total RCRA by EPA 6020 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Arsenic	0.560	5.73	5.19	81	5.79	5.72	89	9	70-125	30	

Lab Batch ID: 720241 **QC- Sample ID:** 301246-004 S **Batch #:** 1 **Matrix:** Water
Date Analyzed: 04/16/2008 **Date Prepared:** 04/16/2008 **Analyst:** CYE
Reporting Units: mg/L

VOAs by SW-846 8260 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Benzene	<0.005	0.050	0.045	90	0.050	0.045	90	0	66-142	21	
Tetrachloroethylene	<0.005	0.050	0.052	104	0.050	0.053	106	2	71-125	20	
Trichloroethene	<0.005	0.050	0.046	92	0.050	0.050	100	8	62-137	24	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan Galena Park

Work Order # : 301150 **Project ID:**

Lab Batch ID: 720363 **QC- Sample ID:** 301180-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/16/2008 **Date Prepared:** 04/16/2008 **Analyst:** KHM

Reporting Units: mg/kg

VOAs by SW-846 8260 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Benzene	<0.006	0.060	0.054	90	0.060	0.057	95	5	66-142	21	
Tetrachloroethylene	<0.006	0.060	0.057	95	0.060	0.056	93	2	71-125	20	
Trichloroethene	<0.006	0.060	0.056	93	0.060	0.064	107	14	62-137	24	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Sample Duplicate Recovery

Project Name: Kinder Morgan Galena Park

Work Order #: 301150

Lab Batch #: 719301 **Project ID:**
Date Analyzed: 04/07/2008 **Date Prepared:** 04/07/2008 **Analyst:** MOR
QC- Sample ID: 301150-003 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	12.2	11.7	4	20	

Lab Batch #: 719303
Date Analyzed: 04/07/2008 **Date Prepared:** 04/07/2008 **Analyst:** MOR
QC- Sample ID: 301177-001 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	21.2	21.1	0	20	

Lab Batch #: 719194
Date Analyzed: 04/07/2008 **Date Prepared:** 04/07/2008 **Analyst:** MCH
QC- Sample ID: 301126-003 D **Batch #:** 1 **Matrix:** Water
Reporting Units: mg/L

Total RCRA by EPA 6020 Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Arsenic	<0.002	<0.002	NC	25	

Lab Batch #: 719415
Date Analyzed: 04/08/2008 **Date Prepared:** 04/08/2008 **Analyst:** MCH
QC- Sample ID: 301179-010 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: mg/kg

Total RCRA by EPA 6020 Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Arsenic	0.560	0.691	21	30	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

XENCO Laboratories

☑ 11381 Meadowglen, Suite L, Houston TX 77082 **281-589-0692**
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 **210-509-3334**
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 **972-481-9999**

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 **305-823-8500**
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 **813-620-2000**

LAB ONLY: 30 1150-H

Serial #: 187091 Page 1 of 2

Company-City URS HOUSTON **Phone** 713-914-6699

TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d (Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Project Name ☐Previously performed at XENCO **Site** FINGER MORGAN GALENA PARK **Project ID**

Proj. Manager (PM) JOHNNY KENNEDY

Fax Results to ☐ PM or **Fax No:**
e-mail to: [redacted]

Invoice to ☐ Acco[redacted] ☐ Invoice must have a P.O
Bill to:

Quote No: **P.O No:** ☐ Call for a P.O.

Reg Program: CLP AFCEE **TRRP** DW UST State Other:

Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)

TRRP PCLs: Tier 1 Tier 2 Residential Industrial

LPST No.:(Required)

Sampler Name ELLEN REISS Signature Ellen Reiss

	Sample ID	Sampling Date	Time	Depth (ft) In" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	8260, BENZENE ONLY	2,4-DINITROTOLUENE (8270)	6010 ARSENIC ONLY	TCE/PCE ONLY 8270	TCE/PCE (8270) ONLY	SPLP-8260 BENZENE ONLY (HOLD)	SPLP-2,4 DINITROTOLUENE (HOLD)	SPLP-6010 ARSENIC (HOLD)	SPLP-TCE (HOLD)	SPLP-TCE/PCE (HOLD)
1	WP-16	4/3/08	1045	2-4	S	X		1	4oz														X					X	
2	WP-1		1200	2-4	S	X		1	4oz												X					X			
3	WP-3		1420	0-2	S	X		1	4oz															X					X
4	WP-3		1430	4-6	S	X		1	4oz															X					X
5	WP-2		1500	0-2	S	X		2	2oz												X					X			
6	CB-9		1530	0-2	S	X		1	2oz											X				X					
7	CB-9		1545	4-6	S	X		1	2oz											X				X					
8	11-068		1600	.5-2.5	S	X		1	2oz											X									
9	EQUIP BLANK		1630		W		X	6												X	X	X	X	X					
10																													

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1 Ellen Reiss ER	4/4/08 1130		4/4/08 14:51
2			
3	4/4/08 17:14	Lab:	4/4/08 1714

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: 19 Cooler Temperature: 1-8°C

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____
Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (1), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990 www.xenco.com

Page 47 of 52

30 1150-H

XENCO Laboratories

☑ 11381 Meadowglen, Suite L, Houston TX 77082 **281-589-0692**
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 **210-509-3334**
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 **972-481-9999**

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 **305-823-8500**
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 **813-620-2000**

LAB ONLY: 301150-H

Serial #: 187092 Page 2 of 2

Company-City URS HOUSTON **Phone** 713-914-6699

TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Project Name ☐Previously performed at XENCO **Site** KINDER MORGAN GALENA PARK **Project ID**

Proj. Manager (PM) JOHNNY KENNEDY

Fax Result / e-mail to: [redacted]

Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O
Bill to:

Quote No: **P.O No:** ☐ Call for a P.O.

Reg Program: CLP AFCEE **TRRP** DW UST State Other:

Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)

TRRP PCLs: Tier 1 Tier 2 Residential Industrial

LPST No.:(Required)

Sampler Name ELLEN REISS Signature Ellen Reiss

	Sample ID	Sampling Date	Time	Depth (in)	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
1	CB-38	4/4/08	800	0-2	S	X		1	4oz	C	NA
2	CB-38	4/4/08	830	4-5	S	X		1	4oz	C	NA
3	CB-39	4/4/08	900	0-2	S	X		1	4oz	C	NA
4	CB-36	4/4/08	945	0-2	S	X		1	4oz	C	NA
5											
6											
7											
8											
9											
10											

	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	ARSENIC 6010 SPLP - ARSENIC 6010 (Hold)
1									X X
2									X X
3									X X
4									X X

TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Sample Clean-ups are pre-approved

Remarks

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1 Ellen Reiss EK	4/4/08 1130		4/4/08 14:51
2			
3	4/4/08 17:17	Lab	4/4/08 1714

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: Cooler Temperature:

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____
Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (1), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990

www.xenco.com

301150-H

Please find the revision to the attached Kinder Morgan Galena Park chain of custody (COC) for TCE and TCE/PCE analysis by Method 8260 (inadvertently put 8270 on COC). Let us know if you have any questions.

Thank you,

Aubrey Waddail, P.G.
Hydrogeologist
URS Corporation
Main (713) 914-6699
Direct (713) 914-6536
Fax (713) 789-8404
[redacted]

(See attached file: Kinder Morgan Galena Park COC revision.pdf)

This e-mail and any attachments are confidential. If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies.

XENCO Laboratories

☑ 11381 Meadowglen, Suite L, Houston TX 77082 281-589-0692
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 210-509-3334
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 972-481-9999

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 305-823-8500
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 813-620-2000

XENCO ONLY: 301150-47

Serial #: 187091 Page 1 of 2

Company-City: URS HOUSTON
Phone: 713-914-6699
TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d (Standard TAT is project specific. It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.)
Project Name: ☐ Previously performed at XENCO
Site: KINDER MORGAN GALENA PARK
Project ID:
Proj. Manager (PM): JOHNNY KENNEDY
Fax Results to ☐ PM or
e-mail to: [redacted]
Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O
Bill to:
Quote No: P.O No: ☐ Call for a P.O.
Reg Program: CLP AFCEE TRRP DW UST State Other:
Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)
TRRP PCLs: Tier 1 Tier 2 Residential Industrial
LPST No.:(Required)
Sampler Name: ELLEN REISS Signature: Ellen Reiss

	Sample ID	Sampling Date	Time	Depth (ft) In"	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	8260, BENZENE ONLY	2H-DINITROTOLUENE (8270)	6010 ARSENIC ONLY (AW)	TCE 8260 ONLY	TCE/PCE 8260 ONLY	SPLP-8260 BENZENE ONLY (HOLD)	SPLP-2,4 DINITROTOLUENE (HOLD)	SPLP-6010 ARSENIC (HOLD)	SPLP-TCE (HOLD)	SPLP-TCE/PCE (HOLD)	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Sample Clean-ups are pre-approved	Remarks
1	WP-16	4/3/08	1015	2-4	S	X		1	4oz											X																
2	WP-1		1200	2-4	S	X		1	4oz												X																
3	WP-3		1420	0-2	S	X		1	4oz														X		X											
4	WP-3		1430	4-6	S	X		1	4oz														X							X					
5	WP-2		1500	0-2	S	X		2	2oz												X															
6	CB-9		1530	0-2	S	X		1	2oz											X					X											
7	CB-9		1545	4-6	S	X		1	2oz											X																
8	11-068		1600	.5-2.5	S	X		1	2oz											X																
9	EQUIP. BLANK		1630		W		X	6												X	X	X	X	X	X										
10																																				

Relinquished by (Initials and Sign)	Date & Time	Received by (Initials and Sign)	Date & Time
1 Ellen Reiss ER	4/4/08 1130		4/4/08 14:51
2			
3		Lab:	

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: Cooler Temperature:

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH (A), ZnAc&NaOH (Z), (Cool,<4C) (C), None (NA), See Label (L), Other (O) _____
Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (V), 1L (1), 500ml (5), Tedlar Bag (B), Wipe (W), Other _____ **Cont. Type:** Glass Amb (A), Glass Clear (C), Plastic (P), Other (O) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990

www.xenco.com

XENCO

☑ 11381 Meadowglen, Suite L, Houston TX 77082 281-589-0692
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 210-509-3334
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 972-481-9999

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 305-823-8500
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 813-620-2000

LAB ONLY:

Serial #: 187092 Page 2 of 2

Company-City: URS HOUSTON Phone: 713-914-6699

TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Project Name: ☐ Previously performed at XENCO — Site: KINDER MORGAN GALENA PARK — Project ID:

Proj. Manager (PM): JOHNNY KENNEDY

Fax Results to: ☐ PM or

e-mail to: [redacted]

Invoice to: ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O
Bill to:

Quote No: P.O No: ☐ Call for a P.O.

Reg Program: CLP AFCEE TRRP DW UST State Other:

Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)

TRRP PCLs: Tier 1 Tier 2 Residential Industrial

LPST No.:(Required)

Sampler Name: Ellen Reiss Signature: Ellen Reiss

	Sample ID	Sampling Date	Time	Depth @ in" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	ARSENIC 6010	SPLP-ARSENIC 6010 (HOLD)	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Remarks: Sample Clean-ups are pre-approved
1	CB-38	4/4/08	800	0-2	S	X		1	4oz	C	NA									X	X				
2	CB-38	4/4/08	830	4-5	S	X		1	4oz	C	NA									X	X				
3	CB-39	4/4/08	900	0-2	S	X		1	4oz	C	NA									X	X				
4	CB-36	4/4/08	945	0-2	S	X		1	4oz	C	NA									X	X				
5																									
6																									
7																									
8																									
9																									
10																									

	Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1	Ellen Reiss ER	4/4/08 1130		4/7/08 14:51
2				
3			Lab:	

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: Cooler Temperature:

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH (A), ZnAc&NaOH (Z), (Cool,<4C) (C), None (NA), See Label (L), Other (O) _____
Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (V), 1L (1), 500ml (5), Tedlar Bag (B), Wipe (W), Other _____ **Cont. Type:** Glass Amb (A), Glass Clear (C), Plastic (P), Other (O) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990

www.xenco.com

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: URS

Date/ Time: 4/4/8

Lab ID # : 3011 50 - G

Initials: AD

Sample Receipt Checklist

#1	Temperature of container/ cooler?	Yes	No	N/A	1.8 °C
#2	Shipping container in good condition?	Yes	No	None	
#3	Samples received on ice?	Yes	No	N/A	Blue/Water
#4	Custody Seals intact on shipping container/ cooler?	Yes	No	N/A	
#5	Custody Seals intact on sample bottles/ container?	Yes	No	N/A	
#6	Chain of Custody present?	Yes	No		
#7	Sample instructions complete of Chain of Custody?	Yes	No		
#8	Any missing/extra samples?	Yes	No		
#9	Chain of Custody signed when relinquished/ received?	Yes	No		
#10	Chain of Custody agrees with sample label(s)?	Yes	No		
#11	Container label(s) legible and intact?	Yes	No		
#12	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#13	Samples in proper container/ bottle?	Yes	No		
#14	Samples properly preserved?	Yes	No	N/A	
#15	Sample container intact?	Yes	No		
#16	Sufficient sample amount for indicated test(s)?	Yes	No		
#17	All samples received within sufficient hold time?	Yes	No		
#18	Subcontract of sample(s)?	Yes	No	N/A	
#19	VOC samples have zero headspace?	Yes	No	N/A	

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

URS

Data Usability Summary

To:	Johnny Kennedy	**Date:**	July 17, 2008
From:	Brenda Basile	**File:**	Kinder Morgan Galena Park 0208 DUS.doc
RE:	Validation of Soil Data from February 2008 Sampling Events	**CC:**	

URS reviewed five data packages from Xenco Laboratories (Houston, Texas) reporting the analytical results for soil and groundwater samples collected February 4 through February 8, 2008 at the Kinder Morgan facility in Galena Park, Texas. The package was reviewed for conformance to the requirements of *SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846) and *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13). The purpose of this sample event was to provide current data on concentrations of potential chemicals of concern (COCs) in soil and groundwater.

Samples were analyzed using the following methods:

- SW-846 6020A – Inductively Coupled Plasma – Mass Spectrometry
- SW-846 8151A – Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization
- SW-846 8260B – Volatile Organic Compounds by Gas Chromatography-Mass Spectrometry (GC/MS)
- SW-846 8270C - Semivolatile Organic Compounds by Gas Chromatography-Mass Spectrometry (GC/MS)
- Texas (TX) 1005 – Total Petroleum Hydrocarbons (TPH)

Data were reviewed as described in the RG-366/TRRP-13 Guidance Document and the results of the review are discussed in this Data Usability Summary (DUS). The following laboratory submittals were examined:

- The reportable data,
- The laboratory review checklists (LRCs), and
- Exception reports (ERs).

Introduction

Soil and groundwater samples were analyzed for parameters as required on the chain-of-custodies (C-O-Cs) using the methods listed above. The SW-846 81851 analyses were for 2,4-D only. Table 1 lists the sample identifications cross-referenced to laboratory identifications and the analyses performed for each sample.

QC Results

PRESERVATION AND HOLDING TIMES

Samples were received at the laboratory at temperatures less than 6°C. Samples were prepared and analyzed within holding times specified in Chapter Two of SW-846. Sample CP-POE-1-020608 (297270-01) was not listed in the C-O-C.

CALIBRATIONS

Initial calibration data and instrument performance calibrations (GC/MS tunes) were not submitted in this data package. Continuing calibration data were not submitted in this data package. The TCEQ does not require

calibration data as part of the data package deliverables. The laboratory indicated on the LRCs that calibrations were acceptable.

BLANKS

Analytes detected in laboratory, field, equipment and trip blanks are listed in Table 3. Concentrations up to ten times the highest blank detected concentration for common contaminants (phthalate esters, toluene, methylene chloride, and acetone) are qualified as nondetect (U) in the field samples. Concentrations up to five times the highest blank detected concentration for other analytes were qualified as nondetect (U) in the field samples. Data are qualified as shown in Tables 2 and 3.

SURROGATE RECOVERIES AND INTERNAL STANDARD AREAS

Surrogate recoveries outside the default RG-366/TRRP-13 acceptance criteria of 60-140 percent recovery (%R) are listed in Table 4. Data are qualified as shown in Tables 2 and 4.

LABORATORY CONTROL SAMPLES

Laboratory control sample (LCS) recoveries (%R) were within the default RG-366/TRRP-13 acceptance criteria of 60-140 %R for VOCs, TPH and herbicides. LCS recoveries were within the default RG-366/TRRP-13 acceptance criteria of 70-1300 %R for metals. LCS recoveries outside the default RG-366/TRRP-13 acceptance criteria of 60-140 %R for SVOCs are listed in Table 4. Data are qualified as shown in Tables 2 and 4.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Batch, or non-project, matrix spike/matrix spike duplicate (MS/MSD) data were not evaluated. MS/MSD recoveries outside the default RG-366/TRRP-13 acceptance criteria of 60-140 %R for organic parameters are listed in Table 4. Precision values were within the default RG-366/TRRP-13 acceptance criteria of 40 RPD. MS/MSD recoveries for metals were within the default RG-366/TRRP-13 acceptance criteria of 60-140 %R

FIELD PRECISION

Field duplicate precision for groundwater samples is summarized in Table 3. Groundwater field duplicate precision is acceptable using 30 RPD or ± the MQL (if concentrations are less than five times the MQL) as criteria.

SUMMARY

Acid SVOC data for CP-EB-01-020608 are not usable. The remaining analytical data are usable for determining concentrations of potential COCs in groundwater at the Kinder Morgan East Plant, Central Plant, and West Plant.

Table 1
Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	1005	6020	8151	8260	8270	Comment
WP-Fence-MW-29-020408	297181-001				X		
WP-Fence-Dup-1-020408	297181-002				X		Field duplicate of WP-Fence-MW-29-02048
WP-Fence-MW-31-020408	297181-003				X		
WP-Fence-MW-32-020408	297181-004				X		
WP-Fence-MW-33-020508	297181-005				X		MS/MSD
WP-Fence-MW-34-020508	297181-006				X		MS/MSD
WP-Fence-EB-020508	297181-007				X		Equipment Blank
WP-Fence-TB-020508	297181-008				X		Trip Blank
CP-RI-3-02-020508	297184-001		X	X	X	X	
CP-RI-3-03-020508	297184-002		X	X	X	X	VOC MS/MSD
CP-RI-3-01-020508	297184-003		X	X	X	X	
CP-RI-1-18-020508	297184-004		X	X	X	X	
CP-RI-1-17-020508	297184-005		X	X	X	X	VOC MS/MSD
CP-MW-37-020508	297184-006		X	X	X	X	
CP-MW-35-020508	297184-007		X	X	X	X	
CP-MW-41-020508	297184-008		X	X	X	X	VOC MS/MSD
CP-EB-1-020608	297184-009		X	X	X	X	Equipment Blank
CP-TB-0202508	297184-010		X	X	X	X	Trip Blank
CP-MW-38-020608	297270-001		X	X	X	X	
CP-R1-1-14-020608	297270-002		X	X	X	X	
CP-R1-1-15-020608	297270-003		X	X	X	X	
CP-MW-39-020608	297270-004		X	X	X	X	
CP-POE-2-020608	297270-005		X	X	X	X	
CP-AMP-1-020608	297270-006		X	X	X	X	
CP-AMP-3-020608	297270-007		X	X	X	X	
CP-MW-36-020608	297270-008		X	X	X	X	
CP-DUP-1-020608	297270-009		X	X	X	X	Field duplicate of CP-MW-36-020608
CP-FB-020608	297270-010		X	X	X	X	Field Blank
CP-AMP-2-020608	297270-011		X	X	X	X	

Table 1
Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	1005	6020	8151	8260	8270	Comment
CP-TB-020608	297270-012				X		Trip Blank
CP-EB-2-020708	297270-013		X	X	X	X	Equipment Blank
CP-POE-1-020608	297270-014		X	X	X	X	Not on COC
WP-MW-21-020708	297405-001				X	X	
WP-MW-30-020708	297405-002				X	X	VOC MS/MSD
WP-MW-22-020708	297405-003				X	X	VOC MS/MSD
WP-RDW-17-020708	297405-004				X	X	
WP-MW-28-020708	297405-005				X	X	
WP-RDW-15-020708	297405-006				X	X	
WP-MW-27-020708	297405-007				X	X	
WP-RW-16-020708	297405-008				X	X	
WP-MW-26-020708	297405-009				X	X	
WP-MW-20-020708	297405-010				X	X	
WP-MW-23-020708	297405-011				X	X	
WP-MW-18-020708	297405-012				X	X	
WP-EB-020708	297405-013				X	X	Equipment Blank
WP-MW-35-020808	297405-014				X	X	
WP-MW-25-020808	297405-015				X	X	VOC MS/MSD
WP-RW-25-020808	297405-016				X	X	
WP-MW-36-020808	297405-017				X	X	
WP-MW-37-020808	297405-018				X	X	
WP-MW-38-020808	297405-019				X	X	
WP-DUP-020808	297405-020				X	X	Field duplicate of WP-MW-38-020808
WP-FB-020808	297405-021				X	X	Field Blank
WP-EB-020808	297405-022				X	X	Equipment Blank; VOC MS/MSD
WP-TB-020808	297405-023				X	X	Trip Blank
WP-MW-38-COMP	297405-024	X	X		X		
WP-Soil Pile-Comp	297568-001	X	X		X		

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
CP-MW-38-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-R1-1-14-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-R1-1-15-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-MW-39-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-POE-2-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-AMP-1-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-AMP-2-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-MW-36-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-DUP-1-020608	Acetone	JL	LCS recoveries less than quality control limits
CP-AMP-1-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-AMP-1-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-AMP-1-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-AMP-1-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-AMP-1-020608	Naphthalene	U	Analyte detected in quality control blank
CP-AMP-1-020608	Toluene	U	Analyte detected in quality control blank
CP-AMP-2-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-AMP-2-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-AMP-2-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-AMP-3-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-AMP-3-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-AMP-3-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-AMP-3-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-AMP-3-020608	Naphthalene	U	Analyte detected in quality control blank
CP-AMP-3-020608	Toluene	U	Analyte detected in quality control blank
CP-DUP-1-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-DUP-1-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-DUP-1-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-DUP-1-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-DUP-1-020608	Naphthalene	U	Analyte detected in quality control blank
CP-DUP-1-020608	Toluene	U	Analyte detected in quality control blank
CP-EB-1-020608	Acid SVOCs	R	Surrogate recovery less than 10%
CP-EB-1-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-EB-1-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-EB-2-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-EB-2-020708	Aniline	JL	LCS recoveries less than quality control limits
CP-EB-2-020708	Pyridine	JL	LCS recoveries less than quality control limits
CP-FB-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-FB-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-FB-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-35-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-MW-35-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-MW-35-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
CP-MW-35-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-36-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-MW-36-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-MW-36-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-MW-36-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-36-020608	Toluene	U	Analyte detected in quality control blank
CP-MW-37-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-MW-37-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-MW-37-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-MW-37-020508	Lead	U	Analyte detected in quality control blank
CP-MW-37-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-37-020508	Toluene	U	Analyte detected in quality control blank
CP-MW-38-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-MW-38-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-MW-38-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-MW-38-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-38-020608	Tetrachloroethene	U	Analyte detected in quality control blank
CP-MW-38-020608	Toluene	U	Analyte detected in quality control blank
CP-MW-39-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-MW-39-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-MW-39-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-MW-39-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-39-020608	Toluene	U	Analyte detected in quality control blank
CP-MW-41-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-MW-41-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-MW-41-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-MW-41-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-MW-41-020508	Toluene	U	Analyte detected in quality control blank
CP-MW-41-020508	Tetrachloroethene	U	Analyte detected in quality control blank
CP-POE-1-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-POE-1-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-POE-1-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-POE-2-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-POE-2-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-POE-2-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-POE-2-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-POE-2-020608	Toluene	U	Analyte detected in quality control blank
CP-R1-1-14-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-R1-1-14-020608	Aniline	JL	LCS recoveries less than quality control limits
CP-R1-1-14-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-R1-1-14-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-R1-1-15-020608	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-R1-1-15-020608	Aniline	JL	LCS recoveries less than quality control limits

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
CP-R1-1-15-020608	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-R1-1-15-020608	Pyridine	JL	LCS recoveries less than quality control limits
CP-R1-1-15-020608	Toluene	U	Analyte detected in quality control blank
CP-RI-1-17-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-RI-1-17-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-RI-1-17-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-RI-1-17-020508	Lead	U	Analyte detected in quality control blank
CP-RI-1-17-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-RI-1-17-020508	Toluene	U	Analyte detected in quality control blank
CP-RI-1-17-020508	Acetone	JL	MS/MSD recoveries less than quality control limits
CP-RI-1-18-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-RI-1-18-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-RI-1-18-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-RI-1-18-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-RI-1-18-020508	Toluene	U	Analyte detected in quality control blank
CP-RI-3-01-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-RI-3-01-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-RI-3-01-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-RI-3-01-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-RI-3-01-020508	Toluene	U	Analyte detected in quality control blank
CP-RI-3-02-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-RI-3-02-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-RI-3-02-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-RI-3-02-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-RI-3-02-020508	Toluene	U	Analyte detected in quality control blank
CP-RI-3-03-020508	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
CP-RI-3-03-020508	Aniline	JL	LCS recoveries less than quality control limits
CP-RI-3-03-020508	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
CP-RI-3-03-020508	Pyridine	JL	LCS recoveries less than quality control limits
CP-RI-3-03-020508	Acetone	JL	MS/MSD recoveries less than quality control limits
CP-RI-3-03-020508	Toluene	U	Analyte detected in quality control blank
WP-DUP-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-DUP-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-DUP-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-DUP-020808	cis-1,2-Dichloroethene	U	Analyte detected in quality control blank
WP-DUP-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-DUP-020808	Tetrachloroethene	U	Analyte detected in quality control blank
WP-DUP-020808	Vinyl chloride	U	Analyte detected in quality control blank
WP-EB-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-EB-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-EB-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-EB-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-EB-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
WP-EB-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-FB-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-FB-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-FB-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-Fence-Dup-1-020408	Vinyl chloride	U	Analyte detected in quality control blank
WP-Fence-MW-29-020408	Cis-1,2-Dichloroethene	U	Analyte detected in quality control blank
WP-Fence-MW-29-020408	Vinyl chloride	U	Analyte detected in quality control blank
WP-Fence-MW-33-020508	Cis-1,2-Dichloroethene	U	Analyte detected in quality control blank
WP-Fence-MW-33-020508	Vinyl chloride	U	Analyte detected in quality control blank
WP-MW-18-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-18-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-18-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-18-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-18-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-20-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-20-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-20-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-20-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-21-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-21-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-21-020708	Ethylbenzene	U	Analyte detected in quality control blank
WP-MW-21-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-21-020708	Isopropylbenzene	U	Analyte detected in quality control blank
WP-MW-21-020708	m,p-Xylenes	U	Analyte detected in quality control blank
WP-MW-21-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-21-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-22-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-22-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-22-020708	Benzene	U	Analyte detected in quality control blank
WP-MW-22-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-22-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-22-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-23-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-23-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-23-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-23-020708	m,p-Xylenes	U	Analyte detected in quality control blank
WP-MW-23-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-23-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-25-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-25-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-25-020808	Benzene	U	Analyte detected in quality control blank
WP-MW-25-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-25-020808	cis-1,2-Dichloroethene	U	Analyte detected in quality control blank

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
WP-MW-25-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-25-020808	Tetrachloroethene	U	Analyte detected in quality control blank
WP-MW-25-020808	Toluene	U	Analyte detected in quality control blank
WP-MW-25-020808	Trichloroethene	U	Analyte detected in quality control blank
WP-MW-26-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-26-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-26-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-26-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-26-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-26-020708	Benzene	U	Analyte detected in quality control blank
WP-MW-26-020708	m,p-Xylenes	U	Analyte detected in quality control blank
WP-MW-27-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-27-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-27-020708	Benzene	U	Analyte detected in quality control blank
WP-MW-27-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-27-020708	Ethylbenzene	U	Analyte detected in quality control blank
WP-MW-27-020708	Isopropylbenzene	U	Analyte detected in quality control blank
WP-MW-27-020708	m,p-Xylenes	U	Analyte detected in quality control blank
WP-MW-27-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-27-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-28-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-28-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-28-020708	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-28-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-28-020708	Toluene	U	Analyte detected in quality control blank
WP-MW-30-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-30-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-30-020708	Benzene	U	Analyte detected in quality control blank
WP-MW-30-020708	Bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-30-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-35-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-35-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-35-020808	Benzene	U	Analyte detected in quality control blank
WP-MW-35-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-35-020808	cis-1,2-Dichloroethene	U	Analyte detected in quality control blank
WP-MW-35-020808	Isopropylbenzene	U	Analyte detected in quality control blank
WP-MW-35-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-35-020808	Toluene	U	Analyte detected in quality control blank
WP-MW-35-020808	Trichloroethene	U	Analyte detected in quality control blank
WP-MW-36-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-36-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-36-020808	Benzene	U	Analyte detected in quality control blank
WP-MW-36-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
WP-MW-36-020808	cis-1,2-Dichloroethene	U	Analyte detected in quality control blank
WP-MW-36-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-36-020808	Toluene	U	Analyte detected in quality control blank
WP-MW-36-020808	Trichloroethene	U	Analyte detected in quality control blank
WP-MW-37-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-37-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-37-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-37-020808	Isopropylbenzene	U	Analyte detected in quality control blank
WP-MW-37-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-38-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-MW-38-020808	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-MW-38-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-MW-38-020808	cis-1,2-Dichloroethene	U	Analyte detected in quality control blank
WP-MW-38-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-MW-38-020808	Tetrachloroethene	U	Analyte detected in quality control blank
WP-MW-38-020808	Trichloroethene	U	Analyte detected in quality control blank
WP-MW-38-020808	Vinyl chloride	U	Analyte detected in quality control blank
WP-RDW-15-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-RDW-15-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-RDW-15-020708	Bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-RDW-15-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-RDW-16-020708	Bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-RDW-17-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-RDW-17-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-RDW-17-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-RW-16-020708	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-RW-16-020708	Acid SVOCs	JL	Surrogate recoveries less than quality control limits
WP-RW-16-020708	Pyridine	JL	LCS recovery less than quality control limits
WP-RW-25-020808	4-Chloroaniline	JL	LCS recovery less than quality control limits
WP-RW-25-020808	SVOCs	JL	Surrogate recoveries less than quality control limits
WP-RW-25-020808	bis(2-Ethylhexyl)phthalate	U	Analyte detected in quality control blank
WP-RW-25-020808	Isopropylbenzene	U	Analyte detected in quality control blank
WP-RW-25-020808	Pyridine	JL	LCS recovery less than quality control limits
WP-RW-25-020808	SVOCs	JL	LCS recoveries less than control limits
WP-RW-25-020808	Toluene	U	Analyte detected in quality control blank
WP-Soil Pile-Comp	Toluene	U	Analyte detected in quality control blank

Acid SVOCs are: benzoic acid, 4-chloro-3-methylphenol, 2-chlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, 2-methylphenol, 3&4-methylphenol, 2-nitrophenol, 4-nitrophenol, pentachlorophenol, phenol, 2,4,6-trichlorophenol, and 2,4,5-trichlorophenol.

J – Estimated data; the reported quantitation limit or sample concentration is approximated due to exceedance of one or more QC requirements.

L – Bias in sample result likely to be low.

H – Bias in sample result likely to be high.

R – Rejected; date are unusable due to failure of one or more quality control criteria.

U – Analyte not detected at associated quality control blank.

Table 3

Quality Control Blank Detections

Sample	Analyte	Blank Concentration	Qualified Concentration	Comment
504485- BLK	Toluene	0.002	0.020	
504490-BLK	Toluene	0.002	0.020	
504506-BLK	C6-C12 Gasoline Range Hydrocarbons	24.5	122	
504506-BLK	C28-C35 Oil Range Hydrocarbons	21.7	108	
504513-BLK	Lead	0.004	0.020	
504540-BLK	Toluene	0.002	0.020	
504563- BLK	Toluene	0.002	0.020	
504638- BLK	Toluene	0.001	0.010	
504676-BLK	bis(2-Ethylhexyl) phthalate	0.001	0.010	
504769-BLK	Toluene	0.002	0.020	
504811-BLK	Toluene	0.002	0.020	
504823-BLK	Toluene	0.005	0.050	
504896-BLK	Toluene	0.002	0.020	
CP-EB-1-020608	bis(2-Ethylhexyl)phthalate	0.002	0.020	
CP-EB-1-020608	cis-1,2-Dichloroethene	0.001	0.005	
CP-EB-1-020608	Naphthalene	0.006	0.030	
CP-EB-1-020608	Tetrachloroethene	0.002	0.010	
CP-EB-1-020608	Toluene	0.001	0.010	
CP-EB-2-020708	Toluene	0.001	0.010	
CP-FB-020608	Toluene	0.001	0.010	
CP-TB-1-020608	Toluene	0.001	0.010	
WP-EB-020708	Benzene	0.002	0.010	
WP-EB-020708	bis(2-Ethylhexyl)phthalate	0.006	0.060	
WP-EB-020708	Ethylbenzene	0.001	0.005	
WP-EB-020708	Isopropylbenzene	0.003	0.015	
WP-EB-020708	m,p-Xylenes	0.014	0.070	
WP-EB-020708	Toluene	0.002	0.020	
WP-EB-020808	Benzene	0.002	0.010	
WP-EB-020808	bis(2-Ethylhexyl) phthalate	0.005	0.050	
WP-EB-020808	cis-1,2-Dichloroethene	0.023	0.115	
WP-EB-020808	Isopropylbenzene	0.003	0.015	
WP-EB-020808	Tetrachloroethene	0.002	0.020	
WP-EB-020808	Toluene	0.001	0.010	
WP-EB-020808	Trichloroethene	0.002	0.010	
WP-EB-020808	Vinyl chloride	0.004	0.020	
WP-FB-020808	Benzyl butyl phthalate	0.002	0.020	
WP-FB-020808	bis(2-Ethylhexyl) phthalate	0.010	0.100	
WP-Fence-EB-020508	Cis-1,2-Dichloroethene	0.002	0.010	
WP-Fence-EB-020508	Vinyl chloride	0.001	0.005	
WP-Fence-TB-020508	Vinyl chloride	0.001	0.005	

Table 4

Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery	Precision	Qualification
504361-BKS	Aniline	44	34	26	JL
504361-BKS	Phenol	54	54	0	JL
504361-BKS	Pyridine	50	42	17	JL
504428-BKS	2,4-D	155	125	21	None; average 140%R
504467-BKS	4-Chloroaniline	48	36	29	JL
504467-BKS	Benzoic acid	31	37	16	JL
504467-BKS	Phenol	48	46	4	JL
504467-BKS	Pyridine	50	46	8	JL
504467-BKS	3,3'-Dichlorobenzidine	82	52	46	None; average > 60%R
504467-BKS	Aniline	78	54	36	None; average > 60%R
504540-BKS	Chloromethane	146	NA	NA	None; analyte not detected
504563-BKS	Chloromethane	172	NA	NA	None; analyte not detected
504563-BKS	Dichlorodifluoromethane	158	NA	NA	None; analyte not detected
504609-BKS	Chloromethane	142	NA	NA	None; analyte not detected
504676-BKS	Benzoic acid	47	49	6	JL
504676-BKS	3,3'-Dichlorobenzidine	44	36	20	JL
504676-BKS	2,4-Dimethylphenol	56	40	33	JL
504676-BKS	Phenol	46	46	0	JL
504891-BKS	Chloromethane	150	NA	NA	None; analyte not detected
504540-BKS	Acetone	55	NA	NA	JL
504668-BKS	Acetone	51	NA	NA	JL
504678-BKS	Acetone	59	NA	NA	JL
CP-AMP-1-020608	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
CP-AMP-1-020608	Phenol-d6 (SVOC Surrogate)	24	NA	NA	JL Acid SVOCs
CP-AMP-2-020608	2-Fluorophenol (SVOC Surrogate)	50	NA	NA	JL Acid SVOCs
CP-AMP-2-020608	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
CP-AMP-3-020608	2-Fluorophenol (SVOC Surrogate)	54	NA	NA	JL Acid SVOCs
CP-AMP-3-020608	Phenol-d6 (SVOC Surrogate)	30	NA	NA	JL Acid SVOCs
CP-DUP-1-020608	2-Fluorophenol (SVOC Surrogate)	42	NA	NA	JL Acid SVOCs
CP-DUP-1-020608	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
CP-EB-1-020608	2,4,6-Tribromophenol (SVOC Surrogate)	0	NA	NA	R Acid SVOCs
CP-EB-1-020608	2-Fluorophenol (SVOC Surrogate)	10	NA	NA	R Acid SVOCs
CP-EB-1-020608	Phenol-d6 (SVOC Surrogate)	12	NA	NA	R Acid SVOCs

Table 4

Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery	Precision	Qualification
CP-EB-2-020708	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
CP-EB-2-020708	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
CP-FB-020608	2-Fluorophenol (SVOC Surrogate)	50	NA	NA	JL Acid SVOCs
CP-FB-020608	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
CP-MW-35-020508	2-Fluorophenol (SVOC Surrogate)	36	NA	NA	JL Acid SVOCs
CP-MW-35-020508	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
CP-MW-35-020508	All SVOC surrogates	NA	NA	NA	None; sample diluted x100
CP-MW-36-020608	2-Fluorophenol (SVOC Surrogate)	48	NA	NA	JL Acid SVOCs
CP-MW-36-020608	Phenol-d6 (SVOC Surrogate)	28	NA	NA	JL Acid SVOCs
CP-MW-37-020508	2-Fluorophenol (SVOC Surrogate)	38	NA	NA	JL Acid SVOCs
CP-MW-37-020508	Phenol-d6 (SVOC Surrogate)	22	NA	NA	JL Acid SVOCs
CP-MW-38-020608	2-Fluorophenol (SVOC Surrogate)	46	NA	NA	JL Acid SVOCs
CP-MW-38-020608	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
CP-MW-39-020608	2-Fluorophenol (SVOC Surrogate)	48	NA	NA	JL Acid SVOCs
CP-MW-39-020608	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
CP-MW-41-020508	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
CP-MW-41-020508	Chloromethane	168	166	1	None; analyte not detected
CP-MW-41-020508	Dichlorodifluoromethane	152	134	13	None; analyte not detected
CP-MW-41-020508	Phenol-d6 (SVOC Surrogate)	22	NA	NA	JL Acid SVOCs
CP-POE-1-020608	2-Fluorophenol (SVOC Surrogate)	36	NA	NA	JL Acid SVOCs
CP-POE-1-020608	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
CP-POE-2-020608	2-Fluorophenol (SVOC Surrogate)	48	NA	NA	JL Acid SVOCs
CP-POE-2-020608	Phenol-d6 (SVOC Surrogate)	30	NA	NA	JL Acid SVOCs
CP-R1-1-14-020608	2-Fluorophenol (SVOC Surrogate)	48	NA	NA	JL Acid SVOCs
CP-R1-1-14-020608	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
CP-R1-1-15-020608	2-Fluorophenol (SVOC Surrogate)	50	NA	NA	JL Acid SVOCs

Table 4

Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery	Precision	Qualification
CP-R1-1-15-020608	Phenol-d6 (SVOC Surrogate)	28	NA	NA	JL Acid SVOCs
CP-RI-1-17-020508	2-Fluorophenol (SVOC Surrogate)	38	NA	NA	JL Acid SVOCs
CP-RI-1-17-020508	Phenol-d6 (SVOC Surrogate)	22	NA	NA	JL Acid SVOCs
CP-RI-1-17-020508	Acetone	58	50	23	JL
CP-RI-1-18-020508	2-Fluorophenol (SVOC Surrogate)	34	NA	NA	JL Acid SVOCs
CP-RI-1-18-020508	Phenol-d6 (SVOC Surrogate)	22	NA	NA	JL Acid SVOCs
CP-RI-3-01-020508	2-Fluorophenol (SVOC Surrogate)	36	NA	NA	JL Acid SVOCs
CP-RI-3-01-020508	Phenol-d6 (SVOC Surrogate)	22	NA	NA	JL Acid SVOCs
CP-RI-3-02-020508	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
CP-RI-3-02-020508	Phenol-d6 (SVOC Surrogate)	24	NA	NA	JL Acid SVOCs
CP-RI-3-03-020508	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
CP-RI-3-03-020508	Phenol-d6 (SVOC Surrogate)	24	NA	NA	JL Acid SVOCs
CP-RI-3-03-020508	Acetone	50	58	15	JL
WP-DUP-020808	2-Fluorophenol (SVOC Surrogate)	24	NA	NA	JL Acid SVOCs
WP-DUP-020808	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-DUP-020808	1,2-Dichloroethane (VOC Surrogate)	41	NA	NA	None; only one low
WP-DUP-020808	Nitrobenzene-d5 (SVOC Surrogate)	58	NA	NA	None; only one low
WP-EB-020708	2-Fluorophenol (SVOC Surrogate)	34	NA	NA	JL Acid SVOCs
WP-EB-020708	Phenol-d6 (SVOC Surrogate)	16	NA	NA	JL Acid SVOCs
WP-EB-020808	2-Fluorophenol (SVOC Surrogate)	34	NA	NA	JL Acid SVOCs
WP-EB-020808	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
WP-FB-020808	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
WP-FB-020808	Phenol-d6 (SVOC Surrogate)	22	NA	NA	JL Acid SVOCs
WP-Fence-MW-34-020508	Chloromethane	146	140	4	None; analyte not detected
WP-MW-18-020708	2-Fluorophenol (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
WP-MW-18-020708	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs

Table 4

Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery	Precision	Qualification
WP-MW-20-020708	2-Fluorophenol (SVOC Surrogate)	32	NA	NA	JL Acid SVOCs
WP-MW-20-020708	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-MW-21-020708	2-Fluorophenol (SVOC Surrogate)	34	NA	NA	JL Acid SVOCs
WP-MW-21-020708	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
WP-MW-22-020708	2-Fluorophenol (SVOC Surrogate)	36	NA	NA	JL Acid SVOCs
WP-MW-22-020708	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-MW-23-020708	2-Fluorophenol (SVOC Surrogate)	4	NA	NA	None; surrogate diluted out
WP-MW-23-020708	Phenol-d6 (SVOC Surrogate)	28	NA	NA	None; surrogate diluted out
WP-MW-23-020708	Nitrobenzene-d5 (SVOC Surrogate)	0	NA	NA	None; surrogate diluted out
WP-MW-23-020708	2,4,6-Tribromophenol (SVOC Surrogate)	16	NA	NA	None; surrogate diluted out
WP-MW-25-020808	2-Fluorophenol (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
WP-MW-25-020808	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-MW-25-020808	Isopropylbenzene	0	0	NC	None; sample concentration greater than 4x spike concentration
WP-MW-26-020708	2-Fluorophenol (SVOC Surrogate)	32	NA	NA	JL Acid SVOCs
WP-MW-26-020708	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-MW-27-020708	2-Fluorophenol (SVOC Surrogate)	38	NA	NA	JL Acid SVOCs
WP-MW-27-020708	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
WP-MW-28-020708	2-Fluorophenol (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
WP-MW-28-020708	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
WP-MW-30-020708	2-Fluorophenol (SVOC Surrogate)	34	NA	NA	JL Acid SVOCs
WP-MW-30-020708	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-MW-35-020808	2-Fluorophenol (SVOC Surrogate)	38	NA	NA	JL Acid SVOCs
WP-MW-35-020808	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
WP-MW-36-020808	2-Fluorophenol (SVOC Surrogate)	34	NA	NA	JL Acid SVOCs
WP-MW-36-020808	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs

Table 4

Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery	Precision	Qualification
WP-MW-37-020808	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
WP-MW-37-020808	Phenol-d6 (SVOC Surrogate)	26	NA	NA	JL Acid SVOCs
WP-MW-38-020808	2-Fluorophenol (SVOC Surrogate)	28	NA	NA	JL Acid SVOCs
WP-MW-38-020808	Phenol-d6 (SVOC Surrogate)	20	NA	NA	JL Acid SVOCs
WP-MW-38-020808	1,2-Dichloroethane-d4 (VOC Surrogate)	14	NA	NA	None; only one low
WP-RDW-15-020708	2-Fluorophenol (SVOC Surrogate)	36	NA	NA	JL Acid SVOCs
WP-RDW-15-020708	Phenol-d6 (SVOC Surrogate)	18	NA	NA	JL Acid SVOCs
WP-RDW-17-020708	2-Fluorophenol (SVOC Surrogate)	2	NA	NA	None; surrogate diluted out
WP-RDW-17-020708	Phenol-d6 (SVOC Surrogate)	0	NA	NA	None; surrogate diluted out
WP-RDW-17-020708	Nitrobenzene-d5 (SVOC Surrogate)	0	NA	NA	None; surrogate diluted out
WP-RDW-17-020708	2,4,6-Tribromophenol (SVOC Surrogate)	0	NA	NA	None; surrogate diluted out
WP-RW-16-020708	2-Fluorophenol (SVOC Surrogate)	40	NA	NA	JL Acid SVOCs
WP-RW-16-020708	Phenol-d6 (SVOC Surrogate)	24	NA	NA	JL Acid SVOCs
WP-RW-25-020808	2-Fluorophenol (SVOC Surrogate)	30	NA	NA	JL All
WP-RW-25-020808	Phenol-d6 (SVOC Surrogate)	4	NA	NA	JL All
WP-RW-25-020808	2-Fluorobiphenyl (SVOC Surrogate)	54	NA	NA	JL All
WP-RW-25-020808	Terphenyl-d14 (SVOC Surrogate)	58	NA	NA	JL All

Table 5

Field Duplicate Precision

Field Identification	Analyte	Sample Result	Duplicate Result	RPD[a]	Qualification
WP-Fence-MW-29-020408 / WP-Fence-Dup-1-020408	Benzene	0.008	0.008	0.00	A
	Chlorobenzene	0.143	0.15	4.78	A
	1,3-Dichlorobenzene	0.002	0.002	0.00	A
	1,4-Dichlorobenzene	0.006	0.006	0.00	A
	cis-1,2-Dichloroethene	0.002	0.002	0.00	A
	Vinyl chloride	0.001	< 0.0004	NA	A
CP-MW-36-020608 / CP-DUP-1-020608	2,4-D	0.098	0.108	9.7	A
	Lead	< 0.001	0.001	NA	A
	bis(2-Ethylhexyl)phthalate	0.003	0.002	40	A
	Naphthalene	0.003	0.002	40	A
	Phenanthrene	0.002	< 0.001	NA	A
	Benzene	0.051	0.065	24	A
	Chlorobenzene	0.001	0.001	0.0	A
	1,2-Dichloroethane	0.001	< 0.001	NA	A
	trans-1,2-Dichloroethene	0.02	0.019	5.1	A
	1,1-Dichloroethene	0.014	0.012	15	A
	Ethylbenzene	0.003	0.005	50	A
	Toluene	0.011	0.009	20	A
	Trichloroethene	5.69	6.49	13	A
	Tetrachloroethene	15.1	14.6	3.4	A
	Vinyl chloride	0.014	0.011	24	A
WP-MW-38-020808 / WP-DUP-020808	bis(2-Ethylhexyl)phthalate	0.202 U	0.288 U	35	A
	2,4-Dimethylphenol	0.04	0.044	10	A
	2-Methylnaphthalene	< 0.005	0.025	NA	A
	2-Methylphenol	0.12	0.128	6.5	A
	3&4-Methylphenol	1.5	1.59	5.8	A
	Naphthalene	0.258	0.326	23	A
	Phenol	0.143	< 0.010	NA	A
	Benzene	105	113	7.3	A
	MTBE	18.5	18.8	1.6	A
	n-Butylbenzene	0.003	0.002	40	A
	Chloroform	0.004	0.003	29	A
	p-Cymene (p-Isopropyltoluene)	0.003	0.003	0	A
	cis-1,2-Dichloroethene	0.02	0.015	29	A
	Ethylbenzene	8.77	9.02	2.8	A
	Isopropylbenzene	0.182	0.173	5.1	A
	Naphthalene	0.515	0.518	0.6	A
	n-Propylbenzene	0.073	0.069	5.6	A
	Toluene	28.5	29.6	3.8	A

Table 5

Field Duplicate Precision

Field Identification	Analyte	Sample Result	Duplicate Result	RPD[a]	Qualification
	Trichloroethene	0.001	< 0.001	NA	A
	1,2,4-Trimethylbenzene	0.294	0.279	5.2	A
	1,3,5-Trimethylbenzene	0.088	0.08	10	A
	o-Xylene	1.8	1.88	4.3	A
	m,p-Xylene	5.3	5.33	0.6	A
	Tetrachloroethene	0.002	0.002	0	A

[a] RPD = ((SR - DR)*200)/(SR + DR)
A - Acceptable Data
NA – Not Applicable

Attachment A Laboratory Data Package Cover Page

Project Name: **Kinder Morgan** Laboratory Number: **297184**

This Data package consists of :

- [x] This signature page, the laboratory review checklist, and the following reportable data:
- [x] R1 Field chain-of-custody documentation;
- [x] R2 Sample identification cross-reference;
- [x] R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
- [x] R4 Surrogate Recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
- [x] R5 Test reports/summary forms for blank samples;
- [x] R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
- [x] R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs) and
  e) The laboratory's MS/MSD QC limits
- [x] R8 Laboratory anaytical duplicate (if applicable) recovery and precision:
  a) the amount of analyte measured in the duplicate,
  b) the calculated RPD, and
  c) the laboratory's QC limits for analytical duplicates.
- [x] R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- [x] R10 Other problems or anomalies.
- [x] Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review check list.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, if applicable: [ ] This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Carlos A. Castro, Ph.D., MB		**Managing Director, Texas**	**02/26/08**
Name (Printed)	Signature	Official Title (printed)	Date

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO Laboratories	Report Date :	02/26/08
Project Name:	Kinder Morgan	Laboratory Job Number :	297184
Reviewer Name:	Paulalyn Kirtley	Batch Number(s) :	714255, 714638, 714305, 714569, 714502, 714683, 714315

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations subject to appropriate checks?	X				
		Were all analyte identifications subject to appropriate checks?	X				
		Were sample quantitation limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?		X			2
R6	OI	**Laboratory Control Samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		X			3
		Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQL ?	X				
		Was the LCSD RPD within the QC limits?		X			4
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			5
		Were MS/MSD RPDs within the laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method Quantitation Limits (MQLs)**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in the LRC and ER?	X				
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SQL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO Laboratories	Report Date :	02/26/08
Project Name:	Kinder Morgan	Laboratory Job Number :	297184
Reviewer Name:	Paulalyn Kirtley	Batch Number(s) :	714255, 714638, 714305, 714569, 714502, 714683, 714315

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and the highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	O	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC section 1 Appendix A glossary, and section 5.12 or ISO/IEC 17025 section)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		Was DOC concluded consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3. NA = Not applicable.
4. NR = Not reviewed.
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name: XENCO Laboratories	Report Date: 02/26/08
Project Name: Kinder Morgan	Laboratory Job Number: 297184
Reviewer Name: Paulalyn Kirtley	Batch Number(s): 714255, 714638, 714305, 714569, 714502, 714683, 714315

ER#	DESCRIPTION
1	SW8270C Batch 714569, Phenol-d6 recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 297184-007. 2,4,6-Tribromophenol, 2-Fluorophenol recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 297184-007,297184-009. SW8260B Batch 714502, 4-Bromofluorobenzene recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 297184-007.
2	SW6020 Batch 714638, Lead had a hit in the Method Blank above the MQL due to carry over from previous sample. Samples Affected: 297184-001, 002, 003, 004, 005, 006, 007, 008, 009
3	SW8260B Batch 714305, Chloromethane recovered above QC limits in the laboratory control sample. Samples affected are: 297184-001, -003, -002, -004. SW8270C Batch 714569, Aniline (Phenylamine, Aminobenzene) recovered below QC limits in the Blank Spike Duplicate. Samples affected are: 297184-006, -008, -001, -003, -005, -002, -007, -004, -009. SW8260B Batch 714502, Carbon Tetrachloride, Chloromethane, Dichlorodifluoromethane, Trichlorofluoromethane, isopropylbenzene recovered above QC limits in the laboratory control sample. Samples affected are: 297184-008, -010, -007, -009.
4	SW8270C Batch 714569, 3,3-Dichlorobenzidine, Aniline (Phenylamine, Aminobenzene) RPD was outside laboratory control limits. Samples affected are: 297184-006, -008, -001, -003, -005, -002, -007, -004, -009
5	SW8260B Batch 714305, Chloromethane recovered above QC limits in the Matrix Spike Duplicate. Samples affected are: 297184-001, -003, -002, -004. SW8260B Batch 714315, isopropylbenzene recovered above QC limits in the Matrix Spike Duplicate. Samples affected are: 297184-006, -005, -007. The Laboratory Control Sample for isopropylbenzene is within laboratory Control Limits SW8260B Batch 714683, Chloromethane recovered above QC limits in the Matrix Spike. Samples affected are: 297184-007. The Laboratory Control Sample for Chloromethane is within laboratory Control Limits SW8260B Batch 714502, Trichlorofluoromethane recovered above QC limits in the Matrix Spike. Chloromethane, Dichlorodifluoromethane recovered above QC limits in the Matrix Spike and Duplicate. 1,2-Dibromo-3-Chloropropane recovered above QC limits in the Matrix Spike Duplicate.

ER# [1]	DESCRIPTION
5	Samples affected are: 297184-008, -010, -007, -009. The Laboratory Control Sample for 1,2-Dibromo-3-Chloropropane is within laboratory Control Limits

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

Analytical Report 297184

for

URS Corporation

Project Manager: Johnny Kennedy

Kinder Morgan

09-JUL-08

E84880

4143 Greenbriar Dr., Stafford, TX 77477 Ph:(281) 240-4200 Fax:(281) 240-4280

Texas certification numbers:
Houston, TX T104704215

Florida certification numbers:
Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675
Norcross(Atlanta), GA E87429

South Carolina certification numbers:
Norcross(Atlanta), GA 98015

North Carolina certification numbers:
Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America
Midland - Corpus Christi - Atlanta

09-JUL-08

Project Manager: **Johnny Kennedy**
URS Corporation
9801 Westheimer
Suite 101
Houston, TX 77042

Reference: XENCO Report No: **297184**
Kinder Morgan
Project Address: Central Plant

Johnny Kennedy:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 297184. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 297184 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Carlos Castro

Managing Director, Texas

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY
Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CP-R1-3-02-020508	W	Feb-05-08 13:20	N/A	297184-001
CP-R1-3-03-020508	W	Feb-05-08 14:12	N/A	297184-002
CP-R1-3-01-020508	W	Feb-05-08 15:20	N/A	297184-003
CP-R1-1-18-020508	W	Feb-05-08 14:30	N/A	297184-004
CP-R1-1-17-020508	W	Feb-05-08 15:55	N/A	297184-005
CP-MW-37-020508	W	Feb-05-08 16:00	N/A	297184-006
CP-MW-35-020508	W	Feb-05-08 17:10	N/A	297184-007
CP-MW-41-020508	W	Feb-05-08 17:15	N/A	297184-008
CP-EB-1-020608	W	Feb-06-08 09:00	N/A	297184-009
CP-TB-020508	W	Feb-05-08 00:00	N/A	297184-010

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-R1-3-02-020508**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297184-001**	Date Collected: Feb-05-08 13:20	Date Received: Feb-06-08 10:55	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-08-08 22:32 Analyst: JLA Date Prep: Feb-07-08 17:18 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-07-08 20:18 Analyst: KHM Date Prep: Feb-07-08 14:22 Tech: KHM

Anal seq: 714305 Prep seq: 504485

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-12-08 18:21 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH

Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-3-02-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-001** Date Collected: Feb-05-08 13:20 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 19:03 Analyst: TTD Date Prep: Feb-07-08 10:21 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.005	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-3-03-020508** Matrix: WATER Sample Depth:
Lab Sample Id: **297184-002** Date Collected: Feb-05-08 14:12 Date Received: Feb-06-08 10:55

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-08-08 23:14 Analyst: JLA Date Prep: Feb-07-08 17:21 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.505	0.0520	0.053	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-07-08 18:30 Analyst: KHM Date Prep: Feb-07-08 18:00 Tech: KHM
Anal seq: 714305 Prep seq: 504485

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.003	0.005	0.005	0.0010	0.001	mg/L	J	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-12-08 18:25 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH
Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-3-03-020508**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297184-002**	Date Collected: Feb-05-08 14:12	Date Received: Feb-06-08 10:55	

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 19:48 Analyst: TTD Date Prep: Feb-07-08 10:23 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.006	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-R1-3-01-020508**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297184-003**	Date Collected: Feb-05-08 15:20	Date Received: Feb-06-08 10:55	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-08-08 23:55 Analyst: JLA Date Prep: Feb-07-08 17:24 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-07-08 20:39 Analyst: KHM Date Prep: Feb-07-08 14:24 Tech: KHM

Anal seq: 714305 Prep seq: 504485

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-12-08 18:44 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH

Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-3-01-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-003** Date Collected: Feb-05-08 15:20 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 20:34 Analyst: TTD Date Prep: Feb-07-08 10:25 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.008	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-1-18-020508** Matrix: WATER Sample Depth:
Lab Sample Id: **297184-004** Date Collected: Feb-05-08 14:30 Date Received: Feb-06-08 10:55

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 00:36 Analyst: JLA Date Prep: Feb-07-08 17:27 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-07-08 21:00 Analyst: KHM Date Prep: Feb-07-08 14:26 Tech: KHM
Anal seq: 714305 Prep seq: 504485

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-12-08 18:49 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH
Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-1-18-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-004** Date Collected: Feb-05-08 14:30 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 21:20 Analyst: TTD Date Prep: Feb-07-08 10:27 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.008	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **CP-R1-1-17-020508** Matrix: WATER Sample Depth:
Lab Sample Id: **297184-005** Date Collected: Feb-05-08 15:55 Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-08-08 14:06 Analyst: CYE Date Prep: Feb-08-08 13:16 Tech: CYE
Anal seq: 714315 Prep seq: 504490

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 01:18 Analyst: JLA Date Prep: Feb-07-08 17:30 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.510	0.0520	0.053	ug/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-12-08 18:54 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH
Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.002	0.002	0.002	0.0010	0.001	mg/L	JB	1

Sample Id: **CP-R1-1-17-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-005** Date Collected: Feb-05-08 15:55 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 22:07 Analyst: TTD Date Prep: Feb-07-08 10:29 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.013	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **CP-MW-37-020508** Matrix: WATER Sample Depth:
Lab Sample Id: **297184-006** Date Collected: Feb-05-08 16:00 Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-08-08 16:39 Analyst: CYE Date Prep: Feb-08-08 15:44 Tech: CYE
Anal seq: 714315 Prep seq: 504490

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.014	0.005	0.005	0.0010	0.001	mg/L		1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.004	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 01:59 Analyst: JLA Date Prep: Feb-07-08 17:33 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.313	1.00	0.515	0.0520	0.054	ug/L	J	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-12-08 18:58 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH
Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.001	0.002	0.002	0.0010	0.001	mg/L	JB	1

Sample Id: **CP-MW-37-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-006** Date Collected: Feb-05-08 16:00 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 19:36 Analyst: TTD Date Prep: Feb-07-08 10:31 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.005	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-35-020508** Matrix: WATER Sample Depth:
Lab Sample Id: **297184-007** Date Collected: Feb-05-08 17:10 Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-08-08 17:00 Analyst: CYE Date Prep: Feb-08-08 15:45 Tech: CYE
Anal seq: 714315 Prep seq: 504490

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.497	0.005	0.050	0.0010	0.010	mg/L	D	10
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	0.181	0.005	0.050	0.0010	0.010	mg/L	D	10
trans-1,2-dichloroethene	156-60-5	0.594	0.005	0.050	0.0010	0.010	mg/L	D	10
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	0.112	0.005	0.005	0.0010	0.001	mg/L		1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	1.74	0.005	0.500	0.0010	0.100	mg/L	D	100
Toluene	108-88-3	0.499	0.005	0.050	0.0010	0.010	mg/L	D	10
Trichloroethene	79-01-6	8.91	0.005	0.500	0.0010	0.100	mg/L	D	100
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	0.070	0.005	0.005	0.0010	0.001	mg/L		1
m,p-Xylenes	179601-23-1	0.163	0.010	0.010	0.0020	0.002	mg/L		1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	0.891	0.002	0.020	0.0004	0.004	mg/L	D	10

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 02:41 Analyst: JLA Date Prep: Feb-07-08 17:36 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.074	1.00	0.500	0.0520	0.052	ug/L	J	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-12-08 19:03 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH
Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-MW-35-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-007** Date Collected: Feb-05-08 17:10 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 10:30 Analyst: TTD Date Prep: Feb-07-08 10:33 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	0.285	0.005	0.050	0.0010	0.010	mg/L		10
Acenaphthylene	208-96-8	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.200	0.0010	0.010	mg/L	U	10
Anthracene	120-12-7	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzo(a)anthracene	56-55-3	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzo(a)pyrene	50-32-8	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzo(b)fluoranthene	205-99-2	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzo(k)fluoranthene	207-08-9	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Benzyl Alcohol	100-51-6	U	0.010	0.100	0.0010	0.010	mg/L	U	10
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.100	0.0010	0.010	mg/L	U	10
bis(2-ethylhexyl) phthalate	117-81-7	0.012	0.005	0.050	0.0010	0.010	mg/L	J	10
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.100	0.0010	0.010	mg/L	U	10
di-n-Butyl Phthalate	84-74-2	U	0.005	0.050	0.0026	0.026	mg/L	U	10
Chrysene	218-01-9	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Dibenzofuran	132-64-9	0.142	0.010	0.100	0.0010	0.010	mg/L		10
1,2-Dichlorobenzene	95-50-1	U	0.010	0.100	0.0010	0.010	mg/L	U	10
2,4-Dichlorophenol	120-83-2	U	0.010	0.100	0.0010	0.010	mg/L	U	10
2,4-Dimethylphenol	105-67-9	U	0.010	0.100	0.0011	0.011	mg/L	U	10
Fluoranthene	206-44-0	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Fluorene	86-73-7	0.093	0.005	0.050	0.0010	0.010	mg/L		10
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.050	0.0010	0.010	mg/L	U	10
2-Methylnaphthalene	91-57-6	0.501	0.005	0.050	0.0011	0.011	mg/L		10
2-methylphenol	95-48-7	U	0.010	0.100	0.0013	0.013	mg/L	U	10
3&4-Methylphenol		U	0.010	0.100	0.0015	0.015	mg/L	U	10
Naphthalene	91-20-3	4.27	0.005	0.500	0.0010	0.100	mg/L	D	100
di-n-Octyl Phthalate	117-84-0	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Phenanthrene	85-01-8	0.070	0.005	0.050	0.0012	0.012	mg/L		10
Phenol	108-95-2	U	0.010	0.100	0.0010	0.010	mg/L	U	10
Pyrene	129-00-0	U	0.005	0.050	0.0010	0.010	mg/L	U	10
Pyridine	110-86-1	U	0.010	0.100	0.0035	0.035	mg/L	U	10
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.100	0.0010	0.010	mg/L	U	10

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-41-020508**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297184-008**	Date Collected: Feb-05-08 17:15	Date Received: Feb-06-08 10:55	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-09-08 04:45 Analyst: JLA Date Prep: Feb-07-08 17:39 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.065	1.00	0.515	0.0520	0.054	ug/L	J	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-12-08 19:08 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH

Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-MW-41-020508** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-008** Date Collected: Feb-05-08 17:15 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 21:11 Analyst: TTD Date Prep: Feb-07-08 10:35 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	0.002	0.005	0.005	0.0011	0.001	mg/L	J	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.008	0.005	0.005	0.0010	0.001	mg/L		1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-41-020508**	Matrix: WATER	Sample Depth:
Lab Sample Id: **297184-008**	Date Collected: Feb-05-08 17:15	Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 12:49 Analyst: WEW Date Prep: Feb-11-08 12:02 Tech: WEW

Anal seq: 714502 Prep seq: 504563

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.058	0.005	0.005	0.0010	0.001	mg/L		1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-EB-1-020608**	Matrix: WATER	Sample Depth:
Lab Sample Id: **297184-009**	Date Collected: Feb-06-08 09:00	Date Received: Feb-06-08 10:55

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-09-08 05:26 Analyst: JLA Date Prep: Feb-07-08 17:42 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-12-08 19:13 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH

Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-EB-1-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297184-009** Date Collected: Feb-06-08 09:00 Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 15:30 Analyst: TTD Date Prep: Feb-07-08 10:37 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Acenaphthylene	208-96-8	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.040	0.0010	0.002	mg/L	U	2
Anthracene	120-12-7	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzo(a)anthracene	56-55-3	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzo(a)pyrene	50-32-8	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzo(b)fluoranthene	205-99-2	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzo(k)fluoranthene	207-08-9	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Benzyl Alcohol	100-51-6	U	0.010	0.020	0.0010	0.002	mg/L	U	2
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.020	0.0010	0.002	mg/L	U	2
bis(2-ethylhexyl) phthalate	117-81-7	0.002	0.005	0.010	0.0010	0.002	mg/L	J	2
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.020	0.0010	0.002	mg/L	U	2
di-n-Butyl Phthalate	84-74-2	U	0.005	0.010	0.0026	0.005	mg/L	U	2
Chrysene	218-01-9	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Dibenzofuran	132-64-9	U	0.010	0.020	0.0010	0.002	mg/L	U	2
1,2-Dichlorobenzene	95-50-1	U	0.010	0.020	0.0010	0.002	mg/L	U	2
2,4-Dichlorophenol	120-83-2	U	0.010	0.020	0.0010	0.002	mg/L	U	2
2,4-Dimethylphenol	105-67-9	U	0.010	0.020	0.0011	0.002	mg/L	U	2
Fluoranthene	206-44-0	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Fluorene	86-73-7	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.010	0.0010	0.002	mg/L	U	2
2-Methylnaphthalene	91-57-6	U	0.005	0.010	0.0011	0.002	mg/L	U	2
2-methylphenol	95-48-7	U	0.010	0.020	0.0013	0.003	mg/L	U	2
3&4-Methylphenol		U	0.010	0.020	0.0015	0.003	mg/L	U	2
Naphthalene	91-20-3	U	0.005	0.010	0.0010	0.002	mg/L	U	2
di-n-Octyl Phthalate	117-84-0	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Phenanthrene	85-01-8	U	0.005	0.010	0.0012	0.002	mg/L	U	2
Phenol	108-95-2	U	0.010	0.020	0.0010	0.002	mg/L	U	2
Pyrene	129-00-0	U	0.005	0.010	0.0010	0.002	mg/L	U	2
Pyridine	110-86-1	U	0.010	0.020	0.0035	0.007	mg/L	U	2
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.020	0.0010	0.002	mg/L	U	2

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-EB-1-020608**	Matrix: WATER	Sample Depth:
Lab Sample Id: **297184-009**	Date Collected: Feb-06-08 09:00	Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 14:17 Analyst: WEW Date Prep: Feb-11-08 12:08 Tech: WEW

Anal seq: 714502 Prep seq: 504563

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **CP-TB-020508**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297184-010**	Date Collected: Feb-05-08 00:00	Date Received: Feb-06-08 10:55	

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 14:39 Analyst: WEW Date Prep: Feb-11-08 12:10 Tech: WEW

Anal seq: 714502 Prep seq: 504563

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504361-1-BLK** Matrix: WATER Sample Depth:

Lab Sample Id: **504361-1-BLK** Date Collected: Date Received: Feb-06-08 10:55

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 16:44 Analyst: TTD Date Prep: Feb-07-08 10:15 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1

Sample Id: **504428-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504428-1-BLK** Date Collected: Date Received: Feb-06-08 10:55

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-08-08 18:24 Analyst: JLA Date Prep: Feb-07-08 17:00 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Sample Id: **504485-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504485-1-BLK** Date Collected: Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-07-08 11:16 Analyst: KHM Date Prep: Feb-07-08 09:10 Tech: KHM
Anal seq: 714305 Prep seq: 504485

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504490-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504490-1-BLK** Date Collected: Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-08-08 12:39 Analyst: CYE Date Prep: Feb-08-08 10:28 Tech: CYE

Anal seq: 714315 Prep seq: 504490

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504513-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504513-1-BLK** Date Collected: Date Received: Feb-06-08 10:55

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-12-08 17:43 Analyst: MCH Date Prep: Feb-12-08 10:15 Tech: MCH

Anal seq: 714638 Prep seq: 504513

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.004	0.002	0.002	0.0010	0.001	mg/L		1

Certificate of Analytical Results 297184

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **504563-1-BLK**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **504563-1-BLK**	Date Collected:	Date Received: Feb-06-08 10:55	

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 12:27 Analyst: WEW Date Prep: Feb-11-08 08:38 Tech: WEW

Anal seq: 714502 Prep seq: 504563

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504668-1-BLK** Matrix: WATER Sample Depth:

Lab Sample Id: **504668-1-BLK** Date Collected: Date Received: Feb-06-08 10:55

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-12-08 14:54 Analyst: WEW Date Prep: Feb-12-08 13:32 Tech: WEW

Anal seq: 714683 Prep seq: 504668

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : Total Metals by SW6020A

Client : URS Corporation

Work Order #: 297184

Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-MW-37-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-R1-3-02-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-MW-35-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-R1-1-18-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-MW-41-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-R1-3-03-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-R1-1-17-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-R1-3-01-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 12, 2008	180	7	Feb.12, 2008	180	0	P
CP-EB-1-020608	Feb. 6, 2008	Feb. 6, 2008	Feb. 12, 2008	180	6	Feb.12, 2008	180	0	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : Chlorinated Herbicides by EPA 8151A Client : URS Corporation

Work Order #: 297184 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-MW-41-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.9, 2008	7	2	P
CP-EB-1-020608	Feb. 6, 2008	Feb. 6, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-R1-3-03-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.8, 2008	7	1	P
CP-R1-3-02-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.8, 2008	7	1	P
CP-R1-1-18-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.9, 2008	7	2	P
CP-R1-3-01-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.8, 2008	7	1	P
CP-MW-35-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.9, 2008	7	2	P
CP-MW-37-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.9, 2008	7	2	P
CP-R1-1-17-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.9, 2008	7	2	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : VOAs by SW-846 8260B

Client : URS Corporation

Work Order #: 297184

Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-R1-3-03-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.7, 2008	14	2	P
CP-R1-3-02-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.7, 2008	14	2	P
CP-TB-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.11, 2008	14	6	P
CP-MW-37-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.8, 2008	14	3	P
CP-MW-35-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.8, 2008	14	3	P
CP-R1-1-18-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.7, 2008	14	2	P
CP-R1-3-01-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.7, 2008	14	2	P
CP-MW-41-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.11, 2008	14	6	P
CP-EB-1-020608	Feb. 6, 2008	Feb. 6, 2008				Feb.11, 2008	14	5	P
CP-R1-1-17-020508	Feb. 5, 2008	Feb. 6, 2008				Feb.8, 2008	14	3	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : SVOAs by EPA 8270C Client : URS Corporation

Work Order #: 297184 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-MW-37-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.11, 2008	40	4	P
CP-R1-1-17-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.7, 2008	40	0	P
CP-R1-3-02-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.7, 2008	40	0	P
CP-MW-41-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.11, 2008	40	4	P
CP-R1-3-03-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.7, 2008	40	0	P
CP-MW-35-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.11, 2008	40	4	P
CP-EB-1-020608	Feb. 6, 2008	Feb. 6, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-R1-3-01-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.7, 2008	40	0	P
CP-R1-1-18-020508	Feb. 5, 2008	Feb. 6, 2008	Feb. 7, 2008	7	2	Feb.7, 2008	40	0	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL(PQL) and above the SQL(MDL).

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

* Outside XENCO'S scope of NELAC Accreditation

Analytical Log

Analytical Method:	Chlorinated Herbicides by EPA 8151A	Batch #:	714255
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-EB-1-020608	297184-009	SMP
CP-MW-35-020508	297184-007	SMP
CP-MW-37-020508	297184-006	SMP
CP-MW-41-020508	297184-008	SMP
CP-R1-1-17-020508	297184-005	SMP
CP-R1-1-18-020508	297184-004	SMP
CP-R1-3-01-020508	297184-003	SMP
CP-R1-3-02-020508	297184-001	SMP
CP-R1-3-03-020508	297184-002	SMP
	504428-1-BKS	BKS
	504428-1-BLK	BLK
	504428-1-BSD	BSD

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714305
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-R1-1-18-020508	297184-004	SMP
CP-R1-3-01-020508	297184-003	SMP
CP-R1-3-02-020508	297184-001	SMP
CP-R1-3-03-020508	297184-002	SMP
	297184-002 S	MS
	297184-002 SD	MSD
	504485-1-BKS	BKS
	504485-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714315
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-MW-35-020508	297184-007	SMP
CP-MW-37-020508	297184-006	SMP
CP-R1-1-17-020508	297184-005	SMP
	297184-005 S	MS
	297184-005 SD	MSD
	504490-1-BKS	BKS
	504490-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714502
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-EB-1-020608	297184-009	SMP
CP-MW-35-020508 DL	297184-007	DL
CP-MW-41-020508	297184-008	SMP
CP-TB-020508	297184-010	SMP
	297184-008 S	MS
	297184-008 SD	MSD
	504563-1-BKS	BKS
	504563-1-BLK	BLK

Analytical Log

Analytical Method:	SVOAs by EPA 8270C	Batch #:	714569
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-EB-1-020608	297184-009	SMP
CP-MW-35-020508	297184-007	SMP
CP-MW-35-020508 DL	297184-007	DL
CP-MW-37-020508	297184-006	SMP
CP-MW-41-020508	297184-008	SMP
CP-R1-1-17-020508	297184-005	SMP
CP-R1-1-18-020508	297184-004	SMP
CP-R1-3-01-020508	297184-003	SMP
CP-R1-3-02-020508	297184-001	SMP
CP-R1-3-03-020508	297184-002	SMP
	504361-1-BKS	BKS
	504361-1-BLK	BLK
	504361-1-BSD	BSD

Analytical Log

Analytical Method:	Total Metals by SW6020A	Batch #:	714638
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-EB-1-020608	297184-009	SMP
CP-MW-35-020508	297184-007	SMP
CP-MW-37-020508	297184-006	SMP
CP-MW-41-020508	297184-008	SMP
CP-R1-1-17-020508	297184-005	SMP
CP-R1-1-18-020508	297184-004	SMP
CP-R1-3-01-020508	297184-003	SMP
CP-R1-3-02-020508	297184-001	SMP
CP-R1-3-03-020508	297184-002	SMP
	296853-004 D	MD
	296853-004 S	MS
	296853-004 SD	MSD
	504513-1-BKS	BKS
	504513-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714683
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297184

Client Sample Id	Lab Sample Id	QC Types
CP-MW-35-020508 DL	297184-007	DL
	297181-005 S	MS
	297181-005 SD	MSD
	504668-1-BKS	BKS
	504668-1-BLK	BLK

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714255 **Sample:** 297184-001 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.16	2.00	108	44-131	

Lab Batch #: 714255 **Sample:** 297184-002 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.26	2.02	112	44-131	

Lab Batch #: 714255 **Sample:** 297184-003 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.20	2.00	110	44-131	

Lab Batch #: 714255 **Sample:** 297184-004 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.52	2.00	126	44-131	

Lab Batch #: 714255 **Sample:** 297184-005 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.23	2.04	109	44-131	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714255 **Sample:** 297184-006 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.58	2.06	125	44-131	

Lab Batch #: 714255 **Sample:** 297184-007 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	1.57	2.00	79	44-131	

Lab Batch #: 714255 **Sample:** 297184-008 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.01	2.06	98	44-131	

Lab Batch #: 714255 **Sample:** 297184-009 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.07	2.00	104	44-131	

Lab Batch #: 714255 **Sample:** 504428-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.29	2.00	115	44-131	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714255 **Sample:** 504428-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.14	2.00	107	44-131	

Lab Batch #: 714255 **Sample:** 504428-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.24	2.00	112	44-131	

Lab Batch #: 714569 **Sample:** 297184-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.020	0.050	40	21-100	
Nitrobenzene-d5	0.036	0.050	72	35-114	
Phenol-d6	0.012	0.050	24	10-94	
Terphenyl-D14	0.038	0.050	76	33-141	
2,4,6-Tribromophenol	0.043	0.050	86	10-123	

Lab Batch #: 714569 **Sample:** 297184-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.038	0.050	76	43-116	
2-Fluorophenol	0.019	0.050	38	21-100	
Nitrobenzene-d5	0.035	0.050	70	35-114	
Phenol-d6	0.012	0.050	24	10-94	
Terphenyl-D14	0.037	0.050	74	33-141	
2,4,6-Tribromophenol	0.042	0.050	84	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714569 **Sample:** 297184-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.040	0.050	80	43-116	
2-Fluorophenol	0.018	0.050	36	21-100	
Nitrobenzene-d5	0.035	0.050	70	35-114	
Phenol-d6	0.011	0.050	22	10-94	
Terphenyl-D14	0.037	0.050	74	33-141	
2,4,6-Tribromophenol	0.042	0.050	84	10-123	

Lab Batch #: 714569 **Sample:** 297184-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.017	0.050	34	21-100	
Nitrobenzene-d5	0.032	0.050	64	35-114	
Phenol-d6	0.011	0.050	22	10-94	
Terphenyl-D14	0.037	0.050	74	33-141	
2,4,6-Tribromophenol	0.043	0.050	86	10-123	

Lab Batch #: 714569 **Sample:** 297184-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.039	0.050	78	43-116	
2-Fluorophenol	0.019	0.050	38	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.011	0.050	22	10-94	
Terphenyl-D14	0.035	0.050	70	33-141	
2,4,6-Tribromophenol	0.043	0.050	86	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714569 **Sample:** 297184-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.019	0.050	38	21-100	
Nitrobenzene-d5	0.039	0.050	78	35-114	
Phenol-d6	0.011	0.050	22	10-94	
Terphenyl-D14	0.045	0.050	90	33-141	
2,4,6-Tribromophenol	0.047	0.050	94	10-123	

Lab Batch #: 714569 **Sample:** 297184-007 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.029	0.050	58	43-116	
2-Fluorophenol	0.006	0.050	12	21-100	***
Nitrobenzene-d5	0.027	0.050	54	35-114	
Phenol-d6	U	0.050	0	10-94	***
Terphenyl-D14	0.026	0.050	52	33-141	
2,4,6-Tribromophenol	U	0.050	0	10-123	***

Lab Batch #: 714569 **Sample:** 297184-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.037	0.050	74	43-116	
2-Fluorophenol	0.018	0.050	36	21-100	
Nitrobenzene-d5	0.036	0.050	72	35-114	
Phenol-d6	0.009	0.050	18	10-94	
Terphenyl-D14	0.037	0.050	74	33-141	
2,4,6-Tribromophenol	0.032	0.050	64	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714569 **Sample:** 297184-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.042	0.050	84	43-116	
2-Fluorophenol	0.020	0.050	40	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.011	0.050	22	10-94	
Terphenyl-D14	0.047	0.050	94	33-141	
2,4,6-Tribromophenol	0.054	0.050	108	10-123	

Lab Batch #: 714569 **Sample:** 297184-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.043	0.050	86	43-116	
2-Fluorophenol	0.005	0.050	10	21-100	***
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.006	0.050	12	10-94	
Terphenyl-D14	0.047	0.050	94	33-141	
2,4,6-Tribromophenol	0.002	0.050	4	10-123	***

Lab Batch #: 714569 **Sample:** 504361-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.031	0.050	62	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.025	0.050	50	10-94	
Terphenyl-D14	0.045	0.050	90	33-141	
2,4,6-Tribromophenol	0.041	0.050	82	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714569 **Sample:** 504361-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.043	0.050	86	43-116	
2-Fluorophenol	0.029	0.050	58	21-100	
Nitrobenzene-d5	0.040	0.050	80	35-114	
Phenol-d6	0.021	0.050	42	10-94	
Terphenyl-D14	0.039	0.050	78	33-141	
2,4,6-Tribromophenol	0.039	0.050	78	10-123	

Lab Batch #: 714569 **Sample:** 504361-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.031	0.050	62	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.024	0.050	48	10-94	
Terphenyl-D14	0.043	0.050	86	33-141	
2,4,6-Tribromophenol	0.040	0.050	80	10-123	

Lab Batch #: 714305 **Sample:** 297184-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0514	0.0500	103	86-115	
Dibromofluoromethane	0.0515	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0575	0.0500	115	80-120	
Toluene-D8	0.0501	0.0500	100	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714305 **Sample:** 297184-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0487	0.0500	97	86-115	
Dibromofluoromethane	0.0508	0.0500	102	86-118	
1,2-Dichloroethane-D4	0.0526	0.0500	105	80-120	
Toluene-D8	0.0489	0.0500	98	88-110	

Lab Batch #: 714305 **Sample:** 297184-002 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0495	0.0500	99	86-115	
Dibromofluoromethane	0.0489	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0481	0.0500	96	80-120	
Toluene-D8	0.0497	0.0500	99	88-110	

Lab Batch #: 714305 **Sample:** 297184-002 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0493	0.0500	99	86-115	
Dibromofluoromethane	0.0560	0.0500	112	86-118	
1,2-Dichloroethane-D4	0.0489	0.0500	98	80-120	
Toluene-D8	0.0496	0.0500	99	88-110	

Lab Batch #: 714305 **Sample:** 297184-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0480	0.0500	96	86-115	
Dibromofluoromethane	0.0524	0.0500	105	86-118	
1,2-Dichloroethane-D4	0.0497	0.0500	99	80-120	
Toluene-D8	0.0493	0.0500	99	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714305 **Sample:** 297184-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0483	0.0500	97	86-115	
Dibromofluoromethane	0.0516	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0508	0.0500	102	80-120	
Toluene-D8	0.0518	0.0500	104	88-110	

Lab Batch #: 714305 **Sample:** 504485-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0497	0.0500	99	86-115	
Dibromofluoromethane	0.0485	0.0500	97	86-118	
1,2-Dichloroethane-D4	0.0497	0.0500	99	80-120	
Toluene-D8	0.0486	0.0500	97	88-110	

Lab Batch #: 714305 **Sample:** 504485-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0477	0.0500	95	86-115	
Dibromofluoromethane	0.0493	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0491	0.0500	98	88-110	

Lab Batch #: 714315 **Sample:** 297184-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0489	0.0500	98	86-115	
Dibromofluoromethane	0.0499	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0482	0.0500	96	80-120	
Toluene-D8	0.0484	0.0500	97	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714315 **Sample:** 297184-005 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0493	0.0500	99	86-115	
Dibromofluoromethane	0.0499	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0520	0.0500	104	88-110	

Lab Batch #: 714315 **Sample:** 297184-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0506	0.0500	101	86-115	
Dibromofluoromethane	0.0499	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0423	0.0500	85	80-120	
Toluene-D8	0.0512	0.0500	102	88-110	

Lab Batch #: 714315 **Sample:** 297184-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0477	0.0500	95	86-115	
Dibromofluoromethane	0.0489	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0485	0.0500	97	80-120	
Toluene-D8	0.0489	0.0500	98	88-110	

Lab Batch #: 714315 **Sample:** 297184-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0509	0.0500	102	86-115	
Dibromofluoromethane	0.0470	0.0500	94	86-118	
1,2-Dichloroethane-D4	0.0499	0.0500	100	80-120	
Toluene-D8	0.0509	0.0500	102	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714315 **Sample:** 504490-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0508	0.0500	102	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0472	0.0500	94	80-120	
Toluene-D8	0.0484	0.0500	97	88-110	

Lab Batch #: 714315 **Sample:** 504490-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0522	0.0500	104	86-115	
Dibromofluoromethane	0.0511	0.0500	102	86-118	
1,2-Dichloroethane-D4	0.0530	0.0500	106	80-120	
Toluene-D8	0.0496	0.0500	99	88-110	

Lab Batch #: 714502 **Sample:** 297184-007 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0423	0.0500	85	86-115	***
Dibromofluoromethane	0.0539	0.0500	108	86-118	
1,2-Dichloroethane-D4	0.0493	0.0500	99	80-120	
Toluene-D8	0.0502	0.0500	100	88-110	

Lab Batch #: 714502 **Sample:** 297184-007 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0426	0.0500	85	86-115	***
Dibromofluoromethane	0.0590	0.0500	118	86-118	
1,2-Dichloroethane-D4	0.0519	0.0500	104	80-120	
Toluene-D8	0.0493	0.0500	99	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714502 **Sample:** 297184-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0445	0.0500	89	86-115	
Dibromofluoromethane	0.0548	0.0500	110	86-118	
1,2-Dichloroethane-D4	0.0474	0.0500	95	80-120	
Toluene-D8	0.0505	0.0500	101	88-110	

Lab Batch #: 714502 **Sample:** 297184-008 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0453	0.0500	91	86-115	
Dibromofluoromethane	0.0521	0.0500	104	86-118	
1,2-Dichloroethane-D4	0.0495	0.0500	99	80-120	
Toluene-D8	0.0500	0.0500	100	88-110	

Lab Batch #: 714502 **Sample:** 297184-008 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0442	0.0500	88	86-115	
Dibromofluoromethane	0.0524	0.0500	105	86-118	
1,2-Dichloroethane-D4	0.0492	0.0500	98	80-120	
Toluene-D8	0.0485	0.0500	97	88-110	

Lab Batch #: 714502 **Sample:** 297184-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0442	0.0500	88	86-115	
Dibromofluoromethane	0.0561	0.0500	112	86-118	
1,2-Dichloroethane-D4	0.0484	0.0500	97	80-120	
Toluene-D8	0.0512	0.0500	102	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714502 **Sample:** 297184-010 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0441	0.0500	88	86-115	
Dibromofluoromethane	0.0571	0.0500	114	86-118	
1,2-Dichloroethane-D4	0.0515	0.0500	103	80-120	
Toluene-D8	0.0488	0.0500	98	88-110	

Lab Batch #: 714502 **Sample:** 504563-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0439	0.0500	88	86-115	
Dibromofluoromethane	0.0550	0.0500	110	86-118	
1,2-Dichloroethane-D4	0.0473	0.0500	95	80-120	
Toluene-D8	0.0515	0.0500	103	88-110	

Lab Batch #: 714502 **Sample:** 504563-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0475	0.0500	95	86-115	
Dibromofluoromethane	0.0562	0.0500	112	86-118	
1,2-Dichloroethane-D4	0.0518	0.0500	104	80-120	
Toluene-D8	0.0484	0.0500	97	88-110	

Lab Batch #: 714683 **Sample:** 297181-005 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0450	0.0500	90	86-115	
Dibromofluoromethane	0.0521	0.0500	104	86-118	
1,2-Dichloroethane-D4	0.0473	0.0500	95	80-120	
Toluene-D8	0.0530	0.0500	106	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714683 **Sample:** 297181-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0488	0.0500	98	86-115	
Dibromofluoromethane	0.0490	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0496	0.0500	99	80-120	
Toluene-D8	0.0478	0.0500	96	88-110	

Lab Batch #: 714683 **Sample:** 297184-007 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0511	0.0500	102	86-115	
Dibromofluoromethane	0.0502	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0495	0.0500	99	80-120	
Toluene-D8	0.0492	0.0500	98	88-110	

Lab Batch #: 714683 **Sample:** 504668-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0510	0.0500	102	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0455	0.0500	91	88-110	

Lab Batch #: 714683 **Sample:** 504668-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0515	0.0500	103	86-115	
Dibromofluoromethane	0.0491	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0464	0.0500	93	80-120	
Toluene-D8	0.0512	0.0500	102	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714638 **Sample:** 504513-1-BKS **Matrix:** Water
Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** MCH
Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

Total Metals by SW6020A Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Lead	0.004	0.050	0.055	110	75-125	

Lab Batch #: 714305 **Sample:** 504485-1-BKS **Matrix:** Water
Date Analyzed: 02/07/2008 **Date Prepared:** 02/07/2008 **Analyst:** KHM
Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.344	69	60-140	
Benzene	<0.005	0.050	0.051	102	66-142	
2-Butanone	<0.050	0.500	0.405	81	60-140	
Carbon Disulfide	<0.050	0.500	0.478	96	60-140	
Chlorobenzene	<0.005	0.050	0.049	98	60-133	
Chloroform	<0.005	0.050	0.051	102	74-125	
1,2-Dichloroethane	<0.005	0.050	0.051	102	68-127	
1,1-Dichloroethene	<0.005	0.050	0.053	106	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.046	92	75-125	
1,2-Dichloropropane	<0.005	0.050	0.051	102	74-125	
Ethylbenzene	<0.005	0.050	0.048	96	75-125	
Methylene Chloride	<0.005	0.050	0.047	94	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.475	95	60-140	
Styrene	<0.005	0.050	0.049	98	75-125	
Tetrachloroethylene	<0.005	0.050	0.047	94	71-125	
Toluene	0.002	0.050	0.055	110	59-139	
Trichloroethene	<0.005	0.050	0.047	94	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.052	104	75-125	
o-Xylene	<0.005	0.050	0.053	106	75-125	
m,p-Xylenes	<0.010	0.100	0.101	101	75-125	
Vinyl Acetate	<0.050	0.500	0.559	112	60-140	
Vinyl Chloride	<0.002	0.050	0.049	98	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714315 **Sample:** 504490-1-BKS **Matrix:** Water

Date Analyzed: 02/08/2008 **Date Prepared:** 02/08/2008 **Analyst:** CYE

Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.329	66	60-140	
Benzene	<0.005	0.050	0.043	86	66-142	
2-Butanone	<0.050	0.500	0.387	77	60-140	
Carbon Disulfide	<0.050	0.500	0.382	76	60-140	
Chlorobenzene	<0.005	0.050	0.049	98	60-133	
Chloroform	<0.005	0.050	0.050	100	74-125	
1,2-Dichloroethane	<0.005	0.050	0.044	88	68-127	
1,1-Dichloroethene	<0.005	0.050	0.047	94	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.044	88	75-125	
1,2-Dichloropropane	<0.005	0.050	0.050	100	74-125	
Ethylbenzene	<0.005	0.050	0.050	100	75-125	
Methylene Chloride	<0.005	0.050	0.047	94	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.382	76	60-140	
Styrene	<0.005	0.050	0.051	102	75-125	
Tetrachloroethylene	<0.005	0.050	0.047	94	71-125	
Toluene	0.002	0.050	0.053	106	59-139	
Trichloroethene	<0.005	0.050	0.046	92	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.053	106	75-125	
o-Xylene	<0.005	0.050	0.053	106	75-125	
m,p-Xylenes	<0.010	0.100	0.104	104	75-125	
Vinyl Acetate	<0.050	0.500	0.564	113	60-140	
Vinyl Chloride	<0.002	0.050	0.044	88	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714502 **Sample:** 504563-1-BKS **Matrix:** Water

Date Analyzed: 02/11/2008 **Date Prepared:** 02/11/2008 **Analyst:** WEW

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.413	83	60-140	
Benzene	<0.005	0.050	0.053	106	66-142	
2-Butanone	<0.050	0.500	0.405	81	60-140	
Carbon Disulfide	<0.050	0.500	0.612	122	60-140	
Chlorobenzene	<0.005	0.050	0.054	108	60-133	
Chloroform	<0.005	0.050	0.049	98	74-125	
1,2-Dichloroethane	<0.005	0.050	0.050	100	68-127	
1,1-Dichloroethene	<0.005	0.050	0.058	116	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.050	100	75-125	
1,2-Dichloropropane	<0.005	0.050	0.049	98	74-125	
Ethylbenzene	<0.005	0.050	0.052	104	75-125	
Methylene Chloride	<0.005	0.050	0.053	106	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.440	88	60-140	
Styrene	<0.005	0.050	0.049	98	75-125	
Tetrachloroethylene	<0.005	0.050	0.058	116	71-125	
Toluene	0.002	0.050	0.053	106	59-139	
Trichloroethene	<0.005	0.050	0.050	100	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.048	96	75-125	
o-Xylene	<0.005	0.050	0.055	110	75-125	
m,p-Xylenes	<0.010	0.100	0.108	108	75-125	
Vinyl Acetate	<0.050	0.500	0.503	101	60-140	
Vinyl Chloride	<0.002	0.050	0.053	106	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Lab Batch #: 714683 **Sample:** 504668-1-BKS **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** WEW

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.255	51	60-140	L
Benzene	<0.005	0.050	0.054	108	66-142	
2-Butanone	<0.050	0.500	0.336	67	60-140	
Carbon Disulfide	<0.050	0.500	0.487	97	60-140	
Chlorobenzene	<0.005	0.050	0.051	102	60-133	
Chloroform	<0.005	0.050	0.052	104	74-125	
1,2-Dichloroethane	<0.005	0.050	0.049	98	68-127	
1,1-Dichloroethene	<0.005	0.050	0.052	104	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.050	100	75-125	
1,2-Dichloropropane	<0.005	0.050	0.055	110	74-125	
Ethylbenzene	<0.005	0.050	0.050	100	75-125	
Methylene Chloride	<0.005	0.050	0.051	102	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.494	99	60-140	
Styrene	<0.005	0.050	0.046	92	75-125	
Tetrachloroethylene	<0.005	0.050	0.046	92	71-125	
Toluene	<0.005	0.050	0.049	98	59-139	
Trichloroethene	<0.005	0.050	0.049	98	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.054	108	75-125	
o-Xylene	<0.005	0.050	0.049	98	75-125	
m,p-Xylenes	<0.010	0.100	0.101	101	75-125	
Vinyl Acetate	<0.050	0.500	0.527	105	60-140	
Vinyl Chloride	<0.002	0.050	0.046	92	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Analyst: JLA **Date Prepared:** 02/07/2008 **Date Analyzed:** 02/08/2008

Lab Batch ID: 714255 **Sample:** 504428-1-BKS **Batch #:** 1 **Matrix:** Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chlorinated Herbicides by EPA 8151A Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-D	<0.500	1.00	1.55	155	1	1.25	125	21	10-189	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297184 **Project ID:**

Analyst: TTD **Date Prepared:** 02/07/2008 **Date Analyzed:** 02/07/2008

Lab Batch ID: 714569 **Sample:** 504361-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOAs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acenaphthene	<0.005	0.050	0.043	86	0.05	0.043	86	0	54-114	25	
Acenaphthylene	<0.005	0.050	0.039	78	0.05	0.039	78	0	53-113	25	
Aniline (Phenylamine, Aminobenzene)	<0.020	0.050	0.022	44	0.05	0.017	34	26	35-104	25	LF
Anthracene	<0.005	0.050	0.040	80	0.05	0.040	80	0	56-116	25	
Benzo(a)anthracene	<0.005	0.050	0.045	90	0.05	0.045	90	0	59-116	25	
Benzo(a)pyrene	<0.005	0.050	0.043	86	0.05	0.043	86	0	58-118	25	
Benzo(b)fluoranthene	<0.005	0.050	0.046	92	0.05	0.046	92	0	54-123	25	
Benzo(g,h,i)perylene	<0.005	0.050	0.042	84	0.05	0.042	84	0	47-129	25	
Benzo(k)fluoranthene	<0.005	0.050	0.048	96	0.05	0.048	96	0	52-122	25	
Benzyl Butyl Phthalate	<0.005	0.050	0.044	88	0.05	0.043	86	2	57-122	25	
Benzyl Alcohol	<0.010	0.050	0.037	74	0.05	0.037	74	0	65-135	25	
bis(2-chloroethyl) ether	<0.010	0.050	0.041	82	0.05	0.044	88	7	57-108	25	
bis(2-ethylhexyl) phthalate	<0.005	0.050	0.041	82	0.05	0.042	84	2	59-119	25	
4-Bromophenyl-phenylether	<0.010	0.050	0.043	86	0.05	0.043	86	0	58-112	25	
di-n-Butyl Phthalate	<0.005	0.050	0.043	86	0.05	0.042	84	2	60-118	25	
Chrysene	<0.005	0.050	0.040	80	0.05	0.039	78	3	58-116	25	
Dibenz(a,h)Anthracene	<0.005	0.050	0.044	88	0.05	0.043	86	2	46-131	25	
Dibenzofuran	<0.010	0.050	0.042	84	0.05	0.042	84	0	56-111	25	
1,2-Dichlorobenzene	<0.010	0.050	0.039	78	0.05	0.040	80	3	53-106	25	
2,4-Dichlorophenol	<0.010	0.050	0.042	84	0.05	0.042	84	0	60-110	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297184
Analyst: TTD
Date Prepared: 02/07/2008
Project ID:
Date Analyzed: 02/07/2008
Lab Batch ID: 714569
Sample: 504361-1-BKS
Batch #: 1
Matrix: Water
Units: mg/L

SVOAs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-Dimethylphenol	<0.010	0.050	0.034	68	0.05	0.034	68	0	50-108	25	
Fluoranthene	<0.005	0.050	0.043	86	0.05	0.043	86	0	55-120	25	
Fluorene	<0.005	0.050	0.045	90	0.05	0.044	88	2	56-114	25	
Indeno(1,2,3-c,d)Pyrene	<0.005	0.050	0.043	86	0.05	0.043	86	0	44-132	25	
2-Methylnaphthalene	<0.005	0.050	0.040	80	0.05	0.039	78	3	57-106	25	
2-methylphenol	<0.010	0.050	0.035	70	0.05	0.036	72	3	52-106	25	
3&4-Methylphenol	<0.010	0.100	0.073	73	0.1	0.073	73	0	23-140	25	
Naphthalene	<0.005	0.050	0.041	82	0.05	0.041	82	0	53-110	25	
di-n-Octyl Phthalate	<0.005	0.050	0.044	88	0.05	0.045	90	2	49-129	25	
Phenanthrene	<0.005	0.050	0.042	84	0.05	0.042	84	0	56-116	25	
Phenol	<0.010	0.050	0.027	54	0.05	0.027	54	0	19-89	25	
Pyrene	<0.005	0.050	0.044	88	0.05	0.043	86	2	57-119	25	
Pyridine	<0.010	0.050	0.025	50	0.05	0.021	42	17	5-94	25	
2,4,6-Trichlorophenol	<0.010	0.050	0.041	82	0.05	0.041	82	0	57-113	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297184 **Project ID:**

Lab Batch ID: 714638 **QC- Sample ID:** 296853-004 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** MCH

Reporting Units: mg/L

Total Metals by SW6020A Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Lead	0.002	0.050	0.054	104	0.050	0.054	104	0	75-125	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*(D-G)/(D+G)

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297184 **Project ID:**

Lab Batch ID: 714305 **QC- Sample ID:** 297184-002 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/07/2008 **Date Prepared:** 02/07/2008 **Analyst:** KHM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.251	50	0.500	0.288	58	15	60-140	21	X
Benzene	0.003	0.050	0.053	100	0.050	0.050	94	6	66-142	21	
2-Butanone	<0.050	0.500	0.341	68	0.500	0.339	68	0	60-140	20	
Carbon Disulfide	<0.050	0.500	0.404	81	0.500	0.486	97	18	60-140	20	
Chlorobenzene	<0.005	0.050	0.050	100	0.050	0.050	100	0	60-133	21	
Chloroform	<0.005	0.050	0.052	104	0.050	0.056	112	7	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.049	98	0.050	0.052	104	6	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.049	98	0.050	0.055	110	12	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.045	90	0.050	0.049	98	9	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.054	108	0.050	0.050	100	8	74-125	20	
Ethylbenzene	<0.005	0.050	0.048	96	0.050	0.051	102	6	75-125	20	
Methylene Chloride	<0.005	0.050	0.049	98	0.050	0.054	108	10	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.467	93	0.500	0.423	85	9	60-140	25	
Styrene	<0.005	0.050	0.045	90	0.050	0.049	98	9	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.049	98	0.050	0.045	90	9	71-125	20	
Toluene	0.002	0.050	0.053	102	0.050	0.055	106	4	59-139	21	
Trichloroethene	<0.005	0.050	0.045	90	0.050	0.044	88	2	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.050	100	0.050	0.049	98	2	75-125	20	
o-Xylene	0.002	0.050	0.051	98	0.050	0.053	102	4	75-125	20	
m,p-Xylenes	<0.010	0.100	0.105	105	0.100	0.104	104	1	75-125	20	
Vinyl Acetate	<0.050	0.500	0.597	119	0.500	0.634	127	7	60-140	20	
Vinyl Chloride	<0.002	0.050	0.043	86	0.050	0.046	92	7	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297184 **Project ID:**

Lab Batch ID: 714315 **QC- Sample ID:** 297184-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/08/2008 **Date Prepared:** 02/08/2008 **Analyst:** CYE

Reporting Units: mg/L

VOAs by SW-846 8260B Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.292	58	0.500	0.231	46	23	60-140	21	XF
Benzene	<0.005	0.050	0.050	100	0.050	0.045	90	11	66-142	21	
2-Butanone	<0.050	0.500	0.379	76	0.500	0.326	65	16	60-140	20	
Carbon Disulfide	<0.050	0.500	0.374	75	0.500	0.352	70	7	60-140	20	
Chlorobenzene	<0.005	0.050	0.050	100	0.050	0.050	100	0	60-133	21	
Chloroform	<0.005	0.050	0.051	102	0.050	0.050	100	2	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.051	102	0.050	0.047	94	8	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.048	96	0.050	0.043	86	11	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.042	84	0.050	0.040	80	5	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.053	106	0.050	0.047	94	12	74-125	20	
Ethylbenzene	<0.005	0.050	0.052	104	0.050	0.050	100	4	75-125	20	
Methylene Chloride	<0.005	0.050	0.046	92	0.050	0.045	90	2	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.510	102	0.500	0.439	88	15	60-140	25	
Styrene	<0.005	0.050	0.053	106	0.050	0.049	98	8	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.048	96	0.050	0.046	92	4	71-125	20	
Toluene	0.001	0.050	0.057	112	0.050	0.051	100	11	59-139	21	
Trichloroethene	<0.005	0.050	0.044	88	0.050	0.043	86	2	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.057	114	0.050	0.050	100	13	75-125	20	
o-Xylene	<0.005	0.050	0.053	106	0.050	0.053	106	0	75-125	20	
m,p-Xylenes	<0.010	0.100	0.099	99	0.100	0.102	102	3	75-125	20	
Vinyl Acetate	<0.050	0.500	0.672	134	0.500	0.570	114	16	60-140	20	
Vinyl Chloride	<0.002	0.050	0.040	80	0.050	0.039	78	3	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297184 **Project ID:**

Lab Batch ID: 714502 **QC- Sample ID:** 297184-008 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/11/2008 **Date Prepared:** 02/11/2008 **Analyst:** WEW

Reporting Units: mg/L

VOAs by SW-846 8260B Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.376	75	0.500	0.456	91	19	60-140	21	
Benzene	0.058	0.050	0.113	110	0.050	0.112	108	2	66-142	21	
2-Butanone	<0.050	0.500	0.480	96	0.500	0.528	106	10	60-140	20	
Carbon Disulfide	<0.050	0.500	0.562	112	0.500	0.573	115	3	60-140	20	
Chlorobenzene	<0.005	0.050	0.053	106	0.050	0.052	104	2	60-133	21	
Chloroform	<0.005	0.050	0.047	94	0.050	0.049	98	4	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.050	100	0.050	0.052	104	4	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.053	106	0.050	0.055	110	4	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.047	94	0.050	0.049	98	4	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.048	96	0.050	0.047	94	2	74-125	20	
Ethylbenzene	<0.005	0.050	0.051	102	0.050	0.050	100	2	75-125	20	
Methylene Chloride	<0.005	0.050	0.047	94	0.050	0.050	100	6	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.506	101	0.500	0.533	107	6	60-140	25	
Styrene	<0.005	0.050	0.047	94	0.050	0.047	94	0	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.054	108	0.050	0.056	112	4	71-125	20	
Toluene	0.002	0.050	0.051	98	0.050	0.050	96	2	59-139	21	
Trichloroethene	<0.005	0.050	0.048	96	0.050	0.047	94	2	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.051	102	0.050	0.054	108	6	75-125	20	
o-Xylene	<0.005	0.050	0.051	102	0.050	0.051	102	0	75-125	20	
m,p-Xylenes	<0.010	0.100	0.104	104	0.100	0.105	105	1	75-125	20	
Vinyl Acetate	<0.050	0.500	0.535	107	0.500	0.566	113	5	60-140	20	
Vinyl Chloride	<0.002	0.050	0.054	108	0.050	0.052	104	4	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297184 **Project ID:**

Lab Batch ID: 714683 **QC- Sample ID:** 297181-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** WEW

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.211	42	0.500	0.217	43	2	60-140	21	X
Benzene	0.029	0.050	0.081	104	0.050	0.082	106	2	66-142	21	
2-Butanone	<0.050	0.500	0.306	61	0.500	0.334	67	9	60-140	20	
Carbon Disulfide	<0.050	0.500	0.579	116	0.500	0.514	103	12	60-140	20	
Chlorobenzene	0.002	0.050	0.053	102	0.050	0.055	106	4	60-133	21	
Chloroform	<0.005	0.050	0.053	106	0.050	0.051	102	4	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.053	106	0.050	0.052	104	2	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.052	104	0.050	0.049	98	6	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.050	100	0.050	0.051	102	2	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.052	104	0.050	0.056	112	7	74-125	20	
Ethylbenzene	<0.005	0.050	0.052	104	0.050	0.052	104	0	75-125	20	
Methylene Chloride	<0.005	0.050	0.052	104	0.050	0.050	100	4	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.459	92	0.500	0.499	100	8	60-140	25	
Styrene	<0.005	0.050	0.050	100	0.050	0.050	100	0	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.043	86	0.050	0.045	90	5	71-125	20	
Toluene	<0.005	0.050	0.049	98	0.050	0.050	100	2	59-139	21	
Trichloroethene	<0.005	0.050	0.048	96	0.050	0.051	102	6	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.054	108	0.050	0.055	110	2	75-125	20	
o-Xylene	<0.005	0.050	0.054	108	0.050	0.052	104	4	75-125	20	
m,p-Xylenes	<0.010	0.100	0.102	102	0.100	0.101	101	1	75-125	20	
Vinyl Acetate	<0.050	0.500	0.595	119	0.500	0.587	117	2	60-140	20	
Vinyl Chloride	0.005	0.050	0.056	102	0.050	0.049	88	15	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Sample Duplicate Recovery

Project Name: Kinder Morgan

Work Order #: 297184

Lab Batch #: 714638 **Project ID:**

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** MCH

QC- Sample ID: 296853-004 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Total Metals by SW6020A Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Lead	0.002	0.002	0	25	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

XENCO Laboratories

☒ 11381 Meadowglen, Suite L, Houston TX 77082 **281-589-0692**
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 **210-509-3334**
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 **972-481-9999**

☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 **305-823-8500**
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 **813-620-2000**

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

LAB ONLY: 297184-A

Serial #: 187126 Page 1 of 1

Company-City URS-HOUSTON	**Phone** 713-914-6699
Project Name KINDER MORGAN ☐Previously performed at XENCO	**Site** CENTRAL PLANT
Proj. Manager (PM) JOHNNY KENNEDY	
Fax Results to ☒ PM or **e-mail to:**	**Fax No:**
Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O Bill to:	
Quote No:	**P.O No:** ☐ Call for a P.O.
Reg Program: CLP AFCEE **TRRP** DW UST State Other:	
Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)	
TRRP PCLs: Tier 1 Tier 2 Residential Industrial	
LPST No.:(Required)	
Sampler Name F. Devore Signature Frances C Devore	

TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Sample ID	Sampling Date	Time	Depth ft" In" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	VOCs	SVOCs	Lead	Herbicide 2-4D	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Remarks: Sample Clean-ups are pre-approved	
1 CP-R1-3-02-020508	020508	1320		W		X	7	var.	0	V									X	X	X	X					1
2 CP-R1-3-03-020508	020508	1412		W		X	7	var.	|	|									X	X	X	X					2
3 CP-R1-3-01-020508	020508	1520		W		X	7	var.	|	|									X	X	X	X					3
4 CP-R1-1-18-020508	020508	1430		W		X	7	|	|	|									X	X	X	X					4
5 CP-R1-1-17-020508	020508	1555		W		X	7	|	|	|									X	X	X	X					5
6 CP-MW-37-020508	020508	1600		W		X	7	|	|	|									X	X	X	X					6
7 CP-MW-35-020508	020508	1710		W		X	7	|	|	|									X	X	X	X					7
8 CP-MW-41-020508	020508	1715		W		X	7	|	|	|									X	X	X	X					8
9 CP-EB-1-020608	020608	0900		W		X	7	var	0	V										X	X	X	X					9
10 CP-TB-020508	020508			W		X	2	V	A	H										X								10

Relinquished by (Initials and Sign)	Date & Time	Relinquished by (Initials and Sign)	Date & Time
1 Frances C Devore	020608/0747		2/5/08 9:47
2			
3	2/6/08 10:55	Lab:	2/6/08 1055

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: 65 Cooler Temperature: 1-3°C

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____
Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (**1**), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

297184-A

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: URS

Date/ Time: 2/6/18

Lab ID # : 297154-A

Initials: [illegible]

Sample Receipt Checklist

#1 Temperature of container/ cooler?	Yes	No	N/A	1.3 C
#2 Shipping container in good condition?	Yes	No	None	
#3 Samples received on ice?	Yes	No	N/A	Blue/Water
#4 Custody Seals intact on shipping container/ cooler?	Yes	No	N/A	
#5 Custody Seals intact on sample bottles/ container?	Yes	No		
#6 Chain of Custody present?	Yes	No		
#7 Sample instructions complete of Chain of Custody?	Yes	No		
#8 Any missing/extra samples?	Yes	No		
#9 Chain of Custody signed when relinquished/ received?	Yes	No		
#10 Chain of Custody agrees with sample label(s)?	Yes	No		
#11 Container label(s) legible and intact?	Yes	No		
#12 Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#13 Samples in proper container/ bottle?	Yes	No		
#14 Samples properly preserved?	Yes	No	N/A	
#15 Sample container intact?	Yes	No		
#16 Sufficient sample amount for indicated test(s)?	Yes	No		
#17 All samples received within sufficient hold time?	Yes	No		
#18 Subcontract of sample(s)?	Yes	No	N/A	
#19 VOC samples have zero headspace?	Yes	No	N/A	

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

Attachment A Laboratory Data Package Cover Page

Project Name: **Kinder Morgan** Laboratory Number: **297270**

This Data package consists of :

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 Sample identification cross-reference;

R3 Test reports (analytical data sheets) for each environmental sample that includes:
- a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs).

R4 Surrogate Recovery data including:
- a) Calculated recovery (%R), and
- b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms for laboratory control samples (LCSs) including:
- a) LCS spiking amounts,
- b) Calculated %R for each analyte, and
- c) The laboratory's LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %Rs and relative percent differences (RPDs) and
- e) The laboratory's MS/MSD QC limits

R8 Laboratory anaytical duplicate (if applicable) recovery and precision:
- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for analytical duplicates.

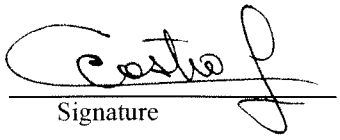
R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review check list.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, if applicable: [ ] This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Carlos A. Castro, Ph.D., MB		**Managing Director, Texas**	**02/26/08**
Name (Printed)	Signature	Official Title (printed)	Date

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO Laboratories	Report Date :	02/26/08
Project Name:	Kinder Morgan	Laboratory Job Number :	297270
Reviewer Name:	Paulalyn Kirtley	Batch Number(s) :	714627, 714255, 714705, 714572, 714417, 714372, 714669, 714569, 714683

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations subject to appropriate checks?	X				
		Were all analyte identifications subject to appropriate checks?	X				
		Were sample quantitation limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		X			2
		Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQL ?	X				
		Was the LCSD RPD within the QC limits?		X			3
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			4
		Were MS/MSD RPDs within the laboratory QC limits?		X			5
R8	OI	**Analytical Duplicate Data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method Quantitation Limits (MQLs)**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in the LRC and ER?	X				
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SQL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO Laboratories	Report Date :	02/26/08
Project Name:	Kinder Morgan	Laboratory Job Number :	297270
Reviewer Name:	Paulalyn Kirtley	Batch Number(s) :	714627, 714255, 714705, 714572, 714417, 714372, 714669, 714569, 714683

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and the highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	O	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC section 1 Appendix A glossary, and section 5.12 or ISO/IEC 17025 section)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		Was DOC concluded consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3. NA = Not applicable.
4. NR = Not reviewed.
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name: XENCO Laboratories	Report Date: 02/26/08
Project Name: Kinder Morgan	Laboratory Job Number: 297270
Reviewer Name: Paulalyn Kirtley	Batch Number(s): 714627, 714255, 714705, 714572, 714417, 714372, 714669, 714569, 714683

ER#	DESCRIPTION
1	SW8260B Batch 714417, Toluene-D8 recovered above QC limits . Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 297270-001.
2	SW8270C Batch 714569, Aniline (Phenylamine, Aminobenzene) recovered below QC limits in the Blank Spike Duplicate. Samples affected are: 297270-004, -007, -003, -006, -005, -002, -001, -010, -011, -008, -009. SW8260B Batch 714417, Chloromethane recovered above QC limits in the laboratory control sample. Samples affected are: 297270-004, -007, -003, -006, -005, -002, -001, -008. SW8260B Batch 714705, trans-1,2-dichloroethene recovered below QC limits in the laboratory control sample. Samples affected are: 297270-008, -014.
3	SW8270C Batch 714569, 3,3-Dichlorobenzidine, Aniline (Phenylamine, Aminobenzene) RPD was outside laboratory control limits. Samples affected are: 297270-004, -007, -003, -006, -005, -002, -001, -010, -011, -008, -009 SW8270C Batch 714572, 3,3-Dichlorobenzidine, 4-Chloroaniline, Aniline (Phenylamine, Aminobenzene) RPD was outside laboratory control limits. Samples affected are: 297270-013, -014
4	SW8260B Batch 714683, Chloromethane recovered above QC limits in the Matrix Spike. Samples affected are: 297270-009. The Laboratory Control Sample for Chloromethane is within laboratory Control Limits SW8260B Batch 714627, 1,2,3-Trichloropropane recovered above QC limits in the Matrix Spike Duplicate. Samples affected are: 297270-012, -013, -010, -011, -014. The Laboratory Control Sample for 1,2,3-Trichloropropane is within laboratory Control Limits SW8260B Batch 714417, Chloromethane, Dichlorodifluoromethane, isopropylbenzene recovered above QC limits in the Matrix Spike and Duplicate. Samples affected are: 297270-004, -007, -003, -006, -005, -002, -001, -008. The Laboratory Control Sample for Dichlorodifluoromethane, isopropylbenzene is within laboratory Control Limits SW8260B Batch 714705, Bromomethane recovered below QC limits in the Matrix Spike. Chloromethane recovered above QC limits in the Matrix Spike Duplicate. Samples affected are: 297270-008, -014. The Laboratory Control Sample for Bromomethane, Chloromethane is within laboratory Control Limits
5	SW8260B Batch 714705, Bromomethane RPD was outside QC limits.

ER# [1]	DESCRIPTION
5	Samples affected are: 297270-008, -014

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

Analytical Report 297270

for

URS Corporation

Project Manager: Johnny Kennedy

Kinder Morgan

09-JUL-08

E84880

4143 Greenbriar Dr., Stafford, TX 77477 Ph:(281) 240-4200 Fax:(281) 240-4280

Texas certification numbers:
Houston, TX T104704215

Florida certification numbers:
Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675
Norcross(Atlanta), GA E87429

South Carolina certification numbers:
Norcross(Atlanta), GA 98015

North Carolina certification numbers:
Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America
Midland - Corpus Christi - Atlanta

09-JUL-08

Project Manager: **Johnny Kennedy**
URS Corporation
9801 Westheimer
Suite 101
Houston, TX 77042

Reference: XENCO Report No: **297270**
Kinder Morgan
Project Address: Central Plant

Johnny Kennedy:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 297270. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 297270 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Carlos Castro

Managing Director, Texas

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CP-MW-38-020608	W	Feb-06-08 10:15	N/A	297270-001
CP-R1-1-14-020608	W	Feb-06-08 11:00	N/A	297270-002
CP-R1-1-15-020608	W	Feb-06-08 11:15	N/A	297270-003
CP-MW-39-020608	W	Feb-06-08 12:50	N/A	297270-004
CP-POE-2-020608	W	Feb-06-08 13:00	N/A	297270-005
CP-AMP-1-020608	W	Feb-06-08 14:00	N/A	297270-006
CP-AMP-3-020608	W	Feb-06-08 14:10	N/A	297270-007
CP-MW-36-020608	W	Feb-06-08 15:15	N/A	297270-008
CP-DUP-1-020608	W	Feb-06-08 15:25	N/A	297270-009
CP-FB--020608	W	Feb-06-08 15:35	N/A	297270-010
CP-AMP-2-020608	W	Feb-06-08 16:18	N/A	297270-011
CP-TB-020608	W	Feb-06-08 00:00	N/A	297270-012
CP-EB-2-020708	W	Feb-07-08 08:25	N/A	297270-013
CP-POE-1-020608	W	Feb-06-08 15:15	N/A	297270-014

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-38-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-001**	Date Collected: Feb-06-08 10:15	Date Received: Feb-07-08 11:47	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-09-08 06:08 Analyst: JLA Date Prep: Feb-07-08 17:45 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.164	1.00	0.510	0.0520	0.053	ug/L	J	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 16:25 Analyst: KHM Date Prep: Feb-11-08 13:47 Tech: KHM

Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	0.005	0.005	0.005	0.0010	0.001	mg/L	J	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	0.001	0.002	0.002	0.0004	0.001	mg/L	J	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-13-08 17:55 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH

Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-38-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-001**	Date Collected: Feb-06-08 10:15	Date Received: Feb-07-08 11:47	

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 22:45 Analyst: TTD Date Prep: Feb-07-08 17:06 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.006	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	0.002	0.005	0.005	0.0012	0.001	mg/L	J	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-R1-1-14-020608** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-002** Date Collected: Feb-06-08 11:00 Date Received: Feb-07-08 11:47

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 06:49 Analyst: JLA Date Prep: Feb-07-08 17:48 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-11-08 16:47 Analyst: KHM Date Prep: Feb-11-08 13:49 Tech: KHM
Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 18:00 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-R1-1-14-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-002**	Date Collected: Feb-06-08 11:00	Date Received: Feb-07-08 11:47	

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 23:32 Analyst: TTD Date Prep: Feb-07-08 17:09 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-R1-1-15-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-003**	Date Collected: Feb-06-08 11:15	Date Received: Feb-07-08 11:47	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-09-08 07:31 Analyst: JLA Date Prep: Feb-07-08 17:51 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.054	1.00	0.510	0.0520	0.053	ug/L	J	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 17:08 Analyst: KHM Date Prep: Feb-11-08 13:51 Tech: KHM

Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	0.007	0.002	0.002	0.0004	0.001	mg/L		1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-13-08 18:04 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH

Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-R1-1-15-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-003**	Date Collected: Feb-06-08 11:15	Date Received: Feb-07-08 11:47	

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 00:20 Analyst: TTD Date Prep: Feb-07-08 17:12 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.003	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **CP-MW-39-020608** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-004** Date Collected: Feb-06-08 12:50 Date Received: Feb-07-08 11:47

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 08:12 Analyst: JLA Date Prep: Feb-07-08 17:54 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-11-08 17:30 Analyst: KHM Date Prep: Feb-11-08 13:53 Tech: KHM
Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	0.006	0.005	0.005	0.0010	0.001	mg/L		1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	0.005	0.005	0.005	0.0010	0.001	mg/L	J	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 18:09 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-39-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-004**	Date Collected: Feb-06-08 12:50	Date Received: Feb-07-08 11:47	

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 01:07 Analyst: TTD Date Prep: Feb-07-08 17:15 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.003	0.005	0.005	0.0010	0.001	mg/L	J	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-POE-2-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-005**	Date Collected: Feb-06-08 13:00	Date Received: Feb-07-08 11:47	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-09-08 08:54 Analyst: JLA Date Prep: Feb-07-08 17:57 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 17:52 Analyst: KHM Date Prep: Feb-11-08 13:55 Tech: KHM

Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.005	0.005	0.005	0.0010	0.001	mg/L	J	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-13-08 18:14 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH

Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.006	0.002	0.002	0.0010	0.001	mg/L		1

Sample Id: **CP-POE-2-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-005**	Date Collected: Feb-06-08 13:00	Date Received: Feb-07-08 11:47	

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 01:55 Analyst: TTD Date Prep: Feb-07-08 17:18 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	0.018	0.010	0.010	0.0010	0.001	mg/L		1
bis(2-ethylhexyl) phthalate	117-81-7	0.007	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	0.004	0.005	0.005	0.0026	0.003	mg/L	J	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-AMP-1-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-006**	Date Collected: Feb-06-08 14:00	Date Received: Feb-07-08 11:47	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-09-08 09:35 Analyst: JLA Date Prep: Feb-07-08 18:00 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-11-08 18:13 Analyst: KHM Date Prep: Feb-11-08 13:57 Tech: KHM

Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.045	0.005	0.005	0.0010	0.001	mg/L		1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	0.006	0.005	0.005	0.0010	0.001	mg/L		1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	0.003	0.010	0.010	0.0020	0.002	mg/L	J	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-13-08 18:18 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH

Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.002	0.002	0.002	0.0010	0.001	mg/L		1

Sample Id: **CP-AMP-1-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-006** Date Collected: Feb-06-08 14:00 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 14:46 Analyst: TTD Date Prep: Feb-07-08 17:21 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Acenaphthylene	208-96-8	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.100	0.0010	0.005	mg/L	U	5
Anthracene	120-12-7	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzo(a)anthracene	56-55-3	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzo(a)pyrene	50-32-8	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzo(b)fluoranthene	205-99-2	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzo(k)fluoranthene	207-08-9	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Benzyl Alcohol	100-51-6	U	0.010	0.050	0.0010	0.005	mg/L	U	5
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.050	0.0010	0.005	mg/L	U	5
bis(2-ethylhexyl) phthalate	117-81-7	0.006	0.005	0.025	0.0010	0.005	mg/L	J	5
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.050	0.0010	0.005	mg/L	U	5
di-n-Butyl Phthalate	84-74-2	U	0.005	0.025	0.0026	0.013	mg/L	U	5
Chrysene	218-01-9	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Dibenzofuran	132-64-9	U	0.010	0.050	0.0010	0.005	mg/L	U	5
1,2-Dichlorobenzene	95-50-1	U	0.010	0.050	0.0010	0.005	mg/L	U	5
2,4-Dichlorophenol	120-83-2	U	0.010	0.050	0.0010	0.005	mg/L	U	5
2,4-Dimethylphenol	105-67-9	U	0.010	0.050	0.0011	0.005	mg/L	U	5
Fluoranthene	206-44-0	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Fluorene	86-73-7	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.025	0.0010	0.005	mg/L	U	5
2-Methylnaphthalene	91-57-6	U	0.005	0.025	0.0011	0.005	mg/L	U	5
2-methylphenol	95-48-7	U	0.010	0.050	0.0013	0.007	mg/L	U	5
3&4-Methylphenol		U	0.010	0.050	0.0015	0.008	mg/L	U	5
Naphthalene	91-20-3	U	0.005	0.025	0.0010	0.005	mg/L	U	5
di-n-Octyl Phthalate	117-84-0	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Phenanthrene	85-01-8	U	0.005	0.025	0.0012	0.006	mg/L	U	5
Phenol	108-95-2	U	0.010	0.050	0.0010	0.005	mg/L	U	5
Pyrene	129-00-0	U	0.005	0.025	0.0010	0.005	mg/L	U	5
Pyridine	110-86-1	U	0.010	0.050	0.0035	0.018	mg/L	U	5
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.050	0.0010	0.005	mg/L	U	5

Sample Id: **CP-AMP-3-020608** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-007** Date Collected: Feb-06-08 14:10 Date Received: Feb-07-08 11:47

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 10:16 Analyst: JLA Date Prep: Feb-07-08 18:03 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-11-08 18:35 Analyst: KHM Date Prep: Feb-11-08 13:59 Tech: KHM
Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 18:23 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.002	0.002	0.002	0.0010	0.001	mg/L	J	1

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-AMP-3-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-007** Date Collected: Feb-06-08 14:10 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 03:31 Analyst: TTD Date Prep: Feb-07-08 17:24 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.008	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	0.001	0.005	0.005	0.0011	0.001	mg/L	J	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.005	0.005	0.005	0.0010	0.001	mg/L	J	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-MW-36-020608** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-008** Date Collected: Feb-06-08 15:15 Date Received: Feb-07-08 11:47

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-09-08 10:58 Analyst: JLA Date Prep: Feb-07-08 18:06 Tech: JLA
Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.098	1.00	0.500	0.0520	0.052	ug/L	J	1

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-11-08 18:56 Analyst: KHM Date Prep: Feb-11-08 14:01 Tech: KHM
Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.051	0.005	0.005	0.0010	0.001	mg/L		1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
1,1-Dichloroethene	75-35-4	0.014	0.005	0.005	0.0010	0.001	mg/L		1
trans-1,2-dichloroethene	156-60-5	0.020	0.005	0.005	0.0010	0.001	mg/L		1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	0.003	0.005	0.005	0.0010	0.001	mg/L	J	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	15.1	0.005	2.50	0.0010	0.500	mg/L	D	500
Toluene	108-88-3	0.011	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	5.69	0.005	0.500	0.0010	0.100	mg/L	D	100
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	0.014	0.002	0.002	0.0004	0.001	mg/L		1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 18:28 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-MW-36-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-008** Date Collected: Feb-06-08 15:15 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 04:19 Analyst: TTD Date Prep: Feb-07-08 17:27 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.003	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.003	0.005	0.005	0.0010	0.001	mg/L	J	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	0.002	0.005	0.005	0.0012	0.001	mg/L	J	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-DUP-1-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-009**	Date Collected: Feb-06-08 15:25	Date Received: Feb-07-08 11:47	

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 19:58 Analyst: JLA Date Prep: Feb-11-08 10:06 Tech: JLA

Anal seq: 714372 Prep seq: 504512

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	0.108	1.00	0.500	0.0520	0.052	ug/L	J	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-13-08 18:33 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH

Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.001	0.002	0.002	0.0010	0.001	mg/L	J	1

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-DUP-1-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-009** Date Collected: Feb-06-08 15:25 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 11:02 Analyst: TTD Date Prep: Feb-07-08 17:30 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	0.002	0.005	0.005	0.0010	0.001	mg/L	J	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-DUP-1-020608**	Matrix: WATER	Sample Depth:	
Lab Sample Id: **297270-009**	Date Collected: Feb-06-08 15:25	Date Received: Feb-07-08 11:47	

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-12-08 19:46 Analyst: WEW Date Prep: Feb-12-08 17:56 Tech: WEW

Anal seq: 714683 Prep seq: 504668

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	0.065	0.005	0.005	0.0010	0.001	mg/L		1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	0.012	0.005	0.005	0.0010	0.001	mg/L		1
trans-1,2-dichloroethene	156-60-5	0.019	0.005	0.005	0.0010	0.001	mg/L		1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	0.005	0.005	0.005	0.0010	0.001	mg/L		1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	14.6	0.005	0.500	0.0010	0.100	mg/L	D	100
Toluene	108-88-3	0.009	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	6.49	0.005	0.500	0.0010	0.100	mg/L	D	100
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	0.011	0.002	0.002	0.0004	0.001	mg/L		1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-FB--020608**	Matrix: WATER	Sample Depth:
Lab Sample Id: **297270-010**	Date Collected: Feb-06-08 15:35	Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-12-08 20:09 Analyst: CYE Date Prep: Feb-12-08 17:23 Tech: CYE

Anal seq: 714627 Prep seq: 504638

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 20:39 Analyst: JLA Date Prep: Feb-11-08 10:08 Tech: JLA

Anal seq: 714372 Prep seq: 504512

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A

Date Anal: Feb-13-08 18:37 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH

Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **CP-FB--020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-010** Date Collected: Feb-06-08 15:35 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 11:50 Analyst: TTD Date Prep: Feb-07-08 17:33 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **CP-AMP-2-020608** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-011** Date Collected: Feb-06-08 16:18 Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-12-08 20:31 Analyst: CYE Date Prep: Feb-12-08 17:25 Tech: CYE
Anal seq: 714627 Prep seq: 504638

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-11-08 21:21 Analyst: JLA Date Prep: Feb-11-08 10:10 Tech: JLA
Anal seq: 714372 Prep seq: 504512

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 18:56 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.002	0.002	0.002	0.0010	0.001	mg/L		1

Sample Id: **CP-AMP-2-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-011** Date Collected: Feb-06-08 16:18 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 12:38 Analyst: TTD Date Prep: Feb-07-08 17:36 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
2-Chlorophenol	95-57-8	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Nitrophenol	88-75-5	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-TB-020608**	Matrix: WATER	Sample Depth:
Lab Sample Id: **297270-012**	Date Collected: Feb-06-08 00:00	Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-12-08 20:53 Analyst: CYE Date Prep: Feb-12-08 17:27 Tech: CYE

Anal seq: 714627 Prep seq: 504638

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **CP-EB-2-020708** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-013** Date Collected: Feb-07-08 08:25 Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-12-08 21:15 Analyst: CYE Date Prep: Feb-12-08 17:29 Tech: CYE
Anal seq: 714627 Prep seq: 504638

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L	JB	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-11-08 22:02 Analyst: JLA Date Prep: Feb-11-08 10:12 Tech: JLA
Anal seq: 714372 Prep seq: 504512

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 19:01 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-EB-2-020708** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-013** Date Collected: Feb-07-08 08:25 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-11-08 23:17 Analyst: TTD Date Prep: Feb-10-08 10:38 Tech: TTD

Anal seq: 714572 Prep seq: 504467

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **CP-POE-1-020608** Matrix: WATER Sample Depth:
Lab Sample Id: **297270-014** Date Collected: Feb-06-08 15:15 Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-12-08 21:36 Analyst: CYE Date Prep: Feb-12-08 17:31 Tech: CYE
Anal seq: 714627 Prep seq: 504638

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	0.001	0.005	0.005	0.0010	0.001	mg/L	J	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-11-08 22:44 Analyst: JLA Date Prep: Feb-11-08 10:14 Tech: JLA
Anal seq: 714372 Prep seq: 504512

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method: 3010A
Date Anal: Feb-13-08 19:06 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	0.003	0.002	0.002	0.0010	0.001	mg/L		1

Sample Id: **CP-POE-1-020608** Matrix: WATER Sample Depth:

Lab Sample Id: **297270-014** Date Collected: Feb-06-08 15:15 Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 00:02 Analyst: TTD Date Prep: Feb-10-08 10:41 Tech: TTD

Anal seq: 714572 Prep seq: 504467

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	0.029	0.005	0.005	0.0010	0.001	mg/L		1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **504361-1-BLK** Matrix: WATER Sample Depth:

Lab Sample Id: **504361-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-07-08 16:44 Analyst: TTD Date Prep: Feb-07-08 10:15 Tech: TTD

Anal seq: 714569 Prep seq: 504361

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Certificate of Analytical Results 297270

URS Corporation, Houston, TX

Kinder Morgan

Sample Id: **504428-1-BLK**	Matrix: WATER	Sample Depth:
Lab Sample Id: **504428-1-BLK**	Date Collected:	Date Received: Feb-07-08 11:47

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C

Date Anal: Feb-08-08 18:24 Analyst: JLA Date Prep: Feb-07-08 17:00 Tech: JLA

Anal seq: 714255 Prep seq: 504428

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Sample Id: **504467-1-BLK** Matrix: WATER Sample Depth:

Lab Sample Id: **504467-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **SVOAs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-12-08 14:59 Analyst: TTD Date Prep: Feb-10-08 10:26 Tech: TTD

Anal seq: 714572 Prep seq: 504467

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acenaphthene	83-32-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Acenaphthylene	208-96-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Aniline (Phenylamine, Aminobenzene)	62-53-3	U	0.020	0.020	0.0010	0.001	mg/L	U	1
Anthracene	120-12-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)anthracene	56-55-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(a)pyrene	50-32-8	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(b)fluoranthene	205-99-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(g,h,i)perylene	191-24-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzo(k)fluoranthene	207-08-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Butyl Phthalate	85-68-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Benzyl Alcohol	100-51-6	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Bromophenyl-phenylether	101-55-3	U	0.010	0.010	0.0010	0.001	mg/L	U	1
di-n-Butyl Phthalate	84-74-2	U	0.005	0.005	0.0026	0.003	mg/L	U	1
Chrysene	218-01-9	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenz(a,h)Anthracene	53-70-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Dibenzofuran	132-64-9	U	0.010	0.010	0.0010	0.001	mg/L	U	1
1,2-Dichlorobenzene	95-50-1	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dichlorophenol	120-83-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
2,4-Dimethylphenol	105-67-9	U	0.010	0.010	0.0011	0.001	mg/L	U	1
Fluoranthene	206-44-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Fluorene	86-73-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Indeno(1,2,3-c,d)Pyrene	193-39-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Methylnaphthalene	91-57-6	U	0.005	0.005	0.0011	0.001	mg/L	U	1
2-methylphenol	95-48-7	U	0.010	0.010	0.0013	0.001	mg/L	U	1
3&4-Methylphenol		U	0.010	0.010	0.0015	0.002	mg/L	U	1
Naphthalene	91-20-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
di-n-Octyl Phthalate	117-84-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Phenanthrene	85-01-8	U	0.005	0.005	0.0012	0.001	mg/L	U	1
Phenol	108-95-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1
Pyrene	129-00-0	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Pyridine	110-86-1	U	0.010	0.010	0.0035	0.004	mg/L	U	1
2,4,6-Trichlorophenol	88-06-2	U	0.010	0.010	0.0010	0.001	mg/L	U	1

Sample Id: **504512-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504512-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **Chlorinated Herbicides by EPA 8151A** % Moist: Prep Method: 3510C
Date Anal: Feb-11-08 17:54 Analyst: JLA Date Prep: Feb-11-08 10:00 Tech: JLA
Anal seq: 714372 Prep seq: 504512

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
2,4-D	94-75-7	U	1.00	0.500	0.0520	0.052	ug/L	U	1

Sample Id: **504540-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504540-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-11-08 11:45 Analyst: KHM Date Prep: Feb-11-08 09:12 Tech: KHM
Anal seq: 714417 Prep seq: 504540

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.002	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504576-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504576-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **Total Metals by SW6020A** % Moist: Prep Method:
Date Anal: Feb-13-08 16:53 Analyst: MCH Date Prep: Feb-13-08 10:15 Tech: MCH
Anal seq: 714669 Prep seq: 504576

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Lead	7439-92-1	U	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **504638-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **504638-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B
Date Anal: Feb-12-08 17:15 Analyst: CYE Date Prep: Feb-12-08 15:28 Tech: CYE
Anal seq: 714627 Prep seq: 504638

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L		1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504668-1-BLK** Matrix: WATER Sample Depth:

Lab Sample Id: **504668-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-12-08 14:54 Analyst: WEW Date Prep: Feb-12-08 13:32 Tech: WEW

Anal seq: 714683 Prep seq: 504668

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

Sample Id: **504678-1-BLK** Matrix: WATER Sample Depth:

Lab Sample Id: **504678-1-BLK** Date Collected: Date Received: Feb-07-08 11:47

Analytical Method: **VOAs by SW-846 8260B** % Moist: Prep Method: 5030B

Date Anal: Feb-13-08 13:18 Analyst: CYE Date Prep: Feb-13-08 11:09 Tech: CYE

Anal seq: 714705 Prep seq: 504678

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Acetone	67-64-1	U	0.100	0.100	0.0200	0.020	mg/L	U	1
Benzene	71-43-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
2-Butanone	78-93-3	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Carbon Disulfide	75-15-0	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Chlorobenzene	108-90-7	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Chloroform	67-66-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloroethane	107-06-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,1-Dichloroethene	75-35-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
trans-1,2-dichloroethene	156-60-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2-Dichloropropane	78-87-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Methylene Chloride	75-09-2	U	0.005	0.005	0.0010	0.001	mg/L	U	1
4-Methyl-2-Pentanone	108-10-1	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Styrene	100-42-5	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Tetrachloroethylene	127-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	U	0.005	0.005	0.0010	0.001	mg/L	U	1
Trichloroethene	79-01-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
1,2,3-Trichloropropane	96-18-4	U	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	U	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-1	U	0.010	0.010	0.0020	0.002	mg/L	U	1
Vinyl Acetate	108-05-4	U	0.050	0.050	0.0100	0.010	mg/L	U	1
Vinyl Chloride	75-01-4	U	0.002	0.002	0.0004	0.001	mg/L	U	1

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : Total Metals by SW6020A Client : URS Corporation

Work Order #: 297270 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-AMP-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-POE-2-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-DUP-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-R1-1-15-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-MW-36-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-AMP-3-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-POE-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-EB-2-020708	Feb. 7, 2008	Feb. 7, 2008	Feb. 13, 2008	180	6	Feb.13, 2008	180	0	P
CP-MW-39-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-R1-1-14-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-FB--020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-MW-38-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P
CP-AMP-2-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 13, 2008	180	7	Feb.13, 2008	180	0	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : Chlorinated Herbicides by EPA 8151A Client : URS Corporation

Work Order #: 297270 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-AMP-3-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-R1-1-15-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-POE-2-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-POE-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 11, 2008	7	5	Feb.11, 2008	7	0	P
CP-MW-38-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-AMP-2-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 11, 2008	7	5	Feb.11, 2008	7	0	P
CP-DUP-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 11, 2008	7	5	Feb.11, 2008	7	0	P
CP-FB--020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 11, 2008	7	5	Feb.11, 2008	7	0	P
CP-MW-39-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-R1-1-14-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-EB-2-020708	Feb. 7, 2008	Feb. 7, 2008	Feb. 11, 2008	7	4	Feb.11, 2008	7	0	P
CP-AMP-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P
CP-MW-36-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.9, 2008	7	2	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : VOAs by SW-846 8260B

Client : URS Corporation

Work Order #: 297270

Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-POE-1-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.12, 2008	14	6	P
CP-AMP-1-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-POE-2-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-TB-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.12, 2008	14	6	P
CP-FB--020608	Feb. 6, 2008	Feb. 7, 2008				Feb.12, 2008	14	6	P
CP-MW-36-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-R1-1-15-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-EB-2-020708	Feb. 7, 2008	Feb. 7, 2008				Feb.12, 2008	14	5	P
CP-R1-1-14-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-AMP-3-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-MW-39-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-DUP-1-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.12, 2008	14	6	P
CP-MW-38-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.11, 2008	14	5	P
CP-AMP-2-020608	Feb. 6, 2008	Feb. 7, 2008				Feb.12, 2008	14	6	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : SVOAs by EPA 8270C Client : URS Corporation

Work Order #: 297270 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-POE-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 10, 2008	7	4	Feb.12, 2008	40	2	P
CP-EB-2-020708	Feb. 7, 2008	Feb. 7, 2008	Feb. 10, 2008	7	3	Feb.11, 2008	40	1	P
CP-AMP-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-MW-38-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.11, 2008	40	4	P
CP-POE-2-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-AMP-2-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-FB--020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-DUP-1-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-R1-1-14-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.11, 2008	40	4	P
CP-MW-36-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-AMP-3-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-R1-1-15-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P
CP-MW-39-020608	Feb. 6, 2008	Feb. 7, 2008	Feb. 7, 2008	7	1	Feb.12, 2008	40	5	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL(PQL) and above the SQL(MDL).

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

* Outside XENCO'S scope of NELAC Accreditation

Analytical Log

Analytical Method:	Chlorinated Herbicides by EPA 8151A	Batch #:	714255
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-AMP-1-020608	297270-006	SMP
CP-AMP-3-020608	297270-007	SMP
CP-MW-36-020608	297270-008	SMP
CP-MW-38-020608	297270-001	SMP
CP-MW-39-020608	297270-004	SMP
CP-POE-2-020608	297270-005	SMP
CP-R1-1-14-020608	297270-002	SMP
CP-R1-1-15-020608	297270-003	SMP
	504428-1-BKS	BKS
	504428-1-BLK	BLK
	504428-1-BSD	BSD

Analytical Log

Analytical Method:	Chlorinated Herbicides by EPA 8151A	Batch #:	714372
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-AMP-2-020608	297270-011	SMP
CP-DUP-1-020608	297270-009	SMP
CP-EB-2-020708	297270-013	SMP
CP-FB--020608	297270-010	SMP
CP-POE-1-020608	297270-014	SMP
	504512-1-BKS	BKS
	504512-1-BLK	BLK
	504512-1-BSD	BSD

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714417
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-AMP-1-020608	297270-006	SMP
CP-AMP-3-020608	297270-007	SMP
CP-MW-36-020608	297270-008	SMP
CP-MW-38-020608	297270-001	SMP
CP-MW-39-020608	297270-004	SMP
CP-POE-2-020608	297270-005	SMP
CP-R1-1-14-020608	297270-002	SMP
CP-R1-1-15-020608	297270-003	SMP
	297181-006 S	MS
	297181-006 SD	MSD
	504540-1-BKS	BKS
	504540-1-BLK	BLK

Analytical Log

Analytical Method:	SVOAs by EPA 8270C	Batch #:	714569
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-AMP-1-020608	297270-006	SMP
CP-AMP-2-020608	297270-011	SMP
CP-AMP-3-020608	297270-007	SMP
CP-DUP-1-020608	297270-009	SMP
CP-FB--020608	297270-010	SMP
CP-MW-36-020608	297270-008	SMP
CP-MW-38-020608	297270-001	SMP
CP-MW-39-020608	297270-004	SMP
CP-POE-2-020608	297270-005	SMP
CP-R1-1-14-020608	297270-002	SMP
CP-R1-1-15-020608	297270-003	SMP
	504361-1-BKS	BKS
	504361-1-BLK	BLK
	504361-1-BSD	BSD

Analytical Log

Analytical Method:	SVOAs by EPA 8270C	Batch #:	714572
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-EB-2-020708	297270-013	SMP
CP-POE-1-020608	297270-014	SMP
	504467-1-BKS	BKS
	504467-1-BLK	BLK
	504467-1-BSD	BSD

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714627
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-AMP-2-020608	297270-011	SMP
CP-EB-2-020708	297270-013	SMP
CP-FB--020608	297270-010	SMP
CP-POE-1-020608	297270-014	SMP
CP-TB-020608	297270-012	SMP
	296960-005 S	MS
	296960-005 SD	MSD
	504638-1-BKS	BKS
	504638-1-BLK	BLK

Analytical Log

Analytical Method:	Total Metals by SW6020A	Batch #:	714669
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-AMP-1-020608	297270-006	SMP
CP-AMP-2-020608	297270-011	SMP
CP-AMP-3-020608	297270-007	SMP
CP-DUP-1-020608	297270-009	SMP
CP-EB-2-020708	297270-013	SMP
CP-FB--020608	297270-010	SMP
CP-MW-36-020608	297270-008	SMP
CP-MW-38-020608	297270-001	SMP
CP-MW-39-020608	297270-004	SMP
CP-POE-1-020608	297270-014	SMP
CP-POE-2-020608	297270-005	SMP
CP-R1-1-14-020608	297270-002	SMP
CP-R1-1-15-020608	297270-003	SMP
	297499-001 D	MD
	297499-001 S	MS
	297499-001 SD	MSD
	504576-1-BKS	BKS
	504576-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714683
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-DUP-1-020608	297270-009	SMP
CP-DUP-1-020608 DL	297270-009	DL
	297181-005 S	MS
	297181-005 SD	MSD
	504668-1-BKS	BKS
	504668-1-BLK	BLK

Analytical Log

Analytical Method:	VOAs by SW-846 8260B	Batch #:	714705
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	297270

Client Sample Id	Lab Sample Id	QC Types
CP-MW-36-020608 DL	297270-008	DL
CP-POE-1-020608 DL	297270-014	DL
	297480-001 S	MS
	297480-001 SD	MSD
	504678-1-BKS	BKS
	504678-1-BLK	BLK

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714255 **Sample:** 297270-001 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.45	2.04	120	44-131	

Lab Batch #: 714255 **Sample:** 297270-002 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.29	2.00	115	44-131	

Lab Batch #: 714255 **Sample:** 297270-003 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.39	2.04	117	44-131	

Lab Batch #: 714255 **Sample:** 297270-004 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.01	2.00	101	44-131	

Lab Batch #: 714255 **Sample:** 297270-005 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.00	2.00	100	44-131	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714255 **Sample:** 297270-006 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.26	2.00	113	44-131	

Lab Batch #: 714255 **Sample:** 297270-007 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.09	2.00	105	44-131	

Lab Batch #: 714255 **Sample:** 297270-008 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	1.97	2.00	99	44-131	

Lab Batch #: 714255 **Sample:** 504428-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.29	2.00	115	44-131	

Lab Batch #: 714255 **Sample:** 504428-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.14	2.00	107	44-131	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714255 **Sample:** 504428-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.24	2.00	112	44-131	

Lab Batch #: 714372 **Sample:** 297270-009 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.48	2.00	124	44-131	

Lab Batch #: 714372 **Sample:** 297270-010 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.05	2.00	103	44-131	

Lab Batch #: 714372 **Sample:** 297270-011 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.18	2.00	109	44-131	

Lab Batch #: 714372 **Sample:** 297270-013 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.17	2.00	109	44-131	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714372 **Sample:** 297270-014 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.14	2.00	107	44-131	

Lab Batch #: 714372 **Sample:** 504512-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.08	2.00	104	44-131	

Lab Batch #: 714372 **Sample:** 504512-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.10	2.00	105	44-131	

Lab Batch #: 714372 **Sample:** 504512-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: ug/L

Chlorinated Herbicides by EPA 8151A Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2,4-Dichlorophenylacetic Acid	2.17	2.00	109	44-131	

Lab Batch #: 714569 **Sample:** 297270-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.042	0.050	84	43-116	
2-Fluorophenol	0.023	0.050	46	21-100	
Nitrobenzene-d5	0.035	0.050	70	35-114	
Phenol-d6	0.013	0.050	26	10-94	
Terphenyl-D14	0.048	0.050	96	33-141	
2,4,6-Tribromophenol	0.051	0.050	102	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714569 **Sample:** 297270-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.024	0.050	48	21-100	
Nitrobenzene-d5	0.036	0.050	72	35-114	
Phenol-d6	0.013	0.050	26	10-94	
Terphenyl-D14	0.045	0.050	90	33-141	
2,4,6-Tribromophenol	0.049	0.050	98	10-123	

Lab Batch #: 714569 **Sample:** 297270-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.044	0.050	88	43-116	
2-Fluorophenol	0.025	0.050	50	21-100	
Nitrobenzene-d5	0.039	0.050	78	35-114	
Phenol-d6	0.014	0.050	28	10-94	
Terphenyl-D14	0.048	0.050	96	33-141	
2,4,6-Tribromophenol	0.054	0.050	108	10-123	

Lab Batch #: 714569 **Sample:** 297270-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.042	0.050	84	43-116	
2-Fluorophenol	0.024	0.050	48	21-100	
Nitrobenzene-d5	0.035	0.050	70	35-114	
Phenol-d6	0.013	0.050	26	10-94	
Terphenyl-D14	0.049	0.050	98	33-141	
2,4,6-Tribromophenol	0.049	0.050	98	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714569 **Sample:** 297270-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.033	0.050	66	43-116	
2-Fluorophenol	0.024	0.050	48	21-100	
Nitrobenzene-d5	0.040	0.050	80	35-114	
Phenol-d6	0.015	0.050	30	10-94	
Terphenyl-D14	0.047	0.050	94	33-141	
2,4,6-Tribromophenol	0.057	0.050	114	10-123	

Lab Batch #: 714569 **Sample:** 297270-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.038	0.050	76	43-116	
2-Fluorophenol	0.020	0.050	40	21-100	
Nitrobenzene-d5	0.033	0.050	66	35-114	
Phenol-d6	0.012	0.050	24	10-94	
Terphenyl-D14	0.037	0.050	74	33-141	
2,4,6-Tribromophenol	0.043	0.050	86	10-123	

Lab Batch #: 714569 **Sample:** 297270-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.046	0.050	92	43-116	
2-Fluorophenol	0.027	0.050	54	21-100	
Nitrobenzene-d5	0.036	0.050	72	35-114	
Phenol-d6	0.015	0.050	30	10-94	
Terphenyl-D14	0.050	0.050	100	33-141	
2,4,6-Tribromophenol	0.054	0.050	108	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714569 **Sample:** 297270-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.043	0.050	86	43-116	
2-Fluorophenol	0.024	0.050	48	21-100	
Nitrobenzene-d5	0.037	0.050	74	35-114	
Phenol-d6	0.014	0.050	28	10-94	
Terphenyl-D14	0.050	0.050	100	33-141	
2,4,6-Tribromophenol	0.051	0.050	102	10-123	

Lab Batch #: 714569 **Sample:** 297270-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.042	0.050	84	43-116	
2-Fluorophenol	0.021	0.050	42	21-100	
Nitrobenzene-d5	0.034	0.050	68	35-114	
Phenol-d6	0.013	0.050	26	10-94	
Terphenyl-D14	0.044	0.050	88	33-141	
2,4,6-Tribromophenol	0.047	0.050	94	10-123	

Lab Batch #: 714569 **Sample:** 297270-010 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.043	0.050	86	43-116	
2-Fluorophenol	0.025	0.050	50	21-100	
Nitrobenzene-d5	0.037	0.050	74	35-114	
Phenol-d6	0.013	0.050	26	10-94	
Terphenyl-D14	0.044	0.050	88	33-141	
2,4,6-Tribromophenol	0.044	0.050	88	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714569 **Sample:** 297270-011 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.046	0.050	92	43-116	
2-Fluorophenol	0.025	0.050	50	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.013	0.050	26	10-94	
Terphenyl-D14	0.047	0.050	94	33-141	
2,4,6-Tribromophenol	0.054	0.050	108	10-123	

Lab Batch #: 714569 **Sample:** 504361-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.031	0.050	62	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.025	0.050	50	10-94	
Terphenyl-D14	0.045	0.050	90	33-141	
2,4,6-Tribromophenol	0.041	0.050	82	10-123	

Lab Batch #: 714569 **Sample:** 504361-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.043	0.050	86	43-116	
2-Fluorophenol	0.029	0.050	58	21-100	
Nitrobenzene-d5	0.040	0.050	80	35-114	
Phenol-d6	0.021	0.050	42	10-94	
Terphenyl-D14	0.039	0.050	78	33-141	
2,4,6-Tribromophenol	0.039	0.050	78	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714569 **Sample:** 504361-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.031	0.050	62	21-100	
Nitrobenzene-d5	0.038	0.050	76	35-114	
Phenol-d6	0.024	0.050	48	10-94	
Terphenyl-D14	0.043	0.050	86	33-141	
2,4,6-Tribromophenol	0.040	0.050	80	10-123	

Lab Batch #: 714572 **Sample:** 297270-013 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.039	0.050	78	43-116	
2-Fluorophenol	0.020	0.050	40	21-100	
Nitrobenzene-d5	0.037	0.050	74	35-114	
Phenol-d6	0.010	0.050	20	10-94	
Terphenyl-D14	0.043	0.050	86	33-141	
2,4,6-Tribromophenol	0.041	0.050	82	10-123	

Lab Batch #: 714572 **Sample:** 297270-014 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.018	0.050	36	21-100	
Nitrobenzene-d5	0.036	0.050	72	35-114	
Phenol-d6	0.009	0.050	18	10-94	
Terphenyl-D14	0.044	0.050	88	33-141	
2,4,6-Tribromophenol	0.048	0.050	96	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714572 **Sample:** 504467-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.042	0.050	84	43-116	
2-Fluorophenol	0.029	0.050	58	21-100	
Nitrobenzene-d5	0.040	0.050	80	35-114	
Phenol-d6	0.021	0.050	42	10-94	
Terphenyl-D14	0.046	0.050	92	33-141	
2,4,6-Tribromophenol	0.044	0.050	88	10-123	

Lab Batch #: 714572 **Sample:** 504467-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.041	0.050	82	43-116	
2-Fluorophenol	0.027	0.050	54	21-100	
Nitrobenzene-d5	0.037	0.050	74	35-114	
Phenol-d6	0.015	0.050	30	10-94	
Terphenyl-D14	0.045	0.050	90	33-141	
2,4,6-Tribromophenol	0.041	0.050	82	10-123	

Lab Batch #: 714572 **Sample:** 504467-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L

SVOAs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.042	0.050	84	43-116	
2-Fluorophenol	0.029	0.050	58	21-100	
Nitrobenzene-d5	0.040	0.050	80	35-114	
Phenol-d6	0.019	0.050	38	10-94	
Terphenyl-D14	0.044	0.050	88	33-141	
2,4,6-Tribromophenol	0.044	0.050	88	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714417 **Sample:** 297181-006 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0502	0.0500	100	86-115	
Dibromofluoromethane	0.0496	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0514	0.0500	103	80-120	
Toluene-D8	0.0534	0.0500	107	88-110	

Lab Batch #: 714417 **Sample:** 297181-006 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0498	0.0500	100	86-115	
Dibromofluoromethane	0.0499	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0488	0.0500	98	80-120	
Toluene-D8	0.0498	0.0500	100	88-110	

Lab Batch #: 714417 **Sample:** 297270-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0476	0.0500	95	86-115	
Dibromofluoromethane	0.0508	0.0500	102	86-118	
1,2-Dichloroethane-D4	0.0535	0.0500	107	80-120	
Toluene-D8	0.0560	0.0500	112	88-110	**

Lab Batch #: 714417 **Sample:** 297270-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0478	0.0500	96	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0494	0.0500	99	80-120	
Toluene-D8	0.0520	0.0500	104	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714417 **Sample:** 297270-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0479	0.0500	96	86-115	
Dibromofluoromethane	0.0528	0.0500	106	86-118	
1,2-Dichloroethane-D4	0.0496	0.0500	99	80-120	
Toluene-D8	0.0486	0.0500	97	88-110	

Lab Batch #: 714417 **Sample:** 297270-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0482	0.0500	96	86-115	
Dibromofluoromethane	0.0534	0.0500	107	86-118	
1,2-Dichloroethane-D4	0.0494	0.0500	99	80-120	
Toluene-D8	0.0466	0.0500	93	88-110	

Lab Batch #: 714417 **Sample:** 297270-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0478	0.0500	96	86-115	
Dibromofluoromethane	0.0514	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0476	0.0500	95	80-120	
Toluene-D8	0.0513	0.0500	103	88-110	

Lab Batch #: 714417 **Sample:** 297270-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0473	0.0500	95	86-115	
Dibromofluoromethane	0.0499	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0474	0.0500	95	80-120	
Toluene-D8	0.0492	0.0500	98	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714417 **Sample:** 297270-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0477	0.0500	95	86-115	
Dibromofluoromethane	0.0519	0.0500	104	86-118	
1,2-Dichloroethane-D4	0.0524	0.0500	105	80-120	
Toluene-D8	0.0533	0.0500	107	88-110	

Lab Batch #: 714417 **Sample:** 297270-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0467	0.0500	93	86-115	
Dibromofluoromethane	0.0481	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0475	0.0500	95	80-120	
Toluene-D8	0.0530	0.0500	106	88-110	

Lab Batch #: 714417 **Sample:** 504540-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0473	0.0500	95	86-115	
Dibromofluoromethane	0.0526	0.0500	105	86-118	
1,2-Dichloroethane-D4	0.0473	0.0500	95	80-120	
Toluene-D8	0.0505	0.0500	101	88-110	

Lab Batch #: 714417 **Sample:** 504540-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0503	0.0500	101	86-115	
Dibromofluoromethane	0.0511	0.0500	102	86-118	
1,2-Dichloroethane-D4	0.0491	0.0500	98	80-120	
Toluene-D8	0.0521	0.0500	104	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714627 **Sample:** 296960-005 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0507	0.0500	101	86-115	
Dibromofluoromethane	0.0515	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0480	0.0500	96	80-120	
Toluene-D8	0.0491	0.0500	98	88-110	

Lab Batch #: 714627 **Sample:** 296960-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0524	0.0500	105	86-115	
Dibromofluoromethane	0.0508	0.0500	102	86-118	
1,2-Dichloroethane-D4	0.0470	0.0500	94	80-120	
Toluene-D8	0.0494	0.0500	99	88-110	

Lab Batch #: 714627 **Sample:** 297270-010 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0490	0.0500	98	86-115	
Dibromofluoromethane	0.0525	0.0500	105	86-118	
1,2-Dichloroethane-D4	0.0492	0.0500	98	80-120	
Toluene-D8	0.0493	0.0500	99	88-110	

Lab Batch #: 714627 **Sample:** 297270-011 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0497	0.0500	99	86-115	
Dibromofluoromethane	0.0538	0.0500	108	86-118	
1,2-Dichloroethane-D4	0.0493	0.0500	99	80-120	
Toluene-D8	0.0488	0.0500	98	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714627 **Sample:** 297270-012 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0500	0.0500	100	86-115	
Dibromofluoromethane	0.0526	0.0500	105	86-118	
1,2-Dichloroethane-D4	0.0493	0.0500	99	80-120	
Toluene-D8	0.0497	0.0500	99	88-110	

Lab Batch #: 714627 **Sample:** 297270-013 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0492	0.0500	98	86-115	
Dibromofluoromethane	0.0537	0.0500	107	86-118	
1,2-Dichloroethane-D4	0.0507	0.0500	101	80-120	
Toluene-D8	0.0487	0.0500	97	88-110	

Lab Batch #: 714627 **Sample:** 297270-014 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0501	0.0500	100	86-115	
Dibromofluoromethane	0.0531	0.0500	106	86-118	
1,2-Dichloroethane-D4	0.0486	0.0500	97	80-120	
Toluene-D8	0.0500	0.0500	100	88-110	

Lab Batch #: 714627 **Sample:** 504638-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0495	0.0500	99	86-115	
Dibromofluoromethane	0.0499	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0479	0.0500	96	80-120	
Toluene-D8	0.0483	0.0500	97	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714627 **Sample:** 504638-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0485	0.0500	97	86-115	
Dibromofluoromethane	0.0505	0.0500	101	86-118	
1,2-Dichloroethane-D4	0.0481	0.0500	96	80-120	
Toluene-D8	0.0504	0.0500	101	88-110	

Lab Batch #: 714683 **Sample:** 297181-005 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0450	0.0500	90	86-115	
Dibromofluoromethane	0.0521	0.0500	104	86-118	
1,2-Dichloroethane-D4	0.0473	0.0500	95	80-120	
Toluene-D8	0.0530	0.0500	106	88-110	

Lab Batch #: 714683 **Sample:** 297181-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0488	0.0500	98	86-115	
Dibromofluoromethane	0.0490	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0496	0.0500	99	80-120	
Toluene-D8	0.0478	0.0500	96	88-110	

Lab Batch #: 714683 **Sample:** 297270-009 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0492	0.0500	98	86-115	
Dibromofluoromethane	0.0513	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0525	0.0500	105	80-120	
Toluene-D8	0.0493	0.0500	99	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714683 **Sample:** 297270-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0498	0.0500	100	86-115	
Dibromofluoromethane	0.0456	0.0500	91	86-118	
1,2-Dichloroethane-D4	0.0472	0.0500	94	80-120	
Toluene-D8	0.0484	0.0500	97	88-110	

Lab Batch #: 714683 **Sample:** 504668-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0510	0.0500	102	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0455	0.0500	91	88-110	

Lab Batch #: 714683 **Sample:** 504668-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0515	0.0500	103	86-115	
Dibromofluoromethane	0.0491	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0464	0.0500	93	80-120	
Toluene-D8	0.0512	0.0500	102	88-110	

Lab Batch #: 714705 **Sample:** 297270-008 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0518	0.0500	104	86-115	
Dibromofluoromethane	0.0513	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0482	0.0500	96	80-120	
Toluene-D8	0.0506	0.0500	101	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714705 **Sample:** 297270-008 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0507	0.0500	101	86-115	
Dibromofluoromethane	0.0515	0.0500	103	86-118	
1,2-Dichloroethane-D4	0.0491	0.0500	98	80-120	
Toluene-D8	0.0499	0.0500	100	88-110	

Lab Batch #: 714705 **Sample:** 297270-014 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0480	0.0500	96	86-115	
Dibromofluoromethane	0.0527	0.0500	105	86-118	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0521	0.0500	104	88-110	

Lab Batch #: 714705 **Sample:** 297480-001 S / MS **Batch:** 1 **Matrix:** Water

Units: ug/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	50.42	50.00	101	86-115	
Dibromofluoromethane	52.76	50.00	106	86-118	
1,2-Dichloroethane-D4	51.65	50.00	103	80-120	
Toluene-D8	47.79	50.00	96	88-110	

Lab Batch #: 714705 **Sample:** 297480-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: ug/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	51.62	50.00	103	86-115	
Dibromofluoromethane	56.23	50.00	112	86-118	
1,2-Dichloroethane-D4	52.42	50.00	105	80-120	
Toluene-D8	51.45	50.00	103	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714705 **Sample:** 504678-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0508	0.0500	102	86-115	
Dibromofluoromethane	0.0534	0.0500	107	86-118	
1,2-Dichloroethane-D4	0.0516	0.0500	103	80-120	
Toluene-D8	0.0498	0.0500	100	88-110	

Lab Batch #: 714705 **Sample:** 504678-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0447	0.0500	89	86-115	
Dibromofluoromethane	0.0555	0.0500	111	86-118	
1,2-Dichloroethane-D4	0.0516	0.0500	103	80-120	
Toluene-D8	0.0513	0.0500	103	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714669 **Sample:** 504576-1-BKS **Matrix:** Water
Date Analyzed: 02/13/2008 **Date Prepared:** 02/13/2008 **Analyst:** MCH
Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

Total Metals by SW6020A Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Lead	<0.002	0.050	0.052	104	75-125	

Lab Batch #: 714417 **Sample:** 504540-1-BKS **Matrix:** Water
Date Analyzed: 02/11/2008 **Date Prepared:** 02/11/2008 **Analyst:** KHM
Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.274	55	60-140	L
Benzene	<0.005	0.050	0.046	92	66-142	
2-Butanone	<0.050	0.500	0.319	64	60-140	
Carbon Disulfide	<0.050	0.500	0.481	96	60-140	
Chlorobenzene	<0.005	0.050	0.046	92	60-133	
Chloroform	<0.005	0.050	0.049	98	74-125	
1,2-Dichloroethane	<0.005	0.050	0.046	92	68-127	
1,1-Dichloroethene	<0.005	0.050	0.050	100	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.047	94	75-125	
1,2-Dichloropropane	<0.005	0.050	0.046	92	74-125	
Ethylbenzene	<0.005	0.050	0.047	94	75-125	
Methylene Chloride	<0.005	0.050	0.049	98	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.400	80	60-140	
Styrene	<0.005	0.050	0.046	92	75-125	
Tetrachloroethylene	<0.005	0.050	0.047	94	71-125	
Toluene	0.002	0.050	0.054	108	59-139	
Trichloroethene	<0.005	0.050	0.043	86	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.043	86	75-125	
o-Xylene	<0.005	0.050	0.050	100	75-125	
m,p-Xylenes	<0.010	0.100	0.094	94	75-125	
Vinyl Acetate	<0.050	0.500	0.551	110	60-140	
Vinyl Chloride	<0.002	0.050	0.050	100	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714627 **Sample:** 504638-1-BKS **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** CYE

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.382	76	60-140	
Benzene	<0.005	0.050	0.050	100	66-142	
2-Butanone	<0.050	0.500	0.425	85	60-140	
Carbon Disulfide	<0.050	0.500	0.500	100	60-140	
Chlorobenzene	<0.005	0.050	0.051	102	60-133	
Chloroform	<0.005	0.050	0.052	104	74-125	
1,2-Dichloroethane	<0.005	0.050	0.050	100	68-127	
1,1-Dichloroethene	<0.005	0.050	0.052	104	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.048	96	75-125	
1,2-Dichloropropane	<0.005	0.050	0.051	102	74-125	
Ethylbenzene	<0.005	0.050	0.051	102	75-125	
Methylene Chloride	<0.005	0.050	0.049	98	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.480	96	60-140	
Styrene	<0.005	0.050	0.050	100	75-125	
Tetrachloroethylene	<0.005	0.050	0.049	98	71-125	
Toluene	0.001	0.050	0.051	102	59-139	
Trichloroethene	<0.005	0.050	0.048	96	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.052	104	75-125	
o-Xylene	<0.005	0.050	0.051	102	75-125	
m,p-Xylenes	<0.010	0.100	0.101	101	75-125	
Vinyl Acetate	<0.050	0.500	0.662	132	60-140	
Vinyl Chloride	<0.002	0.050	0.048	96	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714683 **Sample:** 504668-1-BKS **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** WEW

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.255	51	60-140	L
Benzene	<0.005	0.050	0.054	108	66-142	
2-Butanone	<0.050	0.500	0.336	67	60-140	
Carbon Disulfide	<0.050	0.500	0.487	97	60-140	
Chlorobenzene	<0.005	0.050	0.051	102	60-133	
Chloroform	<0.005	0.050	0.052	104	74-125	
1,2-Dichloroethane	<0.005	0.050	0.049	98	68-127	
1,1-Dichloroethene	<0.005	0.050	0.052	104	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.050	100	75-125	
1,2-Dichloropropane	<0.005	0.050	0.055	110	74-125	
Ethylbenzene	<0.005	0.050	0.050	100	75-125	
Methylene Chloride	<0.005	0.050	0.051	102	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.494	99	60-140	
Styrene	<0.005	0.050	0.046	92	75-125	
Tetrachloroethylene	<0.005	0.050	0.046	92	71-125	
Toluene	<0.005	0.050	0.049	98	59-139	
Trichloroethene	<0.005	0.050	0.049	98	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.054	108	75-125	
o-Xylene	<0.005	0.050	0.049	98	75-125	
m,p-Xylenes	<0.010	0.100	0.101	101	75-125	
Vinyl Acetate	<0.050	0.500	0.527	105	60-140	
Vinyl Chloride	<0.002	0.050	0.046	92	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Lab Batch #: 714705 **Sample:** 504678-1-BKS **Matrix:** Water

Date Analyzed: 02/13/2008 **Date Prepared:** 02/13/2008 **Analyst:** CYE

Reporting Units: mg/L **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Acetone	<0.100	0.500	0.297	59	60-140	L
Benzene	<0.005	0.050	0.050	100	66-142	
2-Butanone	<0.050	0.500	0.331	66	60-140	
Carbon Disulfide	<0.050	0.500	0.416	83	60-140	
Chlorobenzene	<0.005	0.050	0.051	102	60-133	
Chloroform	<0.005	0.050	0.054	108	74-125	
1,2-Dichloroethane	<0.005	0.050	0.059	118	68-127	
1,1-Dichloroethene	<0.005	0.050	0.052	104	59-172	
trans-1,2-dichloroethene	<0.005	0.050	0.037	74	75-125	L
1,2-Dichloropropane	<0.005	0.050	0.054	108	74-125	
Ethylbenzene	<0.005	0.050	0.053	106	75-125	
Methylene Chloride	<0.005	0.050	0.041	82	75-125	
4-Methyl-2-Pentanone	<0.050	0.500	0.445	89	60-140	
Styrene	<0.005	0.050	0.050	100	75-125	
Tetrachloroethylene	<0.005	0.050	0.047	94	71-125	
Toluene	<0.005	0.050	0.051	102	59-139	
Trichloroethene	<0.005	0.050	0.047	94	62-137	
1,2,3-Trichloropropane	<0.005	0.050	0.060	120	75-125	
o-Xylene	<0.005	0.050	0.053	106	75-125	
m,p-Xylenes	<0.010	0.100	0.101	101	75-125	
Vinyl Acetate	<0.050	0.500	0.537	107	60-140	
Vinyl Chloride	<0.002	0.050	0.049	98	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Analyst: JLA **Date Prepared:** 02/07/2008 **Date Analyzed:** 02/08/2008

Lab Batch ID: 714255 **Sample:** 504428-1-BKS **Batch #:** 1 **Matrix:** Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chlorinated Herbicides by EPA 8151A Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-D	<0.500	1.00	1.55	155	1	1.25	125	21	10-189	25	

Analyst: JLA **Date Prepared:** 02/11/2008 **Date Analyzed:** 02/11/2008

Lab Batch ID: 714372 **Sample:** 504512-1-BKS **Batch #:** 1 **Matrix:** Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chlorinated Herbicides by EPA 8151A Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-D	<0.500	1.00	1.18	118	1	1.23	123	4	10-189	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Analyst: TTD **Date Prepared:** 02/07/2008 **Date Analyzed:** 02/07/2008

Lab Batch ID: 714569 **Sample:** 504361-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOAs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acenaphthene	<0.005	0.050	0.043	86	0.05	0.043	86	0	54-114	25	
Acenaphthylene	<0.005	0.050	0.039	78	0.05	0.039	78	0	53-113	25	
Aniline (Phenylamine, Aminobenzene)	<0.020	0.050	0.022	44	0.05	0.017	34	26	35-104	25	LF
Anthracene	<0.005	0.050	0.040	80	0.05	0.040	80	0	56-116	25	
Benzo(a)anthracene	<0.005	0.050	0.045	90	0.05	0.045	90	0	59-116	25	
Benzo(a)pyrene	<0.005	0.050	0.043	86	0.05	0.043	86	0	58-118	25	
Benzo(b)fluoranthene	<0.005	0.050	0.046	92	0.05	0.046	92	0	54-123	25	
Benzo(g,h,i)perylene	<0.005	0.050	0.042	84	0.05	0.042	84	0	47-129	25	
Benzo(k)fluoranthene	<0.005	0.050	0.048	96	0.05	0.048	96	0	52-122	25	
Benzyl Butyl Phthalate	<0.005	0.050	0.044	88	0.05	0.043	86	2	57-122	25	
Benzyl Alcohol	<0.010	0.050	0.037	74	0.05	0.037	74	0	65-135	25	
bis(2-chloroethyl) ether	<0.010	0.050	0.041	82	0.05	0.044	88	7	57-108	25	
bis(2-ethylhexyl) phthalate	<0.005	0.050	0.041	82	0.05	0.042	84	2	59-119	25	
4-Bromophenyl-phenylether	<0.010	0.050	0.043	86	0.05	0.043	86	0	58-112	25	
di-n-Butyl Phthalate	<0.005	0.050	0.043	86	0.05	0.042	84	2	60-118	25	
Chrysene	<0.005	0.050	0.040	80	0.05	0.039	78	3	58-116	25	
Dibenz(a,h)Anthracene	<0.005	0.050	0.044	88	0.05	0.043	86	2	46-131	25	
Dibenzofuran	<0.010	0.050	0.042	84	0.05	0.042	84	0	56-111	25	
1,2-Dichlorobenzene	<0.010	0.050	0.039	78	0.05	0.040	80	3	53-106	25	
2,4-Dichlorophenol	<0.010	0.050	0.042	84	0.05	0.042	84	0	60-110	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297270
Analyst: TTD
Lab Batch ID: 714569
Sample: 504361-1-BKS
Units: mg/L

Date Prepared: 02/07/2008
Batch #: 1

Project ID:
Date Analyzed: 02/07/2008
Matrix: Water

SVOAs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-Dimethylphenol	<0.010	0.050	0.034	68	0.05	0.034	68	0	50-108	25	
Fluoranthene	<0.005	0.050	0.043	86	0.05	0.043	86	0	55-120	25	
Fluorene	<0.005	0.050	0.045	90	0.05	0.044	88	2	56-114	25	
Indeno(1,2,3-c,d)Pyrene	<0.005	0.050	0.043	86	0.05	0.043	86	0	44-132	25	
2-Methylnaphthalene	<0.005	0.050	0.040	80	0.05	0.039	78	3	57-106	25	
2-methylphenol	<0.010	0.050	0.035	70	0.05	0.036	72	3	52-106	25	
3&4-Methylphenol	<0.010	0.100	0.073	73	0.1	0.073	73	0	23-140	25	
Naphthalene	<0.005	0.050	0.041	82	0.05	0.041	82	0	53-110	25	
di-n-Octyl Phthalate	<0.005	0.050	0.044	88	0.05	0.045	90	2	49-129	25	
Phenanthrene	<0.005	0.050	0.042	84	0.05	0.042	84	0	56-116	25	
Phenol	<0.010	0.050	0.027	54	0.05	0.027	54	0	19-89	25	
Pyrene	<0.005	0.050	0.044	88	0.05	0.043	86	2	57-119	25	
Pyridine	<0.010	0.050	0.025	50	0.05	0.021	42	17	5-94	25	
2,4,6-Trichlorophenol	<0.010	0.050	0.041	82	0.05	0.041	82	0	57-113	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297270 **Project ID:**

Analyst: TTD **Date Prepared:** 02/10/2008 **Date Analyzed:** 02/12/2008

Lab Batch ID: 714572 **Sample:** 504467-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOAs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acenaphthene	<0.005	0.050	0.044	88	0.05	0.043	86	2	54-114	25	
Acenaphthylene	<0.005	0.050	0.042	84	0.05	0.041	82	2	53-113	25	
Aniline (Phenylamine, Aminobenzene)	<0.020	0.050	0.039	78	0.05	0.027	54	36	35-104	25	F
Anthracene	<0.005	0.050	0.043	86	0.05	0.041	82	5	56-116	25	
Benzo(a)anthracene	<0.005	0.050	0.046	92	0.05	0.044	88	4	59-116	25	
Benzo(a)pyrene	<0.005	0.050	0.045	90	0.05	0.044	88	2	58-118	25	
Benzo(b)fluoranthene	<0.005	0.050	0.046	92	0.05	0.047	94	2	54-123	25	
Benzo(g,h,i)perylene	<0.005	0.050	0.043	86	0.05	0.040	80	7	47-129	25	
Benzo(k)fluoranthene	<0.005	0.050	0.045	90	0.05	0.046	92	2	52-122	25	
Benzyl Butyl Phthalate	<0.005	0.050	0.048	96	0.05	0.047	94	2	57-122	25	
Benzyl Alcohol	<0.010	0.050	0.046	92	0.05	0.046	92	0	65-135	25	
bis(2-chloroethyl) ether	<0.010	0.050	0.042	84	0.05	0.043	86	2	57-108	25	
bis(2-ethylhexyl) phthalate	<0.005	0.050	0.048	96	0.05	0.047	94	2	59-119	25	
4-Bromophenyl-phenylether	<0.010	0.050	0.043	86	0.05	0.042	84	2	58-112	25	
di-n-Butyl Phthalate	<0.005	0.050	0.046	92	0.05	0.045	90	2	60-118	25	
Chrysene	<0.005	0.050	0.046	92	0.05	0.044	88	4	58-116	25	
Dibenz(a,h)Anthracene	<0.005	0.050	0.046	92	0.05	0.044	88	4	46-131	25	
Dibenzofuran	<0.010	0.050	0.044	88	0.05	0.044	88	0	56-111	25	
1,2-Dichlorobenzene	<0.010	0.050	0.044	88	0.05	0.043	86	2	53-106	25	
2,4-Dichlorophenol	<0.010	0.050	0.042	84	0.05	0.043	86	2	60-110	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 297270
Analyst: TTD
Lab Batch ID: 714572
Sample: 504467-1-BKS
Units: mg/L

Date Prepared: 02/10/2008
Batch #: 1

Project ID:
Date Analyzed: 02/12/2008
Matrix: Water

SVOAs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
2,4-Dimethylphenol	<0.010	0.050	0.040	80	0.05	0.036	72	11	50-108	25	
Fluoranthene	<0.005	0.050	0.046	92	0.05	0.045	90	2	55-120	25	
Fluorene	<0.005	0.050	0.044	88	0.05	0.043	86	2	56-114	25	
Indeno(1,2,3-c,d)Pyrene	<0.005	0.050	0.045	90	0.05	0.043	86	5	44-132	25	
2-Methylnaphthalene	<0.005	0.050	0.041	82	0.05	0.042	84	2	57-106	25	
2-methylphenol	<0.010	0.050	0.042	84	0.05	0.040	80	5	52-106	25	
3&4-Methylphenol	<0.010	0.100	0.076	76	0.1	0.076	76	0	23-140	25	
Naphthalene	<0.005	0.050	0.043	86	0.05	0.042	84	2	53-110	25	
di-n-Octyl Phthalate	<0.005	0.050	0.047	94	0.05	0.048	96	2	49-129	25	
Phenanthrene	<0.005	0.050	0.045	90	0.05	0.044	88	2	56-116	25	
Phenol	<0.010	0.050	0.024	48	0.05	0.023	46	4	19-89	25	
Pyrene	<0.005	0.050	0.045	90	0.05	0.043	86	5	57-119	25	
Pyridine	<0.010	0.050	0.025	50	0.05	0.023	46	8	5-94	25	
2,4,6-Trichlorophenol	<0.010	0.050	0.043	86	0.05	0.045	90	5	57-113	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297270 **Project ID:**

Lab Batch ID: 714669 **QC- Sample ID:** 297499-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/13/2008 **Date Prepared:** 02/13/2008 **Analyst:** MCH

Reporting Units: mg/L

Total Metals by SW6020A Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Lead	0.002	0.050	0.052	100	0.050	0.052	100	0	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*(D-G)/(D+G)

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297270 **Project ID:**

Lab Batch ID: 714417 **QC- Sample ID:** 297181-006 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/11/2008 **Date Prepared:** 02/11/2008 **Analyst:** KHM

Reporting Units: mg/L

VOAs by SW-846 8260B Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.305	61	0.500	0.284	57	7	60-140	21	X
Benzene	<0.005	0.050	0.057	114	0.050	0.053	106	7	66-142	21	
2-Butanone	<0.050	0.500	0.359	72	0.500	0.367	73	1	60-140	20	
Carbon Disulfide	<0.050	0.500	0.555	111	0.500	0.572	114	3	60-140	20	
Chlorobenzene	<0.005	0.050	0.058	116	0.050	0.055	110	5	60-133	21	
Chloroform	<0.005	0.050	0.056	112	0.050	0.053	106	6	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.056	112	0.050	0.052	104	7	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.061	122	0.050	0.052	104	16	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.053	106	0.050	0.051	102	4	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.052	104	0.050	0.049	98	6	74-125	20	
Ethylbenzene	<0.005	0.050	0.057	114	0.050	0.055	110	4	75-125	20	
Methylene Chloride	<0.005	0.050	0.054	108	0.050	0.055	110	2	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.454	91	0.500	0.461	92	1	60-140	25	
Styrene	<0.005	0.050	0.054	108	0.050	0.053	106	2	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.056	112	0.050	0.053	106	6	71-125	20	
Toluene	0.002	0.050	0.064	124	0.050	0.059	114	8	59-139	21	
Trichloroethene	<0.005	0.050	0.050	100	0.050	0.046	92	8	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.057	114	0.050	0.055	110	4	75-125	20	
o-Xylene	<0.005	0.050	0.058	116	0.050	0.057	114	2	75-125	20	
m,p-Xylenes	<0.010	0.100	0.118	118	0.100	0.116	116	2	75-125	20	
Vinyl Acetate	<0.050	0.500	0.677	135	0.500	0.662	132	2	60-140	20	
Vinyl Chloride	<0.002	0.050	0.052	104	0.050	0.051	102	2	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297270 **Project ID:**

Lab Batch ID: 714627 **QC- Sample ID:** 296960-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** CYE

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.241	48	0.500	0.261	52	8	50-150	21	X
Benzene	0.151	0.050	0.204	106	0.050	0.207	112	6	66-142	21	
2-Butanone	<0.050	0.500	0.345	69	0.500	0.373	75	8	50-150	20	
Carbon Disulfide	<0.050	0.500	0.565	113	0.500	0.531	106	6	65-135	20	
Chlorobenzene	0.021	0.050	0.074	106	0.050	0.075	108	2	60-133	21	
Chloroform	<0.005	0.050	0.054	108	0.050	0.053	106	2	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.059	118	0.050	0.059	118	0	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.054	108	0.050	0.052	104	4	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.052	104	0.050	0.050	100	4	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.054	108	0.050	0.056	112	4	74-125	20	
Ethylbenzene	0.255	0.050	0.312	114	0.050	0.314	118	3	75-125	20	
Methylene Chloride	<0.005	0.050	0.054	108	0.050	0.052	104	4	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.453	91	0.500	0.512	102	11	50-150	25	
Styrene	<0.005	0.050	0.052	104	0.050	0.053	106	2	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.050	100	0.050	0.052	104	4	71-125	20	
Toluene	0.014	0.050	0.066	104	0.050	0.066	104	0	59-139	21	
Trichloroethene	<0.005	0.050	0.048	96	0.050	0.049	98	2	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.057	114	0.050	0.063	126	10	75-125	20	X
o-Xylene	0.017	0.050	0.069	104	0.050	0.069	104	0	75-125	20	
m,p-Xylenes	0.017	0.100	0.123	106	0.100	0.126	109	3	75-125	20	
Vinyl Acetate	<0.050	0.500	0.738	148	0.500	0.770	154	4	50-150	20	X
Vinyl Chloride	0.001	0.050	0.051	100	0.050	0.046	90	11	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297270 **Project ID:**

Lab Batch ID: 714683 **QC- Sample ID:** 297181-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/12/2008 **Date Prepared:** 02/12/2008 **Analyst:** WEW

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<0.100	0.500	0.211	42	0.500	0.217	43	2	60-140	21	X
Benzene	0.029	0.050	0.081	104	0.050	0.082	106	2	66-142	21	
2-Butanone	<0.050	0.500	0.306	61	0.500	0.334	67	9	60-140	20	
Carbon Disulfide	<0.050	0.500	0.579	116	0.500	0.514	103	12	60-140	20	
Chlorobenzene	0.002	0.050	0.053	102	0.050	0.055	106	4	60-133	21	
Chloroform	<0.005	0.050	0.053	106	0.050	0.051	102	4	74-125	20	
1,2-Dichloroethane	<0.005	0.050	0.053	106	0.050	0.052	104	2	68-127	20	
1,1-Dichloroethene	<0.005	0.050	0.052	104	0.050	0.049	98	6	59-172	22	
trans-1,2-dichloroethene	<0.005	0.050	0.050	100	0.050	0.051	102	2	75-125	20	
1,2-Dichloropropane	<0.005	0.050	0.052	104	0.050	0.056	112	7	74-125	20	
Ethylbenzene	<0.005	0.050	0.052	104	0.050	0.052	104	0	75-125	20	
Methylene Chloride	<0.005	0.050	0.052	104	0.050	0.050	100	4	75-125	35	
4-Methyl-2-Pentanone	<0.050	0.500	0.459	92	0.500	0.499	100	8	60-140	25	
Styrene	<0.005	0.050	0.050	100	0.050	0.050	100	0	75-125	51	
Tetrachloroethylene	<0.005	0.050	0.043	86	0.050	0.045	90	5	71-125	20	
Toluene	<0.005	0.050	0.049	98	0.050	0.050	100	2	59-139	21	
Trichloroethene	<0.005	0.050	0.048	96	0.050	0.051	102	6	62-137	24	
1,2,3-Trichloropropane	<0.005	0.050	0.054	108	0.050	0.055	110	2	75-125	20	
o-Xylene	<0.005	0.050	0.054	108	0.050	0.052	104	4	75-125	20	
m,p-Xylenes	<0.010	0.100	0.102	102	0.100	0.101	101	1	75-125	20	
Vinyl Acetate	<0.050	0.500	0.595	119	0.500	0.587	117	2	60-140	20	
Vinyl Chloride	0.005	0.050	0.056	102	0.050	0.049	88	15	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan

Work Order # : 297270 **Project ID:**

Lab Batch ID: 714705 **QC- Sample ID:** 297480-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/13/2008 **Date Prepared:** 02/13/2008 **Analyst:** CYE

Reporting Units: ug/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Acetone	<100	500	288	58	500	272	54	7	60-140	21	X
Benzene	<5.00	50.0	51.5	103	50.0	51.2	102	1	66-142	21	
2-Butanone	<50.0	500	376	75	500	351	70	7	60-140	20	
Carbon Disulfide	<50.0	500	510	102	500	553	111	8	60-140	20	
Chlorobenzene	<5.00	50.0	48.9	98	50.0	50.0	100	2	60-133	21	
Chloroform	<5.00	50.0	52.8	106	50.0	55.9	112	6	74-125	20	
1,2-Dichloroethane	<5.00	50.0	59.7	119	50.0	58.4	117	2	68-127	20	
1,1-Dichloroethene	<5.00	50.0	52.4	105	50.0	54.6	109	4	59-172	22	
trans-1,2-dichloroethene	<5.00	50.0	48.7	97	50.0	51.5	103	6	60-130	20	
1,2-Dichloropropane	<5.00	50.0	55.0	110	50.0	54.9	110	0	74-125	20	
Ethylbenzene	<5.00	50.0	50.9	102	50.0	53.0	106	4	75-125	20	
Methylene Chloride	<5.00	50.0	49.7	99	50.0	54.5	109	10	75-125	35	
4-Methyl-2-Pentanone	<50.0	500	488	98	500	443	89	10	60-140	25	
Styrene	<5.00	50.0	46.4	93	50.0	46.7	93	0	60-130	51	
Tetrachloroethylene	<5.00	50.0	48.1	96	50.0	48.6	97	1	60-130	20	
Toluene	1.05	50.0	48.7	95	50.0	52.1	102	7	59-139	21	
Trichloroethene	<5.00	50.0	47.4	95	50.0	48.4	97	2	62-137	24	
1,2,3-Trichloropropane	<5.00	50.0	57.5	115	50.0	55.4	111	4	75-125	20	
o-Xylene	<5.00	50.0	51.9	104	50.0	54.0	108	4	75-125	20	
m,p-Xylenes	<10.0	100	99.1	99	100	102	102	3	75-125	20	
Vinyl Acetate	<50.0	500	811	162	500	778	156	4	60-140	20	X
Vinyl Chloride	<2.00	50.0	50.4	101	50.0	54.5	109	8	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Sample Duplicate Recovery

Project Name: Kinder Morgan

Work Order #: 297270

Lab Batch #: 714669 **Project ID:**

Date Analyzed: 02/13/2008 **Date Prepared:** 02/13/2008 **Analyst:** MCH

QC- Sample ID: 297499-001 D **Batch #:** 1 **Matrix:** Water

Reporting Units: mg/L

Total Metals by SW6020A Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Lead	0.002	0.002	0	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

XENCO Laboratories

☒ 11381 Meadowglen, Suite L, Houston TX 77082 **281-589-0692**
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 **210-509-3334**
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 **972-481-9999**
☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 **305-823-8500**
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 **813-620-2000**

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

LAB ONLY: 297270-H

Serial #: 187123 Page 1 of 2

Company-City	URS - HOUSTON
Phone	713-914-6699
Project Name	☐ Previously performed at XENCO — KINDER MORGAN
Site	CENTRAL PLANT
Project ID	
Proj. Manager (PM)	JOHNNY KENNEDY
Fax Results to	☒ PM or
Fax No:	
e-mail to:	
Invoice to	☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O
Bill to:	
Quote No:	
P.O No:	☐ Call for a P.O.
Reg Program:	CLP AFCEE **TRRP** DW UST State Other:
Target DLs	(DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)
TRRP PCLs:	Tier 1 Tier 2 Residential Industrial
LPST No.:(Required)	
Sampler Name	F. Devore
Signature	Frances Devore

TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

#	Sample ID	Sampling Date	Time	Depth ft/in/m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	VOCs 8260	SVOCs 8270	Herbicid 8151 2-4D	Lead 6020	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Sample Clean-ups are pre-approved	Remarks
1	CP-MW-38-020608	020608	1015		W		X	7	Var.	O	V									X	X	X	X					
2	CP-R1-1-14-020608		1100		W		X	7												X	X	X	X					
3	CP-R1-1-15-020608		1115		W		X	7												X	X	X	X					
4	CP-MW-39-020608		1250		W		X	7												X	X	X	X					
5	CP-POE-2-020608		1300		W		X	7												X	X	X	X					
6	CP-AMP-1-020608		1400		W		X	7												X	X	X	X					
7	CP-AMP-3-020608		1410		W		X	7												X	X	X	X					
8	CP-MW-36-020608		1515		W		X	7												X	X	X	X					
9	CP-DUP-1-020608		1525		W		X	7												X	X	X	X					
10	CP-FB-020608		1535		W		X	7												X	X	X	X					

	Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1	Frances Devore	020708/0930		2/7/08 9:30
2				
3		2/7/08 11:17	Lab:	2/7/08 1147

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: 86 Cooler Temperature: 1.3°C

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____
Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (1), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990

www.xenco.com

297270-H

XENCO Laboratories

☒ 11381 Meadowglen, Suite L, Houston TX 77082 **281-589-0692**
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 **210-509-3334**
☐ 11078 Morrison Lane, Suite D, Dallas, TX 75229 **972-481-9999**

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 **305-823-8500**
☐ 2618 South Falkenburg Rd, Riverview, Fl 33569 **813-620-2000**

LAB ONLY: 297270-H

Serial #: 187124 Page 2 of 2

Company-City URS-HOUSTON **Phone** 713-914-6699

TAT: 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Project Name ☐Previously performed at XENCO KINDER MORGAN **Site** CENTRAL PLANT **Project ID**

Proj. Manager (PM) JOHNNY KENNEDY

Fax Results to ☒PM or **e-mail to:** **Fax No:**

Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O
Bill to:

Quote No: **P.O No:** ☐ Call for a P.O.

Reg Program: CLP AFCEE **TRRP** DW UST State Other:

Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)

TRRP PCLs: Tier 1 Tier 2 Residential Industrial

LPST No.:(Required)

Sampler Name F. DeVore Signature Frances DeVore

	Sample ID	Sampling Date	Time	Depth ft' in" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
1	CP-AMP-2-020608	020608	1168		W		X	7	var	O	✓
2	CP-TB-020608	020608			W		X	2	V	C	H
3	CP-EB-2-020708	020708	0825		W		X	7	var	O	✓
4											
5											
6											
7											
8											
9											
10											

	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	VOCs 8260	SVOCs 8270	Herbicide 8151 2-4D	Lead 6020
1									X	X	X	X
2									X			
3									X	X	X	X
4												
5												
6												
7												
8												
9												
10												

	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Sample Clean-ups are pre-approved
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Remarks

	Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1	Frances DeVore	020708/0830	BA	2/7/08 9:30
2	BA	2/7/08 1147	Lab:	2/7/08 1147
3				

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: Cooler Temperature:

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____
Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (1), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990

www.xenco.com

297270-H

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: URS

Date/ Time: 2/7/18

Lab ID # : 297270-1

Initials:

Sample Receipt Checklist

#1 Temperature of container/ cooler?	Yes	No	N/A	1.3 C
#2 Shipping container in good condition?	Yes	No	None	
#3 Samples received on ice?	Yes	No	N/A	Blue/Water
#4 Custody Seals intact on shipping container/ cooler?	Yes	No	N/A	
#5 Custody Seals intact on sample bottles/ container?	Yes	No		
#6 Chain of Custody present?	Yes	No		
#7 Sample instructions complete of Chain of Custody?	Yes	No		
#8 Any missing/extra samples?	Yes	No		
#9 Chain of Custody signed when relinquished/ received?	Yes	No		
#10 Chain of Custody agrees with sample label(s)?	Yes	No		
#11 Container label(s) legible and intact?	Yes	No		
#12 Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#13 Samples in proper container/ bottle?	Yes	No		
#14 Samples properly preserved?	Yes	No	N/A	
#15 Sample container intact?	Yes	No		
#16 Sufficient sample amount for indicated test(s)?	Yes	No		
#17 All samples received within sufficient hold time?	Yes	No		
#18 Subcontract of sample(s)?	Yes	No	N/A	
#19 VOC samples have zero headspace?	Yes	No	N/A	

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

☐ Client understands and would like to proceed with analysis

☐ Cooling process had begun shortly after sampling event

Data Usability Summary

To:	Ravi Kommajosyula	**Date:**	May 27, 2013
From:	Brenda Basile	**File:**	Kinder Morgan Central Plant 0413 DUS.doc
RE:	Review of Groundwater Samples Collected April 2013	**CC:**	

URS reviewed one data package from TestAmerica (Houston, Texas) reporting the analytical results for groundwater samples collected April 30 and May 1, 2013 at the Kinder Morgan Central Plant site. The package was reviewed for conformance to the requirements of *SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846) and *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13). The purpose of this sample event was to provide data on concentrations of chemicals of concern (COCs).

The TestAmerica laboratory is accredited under Texas certificate T104704223-12-9-TX. Except for bromomethane, TestAmerica is accredited for the matrices, methods and analytes reported in these data packages. TestAmerica was not accredited for bromomethane at the time of sample analyses. All bromomethane data are qualified as estimated (J).

Groundwater and associated quality control samples were analyzed using the following methods:

- SW-846 6020 – Inductively Coupled Plasma – Mass Spectrometry
- SW-846 8151A – Chlorinated Herbicides by GC using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
- SW-846 8260B - Volatile Organic Compounds by Gas Chromatography-Mass Spectrometry (GC/MS)
- SW-846 8270C – Semivolatile Organic Compounds by Gas Chromatography-Mass Spectrometry (GC/MS).

Data were reviewed as described in the RG-366/TRRP-13 Guidance Document and the results of the review are discussed in this Data Usability Summary (DUS). The reportable data, laboratory review checklists (LRCs) and exception reports (ERs) were reviewed.

Introduction

Table 1 lists the sample identifications cross-referenced to laboratory identifications and the analyses performed for each sample. Data qualified due to exceedances of quality control criteria are listed in Table 2.

QC Results

PRESERVATION AND HOLDING TIMES

Samples were received at the laboratory at temperatures less than 6°C. Samples were prepared and analyzed within holding times specified in Chapter Two of SW-846.

CALIBRATIONS

Initial calibration data and instrument performance calibrations (GC/MS tunes) were not submitted in the data packages. Continuing calibration data were not submitted in the data packages. The TCEQ does not require calibration data as part of the data package deliverables. According to the LRCs, tunes were acceptable. The laboratory stated on the LRC that the calibration verification for 2, 4-dinitrophenol and 2,4-dinitrotoluene exceeded the upper control limit. No data were qualified since these analytes were not detected in the associated samples.

BLANKS

Analytes detected in field or laboratory quality control blanks are listed in Table 3. Analyte concentrations within five times the blank concentrations are qualified as nondetect (U). Data are qualified as shown in Table 2.

SURROGATE RECOVERIES AND INTERNAL STANDARD AREAS

The laboratory flags data using statistically derived control limits. Surrogate recoveries outside the default RG-366/TRRP-13 acceptance criteria of 60-140 percent recovery (%R) are listed in Table 4. Data are qualified as shown in Tables 2 and 4.

TestAmerica stated on the LRCs that the perylene-d12 internal standard area was outside the acceptance criteria for the reanalysis of R1-3-03. Data from the original analysis were reported so data were not qualified. TestAmerica stated on the LRCs that the remaining internal standard areas were acceptable for the SW-846 8260 and 8270 analyses.

LABORATORY CONTROL SAMPLES

The laboratory flags data using statistically derived control limits. Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD), if analyzed, recoveries outside the default RG-366/TRRP-13 acceptance criteria of 60-140%R for organic analytes are listed in Table 4. LCS/LCSD precision (as relative percent difference [RPD]) outside the default RG-366/TRRP-13 acceptance criteria of 40 RPD for organic analytes is listed in Table 4. Data are qualified as shown in Table 2 and 4. LCS recoveries for metals analyses were within the default RG-366/TRRP-13 acceptance criteria of 70-130%R for inorganic analytes.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Batch, or non-project, matrix spike/matrix spike duplicate (MS/MSD) data were not evaluated. The laboratory flags data using statistically derived control limits. No semivolatile or metals samples were analyzed as MS/MSD.

MS/MSD recoveries outside the default RG-366/TRRP-13 acceptance criteria of 60-140%R for organic analytes are listed in Table 4. MS/MSD precision (RPD) outside the default RG-366/TRRP-13 acceptance criteria of 40 RPD for organic analytes are listed in Table 4. Data are qualified as shown in Table 2 and 4.

FIELD PRECISION

Field duplicate samples were not collected.

SUMMARY

Analytical data are usable for determining concentrations of COCs in groundwater at the Kinder Morgan Central Plant Site.

Table 1 Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	6020	8151	8260	8270	Comment
Equipment Blank	600-72465-01			X		Equipment Blank
R1-3-01	600-72465-02	X	X	X	X	
MW-35	600-72465-03	X	X	X	X	VOC MS/MSD
MW-37	600-72465-04	X	X	X	X	
AMP-3	600-72465-05	X	X	X	X	VOC MS/MSD
POE-2	600-72465-06	X	X	X	X	Herbicide MS/MSD
R1-3-03	600-72465-07	X	X	X	X	
R1-3-02	600-72465-08	X	X	X	X	
R1-1-14	600-72465-09	X	X	X	X	
POE-1	600-72465-10	X	X	X	X	
AMP-2	600-72465-11	X	X	X	X	
AMP-1	600-72465-12	X	X	X	X	
R1-1-18	600-72465-13	X	X	X	X	
Trip Blank	600-72465-14			X		Trip Blank

Table 2 Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
All	2,4-Dichlorophenol	JL	LCS recoveries below acceptance criteria
All	2,4-Dimethylphenol	JL	LCS recoveries below acceptance criteria
All	2-Methylphenol	JL	LCS recoveries below acceptance criteria
All	3 & 4-Methylphenol	JL	LCS recoveries below acceptance criteria
All	4-Nitrophenol	JL	LCS recoveries below acceptance criteria
All	Benzoic acid	JL	LCS recoveries below acceptance criteria
All	Bis(2-chloroethyl) ether	JL	LCS recoveries below acceptance criteria
All	Bromomethane	J	Laboratory not accredited
All	Dichlorodifluoromethane	JL	LCS recoveries below acceptance criteria
All	Hexachlorocyclopentadiene	JL	LCS recoveries below acceptance criteria
All	Hexachloroethane	JL	LCS recoveries below acceptance criteria
All	Naphthalene	JL	LCS recoveries below acceptance criteria
All	N-Nitroso-di-n-propylamine	JL	LCS recoveries below acceptance criteria
All	Phenol	JL	LCS recoveries below acceptance criteria
All	Pyridine	JL	LCS recoveries below acceptance criteria
AMP-1	Ethylbenzene	U	Analyte detected in quality control blank
AMP-1	Naphthalene (VOC)	U	Analyte detected in quality control blank
AMP-2	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria
AMP-2	Naphthalene (SVOC)	U	Analyte detected in quality control blank
AMP-3	Bromomethane	JL	MS/MSD recovery below acceptance criteria
AMP-3	Chloroethane	JL	MS/MSD recovery below acceptance criteria
AMP-3	Chloromethane	JL	MS/MSD recovery below acceptance criteria
AMP-3	Dichlorodifluoromethane	JL	MS/MSD recovery below acceptance criteria
AMP-3	Styrene	R	MS/MSD recovery less than 10%
AMP-3	Vinyl chloride	JL	LCS recoveries below acceptance criteria
Equipment Blank	Vinyl chloride	JL	LCS recoveries below acceptance criteria
MW-35	1,2,3-Trichlorobenzene	JL	MS/MSD recovery below acceptance criteria
MW-35	1,2,4-Trichlorobenzene	JL	MS/MSD recovery below acceptance criteria
MW-35	Dichlorodifluoromethane	JL	MS/MSD recovery below acceptance criteria
MW-35	Naphthalene	JL	MS/MSD recovery below acceptance criteria
MW-35	Vinyl chloride	JL	LCS recoveries below acceptance criteria
MW-37	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria
MW-37	Naphthalene (SVOC)	U	Analyte detected in quality control blank
MW-37	Vinyl chloride	JL	LCS recoveries below acceptance criteria
POE-1	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria

Table 2 Qualified Analytical Data

Field Identification	Analyte	Qualification	Reason for Qualification
POE-1	Vinyl chloride	JL	LCS recoveries below acceptance criteria
POE-2	SVOCs	JL	Surrogate recoveries below acceptance criteria
R1-1-14	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria
R1-1-14	Naphthalene (SVOC)	U	Analyte detected in quality control blank
R1-1-18	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria
R1-1-18	Vinyl chloride	JL	LCS recoveries below acceptance criteria
R1-3-01	Naphthalene (SVOC)	U	Analyte detected in quality control blank
R1-3-01	SVOCs	JL	Surrogate recoveries below acceptance criteria
R1-3-02	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria
R1-3-02	Naphthalene (SVOC)	U	Analyte detected in quality control blank
R1-3-03	2,4-D	JL	Surrogate recoveries below acceptance criteria
R1-3-03	Acid SVOCs	JL	Surrogate recoveries below acceptance criteria
R1-3-03	Ethylbenzene	U	Analyte detected in quality control blank
R1-3-03	Naphthalene	U	Analyte detected in quality control blank
Trip Blank	Vinyl chloride	JL	LCS recoveries below acceptance criteria

J – Data are estimated due to exceedance of one or more quality control criteria.
L - Data are potentially biased low.
R – Data are rejected (unusable) due to failure to meet one or more quality control criteria
U – Analyte not detected at associated concentration.
SVOCs – semivolatile organic compounds
Acid SVOCs – 2,4,5-Trichlorophenol, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylpheno, 2,4-dinitrophenol, 2-chlorophenol, 2-methylphenol, 2-nitrophenol, 3&4-methylphenol, 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-nitrophenol, benzoic acid, pentachlorophenol, and phenol
VOCs – volatile organic compounds

Table 3 Field and Laboratory Blank Detections

Field or Laboratory ID	Analyte	Concentration	Qualified Concentration	Comments
MB 600-105484	Ethylbenzene	0.0001371 mg/L	0.0006855 mg/L	
MB 600-105484	Naphthalene	0.0009128 mg/L	0.004564 mg/L	
MB 600-105411	Naphthalene	0.0006574 mg/L	0.003287 mg/L	

Table 4 Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery[a]	Precision	Qualification
AMP-1	SVOC Surrogates	0	NA	NA	None; sample diluted x10
AMP-2	2-Fluorophenol (SVOC Surrogate)	37	NA	NA	JL acid SVOCs
AMP-2	Phenol-d_5 (SVOC Surrogate)	15	NA	NA	JL acid SVOCs
AMP-3	Bromomethane	49	54	10	JL
AMP-3	Chloroethane	57	54	7	JL
AMP-3	Chloromethane	32	33	2	JL
AMP-3	Dichlorodifluoromethane	11	10	5	JL
AMP-3	Styrene	6	3	54	R
AMP-3	SVOC Surrogates	0	NA	NA	None; sample diluted x10
AMP-3	Vinyl chloride	42	39	6	JL
LCS 600-105345	Dichlorodifluoromethane	12	NA	NA	JL
LCS 600-105345	Vinyl chloride	49	NA	NA	JL
LCS 600-105411	2,4-Dichlorophenol	60	58	4	JL
LCS 600-105411	2,4-Dimethylphenol	48	47	1	JL
LCS 600-105411	2-Methylphenol	52	49	6	JL
LCS 600-105411	3 & 4-Methylphenol	51	49	3	JL
LCS 600-105411	3-Nitroaniline	198	197	0	None; analyte not detected
LCS 600-105411	4-Nitrophenol	62	37	50	JL
LCS 600-105411	Benzoic acid	48	50	4	JL
LCS 600-105411	Bis(2-chloroethyl) ether	53	60	11	JL
LCS 600-105411	Hexachlorocyclopentadiene	22	25	14	JL
LCS 600-105411	Hexachloroethane	55	55	0	JL
LCS 600-105411	Isophorone	61	59	4	None; average 60%R
LCS 600-105411	Naphthalene	56	57	1	JL

Table 4 Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery[a]	Precision	Qualification
LCS 600-105411	N-Nitroso-di-n-propylamine	53	55	3	JL
LCS 600-105411	Phenol	35	34	3	JL
LCS 600-105411	Pyridine	25	24	5	JL
LCS 600-105484	Dichlorodifluoromethane	36	NA	NA	JL
LCS 600-105530	Dichlorodifluoromethane	26	NA	NA	JL
MW-35	1,2,3-Trichlorobenzene	33	60	35	JL
MW-35	1,2,4-Trichlorobenzene	41	58	26	JL
MW-35	Dichlorodifluoromethane	29	35	18	JL
MW-35	Naphthalene	40	59	21	JL
MW-35	SVOC Surrogates	0	NA	NA	None; sample diluted x50 and x500
MW-37	2-Fluorobiphenyl (SVOC Surrogate)	50	NA	NA	None; only one base-neutral low
MW-37	2-Fluorophenol (SVOC Surrogate)	31	NA	NA	JL acid SVOCs
MW-37	Phenol-d_5 (SVOC Surrogate)	20	NA	NA	JL acid SVOCs
POE-1	2-Fluorophenol (SVOC Surrogate)	32	NA	NA	JL acid SVOCs
POE-1	Phenol-d_5 (SVOC Surrogate)	16	NA	NA	JL acid SVOCs
POE-2	2,4,6-Tribromophenol (SVOC Surrogate)	46	NA	NA	JL
POE-2	2-Fluorobiphenyl (SVOC Surrogate)	28	NA	NA	JL
POE-2	2-Fluorophenol (SVOC Surrogate)	16	NA	NA	JL
POE-2	Nitrobenzene-d_5 (SVOC Surrogate)	43	NA	NA	JL
POE-2	Phenol-d_5 (SVOC Surrogate)	2	NA	NA	JL
POE-2	Terphenyl-d_{14} (SVOC Surrogate)	51	NA	NA	JL
R1-1-14	2-Fluorophenol (SVOC Surrogate)	32	NA	NA	JL acid SVOCs
R1-1-14	Phenol-d_5 (SVOC Surrogate)	16	NA	NA	JL acid SVOCs
R1-1-18	2-Fluorophenol (SVOC Surrogate)	43	NA	NA	JL acid SVOCs
R1-1-18	Phenol-d_5 (SVOC Surrogate)	29	NA	NA	JL acid SVOCs
R1-3-01	2-Fluorobiphenyl (SVOC Surrogate)	53	NA	NA	JL
R1-3-01	2-Fluorophenol (SVOC Surrogate)	28	NA	NA	JL
R1-3-01	Nitrobenzene-d_5 (SVOC Surrogate)	58	NA	NA	JL
R1-3-01	Phenol-d_5 (SVOC Surrogate)	11	NA	NA	JL

Table 4 Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery[a]	Precision	Qualification
R1-3-02	2,4,6-Tribromophenol (SVOC Surrogate)	53 / 56	NA	NA	JL acid SVOCs
R1-3-02	2,4-Dichlorophenylacetic acid (Herbicide surrogate)	0	NA	NA	None; sample diluted x1000
R1-3-02	2-Fluorobiphenyl (SVOC Surrogate)	58 / 57	NA	NA	None; only one base-neutral low
R1-3-02	2-Fluorophenol (SVOC Surrogate)	9 / 5	NA	NA	JL acid SVOCs
R1-3-02	Phenol-d_5 (SVOC Surrogate)	17 / 14	NA	NA	JL acid SVOCs
R1-3-03	2,4-Dichlorophenylacetic acid (Herbicide surrogate)	55	NA	NA	JL
R1-3-03	2-Fluorophenol (SVOC surrogate)	35	NA	NA	Not applicable, PAHs only
R1-3-03	2-Fluorophenol (SVOC surrogate)	35	NA	NA	JL acid SVOCs
R1-3-03	Phenol-d_5 (SVOC Surrogate)	11	NA	NA	Not applicable, PAHs only
R1-3-03	Phenol-d_5 (SVOC Surrogate)	16	NA	NA	JL acid SVOCs

NA – Not applicable

JL – Data are estimated due to exceedance of one or more quality control criteria. Data are potentially biased low

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-72465-1
Client Project/Site: Kinder Morgan Central Plant
Revision: 1

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
10/14/2013 1:24:56 PM
Cathy Upton, Data Delivery Analyst
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
(713)690-4444
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 22
Method Summary 23
Sample Summary 24
Client Sample Results 25
Definitions/Glossary 51
Surrogate Summary 52
QC Sample Results 54
Default Detection Limits 67
QC Association Summary 69
Lab Chronicle 73
Certification Summary 77
Chain of Custody 78
Receipt Checklists 80

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-72465-1rev

Project Name/Number: Kinder Morgan Central Plant

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		10/14/2013
Name (printed)	Signature	Date
Project Manager Assistant II		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: YX	Prep Batch Number: 600-105345, 105484 and 105530-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				1
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			2
		Were MS/MSD RPDs within laboratory QC limits?		X			2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				3
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: YX	Prep Batch Number: 600-105345, 105484 and 105530-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: YX	Prep Batch Number: 600-105345, 105484 and 105530-VOA

ER #[1]	DESCRIPTION
1	Ethylbenzene and Naphthalene were detected above the MDL, but below the MQL in the method blank for batch 600-105484. The levels of detection are below the recommended reporting limits and the appropriate flags have been applied to the report.
2	The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision associated with batches 600-105345 and 105484 were outside control limits. Matrix interference is suspected.
3	All of the SDLs in sample 600-72465-3 were elevated due to the high concentration of target analytes.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/15/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-72465
Reviewer Name: JOH	Prep Batch Number(s): 600-105411 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?		X			2
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				3
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				4
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/15/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-72465
Reviewer Name: JOH	Prep Batch Number(s): 600-105411 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/15/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-72465
Reviewer Name: JOH	Prep Batch Number(s): 600-105411 - SV

ER #[1]	DESCRIPTION
1	Surrogate recoveries for samples 600-72465-2, 6, and 8 were outside control limits. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. The Phenol-d5 surrogate recovery in sample 600-72465-7 analyzed on 05/10/13 was below acceptance limits. Since this surrogate was not linked to the reported analytes, no corrective action was required. Due to the level of dilution required for samples 600-72465-3, 3DL, 5 and 12; surrogate recoveries are not reported.
2	Naphthalene was detected above the MQL in the method blank. This analyte is a possible laboratory contaminant and the appropriate flags have been applied.
3	Since the Perylene-d12 ISTD response was outside acceptance criteria in sample 600-72465-7 RA, the analyst reported the analytes associated with this ISTD from the original analysis.
4	All of the SDLs in samples 600-72465-3, 5 and 12 were elevated due to the nature of the sample matrix and/or the high concentration of target analytes.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: JL	Prep Batch Number(s): 600-105273 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			2
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				3
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: JL	Prep Batch Number(s): 600-105273 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S1	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S1	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S1	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S1	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S1	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S1	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S1	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: JL	Prep Batch Number(s): 600-105273 - Herb

ER #[1]	DESCRIPTION
1	See Case Narrative.
2	Due to the level of dilution required for the following sample, surrogate recoveries are not reported: R1-3-02 (600-72465-8). The surrogate amounts in the matrix spike (MS) and matrix spike dup (MSD) were outside the calibration range due to double the amount of surrogate added. The recoveries were within acceptance limits.
3	The 2,4-D SDL were elevated in sample 600-72465-8 due to the high concentration of this analyte.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

TestAmerica Corpus Christi
TRRP Data Package Cover Page

Job Number: 600-72465-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: "I am the laboratory manager, or his/her designee, and I am responsible for the release of this data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data has been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld."

Erica H. Padilla	Erica H Padilla	May 10, 2013
Name (printed)	Signature	Date

Project Manager

Official Title (printed)

LRC Date: May 10, 2013	Laboratory Job Number: 600-72465-1
Reviewer Name: Erica H. Padilla	Project Name/Number: Kinder Morgan Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	**OI**	**CHAIN-OF-CUSTODY (C-O-C)**					
		1) Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		2) Were all departures from standard conditions described in an exception report or case narrative?			X		
R2	**OI**	**SAMPLE AND QUALITY CONTROL (QC) IDENTIFICATION**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	**OI**	**TEST REPORTS**					
		1) Were all samples prepared and analyzed within holding time?	X				
		2) Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample quantitation limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035			X		
		9) If required for the project, TICs reported?			X		
R4	**O**	**SURROGATE RECOVERY DATA**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	**OI**	**TEST REPORTS/SUMMARY FORMS FOR BLANK SAMPLES**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations <MQL?	X				
R6	**OI**	**LABORATORY CONTROL SAMPLES (LCS)**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits?			X		
R7	**OI**	**MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?				X	1
		4) Were MS/MSD RPDs within laboratory QC limits?				X	
R8	**OI**	**ANALYTICAL DUPLICATE DATA**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	**OI**	**METHOD QUANTITATION LIMITS (MQLs)**					
		1) Are the MQLs for each method analyte listed and included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCS included in the laboratory data package?	X				2

LRC Date: May 10, 2013	Laboratory Job Number: 600-72465-1
Reviewer Name: Erica H. Padilla	Project Name/Number: Kinder Morgan Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R10	**OI**	**OTHER PROBLEMS/ANOMALIES**					
		1) Are all known problems/anomalies/special conditions noted in this LRC, ER, or case narrative?	X				3
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
S1	**OI**	**INITIAL CALIBRATION (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within the QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	**OI**	**INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV and CCV) AND CONTINUING CALIBRATION BLANK (CCB)**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analytes within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	**O**	**MASS SPECTRAL TUNING**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	**O**	**INTERNAL STANDARDS (IS)**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	**OI**	**RAW DATA (NELAC SECTION 5.5.10)**					
		1) Were the raw data (e.g. chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	**O**	**DUAL COLUMN CONFIRMATION**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	**O**	**TENTATIVELY IDENTIFIED COMPOUNDS (TICs)**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	**I**	**INTERFERENCE CHECK SAMPLE (ICS) RESULTS**					
		1) Were percent recoveries within method QC limits?	X				
S9	**I**	**SERIAL DILUTIONS, POST DIGESTION SPIKES, AND METHOD OF STANDARD ADDITIONS**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	**OI**	**METHOD DETECTION LIMIT (MDL) STUDIES**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCS?	X				
S11	**OI**	**PROFICIENCY TEST REPORTS**					
		1) Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	**OI**	**STANDARDS DOCUMENTATION**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	**OI**	**COMPOUND/ANALYTE IDENTIFICATION PROCEDURES**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	**OI**	**DEMONSTRATION OF ANALYST COMPETENCY (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				

LRC Date: May 10, 2013	Laboratory Job Number: 600-72465-1
Reviewer Name: Erica H. Padilla	Project Name/Number: Kinder Morgan Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S15	**OI**	**VERIFICATION/VALIDATION DOCUMENTATION FOR METHODS (NELAC CHAPTER 5)**					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	**OI**	**LABORATORY STANDARD OPERATING PROCEDURES (SOPs)**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

EXCEPTION REPORTS	
ER#[5]	**DESCRIPTION**
1	Please note that MS/MSD pairs were analyzed at the minimum required frequency. However, none of the client's samples happened to be chosen as an MS/MSD sample for batches 560-87480/87532.
2	Included with this checklist are the laboratory's Quarter 1 DCS results. These results are greater than 90 days old at this time; however, new DCS samples are scheduled to be analyzed in Quarter 2: April-June. The new results can be forwarded upon compilation, if requested.
3	This TestAmerica Corpus Christi LRC addresses metals preparation and analysis using EPA Methods 3010A and 6020.

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable)
3 NA = Not applicable
4 NR = Not reviewed
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica - Corpus Christi

TRRP DCS EVALUATION SPREADSHEET - WATER MATRIX

MDLV STUDY INFO	
DATE COMPLETED:	02/05/2013 - 1Q13
METHOD NUMBER:	6020/200.8
METHOD DESCRIPTION:	ICPMS
PREP METHOD:	3010A
INSTRUMENT:	Agilent ICPMS

		SPIKE RANGE				
ANALYTE	CURRENT MDL (ug/L)	MINIMUM (ug/L)	MAXIMUM (ug/L)	SPIKE (ug/L)	MEAS VALUE (ug/L)	ANALYTE IS DETECTED
Aluminum	22.5	22.5	67.5	40	33.1	yes
Antimony	1.61	1.61	4.83	4	4.27	yes
Arsenic	1.09	1.09	3.27	2	1.9	yes
Barium	0.81	0.81	2.43	1	1.01	yes
Beryllium	1.24	1.24	3.72	2	1.87	yes
Boron	70	70	210	100	97.7	yes
Cadmium	0.854	0.854	2.562	1	0.927	yes
Calcium	198	198	594	400	394	yes
Chromium	1.4	1.4	4.2	4	4.18	yes
Cobalt	1.36	1.36	4.08	4	4.43	yes
Copper	2	2	6	4	44.8	yes
Iron	101	101	303	200	240	yes
Lead	0.733	0.733	2.199	1	0.962	yes
Lithium	2.26	2.26	6.78	4	3.46	yes
Magnesium	113	113	339	200	200	yes
Manganese	11.6	11.6	34.8	20	20.3	yes
Molybdenum	1.4	1.4	4.2	4	3.91	yes
Nickel	2.17	2.17	6.51	4	9.02	yes
Phosphorus	18.1	18.1	54.3	40	35.8	yes
Potassium	407	407	1221	500	412	yes
Selenium	1.08	1.08	3.24	2	1.96	yes
Silicon	62.8	62.8	188.4	80	72.8	yes
Silver	0.941	0.941	2.823	1	0.949	yes
Sodium	727	727	2181	1000	1060	yes
Strontium	0.768	0.768	2.304	1	0.967	yes
Thallium	0.693	0.693	2.079	2	1.63	yes
Tin	5.08	5.08	15.24	10	11.7	yes
Titanium	1.53	1.53	4.59	4	4.1	yes
Vanadium	1.44	1.44	4.32	4	3.94	yes
Zinc	3.55	3.55	10.65	4	8.2	yes

Detection Check Standard

Matrix:	Water
Method:	8151A
Preparation:	8151A
Date Analyzed:	2/27/2013
Date Prepared:	2/22/2013
TALs Batches:	600-100148/7-a
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Dalapon	1	0.4	0.0102	10
Dicamba	0.01	0.04	0.138	0.2
MCPP	2.64	4	13.95	20
MCPA	5.78	4	8.27	20
Dichloroprop	0.03	0.04	0.0479	0.2
2,4-D	0.04	0.04	0.109	0.2
2,4,5-TP (Silvex)	0.02	0.04	0.184	0.2
2,4,5-T	0.02	0.04	0.157	0.2
2,4-DB	0.05	0.04	0.254	0.2
Dinoseb (DNBP)	0.02	0.04	0.0177	0.2

Detection Check Standard

Matrix:	Water
Method:	8260B_LL
Preparation:	Wei Shen
Date Analyzed:	1/7/2013
Date Prepared:	1/7/2013
TALs Batches:	600-96768
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Chloromethane	0.18	0.5	0	2
Vinyl Chloride	0.11	0.5	0.461	2
Chloroethane	0.08	0.5	0.475	2
1,1-Dichloroethene	0.19	0.5	0.367	1
trans-1,2-Dichloroethene	0.09	0.5	0.506	1
Acetone	0.99	0.5	0	2
Carbon Disulfide	0.24	0.5	0.85	1
Methylene Chloride	0.15	0.5	0	1
Vinyl Acetate	0.21	0.5	0	1
cis-1,2-Dichloroethene	0.3	0.5	0.497	1
2-Butanone (MEK)	0.76	0.5	0	5
Bromochloromethane	0.18	0.5	0.459	1
Carbon Tetrachloride	0.15	0.5	2.45	5
Benzene	0.08	0.5	0.47	1
1,2-Dichloroethane	0.14	0.5	0.367	1
Trichloroethene	0.13	0.5	0.494	1
1,1,1-Trichloroethane	0.15	0.5	0.937	1
1,1-Dichloroethane	0.11	0.5	0.483	1
1,2-Dichloropropane	0.16	0.5	0.48	1
cis-1,3-Dichloropropene	0.18	0.5	0	1
4-Methyl-2-pentanone	0.45	0.5	0.861	2
Toluene	0.15	0.5	0.462	1
trans-1,3-Dichloropropene	0.21	0.5	0	1
1,1,2-Trichloroethane	0.28	0.5	0.41	1
Tetrachloroethene	0.18	0.5	0.477	1
2-Hexanone	0.35	0.5	0	
Chlorobenzene	0.12	0.5	0.502	1
Ethylbenzene	0.11	0.5	0.473	1
m,p-Xylene	0.17	0.5	0.844	2
o-Xylene	0.12	0.5	0.469	1
Xylenes (total)	0.26	0.5	1.31	3
Styrene	0.07	0.25	0.36	1
Bromoform	0.19	0.25	0	1
1,1,2,2-Tetrachloroethane	0.22	0.5	0	1
Chlorobromomethane	0.18	0.5	0.513	1
Chlorodibromomethane	0.15	0.5	1.08	1
Chloroform	0.13	0.5	0.505	1
Chloroform	0.16	0.5	0.392	1

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	1/3/2013
Date Prepared:	1/3/2013
Lab Sample ID:	600-96501/6-A
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.25	0.062	0.5
N-Nitrosodimethylamine	0.26	0.5	0.305	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.692	0.5
Aniline	0.08	0.25	0.143	0.5
Phenol	0.04	0.25	0.087	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.371	0.5
2-Chlorophenol	0.13	0.5	0.368	0.5
1,3-Dichlorobenzene	0.17	0.5	0.433	0.5
1,4-Dichlorobenzene	0.13	0.5	0.533	0.5
1,2-Dichlorobenzene	0.17	0.5	0.469	0.5
Benzyl alcohol	0.17	0.5	0.211	0.5
2-Methylphenol (o-cresol)	0.12	0.5	0.353	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.287	1
N-Nitroso-di-n-propylamine	0.1	0.5	0.455	0.5
Hexachloroethane	0.1	0.5	0.490	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.889	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.972	0.5
Nitrobenzene	0.11	0.25	0.298	0.5
Isophorone	0.11	0.25	0.207	0.5
2-Nitrophenol	0.22	0.5	0.608	0.5
Benzoic acid	2.51	5	7.32	2.5
2,4-Dimethylphenol	0.15	0.5	0.513	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.455	0.5
2,4-Dichlorophenol	0.15	0.5	0.457	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.340	0.5
Naphthalene	0.08	0.25	0.242	0.5
Benzo(a)pyrene	0.08	0.25	0.530	0.5
Hexachlorobutadiene	0.18	0.5	0.611	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.419	0.5
2-Methylnaphthalene	0.07	0.25	0.229	0.5
1-Methylnaphthalene	0.09	0.25	0.215	0.5
Benzo(k)fluoranthene	0.09	0.25	0.196	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.560	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.638	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.656	0.5
2-Chloronaphthalene	0.08	0.25	0.231	0.5
2-Nitroaniline	0.19	0.5	0.787	0.5
1,4-Dinitrobenzene	0.5	0.5	0.747	0.5
1,3-Dinitrobenzene	0.08	0.25	0.637	0.5
1,2-Dinitrobenzene	0.5	0.5	0.832	0.5

Dimethylphthalate	0.07	0.25	0.220	0.5
Acenaphthylene	0.06	0.25	0.191	0.5
2,6-Dinitrotoluene	0.08	0.5	0.618	0.5
Benzo(b)fluoranthene	0.07	0.5	0.701	0.5
Acenaphthene	0.08	0.5	0.382	0.5
Di-n-octylphthalate	0.16	0.5	1.910	0.5
4-Nitrophenol	0.56	2.5	1.34	1
Dibenzofuran	0.08	0.25	0.181	0.5
2,4-Dinitrotoluene	0.13	0.5	0.538	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.501	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.201	0.5
Diethylphthalate	1.5	0.5	0.584	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.544	0.5
Fluorene	0.07	0.25	0.245	0.5
4-Nitroaniline	0.25	0.5	1.070	0.5
Chrysene	0.08	0.25	0.180	0.5
4,6-Dinitro-2-methylphenol	0.83	2.5	1.27	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.366	0.5
Diphenylamine	0.1	0.5	0.344	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.136	0.5
Azobenzene	0.07	0.25	0.156	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.432	0.5
Hexachlorobenzene	0.11	0.25	0.218	0.5
Pentachlorophenol	0.61	0.5	1.460	0.5
Phenanthrene	0.06	0.25	0.222	0.5
Anthracene	0.05	0.25	0.234	0.5
Carbazole	0.17	0.5	0.418	0.5
Di-n-butylphthalate	0.11	0.25	0.503	0.5
Fluoranthene	0.07	0.25	0.198	0.5
Benzidine	0.61	1	0.434	0.5
Pyrene	0.11	0.25	0.205	0.5
Butylbenzylphthalate	0.12	0.5	0.857	0.5
3,3'-Dichlorobenzidine	0.18	0.5	0.463	0.5
Benzo(a)anthracene	0.08	0.25	0.184	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	1.010	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.554	0.5
4-Chloroaniline	0.21	0.5	0.380	0.5
3-Nitroaniline	0.16	0.5	0.691	0.5

Job ID: 600-72465-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-72465-1

Comments
The report was revised per clients email to add and remove different analytes.

Receipt
The samples were received on 5/1/2013 6:14 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 4 coolers at receipt time were 1.5º C, 1.5º C, 1.8º C and 2.2º C.

Organic Prep
Method(s) 8151A: Emulsions formed in the samples during the concentration step.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU
8151A	Herbicides (GC)	SW846	TAL HOU
6020	Metals (ICP/MS)	SW846	TAL CC

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-72465-1	Equipment Blank	Water	04/30/13 11:30	05/01/13 18:14
600-72465-2	R1-3-01	Water	04/30/13 12:00	05/01/13 18:14
600-72465-3	MW-35	Water	04/30/13 13:00	05/01/13 18:14
600-72465-4	MW-37	Water	04/30/13 14:00	05/01/13 18:14
600-72465-5	AMP-3	Water	04/30/13 15:00	05/01/13 18:14
600-72465-6	POE-2	Water	04/30/13 15:30	05/01/13 18:14
600-72465-7	R1-3-03	Water	05/01/13 08:30	05/01/13 18:14
600-72465-8	R1-3-02	Water	05/01/13 09:20	05/01/13 18:14
600-72465-9	R1-1-14	Water	05/01/13 10:30	05/01/13 18:14
600-72465-10	POE-1	Water	05/01/13 11:30	05/01/13 18:14
600-72465-11	AMP-2	Water	05/01/13 12:20	05/01/13 18:14
600-72465-12	AMP-1	Water	05/01/13 13:30	05/01/13 18:14
600-72465-13	R1-1-18	Water	05/01/13 14:20	05/01/13 18:14
600-72465-14	Trip Blank	Water	05/01/13 00:00	05/01/13 18:14

Client Sample ID: Equipment Blank

Lab Sample ID: 600-72465-1

Date Collected: 04/30/13 11:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:49	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 12:49	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:49	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:49	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:49	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 12:49	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:49	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 12:49	1
Acetone	**0.00322**		0.00200	0.000990	mg/L			05/03/13 12:49	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:49	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/03/13 12:49	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:49	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:49	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 12:49	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 12:49	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 12:49	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 12:49	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 12:49	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 12:49	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*		*05/03/13 12:49*	*1*
4-Bromofluorobenzene	*87*		*67 - 139*		*05/03/13 12:49*	*1*
Dibromofluoromethane	*98*		*62 - 130*		*05/03/13 12:49*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*05/03/13 12:49*	*1*

Client Sample ID: R1-3-01

Lab Sample ID: 600-72465-2

Date Collected: 04/30/13 12:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:09	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 17:09	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:09	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 17:09	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:09	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 17:09	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:09	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 17:09	1

Client Sample ID: R1-3-01
Date Collected: 04/30/13 12:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/04/13 17:09	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 17:09	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 17:09	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:09	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:09	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 17:09	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 17:09	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 17:09	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 17:09	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 17:09	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 17:09	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*05/04/13 17:09*	*1*
4-Bromofluorobenzene	*122*		*67 - 139*		*05/04/13 17:09*	*1*
Dibromofluoromethane	*74*		*62 - 130*		*05/04/13 17:09*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*05/04/13 17:09*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Methylnaphthalene	**0.000198**	**J**	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 18:59	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 18:59	1
Acenaphthene	**0.000262**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 18:59	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 18:59	1

Client Sample ID: R1-3-01
Date Collected: 04/30/13 12:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-2
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 18:59	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
Dibenzofuran	**0.000344**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 18:59	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Fluoranthene	**0.000415**	**J**	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 18:59	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 18:59	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 18:59	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
Naphthalene	**0.00130**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Phenanthrene	**0.000370**	**J**	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 18:59	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 18:59	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 18:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*75*		*44 - 123*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
2-Fluorobiphenyl	*53*		*43 - 120*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
2-Fluorophenol	*28*		*18 - 120*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
Nitrobenzene-d5	*58*		*47 - 120*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
Terphenyl-d14	*66*		*33 - 141*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
Phenol-d5 (Surr)	*11*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 18:59*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	**0.000859**		0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*65*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 13:40*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:18	1

Client Sample ID: MW-35
Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	**0.219**		0.100	0.0190	mg/L			05/03/13 20:34	100
1,2,3-Trichloropropane	0.0290	U	0.100	0.0290	mg/L			05/03/13 20:34	100
1,2-Dichlorobenzene	0.0100	U	0.100	0.0100	mg/L			05/03/13 20:34	100
1,2-Dichloroethane	0.0140	U	0.100	0.0140	mg/L			05/03/13 20:34	100
1,2-Dichloropropane	0.0160	U	0.100	0.0160	mg/L			05/03/13 20:34	100
2-Butanone (MEK)	0.0760	U	0.200	0.0760	mg/L			05/03/13 20:34	100
4-Isopropyltoluene	0.0100	U	0.100	0.0100	mg/L			05/03/13 20:34	100
4-Methyl-2-pentanone (MIBK)	0.0450	U	0.200	0.0450	mg/L			05/03/13 20:34	100
Acetone	0.0990	U	0.200	0.0990	mg/L			05/03/13 20:34	100

Client Sample ID: MW-35
Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.667**		0.100	0.00800	mg/L			05/03/13 20:34	100
Carbon disulfide	**0.102**		0.100	0.0240	mg/L			05/03/13 20:34	100
Chlorobenzene	0.0120	U	0.100	0.0120	mg/L			05/03/13 20:34	100
Chlorobromomethane	0.0180	U	0.100	0.0180	mg/L			05/03/13 20:34	100
Chloroform	0.0130	U	0.100	0.0130	mg/L			05/03/13 20:34	100
Dichlorodifluoromethane	0.0120	U	0.100	0.0120	mg/L			05/03/13 20:34	100
Ethylbenzene	**0.188**		0.100	0.0110	mg/L			05/03/13 20:34	100
Hexane	0.0160	U	0.100	0.0160	mg/L			05/03/13 20:34	100
Methylene Chloride	0.0150	U	0.100	0.0150	mg/L			05/03/13 20:34	100
m-Xylene & p-Xylene	**0.261**		0.200	0.0170	mg/L			05/03/13 20:34	100
o-Xylene	**0.119**		0.100	0.0120	mg/L			05/03/13 20:34	100
Styrene	0.00700	U	0.100	0.00700	mg/L			05/03/13 20:34	100
Tetrachloroethene	**0.0602**	**J**	0.100	0.0130	mg/L			05/03/13 20:34	100
Toluene	**0.675**		0.100	0.0150	mg/L			05/03/13 20:34	100
Trichloroethene	**2.02**		0.100	0.0180	mg/L			05/03/13 20:34	100
Vinyl acetate	0.0210	U	0.100	0.0210	mg/L			05/03/13 20:34	100
Vinyl chloride	**2.28**		0.200	0.0110	mg/L			05/03/13 20:34	100
Xylenes, Total	**0.380**		0.300	0.0260	mg/L			05/03/13 20:34	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*50 - 134*		*05/03/13 20:34*	*100*
4-Bromofluorobenzene	*88*		*67 - 139*		*05/03/13 20:34*	*100*
Dibromofluoromethane	*101*		*62 - 130*		*05/03/13 20:34*	*100*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/03/13 20:34*	*100*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**5.71**		1.00	0.160	mg/L			05/06/13 20:54	500
trans-1,2-Dichloroethene	**0.723**		0.500	0.0450	mg/L			05/06/13 20:54	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*05/06/13 20:54*	*500*
4-Bromofluorobenzene	*111*		*67 - 139*		*05/06/13 20:54*	*500*
Dibromofluoromethane	*78*		*62 - 130*		*05/06/13 20:54*	*500*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/06/13 20:54*	*500*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.0105	U	0.0250	0.0105	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4,6-Trichlorophenol	0.0165	U	0.0250	0.0165	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4-Dichlorophenol	0.0130	U	0.0250	0.0130	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4-Dimethylphenol	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Methylnaphthalene	**0.918**		0.0250	0.00700	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Methylphenol	0.00950	U	0.0250	0.00950	mg/L		05/03/13 07:53	05/13/13 14:41	50
3 & 4 Methylphenol	0.00800	U	0.0500	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Bromophenyl phenyl ether	0.0125	U	0.0250	0.0125	mg/L		05/03/13 07:53	05/13/13 14:41	50
Acenaphthene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Acenaphthylene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Aniline	0.00600	U	0.0250	0.00600	mg/L		05/03/13 07:53	05/13/13 14:41	50
Anthracene	**0.0224**	**J**	0.0250	0.0220	mg/L		05/03/13 07:53	05/13/13 14:41	50

Client Sample ID: MW-35
Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.0125	U	0.0250	0.0125	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[a]pyrene	0.00650	U	0.0250	0.00650	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[b]fluoranthene	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[g,h,i]perylene	0.0175	U	0.0250	0.0175	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[k]fluoranthene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Bis(2-chloroethyl)ether	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
Bis(2-ethylhexyl) phthalate	0.0295	U	0.0750	0.0295	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzyl butyl phthalate	0.0425	U	0.125	0.0425	mg/L		05/03/13 07:53	05/13/13 14:41	50
Chrysene	0.0120	U	0.0250	0.0120	mg/L		05/03/13 07:53	05/13/13 14:41	50
Dibenz(a,h)anthracene	0.0145	U	0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
Dibenzofuran	**0.308**		0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Di-n-butyl phthalate	0.0935	U	0.250	0.0935	mg/L		05/03/13 07:53	05/13/13 14:41	50
Di-n-octyl phthalate	0.00800	U	0.250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Fluoranthene	**0.0278**		0.0250	0.0155	mg/L		05/03/13 07:53	05/13/13 14:41	50
Fluorene	**0.243**		0.0250	0.00600	mg/L		05/03/13 07:53	05/13/13 14:41	50
Hexachlorobutadiene	0.00950	U	0.0250	0.00950	mg/L		05/03/13 07:53	05/13/13 14:41	50
Indeno[1,2,3-cd]pyrene	0.0145	U	0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
Phenanthrene	**0.107**		0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
Phenol	0.00700	U	0.0250	0.00700	mg/L		05/03/13 07:53	05/13/13 14:41	50
Pyrene	0.0165	U	0.0250	0.0165	mg/L		05/03/13 07:53	05/13/13 14:41	50
Pyridine	0.0120	U	0.0250	0.0120	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzyl alcohol	0.0255	U	0.0250	0.0255	mg/L		05/03/13 07:53	05/13/13 14:41	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 14:41*	*50*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**2.46**	*** b**	0.250	0.0800	mg/L		05/03/13 07:53	05/13/13 23:07	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X **	*44 - 123*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
2-Fluorobiphenyl	*0*	*X **	*43 - 120*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
2-Fluorophenol	*0*	*X **	*18 - 120*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
Nitrobenzene-d5	*0*	*X **	*47 - 120*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
Terphenyl-d14	*0*	*X **	*33 - 141*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
Phenol-d5 (Surr)	*0*	*X **	*12 - 128*	*05/03/13 07:53*	*05/13/13 23:07*	*500*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*82*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 14:05*	*1*

Client Sample ID: MW-35

Lab Sample ID: 600-72465-3

Date Collected: 04/30/13 13:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00154**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:23	1

Client Sample ID: MW-37

Lab Sample ID: 600-72465-4

Date Collected: 04/30/13 14:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:17	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 13:17	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:17	1
1,2-Dichloroethane	**0.000231**	**J**	0.00100	0.000140	mg/L			05/03/13 13:17	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:17	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 13:17	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:17	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 13:17	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/03/13 13:17	1
Benzene	**0.0273**		0.00100	0.0000800	mg/L			05/03/13 13:17	1
Carbon disulfide	**0.000453**	**J**	0.00100	0.000240	mg/L			05/03/13 13:17	1
Chlorobenzene	**0.000935**	**J**	0.00100	0.000120	mg/L			05/03/13 13:17	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:17	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:17	1
Ethylbenzene	**0.000445**	**J**	0.00100	0.000110	mg/L			05/03/13 13:17	1
Hexane	**0.000842**	**J**	0.00100	0.000160	mg/L			05/03/13 13:17	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:17	1
m-Xylene & p-Xylene	**0.00243**		0.00200	0.000170	mg/L			05/03/13 13:17	1
Naphthalene	**0.000557**	**J**	0.00200	0.000320	mg/L			05/03/13 13:17	1
o-Xylene	**0.00704**		0.00100	0.000120	mg/L			05/03/13 13:17	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 13:17	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
Toluene	**0.00200**		0.00100	0.000150	mg/L			05/03/13 13:17	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 13:17	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:17	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 13:17	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 13:17	1
Xylenes, Total	**0.00947**		0.00300	0.000260	mg/L			05/03/13 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*50 - 134*		*05/03/13 13:17*	*1*
4-Bromofluorobenzene	*87*		*67 - 139*		*05/03/13 13:17*	*1*
Dibromofluoromethane	*87*		*62 - 130*		*05/03/13 13:17*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/03/13 13:17*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1

Client Sample ID: MW-37
Date Collected: 04/30/13 14:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-4
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:26	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:26	1
Acenaphthene	**0.000487**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:26	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 19:26	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:26	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
Dibenzofuran	**0.000284**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 19:26	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 19:26	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:26	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:26	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
Naphthalene	**0.000665**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Phenanthrene	**0.000310**	**J**	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:26	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:26	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*44 - 123*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
2-Fluorobiphenyl	*50*		*43 - 120*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
2-Fluorophenol	*31*		*18 - 120*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
Nitrobenzene-d5	*69*		*47 - 120*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
Terphenyl-d14	*69*		*33 - 141*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
Phenol-d5 (Surr)	*20*		*12 - 128*	*05/03/13 07:53*	*05/13/13 19:26*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*70*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 14:30*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:29	1

Client Sample ID: AMP-3

Date Collected: 04/30/13 15:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:44	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 13:44	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:44	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 13:44	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:44	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 13:44	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:44	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 13:44	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/03/13 13:44	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 13:44	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/03/13 13:44	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 13:44	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:44	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 13:44	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 13:44	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 13:44	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 13:44	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 13:44	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 13:44	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 13:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*		*05/03/13 13:44*	*1*
4-Bromofluorobenzene	*85*		*67 - 139*		*05/03/13 13:44*	*1*
Dibromofluoromethane	*86*		*62 - 130*		*05/03/13 13:44*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/03/13 13:44*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.00210	U	0.00500	0.00210	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4,6-Trichlorophenol	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4-Dichlorophenol	0.00260	U	0.00500	0.00260	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4-Dimethylphenol	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Methylnaphthalene	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Methylphenol	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:08	10
3 & 4 Methylphenol	0.00160	U	0.0100	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Bromophenyl phenyl ether	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:08	10
Acenaphthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Acenaphthylene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Aniline	0.00120	U	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:08	10
Anthracene	0.00440	U	0.00500	0.00440	mg/L		05/03/13 07:53	05/13/13 15:08	10

Client Sample ID: AMP-3

Lab Sample ID: 600-72465-5

Date Collected: 04/30/13 15:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[a]pyrene	0.00130	U	0.00500	0.00130	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[b]fluoranthene	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[g,h,i]perylene	0.00350	U	0.00500	0.00350	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[k]fluoranthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Bis(2-chloroethyl)ether	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
Bis(2-ethylhexyl) phthalate	0.00590	U	0.0150	0.00590	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzyl butyl phthalate	0.00850	U	0.0250	0.00850	mg/L		05/03/13 07:53	05/13/13 15:08	10
Chrysene	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:08	10
Dibenz(a,h)anthracene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
Dibenzofuran	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Di-n-butyl phthalate	0.0187	U	0.0500	0.0187	mg/L		05/03/13 07:53	05/13/13 15:08	10
Di-n-octyl phthalate	0.00160	U	0.0500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Fluoranthene	0.00310	U	0.00500	0.00310	mg/L		05/03/13 07:53	05/13/13 15:08	10
Fluorene	0.00120	U	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:08	10
Hexachlorobutadiene	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:08	10
Indeno[1,2,3-cd]pyrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
Naphthalene	**0.00657**	**b**	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Phenanthrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
Phenol	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:08	10
Pyrene	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:08	10
Pyridine	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzyl alcohol	0.00510	U	0.00500	0.00510	mg/L		05/03/13 07:53	05/13/13 15:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 15:08*	*10*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 15:58*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:34	1

Client Sample ID: POE-2

Lab Sample ID: 600-72465-6

Date Collected: 04/30/13 15:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:37	1

Client Sample ID: POE-2
Date Collected: 04/30/13 15:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 17:37	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:37	1
1,2-Dichloroethane	**0.00115**		0.00100	0.000140	mg/L			05/04/13 17:37	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:37	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 17:37	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:37	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 17:37	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/04/13 17:37	1
Benzene	**0.000305**	**J**	0.00100	0.0000800	mg/L			05/04/13 17:37	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 17:37	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:37	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:37	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 17:37	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 17:37	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 17:37	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 17:37	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 17:37	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 17:37	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*05/04/13 17:37*	*1*
4-Bromofluorobenzene	*105*		*67 - 139*		*05/04/13 17:37*	*1*
Dibromofluoromethane	*76*		*62 - 130*		*05/04/13 17:37*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*05/04/13 17:37*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:54	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:54	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:54	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:54	1

Client Sample ID: POE-2
Date Collected: 04/30/13 15:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-6
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[k]fluoranthene	**0.000298**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Bis(2-chloroethyl)ether	**0.00112**		0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 19:54	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:54	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 19:54	1
Di-n-octyl phthalate	**0.000587**	**J**	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 19:54	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:54	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:54	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:54	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:54	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*46*		*44 - 123*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
2-Fluorobiphenyl	*28*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
2-Fluorophenol	*16*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
Nitrobenzene-d5	*43*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
Terphenyl-d14	*51*		*33 - 141*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
Phenol-d5 (Surr)	*2*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 19:54*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 16:23*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:40	1

Client Sample ID: R1-3-03
Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:30	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 19:30	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-03
Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:30	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:30	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:30	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 19:30	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:30	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 19:30	1
Acetone	**0.00377**		0.00200	0.000990	mg/L			05/04/13 19:30	1
Benzene	**0.0000940**	**J**	0.00100	0.0000800	mg/L			05/04/13 19:30	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 19:30	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:30	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Ethylbenzene	**0.000139**	**J b**	0.00100	0.000110	mg/L			05/04/13 19:30	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:30	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 19:30	1
Naphthalene	**0.000919**	**J b**	0.00200	0.000320	mg/L			05/04/13 19:30	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 19:30	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 19:30	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:30	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 19:30	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 19:30	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*05/04/13 19:30*	*1*
4-Bromofluorobenzene	*103*		*67 - 139*		*05/04/13 19:30*	*1*
Dibromofluoromethane	*76*		*62 - 130*		*05/04/13 19:30*	*1*
Toluene-d8 (Surr)	*88*		*70 - 130*		*05/04/13 19:30*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/10/13 18:58	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/10/13 18:58	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/10/13 18:58	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/10/13 18:58	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 18:58	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*120*		*44 - 123*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
2-Fluorobiphenyl	*81*		*43 - 120*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
2-Fluorophenol	*35*		*18 - 120*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
Nitrobenzene-d5	*85*		*47 - 120*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
Terphenyl-d14	*81*		*33 - 141*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
Phenol-d5 (Surr)	*11*	*X*	*12 - 128*	*05/03/13 07:53*	*05/10/13 18:58*	*1*

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-03
Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - RA

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:22	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:22	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:22	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 20:22	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:22	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:22	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 20:22	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 20:22	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:22	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 20:22	1
Di-n-octyl phthalate	0.000160	U *	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 20:22	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:22	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:22	1
Naphthalene	**0.000667**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:22	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:22	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:22	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:22	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*104*		*44 - 123*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
2-Fluorobiphenyl	*77*		*43 - 120*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
2-Fluorophenol	*35*		*18 - 120*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
Nitrobenzene-d5	*81*		*47 - 120*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
Terphenyl-d14	*85*		*33 - 141*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
Phenol-d5 (Surr)	*16*		*12 - 128*	*05/03/13 07:53*	*05/13/13 20:22*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*55*		*10 - 125.2*	*05/02/13 14:57*	*05/09/13 18:34*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.000921**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:45	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-02
Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:06	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 18:06	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:06	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:06	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:06	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 18:06	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:06	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 18:06	1
Acetone	**0.0205**		0.00200	0.000990	mg/L			05/04/13 18:06	1
Benzene	**0.000109**	**J**	0.00100	0.0000800	mg/L			05/04/13 18:06	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 18:06	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:06	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:06	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:06	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 18:06	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 18:06	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 18:06	1
Tetrachloroethene	**0.000344**	**J**	0.00100	0.000130	mg/L			05/04/13 18:06	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 18:06	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 18:06	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 18:06	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*		*05/04/13 18:06*	*1*
4-Bromofluorobenzene	*113*		*67 - 139*		*05/04/13 18:06*	*1*
Dibromofluoromethane	*77*		*62 - 130*		*05/04/13 18:06*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/04/13 18:06*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4-Dichlorophenol	**0.00361**		0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:49	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:49	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:49	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 20:49	1

Client Sample ID: R1-3-02
Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/10/13 19:26	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:49	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 20:49	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 20:49	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:49	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 19:26	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 20:49	1
Di-n-octyl phthalate	0.000160	U *	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Fluoranthene	**0.000445**	**J**	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 20:49	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:49	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:49	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 19:26	1
Naphthalene	**0.000682**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:49	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:49	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:49	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:49	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 20:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*53*		*44 - 123*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
2,4,6-Tribromophenol	*56*		*44 - 123*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
2-Fluorobiphenyl	*58*		*43 - 120*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
2-Fluorobiphenyl	*57*		*43 - 120*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
2-Fluorophenol	*9*	*X*	*18 - 120*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
2-Fluorophenol	*5*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
Nitrobenzene-d5	*62*		*47 - 120*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
Nitrobenzene-d5	*61*		*47 - 120*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
Terphenyl-d14	*74*		*33 - 141*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
Terphenyl-d14	*70*		*33 - 141*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
Phenol-d5 (Surr)	*17*		*12 - 128*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
Phenol-d5 (Surr)	*14*		*12 - 128*	*05/03/13 07:53*	*05/13/13 20:49*	*1*

Method: 8151A - Herbicides (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*32*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 18:59*	*1*

Method: 8151A - Herbicides (GC) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	**0.497**		0.190	0.0381	mg/L		05/02/13 14:57	05/10/13 12:10	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*0*	*X*	*10 - 125. 2*	*05/02/13 14:57*	*05/10/13 12:10*	*1000*

Client Sample ID: R1-3-02

Lab Sample ID: 600-72465-8

Date Collected: 05/01/13 09:20

Matrix: Water

Date Received: 05/01/13 18:14

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:19	1

Client Sample ID: R1-1-14

Lab Sample ID: 600-72465-9

Date Collected: 05/01/13 10:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 16:40	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 16:40	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 16:40	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 16:40	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 16:40	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 16:40	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 16:40	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 16:40	1
Acetone	**0.00277**		0.00200	0.000990	mg/L			05/04/13 16:40	1
Benzene	**0.0000847**	**J**	0.00100	0.0000800	mg/L			05/04/13 16:40	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 16:40	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 16:40	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 16:40	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 16:40	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 16:40	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 16:40	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 16:40	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 16:40	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 16:40	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*		*05/04/13 16:40*	*1*
4-Bromofluorobenzene	*120*		*67 - 139*		*05/04/13 16:40*	*1*
Dibromofluoromethane	*77*		*62 - 130*		*05/04/13 16:40*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/04/13 16:40*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1

Client Sample ID: R1-1-14
Date Collected: 05/01/13 10:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-9
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:17	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:17	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:17	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Bis(2-chloroethyl)ether	**0.000291**	**J**	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
Bis(2-ethylhexyl) phthalate	**0.000617**	**J**	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 21:17	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:17	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 21:17	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 21:17	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:17	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:17	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
Naphthalene	**0.000656**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
Phenol	**0.000152**	**J**	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:17	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:17	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*99*		*44 - 123*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
2-Fluorobiphenyl	*64*		*43 - 120*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
2-Fluorophenol	*32*		*18 - 120*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
Nitrobenzene-d5	*68*		*47 - 120*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
Terphenyl-d14	*75*		*33 - 141*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
Phenol-d5 (Surr)	*16*		*12 - 128*	*05/03/13 07:53*	*05/13/13 21:17*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*63*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 19:24*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00130**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:24	1

Client Sample ID: POE-1
Date Collected: 05/01/13 11:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:12	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 14:12	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:12	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:12	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:12	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 14:12	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:12	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 14:12	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/03/13 14:12	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:12	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/03/13 14:12	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:12	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:12	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 14:12	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 14:12	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 14:12	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 14:12	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 14:12	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 14:12	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 14:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*50 - 134*		*05/03/13 14:12*	*1*
4-Bromofluorobenzene	*83*		*67 - 139*		*05/03/13 14:12*	*1*
Dibromofluoromethane	*90*		*62 - 130*		*05/03/13 14:12*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*05/03/13 14:12*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:44	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:44	1
Acenaphthene	**0.00509**		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:44	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 21:44	1

Client Sample ID: POE-1

Lab Sample ID: 600-72465-10

Date Collected: 05/01/13 11:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 21:44	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:44	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 21:44	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 21:44	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:44	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:44	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:44	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:44	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 21:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*90*		*44 - 123*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
2-Fluorobiphenyl	*61*		*43 - 120*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
2-Fluorophenol	*32*		*18 - 120*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
Nitrobenzene-d5	*61*		*47 - 120*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
Terphenyl-d14	*70*		*33 - 141*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
Phenol-d5 (Surr)	*16*		*12 - 128*	*05/03/13 07:53*	*05/13/13 21:44*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 19:50*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00114**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:30	1

Client Sample ID: AMP-2

Lab Sample ID: 600-72465-11

Date Collected: 05/01/13 12:20

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:34	1

Client Sample ID: AMP-2
Date Collected: 05/01/13 12:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 18:34	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:34	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:34	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:34	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 18:34	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:34	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 18:34	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/04/13 18:34	1
Benzene	**0.000167**	**J**	0.00100	0.0000800	mg/L			05/04/13 18:34	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 18:34	1
Chlorobenzene	**0.000892**	**J**	0.00100	0.000120	mg/L			05/04/13 18:34	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:34	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:34	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:34	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 18:34	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 18:34	1
o-Xylene	**0.000286**	**J**	0.00100	0.000120	mg/L			05/04/13 18:34	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 18:34	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 18:34	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 18:34	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 18:34	1
Xylenes, Total	**0.000286**	**J**	0.00300	0.000260	mg/L			05/04/13 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*05/04/13 18:34*	*1*
4-Bromofluorobenzene	*111*		*67 - 139*		*05/04/13 18:34*	*1*
Dibromofluoromethane	*74*		*62 - 130*		*05/04/13 18:34*	*1*
Toluene-d8 (Surr)	*87*		*70 - 130*		*05/04/13 18:34*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:12	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:12	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:12	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:12	1

Client Sample ID: AMP-2

Lab Sample ID: 600-72465-11

Date Collected: 05/01/13 12:20

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	**0.00106**		0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 22:12	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:12	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 22:12	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Fluoranthene	**0.000512**		0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 22:12	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:12	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:12	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
Naphthalene	**0.000661**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:12	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:12	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 22:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*110*		*44 - 123*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
2-Fluorobiphenyl	*75*		*43 - 120*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
2-Fluorophenol	*37*		*18 - 120*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
Nitrobenzene-d5	*81*		*47 - 120*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
Terphenyl-d14	*90*		*33 - 141*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
Phenol-d5 (Surr)	*15*		*12 - 128*	*05/03/13 07:53*	*05/13/13 22:12*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 20:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*91*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 20:15*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:36	1

Client Sample ID: AMP-1

Lab Sample ID: 600-72465-12

Date Collected: 05/01/13 13:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:02	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 19:02	1

Client Sample ID: AMP-1
Date Collected: 05/01/13 13:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:02	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:02	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:02	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 19:02	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:02	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 19:02	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/04/13 19:02	1
Benzene	**0.00499**		0.00100	0.0000800	mg/L			05/04/13 19:02	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 19:02	1
Chlorobenzene	**0.00872**		0.00100	0.000120	mg/L			05/04/13 19:02	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:02	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:02	1
Ethylbenzene	**0.000279**	**J b**	0.00100	0.000110	mg/L			05/04/13 19:02	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:02	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:02	1
m-Xylene & p-Xylene	**0.00103**	**J**	0.00200	0.000170	mg/L			05/04/13 19:02	1
Naphthalene	**0.00218**	**b**	0.00200	0.000320	mg/L			05/04/13 19:02	1
o-Xylene	**0.000465**	**J**	0.00100	0.000120	mg/L			05/04/13 19:02	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 19:02	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
Toluene	**0.000706**	**J**	0.00100	0.000150	mg/L			05/04/13 19:02	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 19:02	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:02	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 19:02	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 19:02	1
Xylenes, Total	**0.00150**	**J**	0.00300	0.000260	mg/L			05/04/13 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*05/04/13 19:02*	*1*
4-Bromofluorobenzene	*104*		*67 - 139*		*05/04/13 19:02*	*1*
Dibromofluoromethane	*74*		*62 - 130*		*05/04/13 19:02*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/04/13 19:02*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.00210	U	0.00500	0.00210	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4,6-Trichlorophenol	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4-Dichlorophenol	0.00260	U	0.00500	0.00260	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4-Dimethylphenol	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Methylnaphthalene	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Methylphenol	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:35	10
3 & 4 Methylphenol	0.00160	U	0.0100	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Bromophenyl phenyl ether	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:35	10
Acenaphthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Acenaphthylene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Aniline	0.00120	U	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:35	10
Anthracene	0.00440	U	0.00500	0.00440	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[a]anthracene	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[a]pyrene	0.00130	U	0.00500	0.00130	mg/L		05/03/13 07:53	05/13/13 15:35	10

Client Sample ID: AMP-1

Date Collected: 05/01/13 13:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-12
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[g,h,i]perylene	0.00350	U	0.00500	0.00350	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[k]fluoranthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Bis(2-chloroethyl)ether	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
Bis(2-ethylhexyl) phthalate	0.00590	U	0.0150	0.00590	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzyl butyl phthalate	0.00850	U	0.0250	0.00850	mg/L		05/03/13 07:53	05/13/13 15:35	10
Chrysene	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:35	10
Dibenz(a,h)anthracene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
Dibenzofuran	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Di-n-butyl phthalate	0.0187	U	0.0500	0.0187	mg/L		05/03/13 07:53	05/13/13 15:35	10
Di-n-octyl phthalate	0.00160	U	0.0500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Fluoranthene	0.00310	U	0.00500	0.00310	mg/L		05/03/13 07:53	05/13/13 15:35	10
Fluorene	**0.00283**	**J**	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:35	10
Hexachlorobutadiene	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:35	10
Indeno[1,2,3-cd]pyrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
Naphthalene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Phenanthrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
Phenol	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:35	10
Pyrene	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:35	10
Pyridine	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzyl alcohol	0.00510	U	0.00500	0.00510	mg/L		05/03/13 07:53	05/13/13 15:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 15:35*	*10*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*85*		*10 - 125.2*	*05/02/13 14:57*	*05/09/13 20:40*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:41	1

Client Sample ID: R1-1-18

Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:39	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 14:39	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:39	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-1-18
Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:39	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:39	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 14:39	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:39	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 14:39	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/03/13 14:39	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:39	1
Carbon disulfide	**0.000300**	**J**	0.00100	0.000240	mg/L			05/03/13 14:39	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:39	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:39	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:39	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:39	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:39	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 14:39	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 14:39	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:39	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 14:39	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 14:39	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:39	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 14:39	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 14:39	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*05/03/13 14:39*	*1*
4-Bromofluorobenzene	*86*		*67 - 139*		*05/03/13 14:39*	*1*
Dibromofluoromethane	*92*		*62 - 130*		*05/03/13 14:39*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*05/03/13 14:39*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:40	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:40	1
Acenaphthene	**0.000556**		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:40	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1

Client Sample ID: R1-1-18
Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 22:40	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:40	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 22:40	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 22:40	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:40	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:40	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:40	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:40	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*108*		*44 - 123*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
2-Fluorobiphenyl	*77*		*43 - 120*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
2-Fluorophenol	*43*		*18 - 120*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
Nitrobenzene-d5	*79*		*47 - 120*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
Terphenyl-d14	*92*		*33 - 141*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
Phenol-d5 (Surr)	*29*		*12 - 128*	*05/03/13 07:53*	*05/13/13 22:40*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*83*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 21:06*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00164**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:47	1

Client Sample ID: Trip Blank
Date Collected: 05/01/13 00:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:22	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 12:22	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:22	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:22	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: Trip Blank
Date Collected: 05/01/13 00:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:22	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 12:22	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:22	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 12:22	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/03/13 12:22	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:22	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/03/13 12:22	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:22	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:22	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 12:22	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 12:22	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 12:22	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 12:22	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 12:22	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 12:22	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 12:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*05/03/13 12:22*	*1*
4-Bromofluorobenzene	*86*		*67 - 139*		*05/03/13 12:22*	*1*
Dibromofluoromethane	*94*		*62 - 130*		*05/03/13 12:22*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*05/03/13 12:22*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
b	The compound was found in the blank and sample
N	MS, MSD: Spike recovery exceeds upper or lower control limits.
N	RPD of the MS and MSD exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
b	The compound was found in the blank and sample
X	Surrogate is outside control limits
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
*	ISTD response or retention time outside acceptable limits

GC Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
E	Result is greater then the UQL and the concentration is an estimated value.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(50-134)	(67-139)	(62-130)	(70-130)
600-72465-1	Equipment Blank	88	87	98	96
600-72465-2	R1-3-01	80	122	74	86
600-72465-3	MW-35	98	88	101	101
600-72465-3 - DL	MW-35	74	111	78	93
600-72465-3 MS - DL2	MW-35	75	104	82	94
600-72465-3 MSD - DL2	MW-35	77	106	84	88
600-72465-4	MW-37	89	87	87	95
600-72465-5	AMP-3	91	85	86	95
600-72465-5 MS	AMP-3	90	87	96	97
600-72465-5 MSD	AMP-3	91	88	89	97
600-72465-6	POE-2	76	105	76	94
600-72465-7	R1-3-03	77	103	76	88
600-72465-8	R1-3-02	75	113	77	92
600-72465-9	R1-1-14	75	120	77	93
600-72465-10	POE-1	89	83	90	96
600-72465-11	AMP-2	76	111	74	87
600-72465-12	AMP-1	76	104	74	93
600-72465-13	R1-1-18	87	86	92	94
600-72465-14	Trip Blank	87	86	94	98
LCS 600-105345/3	Lab Control Sample	86	88	98	98
LCS 600-105484/4	Lab Control Sample	77	104	84	88
LCS 600-105484/5	Lab Control Sample	76	112	76	92
LCS 600-105530/4	Lab Control Sample	74	106	83	94
MB 600-105345/4	Method Blank	86	85	97	99
MB 600-105484/6	Method Blank	80	117	77	90
MB 600-105530/6	Method Blank	74	121	75	94

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(44-123)	(43-120)	(18-120)	(47-120)	(33-141)	(12-128)
600-72465-2	R1-3-01	75	53	28	58	66	11 X
600-72465-3	MW-35	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-3 - DL	MW-35	0 X *	0 X *	0 X *	0 X *	0 X *	0 X *
600-72465-4	MW-37	79	50	31	69	69	20
600-72465-5	AMP-3	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-6	POE-2	46	28 X	16 X	43 X	51	2 X
600-72465-7 - RA	R1-3-03	104	77	35	81	85	16
600-72465-7	R1-3-03	120	81	35	85	81	11 X
600-72465-8	R1-3-02	56	57	5 X	61	70	14
600-72465-8	R1-3-02	53	58	9 X	62	74	17

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(44-123)	(43-120)	(18-120)	(47-120)	(33-141)	(12-128)
600-72465-9	R1-1-14	99	64	32	68	75	16
600-72465-10	POE-1	90	61	32	61	70	16
600-72465-11	AMP-2	110	75	37	81	90	15
600-72465-12	AMP-1	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-13	R1-1-18	108	77	43	79	92	29
LCS 600-105411/2-A	Lab Control Sample	65	54	31	62	70	18
LCSD 600-105411/3-A	Lab Control Sample Dup	74	55	32	61	70	15
MB 600-105411/1-A	Method Blank	64	73	36	70	80	21

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPA2
Lab Sample ID	Client Sample ID	(10-125.2)
600-72465-2	R1-3-01	65
600-72465-3	MW-35	82
600-72465-4	MW-37	70
600-72465-5	AMP-3	69
600-72465-6	POE-2	73
600-72465-6 MS	POE-2	113 E
600-72465-6 MSD	POE-2	116 E
600-72465-7	R1-3-03	55
600-72465-8	R1-3-02	32
600-72465-8 - DL	R1-3-02	0 X
600-72465-9	R1-1-14	63
600-72465-10	POE-1	69
600-72465-11	AMP-2	91
600-72465-12	AMP-1	85
600-72465-13	R1-1-18	83
LCS 600-105273/2-A	Lab Control Sample	72
MB 600-105273/1-A	Method Blank	73

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-105345/4
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 11:55	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 11:55	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 11:55	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 11:55	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 11:55	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/03/13 11:55	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 11:55	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/03/13 11:55	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/03/13 11:55	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 11:55	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/03/13 11:55	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 11:55	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 11:55	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 11:55	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 11:55	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 11:55	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 11:55	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/03/13 11:55	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 11:55	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*		*05/03/13 11:55*	*1*
4-Bromofluorobenzene	*85*		*67 - 139*		*05/03/13 11:55*	*1*
Dibromofluoromethane	*97*		*62 - 130*		*05/03/13 11:55*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*05/03/13 11:55*	*1*

Lab Sample ID: LCS 600-105345/3
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	0.0100	0.009706		mg/L		97	59 - 145
1,2,3-Trichloropropane	0.0100	0.009523		mg/L		95	52 - 157
1,2-Dichlorobenzene	0.0100	0.009913		mg/L		99	71 - 133
1,2-Dichloroethane	0.0100	0.009062		mg/L		91	66 - 140
1,2-Dichloropropane	0.0100	0.009807		mg/L		98	72 - 125
2-Butanone (MEK)	0.0200	0.02051		mg/L		103	59 - 133
4-Isopropyltoluene	0.0100	0.01136		mg/L		114	63 - 138

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-105345/3
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	0.0200	0.01632		mg/L		82	56 - 142
Acetone	0.0200	0.01177		mg/L		59	28 - 152
Benzene	0.0100	0.01033		mg/L		103	69 - 131
Carbon disulfide	0.0100	0.009334		mg/L		93	32 - 177
Chlorobenzene	0.0100	0.01042		mg/L		104	60 - 136
Chlorobromomethane	0.0100	0.009720		mg/L		97	60 - 141
Chloroform	0.0100	0.01031		mg/L		103	69 - 128
Dichlorodifluoromethane	0.0100	0.001204		mg/L		12	12 - 136
Ethylbenzene	0.0100	0.01060		mg/L		106	68 - 128
Hexane	0.0100	0.01218		mg/L		122	28 - 145
Methyl tert-butyl ether	0.0100	0.009094		mg/L		91	63 - 142
m-Xylene & p-Xylene	0.0100	0.01041		mg/L		104	67 - 132
Naphthalene	0.0100	0.009960		mg/L		100	19 - 195
o-Xylene	0.0100	0.01015		mg/L		101	68 - 134
Styrene	0.0100	0.009945		mg/L		99	68 - 133
Tetrachloroethene	0.0100	0.01071		mg/L		107	61 - 142
Toluene	0.0100	0.01037		mg/L		104	67 - 130
trans-1,2-Dichloroethene	0.0100	0.01004		mg/L		100	70 - 132
Trichloroethene	0.0100	0.01156		mg/L		116	68 - 130
Vinyl acetate	0.0200	0.01268		mg/L		63	58 - 175
Vinyl chloride	0.0100	0.004870		mg/L		49	47 - 146
Xylenes, Total	0.0200	0.02056		mg/L		103	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*
4-Bromofluorobenzene	*88*		*67 - 139*
Dibromofluoromethane	*98*		*62 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Lab Sample ID: 600-72465-5 MS
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	0.000190	U	0.0100	0.009592		mg/L		96	22 - 143
1,2,3-Trichloropropane	0.000290	U	0.0100	0.009540		mg/L		95	60 - 140
1,2-Dichlorobenzene	0.000100	U	0.0100	0.009886		mg/L		99	60 - 140
1,2-Dichloroethane	0.000140	U	0.0100	0.009183		mg/L		92	60 - 140
1,2-Dichloropropane	0.000160	U	0.0100	0.009699		mg/L		97	60 - 140
2-Butanone (MEK)	0.000760	U	0.0200	0.01732		mg/L		87	60 - 140
4-Isopropyltoluene	0.000100	U	0.0100	0.01102		mg/L		110	60 - 140
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.0200	0.01740		mg/L		87	60 - 140
Acetone	0.000990	U	0.0200	0.03142	N	mg/L		157	60 - 140
Benzene	0.0000800	U	0.0100	0.01020		mg/L		102	65 - 125
Carbon disulfide	0.000240	U	0.0100	0.009281		mg/L		93	60 - 140
Chlorobenzene	0.000120	U	0.0100	0.01041		mg/L		104	72 - 122
Chlorobromomethane	0.000180	U	0.0100	0.009181		mg/L		92	60 - 140
Chloroform	0.000130	U	0.0100	0.01012		mg/L		101	60 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-72465-5 MS
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	0.000120	U	0.0100	0.001078	N	mg/L		11	60 - 140
Ethylbenzene	0.000110	U	0.0100	0.01047		mg/L		105	60 - 140
Hexane	0.000160	U	0.0100	0.01158		mg/L		116	60 - 140
Methyl tert-butyl ether	0.000336		0.0100	0.009247		mg/L		89	60 - 140
m-Xylene & p-Xylene	0.000170	U	0.0100	0.01037		mg/L		104	60 - 140
Naphthalene	0.000320	U	0.0100	0.009617		mg/L		96	60 - 140
o-Xylene	0.000120	U	0.0100	0.01048		mg/L		105	60 - 140
Styrene	0.0000700	U	0.0100	0.0005896	J N	mg/L		6	60 - 140
Tetrachloroethene	0.000130	U	0.0100	0.01032		mg/L		103	60 - 140
Toluene	0.000150	U	0.0100	0.009979		mg/L		100	76 - 125
trans-1,2-Dichloroethene	0.0000900	U	0.0100	0.009748		mg/L		97	60 - 140
Trichloroethene	0.000180	U	0.0100	0.01157		mg/L		116	56 - 118
Vinyl acetate	0.000210	U	0.0200	0.001643	N	mg/L		8	60 - 140
Vinyl chloride	0.000110	U	0.0100	0.004191	N	mg/L		42	60 - 140
Xylenes, Total	0.000260	U	0.0200	0.02085		mg/L		104	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*50 - 134*
4-Bromofluorobenzene	*87*		*67 - 139*
Dibromofluoromethane	*96*		*62 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: 600-72465-5 MSD
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	0.000190	U	0.0100	0.009030		mg/L		90	22 - 143	6	30
1,2,3-Trichloropropane	0.000290	U	0.0100	0.01029		mg/L		103	60 - 140	8	30
1,2-Dichlorobenzene	0.000100	U	0.0100	0.01034		mg/L		103	60 - 140	4	30
1,2-Dichloroethane	0.000140	U	0.0100	0.009869		mg/L		99	60 - 140	7	30
1,2-Dichloropropane	0.000160	U	0.0100	0.01041		mg/L		104	60 - 140	7	30
2-Butanone (MEK)	0.000760	U	0.0200	0.01794		mg/L		90	60 - 140	4	30
4-Isopropyltoluene	0.000100	U	0.0100	0.01158		mg/L		116	60 - 140	5	30
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.0200	0.01943		mg/L		97	60 - 140	11	30
Acetone	0.000990	U	0.0200	0.03217	N	mg/L		161	60 - 140	2	30
Benzene	0.0000800	U	0.0100	0.01065		mg/L		106	65 - 125	4	30
Carbon disulfide	0.000240	U	0.0100	0.008878		mg/L		89	60 - 140	4	30
Chlorobenzene	0.000120	U	0.0100	0.01097		mg/L		110	72 - 122	5	30
Chlorobromomethane	0.000180	U	0.0100	0.009177		mg/L		92	60 - 140	0	30
Chloroform	0.000130	U	0.0100	0.01069		mg/L		107	60 - 140	6	30
Dichlorodifluoromethane	0.000120	U	0.0100	0.001023	N	mg/L		10	60 - 140	5	30
Ethylbenzene	0.000110	U	0.0100	0.01097		mg/L		110	60 - 140	5	30
Hexane	0.000160	U	0.0100	0.01125		mg/L		113	60 - 140	3	30
Methyl tert-butyl ether	0.000336		0.0100	0.009350		mg/L		90	60 - 140	1	30
m-Xylene & p-Xylene	0.000170	U	0.0100	0.01064		mg/L		106	60 - 140	3	30
Naphthalene	0.000320	U	0.0100	0.01165		mg/L		116	60 - 140	19	30
o-Xylene	0.000120	U	0.0100	0.01050		mg/L		105	60 - 140	0	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-72465-5 MSD
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Styrene	0.0000700	U	0.0100	0.0003387	J N	mg/L		3	60 - 140	54	30
Tetrachloroethene	0.000130	U	0.0100	0.01108		mg/L		111	60 - 140	7	30
Toluene	0.000150	U	0.0100	0.01044		mg/L		104	76 - 125	5	30
trans-1,2-Dichloroethene	0.0000900	U	0.0100	0.009191		mg/L		92	60 - 140	6	30
Trichloroethene	0.000180	U	0.0100	0.01191	N	mg/L		119	56 - 118	3	30
Vinyl acetate	0.000210	U	0.0200	0.002717	N	mg/L		14	60 - 140	49	30
Vinyl chloride	0.000110	U	0.0100	0.003940	N	mg/L		39	60 - 140	6	30
Xylenes, Total	0.000260	U	0.0200	0.02114		mg/L		106	60 - 140	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*
4-Bromofluorobenzene	*88*		*67 - 139*
Dibromofluoromethane	*89*		*62 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: MB 600-105484/6
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 12:53	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 12:53	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 12:53	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 12:53	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 12:53	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			05/04/13 12:53	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 12:53	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			05/04/13 12:53	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			05/04/13 12:53	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 12:53	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			05/04/13 12:53	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Ethylbenzene	0.0001371	J	0.00100	0.000110	mg/L			05/04/13 12:53	1
Hexane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 12:53	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 12:53	1
Naphthalene	0.0009128	J	0.00200	0.000320	mg/L			05/04/13 12:53	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 12:53	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 12:53	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			05/04/13 12:53	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 12:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-105484/6
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 12:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*05/04/13 12:53*	*1*
4-Bromofluorobenzene	*117*		*67 - 139*		*05/04/13 12:53*	*1*
Dibromofluoromethane	*77*		*62 - 130*		*05/04/13 12:53*	*1*
Toluene-d8 (Surr)	*90*		*70 - 130*		*05/04/13 12:53*	*1*

Lab Sample ID: LCS 600-105484/4
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	0.0100	0.009123		mg/L		91	59 - 145
1,2,3-Trichloropropane	0.0100	0.01042		mg/L		104	52 - 157
1,2-Dichlorobenzene	0.0100	0.009980		mg/L		100	71 - 133
1,2-Dichloroethane	0.0100	0.009968		mg/L		100	66 - 140
1,2-Dichloropropane	0.0100	0.01045		mg/L		104	72 - 125
2-Butanone (MEK)	0.0200	0.01659		mg/L		83	59 - 133
4-Isopropyltoluene	0.0100	0.01206		mg/L		121	63 - 138
4-Methyl-2-pentanone (MIBK)	0.0200	0.01824		mg/L		91	56 - 142
Acetone	0.0200	0.01400		mg/L		70	28 - 152
Benzene	0.0100	0.01027		mg/L		103	69 - 131
Carbon disulfide	0.0100	0.007928		mg/L		79	32 - 177
Chlorobenzene	0.0100	0.01040		mg/L		104	60 - 136
Chlorobromomethane	0.0100	0.009792		mg/L		98	60 - 141
Chloroform	0.0100	0.009959		mg/L		100	69 - 128
Dichlorodifluoromethane	0.0100	0.003566		mg/L		36	12 - 136
Ethylbenzene	0.0100	0.01047		mg/L		105	68 - 128
Methyl tert-butyl ether	0.0100	0.009721		mg/L		97	63 - 142
m-Xylene & p-Xylene	0.0200	0.02112		mg/L		106	67 - 132
Naphthalene	0.0100	0.006718		mg/L		67	19 - 195
o-Xylene	0.0100	0.01083		mg/L		108	68 - 134
Styrene	0.0100	0.01036		mg/L		104	68 - 133
Tetrachloroethene	0.0100	0.01043		mg/L		104	61 - 142
Toluene	0.0100	0.01009		mg/L		101	67 - 130
trans-1,2-Dichloroethene	0.0100	0.009400		mg/L		94	70 - 132
Trichloroethene	0.0100	0.009916		mg/L		99	68 - 130
Vinyl acetate	0.0100	0.01115		mg/L		111	58 - 175
Vinyl chloride	0.0100	0.007231		mg/L		72	47 - 146
Xylenes, Total	0.0300	0.03195		mg/L		107	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*
4-Bromofluorobenzene	*104*		*67 - 139*
Dibromofluoromethane	*84*		*62 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-105484/5
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hexane			0.0100	0.01056		mg/L		106	28 - 145		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*
4-Bromofluorobenzene	*112*		*67 - 139*
Dibromofluoromethane	*76*		*62 - 130*
Toluene-d8 (Surr)	*92*		*70 - 130*

Lab Sample ID: MB 600-105530/6
Matrix: Water
Analysis Batch: 105530

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/06/13 11:53	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/06/13 11:53	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/06/13 11:53	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/06/13 11:53	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/06/13 11:53	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/06/13 11:53	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/06/13 11:53	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/06/13 11:53	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/06/13 11:53	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/06/13 11:53	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/06/13 11:53	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/06/13 11:53	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/06/13 11:53	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/06/13 11:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*05/06/13 11:53*	*1*
4-Bromofluorobenzene	*121*		*67 - 139*		*05/06/13 11:53*	*1*
Dibromofluoromethane	*75*		*62 - 130*		*05/06/13 11:53*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*05/06/13 11:53*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-105530/4
Matrix: Water
Analysis Batch: 105530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	0.0100	0.009170		mg/L		92	59 - 145
1,2,3-Trichloropropane	0.0100	0.009919		mg/L		99	52 - 157
1,2-Dichlorobenzene	0.0100	0.01034		mg/L		103	71 - 133
1,2-Dichloroethane	0.0100	0.009216		mg/L		92	66 - 140
1,2-Dichloropropane	0.0100	0.009300		mg/L		93	72 - 125
4-Isopropyltoluene	0.0100	0.01193		mg/L		119	63 - 138
Benzene	0.0100	0.009441		mg/L		94	69 - 131
Chlorobenzene	0.0100	0.01047		mg/L		105	60 - 136
Chlorobromomethane	0.0100	0.008976		mg/L		90	60 - 141
Chloroform	0.0100	0.01042		mg/L		104	69 - 128
Dichlorodifluoromethane	0.0100	0.002587		mg/L		26	12 - 136
Ethylbenzene	0.0100	0.01020		mg/L		102	68 - 128
Methyl tert-butyl ether	0.0100	0.008919		mg/L		89	63 - 142
m-Xylene & p-Xylene	0.0200	0.02134		mg/L		107	67 - 132
Naphthalene	0.0100	0.006608		mg/L		66	19 - 195
o-Xylene	0.0100	0.01074		mg/L		107	68 - 134
Styrene	0.0100	0.01003		mg/L		100	68 - 133
Tetrachloroethene	0.0100	0.01049		mg/L		105	61 - 142
Toluene	0.0100	0.01037		mg/L		104	67 - 130
trans-1,2-Dichloroethene	0.0100	0.008735		mg/L		87	70 - 132
Trichloroethene	0.0100	0.009105		mg/L		91	68 - 130
Vinyl chloride	0.0100	0.006576		mg/L		66	47 - 146
Xylenes, Total	0.0300	0.03208		mg/L		107	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*
4-Bromofluorobenzene	*106*		*67 - 139*
Dibromofluoromethane	*83*		*62 - 130*
Toluene-d8 (Surr)	*94*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Lab Sample ID: 600-72465-3 MS
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene - DL2	1.90		100	91.44		mg/L		91	22 - 143
1,2,3-Trichloropropane - DL2	2.90		100	97.97		mg/L		98	60 - 140
1,2-Dichlorobenzene - DL2	6.75		100	98.22		mg/L		91	60 - 140
1,2-Dichloroethane - DL2	1.40		100	94.97		mg/L		95	60 - 140
1,2-Dichloropropane - DL2	1.60		100	100.5		mg/L		100	60 - 140
2-Butanone (MEK) - DL2	7.60		200	153.3		mg/L		77	60 - 140
4-Isopropyltoluene - DL2	1.00		100	115.4		mg/L		115	60 - 140
4-Methyl-2-pentanone (MIBK) - DL2	4.50		200	179.1		mg/L		90	60 - 140
Acetone - DL2	9.90		200	131.1		mg/L		66	60 - 140
Benzene - DL2	1.40		100	102.3		mg/L		101	65 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2 (Continued)

Lab Sample ID: 600-72465-3 MS
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon disulfide - DL2	2.40		100	69.46		mg/L		69	60 - 140
Chlorobenzene - DL2	1.20		100	105.5		mg/L		106	72 - 122
Chlorobromomethane - DL2	1.80		100	93.59		mg/L		94	60 - 140
Chloroform - DL2	2.99		100	108.7		mg/L		106	60 - 140
Dichlorodifluoromethane - DL2	1.20		100	28.80	N	mg/L		29	60 - 140
Ethylbenzene - DL2	1.86		100	106.9		mg/L		105	60 - 140
Methyl tert-butyl ether - DL2	1.20		100	93.36		mg/L		93	60 - 140
m-Xylene & p-Xylene - DL2	1.70		200	217.3		mg/L		109	60 - 140
Naphthalene - DL2	42.6		100	82.27	N	mg/L		40	60 - 140
o-Xylene - DL2	1.20		100	109.8		mg/L		110	60 - 140
Styrene - DL2	0.700		100	104.1		mg/L		104	60 - 140
Tetrachloroethene - DL2	1.30		100	110.0		mg/L		110	60 - 140
Toluene - DL2	1.50		100	107.7		mg/L		108	76 - 125
trans-1,2-Dichloroethene - DL2	0.900		100	93.72		mg/L		94	60 - 140
Trichloroethene - DL2	2.63		100	99.05		mg/L		96	56 - 118
Vinyl acetate - DL2	2.10		100	101.3		mg/L		101	60 - 140
Vinyl chloride - DL2	1.10		100	66.24		mg/L		66	60 - 140
Xylenes, Total - DL2	2.60		300	327.1		mg/L		109	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL2	*75*		*50 - 134*
4-Bromofluorobenzene - DL2	*104*		*67 - 139*
Dibromofluoromethane - DL2	*82*		*62 - 130*
Toluene-d8 (Surr) - DL2	*94*		*70 - 130*

Lab Sample ID: 600-72465-3 MSD
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene - DL2	1.90		100	90.25		mg/L		90	22 - 143	1	30
1,2,3-Trichloropropane - DL2	2.90		100	106.1		mg/L		106	60 - 140	8	30
1,2-Dichlorobenzene - DL2	6.75		100	104.7		mg/L		98	60 - 140	6	30
1,2-Dichloroethane - DL2	1.40		100	98.78		mg/L		99	60 - 140	4	30
1,2-Dichloropropane - DL2	1.60		100	102.2		mg/L		102	60 - 140	2	30
2-Butanone (MEK) - DL2	7.60		200	169.7		mg/L		85	60 - 140	10	30
4-Isopropyltoluene - DL2	1.00		100	120.6		mg/L		121	60 - 140	4	30
4-Methyl-2-pentanone (MIBK) - DL2	4.50		200	182.1		mg/L		91	60 - 140	2	30
Acetone - DL2	9.90		200	139.2		mg/L		70	60 - 140	6	30
Benzene - DL2	1.40		100	99.48		mg/L		98	65 - 125	3	30
Carbon disulfide - DL2	2.40		100	75.09		mg/L		75	60 - 140	8	30
Chlorobenzene - DL2	1.20		100	104.4		mg/L		104	72 - 122	1	30
Chlorobromomethane - DL2	1.80		100	96.87		mg/L		97	60 - 140	3	30
Chloroform - DL2	2.99		100	102.0		mg/L		99	60 - 140	6	30
Dichlorodifluoromethane - DL2	1.20		100	34.51	N	mg/L		35	60 - 140	18	30
Ethylbenzene - DL2	1.86		100	104.7		mg/L		103	60 - 140	2	30

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2 (Continued)

Lab Sample ID: 600-72465-3 MSD
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether - DL2	1.20		100	94.53		mg/L		95	60 - 140	1	30
m-Xylene & p-Xylene - DL2	1.70		200	213.3		mg/L		107	60 - 140	2	30
Naphthalene - DL2	42.6		100	101.5	N	mg/L		59	60 - 140	21	30
o-Xylene - DL2	1.20		100	107.9		mg/L		108	60 - 140	2	30
Styrene - DL2	0.700		100	105.1		mg/L		105	60 - 140	1	30
Tetrachloroethene - DL2	1.30		100	105.1		mg/L		105	60 - 140	5	30
Toluene - DL2	1.50		100	102.1		mg/L		102	76 - 125	5	30
trans-1,2-Dichloroethene - DL2	0.900		100	93.16		mg/L		93	60 - 140	1	30
Trichloroethene - DL2	2.63		100	98.52		mg/L		96	56 - 118	1	30
Vinyl acetate - DL2	2.10		100	104.9		mg/L		105	60 - 140	4	30
Vinyl chloride - DL2	1.10		100	72.59		mg/L		73	60 - 140	9	30
Xylenes, Total - DL2	2.60		300	321.2		mg/L		107	60 - 140	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL2	*77*		*50 - 134*
4-Bromofluorobenzene - DL2	*106*		*67 - 139*
Dibromofluoromethane - DL2	*84*		*62 - 130*
Toluene-d8 (Surr) - DL2	*88*		*70 - 130*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-105411/1-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105411

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 17:37	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 17:37	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 17:37	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzyl butyl phthalate	0.000850	U	0.00250	0.000850	mg/L		05/03/13 07:53	05/13/13 17:37	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 17:37	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: MB 600-105411/1-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105411

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 17:37	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 17:37	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 17:37	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 17:37	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
Naphthalene	0.0006574		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 17:37	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 17:37	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		05/03/13 07:53	05/13/13 17:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*64*		*44 - 123*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
2-Fluorobiphenyl	*73*		*43 - 120*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
2-Fluorophenol	*36*		*18 - 120*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
Nitrobenzene-d5	*70*		*47 - 120*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
Terphenyl-d14	*80*		*33 - 141*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
Phenol-d5 (Surr)	*21*		*12 - 128*	*05/03/13 07:53*	*05/13/13 17:37*	*1*

Lab Sample ID: LCS 600-105411/2-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	0.00800	0.005101		mg/L		64	40 - 121
2,4,6-Trichlorophenol	0.00800	0.005286		mg/L		66	39 - 123
2,4-Dichlorophenol	0.00800	0.004833		mg/L		60	39 - 118
2,4-Dimethylphenol	0.00800	0.003844		mg/L		48	36 - 109
2-Methylnaphthalene	0.00800	0.005533		mg/L		69	40 - 121
2-Methylphenol	0.00800	0.004195		mg/L		52	34 - 109
3 & 4 Methylphenol	0.00800	0.004081		mg/L		51	27 - 113
4-Bromophenyl phenyl ether	0.00800	0.005692		mg/L		71	46 - 129
Acenaphthene	0.00800	0.005783		mg/L		72	47 - 145
Acenaphthylene	0.00800	0.005193		mg/L		65	35 - 135
Aniline	0.00800	0.006634		mg/L		83	13 - 100
Anthracene	0.00800	0.005017		mg/L		63	53 - 124
Benzo[a]anthracene	0.00800	0.005991		mg/L		75	53 - 122
Benzo[a]pyrene	0.00800	0.006383		mg/L		80	50 - 124
Benzo[b]fluoranthene	0.00800	0.006667		mg/L		83	53 - 131
Benzo[g,h,i]perylene	0.00800	0.006076		mg/L		76	46 - 133
Benzo[k]fluoranthene	0.00800	0.006044		mg/L		76	46 - 130
Bis(2-chloroethyl)ether	0.00800	0.004250		mg/L		53	40 - 112
Bis(2-ethylhexyl) phthalate	0.00800	0.006639		mg/L		83	47 - 132
Benzyl butyl phthalate	0.00800	0.006432		mg/L		80	50 - 126

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-105411/2-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chrysene	0.00800	0.005819		mg/L		73	49 - 124
Dibenz(a,h)anthracene	0.00800	0.006523		mg/L		82	42 - 134
Dibenzofuran	0.00800	0.005310		mg/L		66	46 - 123
Di-n-butyl phthalate	0.00800	0.005408		mg/L		68	54 - 138
Di-n-octyl phthalate	0.00800	0.006609		mg/L		83	27 - 157
Fluoranthene	0.00800	0.005412		mg/L		68	53 - 127
Fluorene	0.00800	0.006018		mg/L		75	48 - 127
Hexachlorobutadiene	0.00800	0.004845		mg/L		61	32 - 143
Indeno[1,2,3-cd]pyrene	0.00800	0.006321		mg/L		79	45 - 124
Naphthalene	0.00800	0.004493		mg/L		56	39 - 120
Phenanthrene	0.00800	0.005428		mg/L		68	52 - 121
Phenol	0.00800	0.002835		mg/L		35	11 - 112
Pyrene	0.00800	0.006227		mg/L		78	49 - 121
Pyridine	0.00800	0.002012		mg/L		25	10 - 109
Benzyl alcohol	0.00800	0.004664		mg/L		58	39 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*65*		*44 - 123*
2-Fluorobiphenyl	*54*		*43 - 120*
2-Fluorophenol	*31*		*18 - 120*
Nitrobenzene-d5	*62*		*47 - 120*
Terphenyl-d14	*70*		*33 - 141*
Phenol-d5 (Surr)	*18*		*12 - 128*

Lab Sample ID: LCSD 600-105411/3-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 105411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	0.00800	0.005162		mg/L		65	40 - 121	1	20
2,4,6-Trichlorophenol	0.00800	0.005417		mg/L		68	39 - 123	2	20
2,4-Dichlorophenol	0.00800	0.004635		mg/L		58	39 - 118	4	20
2,4-Dimethylphenol	0.00800	0.003792		mg/L		47	36 - 109	1	20
2-Methylnaphthalene	0.00800	0.005411		mg/L		68	40 - 121	2	20
2-Methylphenol	0.00800	0.003946		mg/L		49	34 - 109	6	20
3 & 4 Methylphenol	0.00800	0.003948		mg/L		49	27 - 113	3	20
4-Bromophenyl phenyl ether	0.00800	0.005718		mg/L		71	46 - 129	0	20
Acenaphthene	0.00800	0.005935		mg/L		74	47 - 145	3	20
Acenaphthylene	0.00800	0.005299		mg/L		66	35 - 135	2	20
Aniline	0.00800	0.006510		mg/L		81	13 - 100	2	20
Anthracene	0.00800	0.005131		mg/L		64	53 - 124	2	20
Benzo[a]anthracene	0.00800	0.005979		mg/L		75	53 - 122	0	20
Benzo[a]pyrene	0.00800	0.006308		mg/L		79	50 - 124	1	20
Benzo[b]fluoranthene	0.00800	0.006411		mg/L		80	53 - 131	4	20
Benzo[g,h,i]perylene	0.00800	0.006185		mg/L		77	46 - 133	2	20
Benzo[k]fluoranthene	0.00800	0.005578		mg/L		70	46 - 130	8	20
Bis(2-chloroethyl)ether	0.00800	0.004762		mg/L		60	40 - 112	11	20
Bis(2-ethylhexyl) phthalate	0.00800	0.006569		mg/L		82	47 - 132	1	20

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 600-105411/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 106041 — **Prep Batch: 105411**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzyl butyl phthalate			0.00800	0.006515		mg/L		81	50 - 126	1	20
Chrysene			0.00800	0.005941		mg/L		74	49 - 124	2	20
Dibenz(a,h)anthracene			0.00800	0.006531		mg/L		82	42 - 134	0	20
Dibenzofuran			0.00800	0.005220		mg/L		65	46 - 123	2	20
Di-n-butyl phthalate			0.00800	0.005434		mg/L		68	54 - 138	0	20
Di-n-octyl phthalate			0.00800	0.006706		mg/L		84	27 - 157	1	20
Fluoranthene			0.00800	0.005316		mg/L		66	53 - 127	2	20
Fluorene			0.00800	0.006188		mg/L		77	48 - 127	3	20
Hexachlorobutadiene			0.00800	0.004768		mg/L		60	32 - 143	2	20
Indeno[1,2,3-cd]pyrene			0.00800	0.006225		mg/L		78	45 - 124	2	20
Naphthalene			0.00800	0.004559		mg/L		57	39 - 120	1	20
Phenanthrene			0.00800	0.005454		mg/L		68	52 - 121	0	20
Phenol			0.00800	0.002740		mg/L		34	11 - 112	3	20
Pyrene			0.00800	0.006124		mg/L		77	49 - 121	2	20
Pyridine			0.00800	0.001911		mg/L		24	10 - 109	5	40
Benzyl alcohol			0.00800	0.004610		mg/L		58	39 - 115	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*74*		*44 - 123*
2-Fluorobiphenyl	*55*		*43 - 120*
2-Fluorophenol	*32*		*18 - 120*
Nitrobenzene-d5	*61*		*47 - 120*
Terphenyl-d14	*70*		*33 - 141*
Phenol-d5 (Surr)	*15*		*12 - 128*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 600-105273/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105523 — **Prep Batch: 105273**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000400	U	0.000200	0.0000400	mg/L		05/02/13 14:57	05/06/13 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*10 - 125. 2*	*05/02/13 14:57*	*05/06/13 11:03*	*1*

Lab Sample ID: LCS 600-105273/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105523 — **Prep Batch: 105273**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D			0.000800	0.0005307		mg/L		66	25 - 151

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 600-105273/2-A
Matrix: Water
Analysis Batch: 105523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105273

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	72		10 - 125. 2

Lab Sample ID: 600-72465-6 MS
Matrix: Water
Analysis Batch: 105810

Client Sample ID: POE-2
Prep Type: Total/NA
Prep Batch: 105273

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	0.0000381	U	0.000792	0.0008161		mg/L		103	25 - 151

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4-Dichlorophenylacetic acid	113	E	10 - 125. 2

Lab Sample ID: 600-72465-6 MSD
Matrix: Water
Analysis Batch: 105810

Client Sample ID: POE-2
Prep Type: Total/NA
Prep Batch: 105273

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D	0.0000381	U	0.000792	0.0009497		mg/L		120	25 - 151	15	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	116	E	10 - 125. 2

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 560-87480/1-A
Matrix: Water
Analysis Batch: 87532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 87480

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 18:11	1

Lab Sample ID: LCS 560-87480/2-A
Matrix: Water
Analysis Batch: 87532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 87480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.500	0.4549		mg/L		91	80 - 120

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units	Method
1,1-Dichloroethene	0.00100	0.000190	mg/L	8260B
1,2,3-Trichloropropane	0.00100	0.000290	mg/L	8260B
1,2-Dichlorobenzene	0.00100	0.000100	mg/L	8260B
1,2-Dichloroethane	0.00100	0.000140	mg/L	8260B
1,2-Dichloropropane	0.00100	0.000160	mg/L	8260B
2-Butanone (MEK)	0.00200	0.000760	mg/L	8260B
4-Isopropyltoluene	0.00100	0.000100	mg/L	8260B
4-Methyl-2-pentanone (MIBK)	0.00200	0.000450	mg/L	8260B
Acetone	0.00200	0.000990	mg/L	8260B
Benzene	0.00100	0.0000800	mg/L	8260B
Carbon disulfide	0.00100	0.000240	mg/L	8260B
Chlorobenzene	0.00100	0.000120	mg/L	8260B
Chlorobromomethane	0.00100	0.000180	mg/L	8260B
Chloroform	0.00100	0.000130	mg/L	8260B
Dichlorodifluoromethane	0.00100	0.000120	mg/L	8260B
Ethylbenzene	0.00100	0.000110	mg/L	8260B
Hexane	0.00100	0.000160	mg/L	8260B
Methylene Chloride	0.00100	0.000150	mg/L	8260B
m-Xylene & p-Xylene	0.00200	0.000170	mg/L	8260B
Naphthalene	0.00200	0.000320	mg/L	8260B
o-Xylene	0.00100	0.000120	mg/L	8260B
Styrene	0.00100	0.0000700	mg/L	8260B
Tetrachloroethene	0.00100	0.000130	mg/L	8260B
Toluene	0.00100	0.000150	mg/L	8260B
trans-1,2-Dichloroethene	0.00100	0.0000900	mg/L	8260B
Trichloroethene	0.00100	0.000180	mg/L	8260B
Vinyl acetate	0.00100	0.000210	mg/L	8260B
Vinyl chloride	0.00200	0.000110	mg/L	8260B
Xylenes, Total	0.00300	0.000260	mg/L	8260B

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
1,2-Dichlorobenzene	0.000500	0.000210	mg/L	8270C LL
2,4,6-Trichlorophenol	0.000500	0.000330	mg/L	8270C LL
2,4-Dichlorophenol	0.000500	0.000260	mg/L	8270C LL
2,4-Dimethylphenol	0.000500	0.000180	mg/L	8270C LL
2-Methylnaphthalene	0.000500	0.000140	mg/L	8270C LL
2-Methylphenol	0.000500	0.000190	mg/L	8270C LL
3 & 4 Methylphenol	0.00100	0.000160	mg/L	8270C LL
4-Bromophenyl phenyl ether	0.000500	0.000250	mg/L	8270C LL
Acenaphthene	0.000500	0.000160	mg/L	8270C LL
Acenaphthylene	0.000500	0.000160	mg/L	8270C LL
Aniline	0.000500	0.000120	mg/L	8270C LL
Anthracene	0.000500	0.000440	mg/L	8270C LL
Benzo[a]anthracene	0.000500	0.000250	mg/L	8270C LL
Benzo[a]pyrene	0.000500	0.000130	mg/L	8270C LL
Benzo[b]fluoranthene	0.000500	0.000180	mg/L	8270C LL
Benzo[g,h,i]perylene	0.000500	0.000350	mg/L	8270C LL
Benzo[k]fluoranthene	0.000500	0.000160	mg/L	8270C LL
Benzyl alcohol	0.000500	0.000510	mg/L	8270C LL
Benzyl butyl phthalate	0.00250	0.000850	mg/L	8270C LL

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL
Bis(2-ethylhexyl) phthalate	0.00150	0.000590	mg/L	8270C LL
Chrysene	0.000500	0.000240	mg/L	8270C LL
Dibenz(a,h)anthracene	0.000500	0.000290	mg/L	8270C LL
Dibenzofuran	0.000500	0.000160	mg/L	8270C LL
Di-n-butyl phthalate	0.00500	0.00187	mg/L	8270C LL
Di-n-octyl phthalate	0.00500	0.000160	mg/L	8270C LL
Fluoranthene	0.000500	0.000310	mg/L	8270C LL
Fluorene	0.000500	0.000120	mg/L	8270C LL
Hexachlorobutadiene	0.000500	0.000190	mg/L	8270C LL
Indeno[1,2,3-cd]pyrene	0.000500	0.000290	mg/L	8270C LL
Naphthalene	0.000500	0.000160	mg/L	8270C LL
Phenanthrene	0.000500	0.000290	mg/L	8270C LL
Phenol	0.000500	0.000140	mg/L	8270C LL
Pyrene	0.000500	0.000330	mg/L	8270C LL
Pyridine	0.000500	0.000240	mg/L	8270C LL

Method: 8151A - Herbicides (GC)

Analyte	MQL	MDL	Units	Method
2,4-D	0.000200	0.0000400	mg/L	8151A

Method: 6020 - Metals (ICP/MS)

Analyte	MQL	MDL	Units	Method
Lead	0.00500	0.000733	mg/L	6020

GC/MS VOA

Analysis Batch: 105345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-1	Equipment Blank	Total/NA	Water	8260B	
600-72465-3	MW-35	Total/NA	Water	8260B	
600-72465-4	MW-37	Total/NA	Water	8260B	
600-72465-5	AMP-3	Total/NA	Water	8260B	
600-72465-5 MS	AMP-3	Total/NA	Water	8260B	
600-72465-5 MSD	AMP-3	Total/NA	Water	8260B	
600-72465-10	POE-1	Total/NA	Water	8260B	
600-72465-13	R1-1-18	Total/NA	Water	8260B	
600-72465-14	Trip Blank	Total/NA	Water	8260B	
LCS 600-105345/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-105345/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 105484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8260B	
600-72465-3 MS - DL2	MW-35	Total/NA	Water	8260B	
600-72465-3 MSD - DL2	MW-35	Total/NA	Water	8260B	
600-72465-6	POE-2	Total/NA	Water	8260B	
600-72465-7	R1-3-03	Total/NA	Water	8260B	
600-72465-8	R1-3-02	Total/NA	Water	8260B	
600-72465-9	R1-1-14	Total/NA	Water	8260B	
600-72465-11	AMP-2	Total/NA	Water	8260B	
600-72465-12	AMP-1	Total/NA	Water	8260B	
LCS 600-105484/4	Lab Control Sample	Total/NA	Water	8260B	
LCS 600-105484/5	Lab Control Sample	Total/NA	Water	8260B	
MB 600-105484/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 105530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-3 - DL	MW-35	Total/NA	Water	8260B	
LCS 600-105530/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-105530/6	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 105411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	3510C	
600-72465-3	MW-35	Total/NA	Water	3510C	
600-72465-3 - DL	MW-35	Total/NA	Water	3510C	
600-72465-4	MW-37	Total/NA	Water	3510C	
600-72465-5	AMP-3	Total/NA	Water	3510C	
600-72465-6	POE-2	Total/NA	Water	3510C	
600-72465-7 - RA	R1-3-03	Total/NA	Water	3510C	
600-72465-7	R1-3-03	Total/NA	Water	3510C	
600-72465-8	R1-3-02	Total/NA	Water	3510C	
600-72465-9	R1-1-14	Total/NA	Water	3510C	
600-72465-10	POE-1	Total/NA	Water	3510C	
600-72465-11	AMP-2	Total/NA	Water	3510C	
600-72465-12	AMP-1	Total/NA	Water	3510C	

GC/MS Semi VOA (Continued)

Prep Batch: 105411 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-13	R1-1-18	Total/NA	Water	3510C	
LCS 600-105411/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-105411/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-105411/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 106041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8270C LL	105411
600-72465-3	MW-35	Total/NA	Water	8270C LL	105411
600-72465-3 - DL	MW-35	Total/NA	Water	8270C LL	105411
600-72465-4	MW-37	Total/NA	Water	8270C LL	105411
600-72465-5	AMP-3	Total/NA	Water	8270C LL	105411
600-72465-6	POE-2	Total/NA	Water	8270C LL	105411
600-72465-7 - RA	R1-3-03	Total/NA	Water	8270C LL	105411
600-72465-8	R1-3-02	Total/NA	Water	8270C LL	105411
600-72465-9	R1-1-14	Total/NA	Water	8270C LL	105411
600-72465-10	POE-1	Total/NA	Water	8270C LL	105411
600-72465-11	AMP-2	Total/NA	Water	8270C LL	105411
600-72465-12	AMP-1	Total/NA	Water	8270C LL	105411
600-72465-13	R1-1-18	Total/NA	Water	8270C LL	105411
LCS 600-105411/2-A	Lab Control Sample	Total/NA	Water	8270C LL	105411
LCSD 600-105411/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	105411
MB 600-105411/1-A	Method Blank	Total/NA	Water	8270C LL	105411

Analysis Batch: 106048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-7	R1-3-03	Total/NA	Water	8270C LL	105411
600-72465-8	R1-3-02	Total/NA	Water	8270C LL	105411

GC Semi VOA

Prep Batch: 105273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8151A	
600-72465-3	MW-35	Total/NA	Water	8151A	
600-72465-4	MW-37	Total/NA	Water	8151A	
600-72465-5	AMP-3	Total/NA	Water	8151A	
600-72465-6	POE-2	Total/NA	Water	8151A	
600-72465-6 MS	POE-2	Total/NA	Water	8151A	
600-72465-6 MSD	POE-2	Total/NA	Water	8151A	
600-72465-7	R1-3-03	Total/NA	Water	8151A	
600-72465-8 - DL	R1-3-02	Total/NA	Water	8151A	
600-72465-8	R1-3-02	Total/NA	Water	8151A	
600-72465-9	R1-1-14	Total/NA	Water	8151A	
600-72465-10	POE-1	Total/NA	Water	8151A	
600-72465-11	AMP-2	Total/NA	Water	8151A	
600-72465-12	AMP-1	Total/NA	Water	8151A	
600-72465-13	R1-1-18	Total/NA	Water	8151A	
LCS 600-105273/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 600-105273/1-A	Method Blank	Total/NA	Water	8151A	

GC Semi VOA (Continued)

Analysis Batch: 105523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-105273/2-A	Lab Control Sample	Total/NA	Water	8151A	105273
MB 600-105273/1-A	Method Blank	Total/NA	Water	8151A	105273

Analysis Batch: 105810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8151A	105273
600-72465-3	MW-35	Total/NA	Water	8151A	105273
600-72465-4	MW-37	Total/NA	Water	8151A	105273
600-72465-5	AMP-3	Total/NA	Water	8151A	105273
600-72465-6	POE-2	Total/NA	Water	8151A	105273
600-72465-6 MS	POE-2	Total/NA	Water	8151A	105273
600-72465-6 MSD	POE-2	Total/NA	Water	8151A	105273
600-72465-7	R1-3-03	Total/NA	Water	8151A	105273
600-72465-8	R1-3-02	Total/NA	Water	8151A	105273
600-72465-9	R1-1-14	Total/NA	Water	8151A	105273
600-72465-10	POE-1	Total/NA	Water	8151A	105273
600-72465-11	AMP-2	Total/NA	Water	8151A	105273
600-72465-12	AMP-1	Total/NA	Water	8151A	105273
600-72465-13	R1-1-18	Total/NA	Water	8151A	105273

Analysis Batch: 105883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-8 - DL	R1-3-02	Total/NA	Water	8151A	105273

Metals

Prep Batch: 87480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	3010A	
600-72465-3	MW-35	Total/NA	Water	3010A	
600-72465-4	MW-37	Total/NA	Water	3010A	
600-72465-5	AMP-3	Total/NA	Water	3010A	
600-72465-6	POE-2	Total/NA	Water	3010A	
600-72465-7	R1-3-03	Total/NA	Water	3010A	
600-72465-8	R1-3-02	Total/NA	Water	3010A	
600-72465-9	R1-1-14	Total/NA	Water	3010A	
600-72465-10	POE-1	Total/NA	Water	3010A	
600-72465-11	AMP-2	Total/NA	Water	3010A	
600-72465-12	AMP-1	Total/NA	Water	3010A	
600-72465-13	R1-1-18	Total/NA	Water	3010A	
LCS 560-87480/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 560-87480/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 87532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	6020	87480
600-72465-3	MW-35	Total/NA	Water	6020	87480
600-72465-4	MW-37	Total/NA	Water	6020	87480
600-72465-5	AMP-3	Total/NA	Water	6020	87480
600-72465-6	POE-2	Total/NA	Water	6020	87480

Metals (Continued)

Analysis Batch: 87532 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-7	R1-3-03	Total/NA	Water	6020	87480
600-72465-8	R1-3-02	Total/NA	Water	6020	87480
600-72465-9	R1-1-14	Total/NA	Water	6020	87480
600-72465-10	POE-1	Total/NA	Water	6020	87480
600-72465-11	AMP-2	Total/NA	Water	6020	87480
600-72465-12	AMP-1	Total/NA	Water	6020	87480
600-72465-13	R1-1-18	Total/NA	Water	6020	87480
LCS 560-87480/2-A	Lab Control Sample	Total/NA	Water	6020	87480
MB 560-87480/1-A	Method Blank	Total/NA	Water	6020	87480

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: Equipment Blank

Lab Sample ID: 600-72465-1

Date Collected: 04/30/13 11:30

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105345	05/03/13 12:49	DT1	TAL HOU

Client Sample ID: R1-3-01

Lab Sample ID: 600-72465-2

Date Collected: 04/30/13 12:00

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 17:09	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 18:59	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 13:40	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 19:18	JEM	TAL CC

Client Sample ID: MW-35

Lab Sample ID: 600-72465-3

Date Collected: 04/30/13 13:00

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	20 mL	20 mL	105345	05/03/13 20:34	DT1	TAL HOU
Total/NA	Analysis	8260B	DL	500	20 mL	20 mL	105530	05/06/13 20:54	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		50			106041	05/13/13 14:41	TTD	TAL HOU
Total/NA	Prep	3510C	DL		250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL	DL	500			106041	05/13/13 23:07	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 14:05	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 19:23	JEM	TAL CC

Client Sample ID: MW-37

Lab Sample ID: 600-72465-4

Date Collected: 04/30/13 14:00

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105345	05/03/13 13:17	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 19:26	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 14:30	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: MW-37

Date Collected: 04/30/13 14:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020		1			87532	05/06/13 19:29	JEM	TAL CC

Client Sample ID: AMP-3

Date Collected: 04/30/13 15:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105345	05/03/13 13:44	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		10			106041	05/13/13 15:08	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 15:58	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 19:34	JEM	TAL CC

Client Sample ID: POE-2

Date Collected: 04/30/13 15:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 17:37	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 19:54	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 16:23	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 19:40	JEM	TAL CC

Client Sample ID: R1-3-03

Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 19:30	DT1	TAL HOU
Total/NA	Prep	3510C	RA		250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL	RA	1			106041	05/13/13 20:22	TTD	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106048	05/10/13 18:58	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 18:34	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 19:45	JEM	TAL CC

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-02

Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 18:06	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 20:49	TTD	TAL HOU
Total/NA	Analysis	8270C LL		1			106048	05/10/13 19:26	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 18:59	JAL	TAL HOU
Total/NA	Prep	8151A	DL		1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A	DL	1000			105883	05/10/13 12:10	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 20:19	JEM	TAL CC

Client Sample ID: R1-1-14

Date Collected: 05/01/13 10:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 16:40	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 21:17	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 19:24	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 20:24	JEM	TAL CC

Client Sample ID: POE-1

Date Collected: 05/01/13 11:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105345	05/03/13 14:12	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 21:44	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 19:50	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 20:30	JEM	TAL CC

Client Sample ID: AMP-2

Date Collected: 05/01/13 12:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 18:34	DT1	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: AMP-2

Date Collected: 05/01/13 12:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 22:12	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 20:15	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 20:36	JEM	TAL CC

Client Sample ID: AMP-1

Date Collected: 05/01/13 13:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105484	05/04/13 19:02	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		10			106041	05/13/13 15:35	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 20:40	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 20:41	JEM	TAL CC

Client Sample ID: R1-1-18

Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105345	05/03/13 14:39	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1			106041	05/13/13 22:40	TTD	TAL HOU
Total/NA	Prep	8151A			1050 mL	5.0 mL	105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1			105810	05/09/13 21:06	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	87480	05/06/13 12:20	MIG	TAL CC
Total/NA	Analysis	6020		1			87532	05/06/13 20:47	JEM	TAL CC

Client Sample ID: Trip Blank

Date Collected: 05/01/13 00:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	105345	05/03/13 12:22	DT1	TAL HOU

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13 *
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13 *
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

Laboratory: TestAmerica Corpus Christi

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Kansas	NELAP	7	E-10362	10-31-13
Oklahoma	State Program	6	9968	08-31-14
Texas	NELAP	6	T104704210-12-8	03-31-14
USDA	Federal		P330-11-00060	02-03-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody

600-72465 Chain of Custody

testAmerica

10/14/2013

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	COC No: 600-20365-7630.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6303	E-Mail: dean.joiner@testamericainc.com	Page: Page 1 of 2
Company: URS Corporation			Job #
Address: 10550 Richmond Ave	Due Date Requested:		
City: Houston	TAT Requested (days): 7 WD TRRP		
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Subcontract: 284317.US		
Email: ravi.kommajosyula@urs.com	WO #: Project# 25015231 Vendor# 1427536		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - Lead	8270C_LL - SVOA CP List	8260B_LL - (MOD) VOA CP List	8151A - (MOD) 8151 2,4-D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	A	N		
Equipment Blank	4/30/13	1130	G	Water					X		8	
RI-3-01		1200	G	Water			X	X	X	X	8	
MW-35		1300	G	Water			X	X	X	X	8	
MW-37		1400	G	Water			X	X	X	X	8	
AMP-3		1500	G	Water			X	X	X	X	8	
POE-2		1530	G	Water			X	X	X	X	8	
RI-3-03	5/1/13	0830	G	Water			X	X	X	X	8	
RI-3-02		0920	G	Water			X	X	X	X	8	
RI-1-14		1030	G	Water			X	X	X	X	8	
POE-1		1130	G	Water			X	X	X	X	8	
AMP-2		1220	G	Water			X	X	X	X	8	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Ravi Kommajosyula	5/1/13 1600			5/1/13 1700	TAH
2	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time: 5/1/13 1810	Company TAH	Received by:	Date/Time: 05/01/13 1810	Company TAH

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-20365-7630.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 2 of 2
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract: 284317.US			
Email: ravi.kommajosyula@urs.com	WO #: Project# 25015231 Vendor# 1427536			
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845			
Site	SSOW#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - Lead	8270C_LL - SVOA CP List	8260B_LL - (MOD) VOA CP List	8151A - (MOD) 8151 2,4-D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	A	N		
AMP-1	5/1/13	1330	G	Water			X	X	X	X	8	
R1-1-18	5/1/13	1420	G	Water			X	X	X	X	8	
Trip Blank	LAB		G	Water					X		8	
Temp Blank	LAB		G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
Ravi Kommajosyula	5/1/13 1600		[signature]	5/1/13 1700	TM
[signature]	5/1/13 1810	TM	[signature]	05/01/13 1810	TAH

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-72465-1

Login Number: 72465

List Source: TestAmerica Houston

List Number: 1

Creator: Pulumbarit, Josh L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2 1.5 1.8 1.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-72465-1

Login Number: 72465
List Number: 1
Creator: Wing, Randi

List Source: TestAmerica Corpus Christi
List Creation: 05/04/13 10:23 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	4.0
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-77599-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
8/29/2013 9:26:25 AM
Donnie Combs, Data Review Analyst I
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Method Summary 4
Sample Summary 5
Client Sample Results 6
Definitions/Glossary 7
Surrogate Summary 8
QC Sample Results 9
Default Detection Limits 10
QC Association Summary 11
Lab Chronicle 12
Certification Summary 13
Chain of Custody 14
Receipt Checklists 15

Job ID: 600-77599-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-77599-1

Comments
No additional comments.

Receipt
The samples were received on 8/10/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 2 coolers at receipt time were 2.7º C and 4.1º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-77599-1	R1-3-02	Water	08/09/13 14:00	08/10/13 09:00

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Client Sample ID: R1-3-02
Date Collected: 08/09/13 14:00
Date Received: 08/10/13 09:00

Lab Sample ID: 600-77599-1
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000377	U *	0.000189	0.0000377	mg/L		08/13/13 09:00	08/14/13 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*10 - 125.2*	*08/13/13 09:00*	*08/14/13 17:35*	*1*

Definitions/Glossary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPA1 (10-125.2)								
600-77599-1	R1-3-02	69								
LCS 600-113002/2-A	Lab Control Sample	96								
LCSD 600-113002/3-A	Lab Control Sample Dup	82								
MB 600-113002/1-A	Method Blank	109								

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 600-113002/1-A
Matrix: Water
Analysis Batch: 113264

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 113002

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000400	U	0.000200	0.0000400	mg/L		08/13/13 09:00	08/14/13 15:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*109*		*10 - 125.* *2*	*08/13/13 09:00*	*08/14/13 15:03*	*1*

Lab Sample ID: LCS 600-113002/2-A
Matrix: Water
Analysis Batch: 113264

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113002

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4-D			0.000800	0.0005428		mg/L		68	25 - 151		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*96*		*10 - 125.* *2*

Lab Sample ID: LCSD 600-113002/3-A
Matrix: Water
Analysis Batch: 113264

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 113002

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D			0.000800	0.0009704	*	mg/L		121	25 - 151	57	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*82*		*10 - 125.* *2*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Method: 8151A - Herbicides (GC)

Analyte	MQL	MDL	Units	Method
2,4-D	0.000200	0.0000400	mg/L	8151A

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

GC Semi VOA

Prep Batch: 113002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-77599-1	R1-3-02	Total/NA	Water	8151A	
LCS 600-113002/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 600-113002/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 600-113002/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 113264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-77599-1	R1-3-02	Total/NA	Water	8151A	113002
LCS 600-113002/2-A	Lab Control Sample	Total/NA	Water	8151A	113002
LCSD 600-113002/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	113002
MB 600-113002/1-A	Method Blank	Total/NA	Water	8151A	113002

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Client Sample ID: R1-3-02
Date Collected: 08/09/13 14:00
Date Received: 08/10/13 09:00

Lab Sample ID: 600-77599-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			113002	08/13/13 09:00	SMB	TAL HOU
Total/NA	Analysis	8151A		1	113264	08/14/13 17:35	JAL	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-77599-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

8/29/2013

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-20365-7630 1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6699	E-Mail: dean.joiner@testamericainc.com		Page: Page
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract. 284317.US			
Email: ravi.kommajosyula@urs.com	WO #: Project# 25015231 Vendor# 1427536			
Project Name: Kinder Morgan Central Plant GW 8151 resample	Project #: 60002845			
Site:	SSOW#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8151A - (MOD) 8151 2,4-D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
R1-3-02	8/9/13	1400	G	Water			X	2	
Temp Blank	LAB		G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					

600-77599 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Ravi Kommajosyula	Date/Time: 8/10/13 0900	Company	Received by:	Date/Time: 8/10/13 900	Company
Relinquished by:	Date/Time:	Company		Date/Time:	Company
Relinquished by:	Date/Time:	Company		Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No :

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-77599-1

Login Number: 77599

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.1/2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-80019-1

Client Project/Site: Kinder Morgan Central Plant (Monthly)

For:

URS Corporation
10550 Richmond Avenue
Houston, Texas 77042

Attn: Ms. Celeste Wieting

Authorized for release by:
10/8/2013 2:08:45 PM
Cathy Upton, Data Delivery Analyst
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
(713)690-4444
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 8
Method Summary 9
Sample Summary 10
Client Sample Results 11
Definitions/Glossary 12
Surrogate Summary 13
QC Sample Results 14
Default Detection Limits 15
QC Association Summary 16
Lab Chronicle 17
Certification Summary 18
Chain of Custody 19
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-80019-1

Project Name/Number: Kinder Morgan Central Plant (Monthly)

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		10/08/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/4/13
Project Name: Kinder Morgan Central Plant (Monthly)	Laboratory Job Number: 600-80019
Reviewer Name: JL	Prep Batch Number(s): 600-116626 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?				X	1
		Were MS/MSD RPDs within laboratory QC limits?				X	1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/4/13
Project Name: Kinder Morgan Central Plant (Monthly)	Laboratory Job Number: 600-80019
Reviewer Name: JL	Prep Batch Number(s): 600-116626 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S1	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S1	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S1	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S1	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S1	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S1	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S1	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 10/4/13
Project Name: Kinder Morgan Central Plant (Monthly)	Laboratory Job Number: 600-80019
Reviewer Name: JL	Prep Batch Number(s): 600-116626 - Herb

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Detection Check Standard

Matrix:	Water
Method:	8151A
Preparation:	8151A
Date Analyzed:	8/1/2013
Date Prepared:	7/31/2013
TALs Batches:	600-111985/3-a
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Dalapon	1	0.4	0.186	10
Dicamba	0.01	0.04	0.175	0.2
MCPP	2.64	4	6.49	20
MCPA	5.78	4	16.05	20
Dichloroprop	0.03	0.04	0.109	0.2
2,4-D	0.04	0.04	0.106	0.2
2,4,5-TP (Silvex)	0.02	0.04	0.167	0.2
2,4,5-T	0.02	0.04	0.15	0.2
2,4-DB	0.05	0.04	0.0555	0.2
Dinoseb (DNBP)	0.02	0.04	0.0896	0.2

Job ID: 600-80019-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-80019-1

Comments
No additional comments.

Receipt
The samples were received on 9/25/2013 2:56 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 2 coolers at receipt time were 3.7º C and 4.0º C.

Except:

Per client email on 10/07/13, the client submitted a revised Chain of Custody--see attached, requesting that only 2,4-D be reported.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-80019-1	R1-3-02	Water	09/25/13 10:30	09/25/13 14:56

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Client Sample ID: R1-3-02
Date Collected: 09/25/13 10:30
Date Received: 09/25/13 14:56

Lab Sample ID: 600-80019-1
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000377	U	0.000189	0.0000377	mg/L		09/27/13 15:03	10/01/13 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*115*		*10 - 125.2*	*09/27/13 15:03*	*10/01/13 13:40*	*1*

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPA1 (10-125.2)								
600-80019-1	R1-3-02	115								
LCS 600-116626/2-A	Lab Control Sample	100								
MB 600-116626/1-A	Method Blank	114								

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 600-116626/1-A
Matrix: Water
Analysis Batch: 116726

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 116626

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000400	U	0.000200	0.0000400	mg/L		09/27/13 15:03	09/28/13 17:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*114*		*10 - 125.2*	*09/27/13 15:03*	*09/28/13 17:43*	*1*

Lab Sample ID: LCS 600-116626/2-A
Matrix: Water
Analysis Batch: 116726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 116626

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4-D			0.000800	0.0007393		mg/L		92	25 - 151		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*100*		*10 - 125.2*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Method: 8151A - Herbicides (GC)

Analyte	MQL	MDL	Units	Method
2,4-D	0.000200	0.0000400	mg/L	8151A

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

GC Semi VOA

Prep Batch: 116626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-80019-1	R1-3-02	Total/NA	Water	8151A	
LCS 600-116626/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 600-116626/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 116726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-116626/2-A	Lab Control Sample	Total/NA	Water	8151A	116626
MB 600-116626/1-A	Method Blank	Total/NA	Water	8151A	116626

Analysis Batch: 117013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-80019-1	R1-3-02	Total/NA	Water	8151A	116626

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Client Sample ID: R1-3-02
Date Collected: 09/25/13 10:30
Date Received: 09/25/13 14:56

Lab Sample ID: 600-80019-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			1060 mL	5.0 mL	116626	09/27/13 15:03	LER	TAL HOU
Total/NA	Analysis	8151A		1			117013	10/01/13 13:40	JAL	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80019-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13 *
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13 *
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Client Information	Sampler:	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759 1
Client Contact: Ravi Kommajosyula	Phone:	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW (Monthly)	Project #: 60002845			
Site: Central Plant GW	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	8151 - 2,4 D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
R1-3-02	9/25/13	1030	G	Water	N	N	X	X	4	Replace kit upon receipt.

600-80019 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 9/25/13 / 1130	Company: URS	Received by: [signature]	Date/Time: 9-25-13 13:25	Company: [signature]
Relinquished by: [signature]	Date/Time: 9-25-13 14:56	Company: [signature]	Received by: [signature]	Date/Time: 9/25/13 1450	Company: [signature]
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Client Information	Sampler	Lab PM	Carrier Tracking No(s):
Client Contact: Ravi Kommajosyula	Phone	Joiner, Dean A E-Mail: dean.joiner@testamericainc.com	

Company: URS Corporation		
Address: 10550 Richmond Ave	Due Date Requested:	
City: Houston	TAT Requested (days): 7 WD TRRP	
State, Zip: TX, 77042		
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required	
Email: ravi.kommajosyula@urs.com	WO #	
Project Name: Kinder Morgan Central Plant GW (Monthly)	Project #: 60002845	
Site: Central Plant GW	SSOW#	

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8151 - 2,4 D	
			Preservation Code.		N	N	N	
RI-3-02	9/25/13	1030	G	Water	N	N	X	X

600-80019 Chain of C

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are re
☐ Return To Client ☐ Disposal By Lab ☐

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 9/25	Company: URS	Received by:	Date/Time: 9-25-

Page 20 of 21
Page 13 of 14
10/8/2013

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-80019-1

Login Number: 80019

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-84138-1
Client Project/Site: Galena Park Central Plant

For:
URS Corporation
10550 Richmond Avenue
Houston, Texas 77042

Attn: Ms. Celeste Wieting

Authorized for release by:
1/3/2014 9:55:44 AM
Sophia Shah, Project Management Assistant I
[redacted]

Designee for

Dean Joiner, Project Manager II
(713)690-4444
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 23
Method Summary 24
Sample Summary 25
Client Sample Results 26
Definitions/Glossary 35
Surrogate Summary 36
QC Sample Results 37
Default Detection Limits 47
QC Association Summary 50
Lab Chronicle 52
Certification Summary 53
Chain of Custody 54
Receipt Checklists 55

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-84138-1

Project Name/Number: Galena Park Central Plant

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Sophia Shah		12/31/2013
Name (printed)	Signature	Date

Project Management Assistant

Official Title (printed)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/23/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: YX	Prep Batch Number: 600-123154-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				1
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		2
		Were MS/MSD RPDs within laboratory QC limits?			X		2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/23/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: YX	Prep Batch Number: 600-123154-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?		X			3
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/23/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: YX	Prep Batch Number: 600-123154-VOA

ER #[1]	DESCRIPTION
1	1,2,3-Trichlorobenzene and Naphthalene was detected above the MDL, but below the MQL in the method blank for batch 600-123154. The level of detection is below the recommended reporting limits and the appropriate flags have been applied to the report.
2	The laboratory selected a sample from another group to perform as the MS/MSD.
3	The continuing calibration verification (CCV) for analytical batche600-123154 exceeded control criteria for1,2,3-trichlorobenzene (-35.7%). Per the laboratory's SOP criteria, up to six non-CCC analytes can recover up to 50%; Therefore, the data have been qualified and reported.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/19/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: MBB	Prep Batch Number(s): 600-122929-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				1
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				1
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				2
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/19/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: MBB	Prep Batch Number(s): 600-122929-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?		X			3
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/19/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: MBB	Prep Batch Number(s): 600-122929-SV

ER #[1]	DESCRIPTION
1	The laboratory control sample (LCS) associated with batch 122929 was biased low for Pyridine. Pyridine has been identified as a poor performing analyte when analyzed using this method; the laboratory control sample duplicate (LCSD) was inside control limit for this analyte; therefore, re-extraction/re-analyses was not performed. The laboratory control sample duplicate (LCSD) precision for batch 122929 was outside control limits for Pyridine and 3,3'-Dichlorobenzidine. Pyridine and 3,3'-Dichlorobenzidine have been identified as poor performing analytes when analyzed using this method.
2	The 600-84138-2 sample was diluted to bring the concentration of target analyte, Bis(2-ethylhexyl) phthalate, within the calibration range. Elevated reporting limits (RLs) are provided.
3	Internal standard (ISTD) 1,4-Dichlorobenzene response for the 600-84138-2 sample dilution was outside of acceptance limits. This ISTD is not associate with target analyte, Bis(2-ethylhexyl) phthalate, so sample was not re-analyzed.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

.

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/19/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: JL	Prep Batch Number(s): 600-122969 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/19/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: JL	Prep Batch Number(s): 600-122969 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S1	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S1	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S1	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S1	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S1	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S1	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S1	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/19/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84138
Reviewer Name: JL	Prep Batch Number(s): 600-122969 - Herb

ER #[1]	DESCRIPTION
1	Surrogate recovery for the following sample was outside control limits: 600-83996-1 MSD. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Detection Check Standard

Matrix: Water
Method: 8260B_LL
Preparation: Wei Shen
Date Analyzed: 8/27/2013
Date Prepared: 8/27/2013
TALs Batches: 600-114138
Units: ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Bromomethane	0.25	0.5	0.542	2
Chloroethane	0.08	0.5	0.476	2
Trichlorofluoromethane	0.08	0.25	0.201	1
1,1-Dichloroethene	0.19	0.5	0.496	1
trans-1,2-Dichloroethene	0.09	0.25	0.256	1
Methyl Iodide (Iodomethane)	2	0.5	0.502	2
Carbon Disulfide	0.24	0.5	0.555	1
Methylene Chloride	0.15	0.5	2.04	1
Acetonitrile	0.27	0.75	0.425	1
Methyl tert-butyl ether	0.12	0.25	0.242	1
Chloroprene (2-Chloro-1,3-butadiene)	0.33	0.5	0.468	2
cis-1,2-Dichloroethene	0.3	0.25	0.251	1
1,2-Dichloroethene	0.3	0.5	0.507	1
Chlorobromomethane	0.18	0.5	0.514	1
Carbon Tetrachloride	0.15	0.5	0.768	5
Benzene	0.08	0.25	0.249	1
1,2-Dichloroethane	0.14	0.5	0.456	1
Trichloroethene	0.13	0.25	0.246	1
1,1,1-Trichloroethane	0.15	0.25	0.246	1
1,1-Dichloroethane	0.11	0.25	0.25	1
1,2-Dichloropropane	0.16	0.5	0.504	1
cis-1,3-Dichloropropene	0.18	0.5	0.496	1
Methylene Bromide (Bromomethane)	0.25	0.5	0.542	1
Methyl methacrylate	0.33	1.5	1.23	1
4-Methyl-2-pentanone	0.45	0.5	0.492	2
Toluene	0.15	0.25	0.256	1
trans-1,3-Dichloropropene	0.21	0.5	0.444	1
Ethyl methacrylate	0.26	1.5	1.38	1
1,1,2-Trichloroethane	0.28	0.5	0.498	1
Tetrachloroethene	0.18	0.25	0.322	1
1,3-Dichloropropane	0.22	0.25	0.214	1
Dibromochloromethane	0.16	0.5	0.505	1
1,2-Dibromoethane (Ethylene bromide)	0.18	0.5	0.489	1
Chlorobenzene	0.12	0.25	0.214	1
Ethylbenzene	0.11	0.25	0.21	1
m,p-Xylene	0.17	0.25	0.39	2
o-Xylene	0.12	0.25	0.245	1
Xylenes (total)	0.26	0.75	0.635	3
Styrene	0.07	0.5	0.411	1

Bromoform	0.19	0.5	0.551	1
Chloroform	0.13	0.25	0.228	1
Isopropylbenzene	0.18	0.25	0.237	1
Bromobenzene	0.19	0.25	0.305	1
n-Propylbenzene	0.15	0.25	0.296	1
2-Chlorotoluene	0.13	0.25	0.265	1
4-Chlorotoluene	0.14	0.25	0.231	1
1,3,5-Trimethylbenzene	0.1	0.25	0.249	1
tert-Butylbenzene	0.08	0.25	0.273	1
p-Isopropyltoluene	0.1	0.25	0.248	1
1,2,4-Trimethylbenzene	0.14	0.25	0.246	1
sec-Butylbenzene	0.12	0.25	0.242	1
1,3-Dichlorobenzene	0.13	0.25	0.284	1
1,4-Dichlorobenzene	0.11	0.25	0.299	1
1,2-Dichlorobenzene	0.1	0.5	0.503	1
n-Butylbenzene	0.16	0.5	0.396	1
Naphthalene	0.32	0.5	0.505	1
1,1,1,2-Tetrachloroethane	0.18	0.5	1	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.5	0.201	1
1,1-Dichloropropene	0.21	0.5	0.453	1
4-Isopropyltoluene	0.1	0.5	0.496	1
Acrylonitrile	0.52	1.5	0.855	2
Dibromomethane	0.52	0.5	0.529	1
Dichlorobromomethane	0.16	0.5	0.514	1
Isopropyl ether	0.09	0.5	0.516	
1-Chlorohexane	0.26	0.5	0.556	1
1,2,3-Trimethylbenzene	0.13	0.5	0.759	1
Benzyl chloride	0.24	5	3.14	1
Butyl methacrylate	0.28	5	4.46	1
Butyl acrylate	0.28	5	4.39	1
1,3-Butadiene	0.33	0.5	0.523	1
Acetaldehyde	2.07	5	5.24	5
n-Pentane	0.22	0.5	0.599	1
Ethyl ether	0.15	0.5	0.599	1
Propionaldehyde	1	10	9.71	1
n-Hexane	0.16	0.5	0.573	1
Methylcyclohexane	0.1	0.5	0.546	1
Cyclohexane	0.16	0.5	0.874	1
Isopropyl acetate	0.2	1.5	2.43	1
Butadiene	0.21	0.5	0.523	1
Ethyl acrylate	0.34	0.5	0.974	2
n-Butanol	0.33	0.5	0.41	2

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	7/22/2013
Date Prepared:	7/19/2013
Lab Sample ID:	600-11162
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.153	0.5
N-Nitrosodimethylamine	0.26	0.5	0.484	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.463	0.5
Aniline	0.08	0.25	0.064	0.5
Phenol	0.04	0.25	0.114	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.393	0.5
2-Chlorophenol	0.13	0.5	0.389	0.5
1,3-Dichlorobenzene	0.17	0.5	0.416	0.5
1,4-Dichlorobenzene	0.13	0.5	0.462	0.5
1,2-Dichlorobenzene	0.17	0.5	0.423	0.5
Benzyl alcohol	0.17	0.5	0.167	0.5
2-Methylphenol (o-cresol)	0.12	0.25	0.130	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.277	1
N-Nitroso-di-n-propylamine	0.1	0.25	0.156	0.5
Hexachloroethane	0.1	0.25	0.168	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.133	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.135	0.5
Nitrobenzene	0.11	0.25	0.144	0.5
Isophorone	0.11	0.25	0.120	0.5
2-Nitrophenol	0.22	0.5	0.230	0.5
Benzoic acid	2.51	2.5	5.980	2.5
2,4-Dimethylphenol	0.15	0.5	0.275	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.116	0.5
2,4-Dichlorophenol	0.15	0.5	0.265	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.135	0.5
Naphthalene	0.08	0.25	0.140	0.5
Benzo(a)pyrene	0.08	0.25	0.101	0.5
Hexachlorobutadiene	0.18	0.5	0.393	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.134	0.5
1-Methylnaphthalene	0.09	0.25	0.133	0.5
Benzo(k)fluoranthene	0.09	0.25	0.119	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.297	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.364	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.354	0.5
2-Chloronaphthalene	0.08	0.25	0.127	0.5
2-Nitroaniline	0.19	0.5	0.333	0.5
1,4-Dinitrobenzene	0.5	0.5	0.487	0.5
1,3-Dinitrobenzene	0.08	0.25	0.172	0.5
1,2-Dinitrobenzene	0.5	0.5	0.525	0.5

Dimethylphthalate	0.07	0.25	0.129	0.5
Acenaphthylene	0.06	0.25	0.121	0.5
2,6-Dinitrotoluene	0.08	0.25	0.104	0.5
Benzo(b)fluoranthene	0.07	0.25	0.094	0.5
Acenaphthene	0.08	0.25	0.139	0.5
Di-n-octylphthalate	0.16	0.5	0.184	0.5
4-Nitrophenol	0.56	1	0.272	1
Dibenzofuran	0.08	0.25	0.133	0.5
2,4-Dinitrotoluene	0.13	0.5	0.277	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.057	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.800	0.5
Diethylphthalate	1.5	0.5	0.449	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.134	0.5
Fluorene	0.07	0.25	0.130	0.5
4-Nitroaniline	0.25	0.5	0.360	0.5
Chrysene	0.08	0.25	0.151	0.5
4,6-Dinitro-2-methylphenol	0.83	1	0.651	0.5
N-Nitrosodiphenylamine	0.1	0.25	0.123	0.5
Diphenylamine	0.1	0.25	0.123	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.115	0.5
Azobenzene	0.07	0.25	0.116	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.128	0.5
Hexachlorobenzene	0.11	0.25	0.147	0.5
Pentachlorophenol	0.61	1	3.720	0.5
Phenanthrene	0.06	0.25	0.133	0.5
Anthracene	0.05	0.25	0.118	0.5
Carbazole	0.17	0.5	0.361	0.5
Di-n-butylphthalate	0.11	0.25	0.104	0.5
Fluoranthene	0.07	0.25	0.119	0.5
Benzidine	0.61	2.5	3.810	0.5
Pyrene	0.11	0.25	0.120	0.5
Butylbenzylphthalate	0.12	0.25	0.089	0.5
3,3'-Dichlorobenzidine	0.18	0.25	0.064	0.5
Benzo(a)anthracene	0.08	0.25	0.133	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.256	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.156	0.5
4-Chloroaniline	0.21	0.5	0.179	0.5
3-Nitroaniline	0.16	0.5	0.177	0.5
2,4-Dinitrophenol	0.39	1	4.910	0.5

Detection Check Standard

Matrix:	Water
Method:	8151A
Preparation:	8151A
Date Analyzed:	8/1/2013
Date Prepared:	7/31/2013
TALs Batches:	600-111985/3-a
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Dalapon	1	0.4	0.186	10
Dicamba	0.01	0.04	0.175	0.2
MCPP	2.64	4	6.49	20
MCPA	5.78	4	16.05	20
Dichloroprop	0.03	0.04	0.109	0.2
2,4-D	0.04	0.04	0.106	0.2
2,4,5-TP (Silvex)	0.02	0.04	0.167	0.2
2,4,5-T	0.02	0.04	0.15	0.2
2,4-DB	0.05	0.04	0.0555	0.2
Dinoseb (DNBP)	0.02	0.04	0.0896	0.2

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Corpus Christi
TRRP Data Package Cover Page

Job Number: 600-84138-1
Project Name/Number: Galena Park Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: "I am the laboratory manager, or his/her designee, and I am responsible for the release of this data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data has been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld."

Timothy L. Kellogg
Name (printed)

Signature

12/31/2013
Date

Laboratory Director
Official Title (printed)

LRC Date: December 31, 2013	Laboratory Job Number: 600-84138-1
Reviewer Name: Timothy L. Kellogg	Project Name/Number: Galena Park Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	**OI**	**CHAIN-OF-CUSTODY (C-O-C)**					
		1) Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		2) Were all departures from standard conditions described in an exception report or case narrative?	X				
R2	**OI**	**SAMPLE AND QUALITY CONTROL (QC) IDENTIFICATION**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	**OI**	**TEST REPORTS**					
		1) Were all samples prepared and analyzed within holding time?	X				
		2) Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample quantitation limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035			X		
		9) If required for the project, TICs reported?			X		
R4	**O**	**SURROGATE RECOVERY DATA**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	**OI**	**TEST REPORTS/SUMMARY FORMS FOR BLANK SAMPLES**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations <MQL?	X				
R6	**OI**	**LABORATORY CONTROL SAMPLES (LCS)**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits?	X				
R7	**OI**	**MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	**OI**	**ANALYTICAL DUPLICATE DATA**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	**OI**	**METHOD QUANTITATION LIMITS (MQLs)**					
		1) Are the MQLs for each method analyte listed and included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCS included in the laboratory data package?	X				

LRC Date: December 31, 2013	Laboratory Job Number: 600-84138-1
Reviewer Name: Timothy L. Kellogg	Project Name/Number: Galena Park Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R10	**OI**	**OTHER PROBLEMS/ANOMALIES**					
		1) Are all known problems/anomalies/special conditions noted in this LRC, ER, or case narrative?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
S1	**OI**	**INITIAL CALIBRATION (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within the QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	**OI**	**INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV and CCV) AND CONTINUING CALIBRATION BLANK (CCB)**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analytes within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	**O**	**MASS SPECTRAL TUNING**					
		1) Was the appropriate compound for the method used for tuning?			X		
		2) Were ion abundance data within the method-required QC limits?			X		
S4	**O**	**INTERNAL STANDARDS (IS)**					
		1) Were IS area counts and retention times within the method-required QC limits?			X		
S5	**OI**	**RAW DATA (NELAC SECTION 5.5.10)**					
		1) Were the raw data (e.g. chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	**O**	**DUAL COLUMN CONFIRMATION**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	**O**	**TENTATIVELY IDENTIFIED COMPOUNDS (TICs)**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	**I**	**INTERFERENCE CHECK SAMPLE (ICS) RESULTS**					
		1) Were percent recoveries within method QC limits?	X				
S9	**I**	**SERIAL DILUTIONS, POST DIGESTION SPIKES, AND METHOD OF STANDARD ADDITIONS**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	**OI**	**METHOD DETECTION LIMIT (MDL) STUDIES**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCS?	X				
S11	**OI**	**PROFICIENCY TEST REPORTS**					
		1) Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	**OI**	**STANDARDS DOCUMENTATION**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	**OI**	**COMPOUND/ANALYTE IDENTIFICATION PROCEDURES**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	**OI**	**DEMONSTRATION OF ANALYST COMPETENCY (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5?	X				

LRC Date: December 31, 2013	Laboratory Job Number: 600-84138-1
Reviewer Name: Timothy L. Kellogg	Project Name/Number: Galena Park Central Plant

		2) Is documentation of the analyst's competency up-to-date and on file?	X				
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S15	**OI**	**VERIFICATION/VALIDATION DOCUMENTATION FOR METHODS (NELAC CHAPTER 5)**					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	**OI**	**LABORATORY STANDARD OPERATING PROCEDURES (SOPs)**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

EXCEPTION REPORTS

ER#[5]	DESCRIPTION

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable)
3 NA = Not applicable
4 NR = Not reviewed
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica - Corpus Christi

TRRP DCS EVALUATION SPREADSHEET - WATER MATRIX

MDLV STUDY INFO	
DATE COMPLETED:	10/01/2013 - 3Q13
METHOD NUMBER:	6020/200.8
METHOD DESCRIPTION:	ICPMS
PREP METHOD:	3010A
INSTRUMENT:	Agilent ICPMS

		SPIKE RANGE				
ANALYTE	CURRENT MDL (ug/L)	MINIMUM (ug/L)	MAXIMUM (ug/L)	SPIKE (ug/L)	MEAS VALUE (ug/L)	ANALYTE IS DETECTED
Aluminum	22.5	22.5	67.5	100	52.2	yes
Antimony	1.61	1.61	4.83	4	1.98	yes
Arsenic	1.09	1.09	3.27	4	1.63	yes
Barium	0.81	0.81	2.43	4	3.19	yes
Beryllium	1.24	1.24	3.72	5	2.17	yes
Boron	70	70	210	100	109	yes
Cadmium	0.854	0.854	2.562	4	1.36	yes
Calcium	198	198	594	400	265	yes
Chromium	1.4	1.4	4.2	5	2.52	yes
Cobalt	1.36	1.36	4.08	4	1.62	yes
Copper	2	2	6	4	37.5	yes
Iron	101	101	303	200	169	yes
Lead	0.733	0.733	2.199	4	1.66	yes
Lithium	2.26	2.26	6.78	5	2.48	yes
Magnesium	113	113	339	200	142	yes
Manganese	11.6	11.6	34.8	40	25.4	yes
Molybdenum	1.4	1.4	4.2	4	1.75	yes
Nickel	2.17	2.17	6.51	4	7.11	yes
Phosphorus	18.1	18.1	54.3	40	35.2	yes
Potassium	407	407	1221	1000	632	yes
Selenium	1.08	1.08	3.24	2	1.61	yes
Silicon	62.8	62.8	188.4	200	2070	yes
Silver	0.941	0.941	2.823	4	1.9	yes
Sodium	727	727	2181	2000	1730	yes
Strontium	0.768	0.768	2.304	4	1.84	yes
Thallium	0.693	0.693	2.079	2	1.51	yes
Tin	5.08	5.08	15.24	10	6.42	yes
Titanium	1.53	1.53	4.59	4	1.68	yes
Vanadium	1.44	1.44	4.32	4	3.67	yes
Zinc	3.55	3.55	10.65	4	8.92	yes

Job ID: 600-84138-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-84138-1

Comments
No additional comments.

Receipt
The samples were received on 12/14/2013 7:02 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.6º C, 3.3º C and 4.5º C.

Except:

The container label for the following sample(s) did not match the information listed on the Chain-of-Custody (COC): RI-1-15 (600-84138-1). The container labels list RI-1-19 on amber 1000 ml containers while the COC lists RI-1-15. Collection time on containers matches containers received for RI-1-15.

GC/MS VOA
Method(s) 8260B: The following samples were received preserved with hydrochloric acid: MW-39 (600-84138-2), RI-1-15 (600-84138-1), Trip Blank (600-84138-3). The requested target analyte list contains vinyl chloride and styrene, which are acid-labile compounds that degrade in an acidic medium.

Method Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU
8151A	Herbicides (GC)	SW846	TAL HOU
6020	Metals (ICP/MS)	SW846	TAL CC

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-84138-1	RI-1-15	Water	12/09/13 10:17	12/14/13 07:02
600-84138-2	MW-39	Water	12/09/13 11:35	12/14/13 07:02
600-84138-3	Trip Blank	Water	12/09/13 00:00	12/14/13 07:02

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Client Sample ID: RI-1-15
Date Collected: 12/09/13 10:17
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 18:02	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 18:02	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 18:02	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			12/17/13 18:02	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			12/17/13 18:02	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 18:02	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 18:02	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			12/17/13 18:02	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			12/17/13 18:02	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			12/17/13 18:02	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 18:02	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			12/17/13 18:02	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 18:02	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			12/17/13 18:02	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 18:02	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 18:02	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 18:02	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 18:02	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 18:02	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			12/17/13 18:02	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 18:02	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 18:02	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 18:02	1
Benzene	**0.000241**	**J**	0.00100	0.0000800	mg/L			12/17/13 18:02	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 18:02	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 18:02	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			12/17/13 18:02	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			12/17/13 18:02	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			12/17/13 18:02	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 18:02	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 18:02	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			12/17/13 18:02	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			12/17/13 18:02	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			12/17/13 18:02	1
cis-1,2-Dichloroethene	**0.00115**		0.00100	0.0000600	mg/L			12/17/13 18:02	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 18:02	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 18:02	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			12/17/13 18:02	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			12/17/13 18:02	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 18:02	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			12/17/13 18:02	1
Isopropylbenzene	**0.0302**		0.00100	0.000180	mg/L			12/17/13 18:02	1
Methyl tert-butyl ether	**0.000631**	**J**	0.00100	0.000120	mg/L			12/17/13 18:02	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			12/17/13 18:02	1
m-Xylene & p-Xylene	**0.000392**	**J**	0.00200	0.000170	mg/L			12/17/13 18:02	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			12/17/13 18:02	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			12/17/13 18:02	1
N-Propylbenzene	**0.00170**		0.00100	0.000150	mg/L			12/17/13 18:02	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 18:02	1

Client Sample ID: RI-1-15
Date Collected: 12/09/13 10:17
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	**0.000160**	**J**	0.00100	0.000120	mg/L			12/17/13 18:02	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			12/17/13 18:02	1
tert-Butylbenzene	**0.000471**	**J**	0.00100	0.0000800	mg/L			12/17/13 18:02	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 18:02	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 18:02	1
Acetone	**0.0108**		0.00200	0.000990	mg/L			12/17/13 18:02	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			12/17/13 18:02	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 18:02	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 18:02	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			12/17/13 18:02	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 18:02	1
Vinyl chloride	**0.000875**	**J**	0.00200	0.000110	mg/L			12/17/13 18:02	1
Xylenes, Total	**0.000392**	**J**	0.00300	0.000260	mg/L			12/17/13 18:02	1
n-Hexane	**0.00105**		0.00100	0.000160	mg/L			12/17/13 18:02	1
Vinyl acetate	**0.00140**		0.00100	0.000210	mg/L			12/17/13 18:02	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			12/17/13 18:02	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			12/17/13 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*50 - 134*		*12/17/13 18:02*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*12/17/13 18:02*	*1*
Dibromofluoromethane	*82*		*62 - 130*		*12/17/13 18:02*	*1*
Toluene-d8 (Surr)	*73*		*70 - 130*		*12/17/13 18:02*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		12/16/13 10:16	12/17/13 12:05	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		12/16/13 10:16	12/17/13 12:05	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		12/16/13 10:16	12/17/13 12:05	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:05	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:05	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		12/16/13 10:16	12/17/13 12:05	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		12/16/13 10:16	12/17/13 12:05	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:05	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		12/16/13 10:16	12/17/13 12:05	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		12/16/13 10:16	12/17/13 12:05	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
3,3'-Dichlorobenzidine	0.000320	U *	0.000500	0.000320	mg/L		12/16/13 10:16	12/17/13 12:05	1
3-Nitroaniline	0.000130	U	0.000500	0.000130	mg/L		12/16/13 10:16	12/17/13 12:05	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:05	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:05	1
4-Chloroaniline	0.000110	U	0.000500	0.000110	mg/L		12/16/13 10:16	12/17/13 12:05	1

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Client Sample ID: RI-1-15
Date Collected: 12/09/13 10:17
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		12/16/13 10:16	12/17/13 12:05	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		12/16/13 10:16	12/17/13 12:05	1
4-Nitrophenol	0.000330	U	0.00100	0.000330	mg/L		12/16/13 10:16	12/17/13 12:05	1
Acenaphthene	**0.00127**		0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		12/16/13 10:16	12/17/13 12:05	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		12/16/13 10:16	12/17/13 12:05	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:05	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:05	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:05	1
Bis(2-ethylhexyl) phthalate	**0.000594**	**J**	0.00150	0.000590	mg/L		12/16/13 10:16	12/17/13 12:05	1
Butyl benzyl phthalate	0.000850	U	0.00250	0.000850	mg/L		12/16/13 10:16	12/17/13 12:05	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 12:05	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:05	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		12/16/13 10:16	12/17/13 12:05	1
Dimethyl phthalate	0.000180	U	0.00500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:05	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		12/16/13 10:16	12/17/13 12:05	1
Di-n-octyl phthalate	**0.00124**	**J**	0.00500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		12/16/13 10:16	12/17/13 12:05	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		12/16/13 10:16	12/17/13 12:05	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:05	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:05	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		12/16/13 10:16	12/17/13 12:05	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		12/16/13 10:16	12/17/13 12:05	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:05	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		12/16/13 10:16	12/17/13 12:05	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:05	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		12/16/13 10:16	12/17/13 12:05	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 12:05	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 12:05	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		12/16/13 10:16	12/17/13 12:05	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:05	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		12/16/13 10:16	12/17/13 12:05	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 12:05	1
Pyridine	0.000240	U *	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 12:05	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		12/16/13 10:16	12/17/13 12:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*102*		*44 - 123*	*12/16/13 10:16*	*12/17/13 12:05*	*1*
2-Fluorobiphenyl	*78*		*43 - 120*	*12/16/13 10:16*	*12/17/13 12:05*	*1*
2-Fluorophenol	*67*		*18 - 120*	*12/16/13 10:16*	*12/17/13 12:05*	*1*
Nitrobenzene-d5	*87*		*47 - 120*	*12/16/13 10:16*	*12/17/13 12:05*	*1*
Terphenyl-d14	*73*		*33 - 141*	*12/16/13 10:16*	*12/17/13 12:05*	*1*

Client Sample ID: RI-1-15

Lab Sample ID: 600-84138-1

Date Collected: 12/09/13 10:17

Matrix: Water

Date Received: 12/14/13 07:02

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*34*		*12 - 128*	*12/16/13 10:16*	*12/17/13 12:05*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000385	U	0.000192	0.0000385	mg/L		12/16/13 14:16	12/17/13 21:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*84*		*10 - 125. 2*	*12/16/13 14:16*	*12/17/13 21:50*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00327**	**J**	0.00500	0.000733	mg/L		12/18/13 12:00	12/20/13 01:19	1

Client Sample ID: MW-39

Lab Sample ID: 600-84138-2

Date Collected: 12/09/13 11:35

Matrix: Water

Date Received: 12/14/13 07:02

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:33	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:33	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 17:33	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			12/17/13 17:33	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			12/17/13 17:33	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 17:33	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 17:33	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			12/17/13 17:33	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			12/17/13 17:33	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			12/17/13 17:33	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 17:33	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			12/17/13 17:33	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 17:33	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			12/17/13 17:33	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:33	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 17:33	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:33	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 17:33	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 17:33	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:33	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:33	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 17:33	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 17:33	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 17:33	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 17:33	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:33	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			12/17/13 17:33	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			12/17/13 17:33	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			12/17/13 17:33	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:33	1

Client Sample ID: MW-39
Date Collected: 12/09/13 11:35
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:33	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			12/17/13 17:33	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:33	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			12/17/13 17:33	1
cis-1,2-Dichloroethene	**0.000155**	**J**	0.00100	0.0000600	mg/L			12/17/13 17:33	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:33	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:33	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			12/17/13 17:33	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:33	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 17:33	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			12/17/13 17:33	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:33	1
Methyl tert-butyl ether	**0.000239**	**J**	0.00100	0.000120	mg/L			12/17/13 17:33	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:33	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			12/17/13 17:33	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			12/17/13 17:33	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:33	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:33	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:33	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:33	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			12/17/13 17:33	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 17:33	1
Tetrachloroethene	**0.00140**		0.00100	0.000130	mg/L			12/17/13 17:33	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:33	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			12/17/13 17:33	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			12/17/13 17:33	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 17:33	1
Trichloroethene	**0.000354**	**J**	0.00100	0.000180	mg/L			12/17/13 17:33	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			12/17/13 17:33	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 17:33	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			12/17/13 17:33	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			12/17/13 17:33	1
n-Hexane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:33	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			12/17/13 17:33	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			12/17/13 17:33	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			12/17/13 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*50 - 134*		*12/17/13 17:33*	*1*
4-Bromofluorobenzene	*84*		*67 - 139*		*12/17/13 17:33*	*1*
Dibromofluoromethane	*83*		*62 - 130*		*12/17/13 17:33*	*1*
Toluene-d8 (Surr)	*78*		*70 - 130*		*12/17/13 17:33*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		12/16/13 10:16	12/17/13 12:32	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		12/16/13 10:16	12/17/13 12:32	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:32	1

Client Sample ID: MW-39
Date Collected: 12/09/13 11:35
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-2
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 12:32	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		12/16/13 10:16	12/17/13 12:32	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:32	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		12/16/13 10:16	12/17/13 12:32	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		12/16/13 10:16	12/17/13 12:32	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:32	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:32	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		12/16/13 10:16	12/17/13 12:32	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		12/16/13 10:16	12/17/13 12:32	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:32	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		12/16/13 10:16	12/17/13 12:32	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		12/16/13 10:16	12/17/13 12:32	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
3,3'-Dichlorobenzidine	0.000320	U *	0.000500	0.000320	mg/L		12/16/13 10:16	12/17/13 12:32	1
3-Nitroaniline	0.000130	U	0.000500	0.000130	mg/L		12/16/13 10:16	12/17/13 12:32	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:32	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:32	1
4-Chloroaniline	0.000110	U	0.000500	0.000110	mg/L		12/16/13 10:16	12/17/13 12:32	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		12/16/13 10:16	12/17/13 12:32	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		12/16/13 10:16	12/17/13 12:32	1
4-Nitrophenol	0.000330	U	0.00100	0.000330	mg/L		12/16/13 10:16	12/17/13 12:32	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		12/16/13 10:16	12/17/13 12:32	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		12/16/13 10:16	12/17/13 12:32	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:32	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:32	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:32	1
Butyl benzyl phthalate	0.000850	U	0.00250	0.000850	mg/L		12/16/13 10:16	12/17/13 12:32	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 12:32	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:32	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		12/16/13 10:16	12/17/13 12:32	1
Dimethyl phthalate	0.000180	U	0.00500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:32	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		12/16/13 10:16	12/17/13 12:32	1
Di-n-octyl phthalate	**0.00122**	**J**	0.00500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		12/16/13 10:16	12/17/13 12:32	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		12/16/13 10:16	12/17/13 12:32	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 12:32	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 12:32	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		12/16/13 10:16	12/17/13 12:32	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		12/16/13 10:16	12/17/13 12:32	1

Client Sample ID: MW-39
Date Collected: 12/09/13 11:35
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-2
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:32	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		12/16/13 10:16	12/17/13 12:32	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 12:32	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		12/16/13 10:16	12/17/13 12:32	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 12:32	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 12:32	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		12/16/13 10:16	12/17/13 12:32	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 12:32	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		12/16/13 10:16	12/17/13 12:32	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 12:32	1
Pyridine	0.000240	U *	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 12:32	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		12/16/13 10:16	12/17/13 12:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*100*		*44 - 123*	*12/16/13 10:16*	*12/17/13 12:32*	*1*
2-Fluorobiphenyl	*88*		*43 - 120*	*12/16/13 10:16*	*12/17/13 12:32*	*1*
2-Fluorophenol	*83*		*18 - 120*	*12/16/13 10:16*	*12/17/13 12:32*	*1*
Nitrobenzene-d5	*96*		*47 - 120*	*12/16/13 10:16*	*12/17/13 12:32*	*1*
Terphenyl-d14	*106*		*33 - 141*	*12/16/13 10:16*	*12/17/13 12:32*	*1*
Phenol-d5 (Surr)	*60*		*12 - 128*	*12/16/13 10:16*	*12/17/13 12:32*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	**0.0346**		0.0150	0.00590	mg/L		12/16/13 10:16	12/18/13 17:51	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*77*		*44 - 123*	*12/16/13 10:16*	*12/18/13 17:51*	*10*
2-Fluorobiphenyl	*74*		*43 - 120*	*12/16/13 10:16*	*12/18/13 17:51*	*10*
2-Fluorophenol	*73*		*18 - 120*	*12/16/13 10:16*	*12/18/13 17:51*	*10*
Nitrobenzene-d5	*72*		*47 - 120*	*12/16/13 10:16*	*12/18/13 17:51*	*10*
Terphenyl-d14	*80*		*33 - 141*	*12/16/13 10:16*	*12/18/13 17:51*	*10*
Phenol-d5 (Surr)	*53*		*12 - 128*	*12/16/13 10:16*	*12/18/13 17:51*	*10*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000385	U	0.000192	0.0000385	mg/L		12/16/13 14:16	12/17/13 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*96*		*10 - 125. 2*	*12/16/13 14:16*	*12/17/13 22:15*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00232**	**J**	0.00500	0.000733	mg/L		12/18/13 12:00	12/20/13 01:28	1

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Client Sample ID: Trip Blank
Date Collected: 12/09/13 00:00
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:05	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:05	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 17:05	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			12/17/13 17:05	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			12/17/13 17:05	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 17:05	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 17:05	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			12/17/13 17:05	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			12/17/13 17:05	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			12/17/13 17:05	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 17:05	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			12/17/13 17:05	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 17:05	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			12/17/13 17:05	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:05	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 17:05	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:05	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 17:05	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 17:05	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:05	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:05	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 17:05	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 17:05	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 17:05	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 17:05	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:05	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			12/17/13 17:05	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			12/17/13 17:05	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			12/17/13 17:05	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:05	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:05	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			12/17/13 17:05	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:05	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			12/17/13 17:05	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			12/17/13 17:05	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:05	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:05	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			12/17/13 17:05	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:05	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 17:05	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			12/17/13 17:05	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:05	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:05	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:05	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			12/17/13 17:05	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			12/17/13 17:05	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:05	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:05	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:05	1

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Client Sample ID: Trip Blank
Date Collected: 12/09/13 00:00
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84138-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 17:05	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			12/17/13 17:05	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 17:05	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 17:05	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 17:05	1
Acetone	**0.00374**		0.00200	0.000990	mg/L			12/17/13 17:05	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			12/17/13 17:05	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 17:05	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 17:05	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			12/17/13 17:05	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 17:05	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			12/17/13 17:05	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			12/17/13 17:05	1
n-Hexane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 17:05	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			12/17/13 17:05	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			12/17/13 17:05	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			12/17/13 17:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*50 - 134*		*12/17/13 17:05*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*12/17/13 17:05*	*1*
Dibromofluoromethane	*84*		*62 - 130*		*12/17/13 17:05*	*1*
Toluene-d8 (Surr)	*75*		*70 - 130*		*12/17/13 17:05*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
*	RPD of the LCS and LCSD exceeds the control limits
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
*	LCS or LCSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Metals

Qualifier	Qualifier Description
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(50-134)	(67-139)	(62-130)	(70-130)
600-84138-1	RI-1-15	92	89	82	73
600-84138-2	MW-39	97	84	83	78
600-84138-3	Trip Blank	95	89	84	75
LCS 600-123154/3	Lab Control Sample	92	91	87	76
MB 600-123154/4	Method Blank	96	85	85	78

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(44-123)	(43-120)	(18-120)	(47-120)	(33-141)	(12-128)
600-84138-1	RI-1-15	102	78	67	87	73	34
600-84138-2	MW-39	100	88	83	96	106	60
600-84138-2 - DL	MW-39	77	74	73	72	80	53
LCS 600-122929/2-A	Lab Control Sample	88	97	92	94	103	76
LCSD 600-122929/3-A	Lab Control Sample Dup	82	89	95	90	93	78
MB 600-122929/1-A	Method Blank	81	96	91	94	100	78

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPA1
Lab Sample ID	Client Sample ID	(10-125.2)
600-84138-1	RI-1-15	84
600-84138-2	MW-39	96
LCS 600-122969/2-A	Lab Control Sample	75
MB 600-122969/1-A	Method Blank	79

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-123154/4
Matrix: Water
Analysis Batch: 123154

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 11:56	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 11:56	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 11:56	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			12/17/13 11:56	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			12/17/13 11:56	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 11:56	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 11:56	1
1,2,3-Trichlorobenzene	0.0006132	J	0.00100	0.000570	mg/L			12/17/13 11:56	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			12/17/13 11:56	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			12/17/13 11:56	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 11:56	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			12/17/13 11:56	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 11:56	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			12/17/13 11:56	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 11:56	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 11:56	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 11:56	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			12/17/13 11:56	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 11:56	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			12/17/13 11:56	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 11:56	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			12/17/13 11:56	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			12/17/13 11:56	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 11:56	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			12/17/13 11:56	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 11:56	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			12/17/13 11:56	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			12/17/13 11:56	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			12/17/13 11:56	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 11:56	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			12/17/13 11:56	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			12/17/13 11:56	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			12/17/13 11:56	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			12/17/13 11:56	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			12/17/13 11:56	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 11:56	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			12/17/13 11:56	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			12/17/13 11:56	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			12/17/13 11:56	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			12/17/13 11:56	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			12/17/13 11:56	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 11:56	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			12/17/13 11:56	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			12/17/13 11:56	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			12/17/13 11:56	1
Naphthalene	0.0004398	J	0.00200	0.000320	mg/L			12/17/13 11:56	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			12/17/13 11:56	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 11:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-123154/4
Matrix: Water
Analysis Batch: 123154

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 11:56	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			12/17/13 11:56	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			12/17/13 11:56	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 11:56	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			12/17/13 11:56	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			12/17/13 11:56	1
Acetone	0.000990	U	0.00200	0.000990	mg/L			12/17/13 11:56	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			12/17/13 11:56	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			12/17/13 11:56	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			12/17/13 11:56	1
Carbon disulfide	0.000240	U	0.00100	0.000240	mg/L			12/17/13 11:56	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			12/17/13 11:56	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			12/17/13 11:56	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			12/17/13 11:56	1
n-Hexane	0.000160	U	0.00100	0.000160	mg/L			12/17/13 11:56	1
Vinyl acetate	0.000210	U	0.00100	0.000210	mg/L			12/17/13 11:56	1
2-Butanone (MEK)	0.000760	U	0.00200	0.000760	mg/L			12/17/13 11:56	1
4-Methyl-2-pentanone (MIBK)	0.000450	U	0.00200	0.000450	mg/L			12/17/13 11:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*50 - 134*		*12/17/13 11:56*	*1*
4-Bromofluorobenzene	*85*		*67 - 139*		*12/17/13 11:56*	*1*
Dibromofluoromethane	*85*		*62 - 130*		*12/17/13 11:56*	*1*
Toluene-d8 (Surr)	*78*		*70 - 130*		*12/17/13 11:56*	*1*

Lab Sample ID: LCS 600-123154/3
Matrix: Water
Analysis Batch: 123154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.0100	0.009733		mg/L		97	57 - 136
1,1,1-Trichloroethane	0.0100	0.01193		mg/L		119	65 - 142
1,1,2,2-Tetrachloroethane	0.0100	0.01132		mg/L		113	68 - 134
1,1,2-Trichloroethane	0.0100	0.009975		mg/L		100	68 - 130
1,1-Dichloroethane	0.0100	0.01147		mg/L		115	66 - 126
1,1-Dichloroethene	0.0100	0.009011		mg/L		90	59 - 145
1,1-Dichloropropene	0.0100	0.01241		mg/L		124	59 - 134
1,2,3-Trichlorobenzene	0.0100	0.01011		mg/L		101	38 - 152
1,2,3-Trichloropropane	0.0100	0.01176		mg/L		118	52 - 157
1,2,4-Trichlorobenzene	0.0100	0.01003		mg/L		100	55 - 151
1,2,4-Trimethylbenzene	0.0100	0.01095		mg/L		110	63 - 131
1,2-Dibromo-3-Chloropropane	0.0100	0.009848		mg/L		98	43 - 141
1,2-Dichlorobenzene	0.0100	0.01008		mg/L		101	71 - 133
1,2-Dichloroethane	0.0100	0.01299		mg/L		130	66 - 140
1,2-Dichloropropane	0.0100	0.01102		mg/L		110	72 - 125
1,3,5-Trimethylbenzene	0.0100	0.01109		mg/L		111	63 - 132
1,3-Dichlorobenzene	0.0100	0.009997		mg/L		100	71 - 132
1,3-Dichloropropane	0.0100	0.01047		mg/L		105	62 - 132

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-123154/3
Matrix: Water
Analysis Batch: 123154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.0100	0.01008		mg/L		101	72 - 131
2,2-Dichloropropane	0.0100	0.01132		mg/L		113	43 - 169
2-Chlorotoluene	0.0100	0.01014		mg/L		101	58 - 135
4-Chlorotoluene	0.0100	0.01139		mg/L		114	64 - 134
4-Isopropyltoluene	0.0100	0.01039		mg/L		104	63 - 138
Benzene	0.0100	0.01070		mg/L		107	69 - 131
Bromobenzene	0.0100	0.009917		mg/L		99	61 - 134
Bromodichloromethane	0.0100	0.01194		mg/L		119	73 - 130
Bromoform	0.0100	0.01000		mg/L		100	39 - 149
Bromomethane	0.0100	0.009371		mg/L		94	52 - 146
Carbon tetrachloride	0.0100	0.01223		mg/L		122	59 - 147
Chlorobenzene	0.0100	0.009127		mg/L		91	60 - 136
Chlorobromomethane	0.0100	0.009951		mg/L		100	60 - 141
Chloroethane	0.0100	0.009611		mg/L		96	56 - 144
Chloroform	0.0100	0.01218		mg/L		122	69 - 128
Chloromethane	0.0100	0.01067		mg/L		107	32 - 151
cis-1,2-Dichloroethene	0.0100	0.01056		mg/L		106	69 - 129
cis-1,3-Dichloropropene	0.0100	0.01055		mg/L		105	60 - 135
Dibromochloromethane	0.0100	0.009626		mg/L		96	58 - 132
Dibromomethane	0.0100	0.01148		mg/L		115	68 - 134
Dichlorodifluoromethane	0.0100	0.01072		mg/L		107	12 - 136
Ethylbenzene	0.0100	0.009452		mg/L		95	68 - 128
Hexachlorobutadiene	0.0100	0.01035		mg/L		103	53 - 140
Isopropylbenzene	0.0100	0.01120		mg/L		112	79 - 146
Methyl tert-butyl ether	0.0100	0.01082		mg/L		108	63 - 142
Methylene Chloride	0.0100	0.01038		mg/L		104	62 - 134
m-Xylene & p-Xylene	0.0100	0.009297		mg/L		93	67 - 132
Naphthalene	0.0100	0.01123		mg/L		112	19 - 195
n-Butylbenzene	0.0100	0.01153		mg/L		115	62 - 132
N-Propylbenzene	0.0100	0.01035		mg/L		103	61 - 137
o-Xylene	0.0100	0.009427		mg/L		94	68 - 134
sec-Butylbenzene	0.0100	0.01091		mg/L		109	61 - 134
Styrene	0.0100	0.009306		mg/L		93	68 - 133
tert-Butylbenzene	0.0100	0.01050		mg/L		105	67 - 148
Tetrachloroethene	0.0100	0.007589		mg/L		76	61 - 142
Toluene	0.0100	0.009842		mg/L		98	67 - 130
Acetone	0.0200	0.02853		mg/L		143	28 - 152
trans-1,2-Dichloroethene	0.0100	0.01023		mg/L		102	70 - 132
trans-1,3-Dichloropropene	0.0100	0.01015		mg/L		101	63 - 133
Trichloroethene	0.0100	0.009728		mg/L		97	68 - 130
Carbon disulfide	0.0100	0.009112		mg/L		91	32 - 177
Trichlorofluoromethane	0.0100	0.01016		mg/L		102	55 - 142
Vinyl chloride	0.0100	0.01133		mg/L		113	47 - 146
Xylenes, Total	0.0200	0.01872		mg/L		94	68 - 132
n-Hexane	0.0100	0.009808		mg/L		98	28 - 145
Vinyl acetate	0.0200	0.02655		mg/L		133	58 - 175
2-Butanone (MEK)	0.0200	0.02341		mg/L		117	59 - 133
4-Methyl-2-pentanone (MIBK)	0.0200	0.02306		mg/L		115	56 - 142

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-123154/3
Matrix: Water
Analysis Batch: 123154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		50 - 134
4-Bromofluorobenzene	91		67 - 139
Dibromofluoromethane	87		62 - 130
Toluene-d8 (Surr)	76		70 - 130

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-122929/1-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122929

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		12/16/13 10:16	12/17/13 10:46	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		12/16/13 10:16	12/17/13 10:46	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		12/16/13 10:16	12/17/13 10:46	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 10:46	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 10:46	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		12/16/13 10:16	12/17/13 10:46	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		12/16/13 10:16	12/17/13 10:46	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 10:46	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		12/16/13 10:16	12/17/13 10:46	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		12/16/13 10:16	12/17/13 10:46	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		12/16/13 10:16	12/17/13 10:46	1
3-Nitroaniline	0.000130	U	0.000500	0.000130	mg/L		12/16/13 10:16	12/17/13 10:46	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 10:46	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 10:46	1
4-Chloroaniline	0.000110	U	0.000500	0.000110	mg/L		12/16/13 10:16	12/17/13 10:46	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		12/16/13 10:16	12/17/13 10:46	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		12/16/13 10:16	12/17/13 10:46	1
4-Nitrophenol	0.000330	U	0.00100	0.000330	mg/L		12/16/13 10:16	12/17/13 10:46	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		12/16/13 10:16	12/17/13 10:46	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		12/16/13 10:16	12/17/13 10:46	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 10:46	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		12/16/13 10:16	12/17/13 10:46	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 10:46	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		12/16/13 10:16	12/17/13 10:46	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: MB 600-122929/1-A | **Client Sample ID: Method Blank**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 123138 | **Prep Batch: 122929**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		12/16/13 10:16	12/17/13 10:46	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 10:46	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 10:46	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 10:46	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.00150	0.000590	mg/L		12/16/13 10:16	12/17/13 10:46	1
Butyl benzyl phthalate	0.000850	U	0.00250	0.000850	mg/L		12/16/13 10:16	12/17/13 10:46	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 10:46	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 10:46	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		12/16/13 10:16	12/17/13 10:46	1
Dimethyl phthalate	0.000180	U	0.00500	0.000180	mg/L		12/16/13 10:16	12/17/13 10:46	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		12/16/13 10:16	12/17/13 10:46	1
Di-n-octyl phthalate	0.000160	U	0.00500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		12/16/13 10:16	12/17/13 10:46	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		12/16/13 10:16	12/17/13 10:46	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		12/16/13 10:16	12/17/13 10:46	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		12/16/13 10:16	12/17/13 10:46	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		12/16/13 10:16	12/17/13 10:46	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		12/16/13 10:16	12/17/13 10:46	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 10:46	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		12/16/13 10:16	12/17/13 10:46	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		12/16/13 10:16	12/17/13 10:46	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		12/16/13 10:16	12/17/13 10:46	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 10:46	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 10:46	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		12/16/13 10:16	12/17/13 10:46	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		12/16/13 10:16	12/17/13 10:46	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		12/16/13 10:16	12/17/13 10:46	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		12/16/13 10:16	12/17/13 10:46	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		12/16/13 10:16	12/17/13 10:46	1
Benzyl alcohol	0.000510	U	0.000500	0.000510	mg/L		12/16/13 10:16	12/17/13 10:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*81*		*44 - 123*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
2-Fluorobiphenyl	*96*		*43 - 120*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
2-Fluorophenol	*91*		*18 - 120*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
Nitrobenzene-d5	*94*		*47 - 120*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
Terphenyl-d14	*100*		*33 - 141*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
Phenol-d5 (Surr)	*78*		*12 - 128*	*12/16/13 10:16*	*12/17/13 10:46*	*1*

Lab Sample ID: LCS 600-122929/2-A | **Client Sample ID: Lab Control Sample**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 123138 | **Prep Batch: 122929**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	0.00800	0.005889		mg/L		74	38 - 118
1,2-Dichlorobenzene	0.00800	0.005934		mg/L		74	40 - 121
1,3-Dichlorobenzene	0.00800	0.005937		mg/L		74	39 - 122

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-122929/2-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122929

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.00800	0.005939		mg/L		74	45 - 124
2,4,5-Trichlorophenol	0.00800	0.006202		mg/L		78	38 - 145
2,4,6-Trichlorophenol	0.00800	0.006230		mg/L		78	39 - 123
2,4-Dichlorophenol	0.00800	0.007131		mg/L		89	39 - 118
2,4-Dimethylphenol	0.00800	0.006996		mg/L		87	36 - 109
2,4-Dinitrophenol	0.0160	0.01055		mg/L		66	23 - 130
2,4-Dinitrotoluene	0.00800	0.006680		mg/L		84	43 - 128
2,6-Dinitrotoluene	0.00800	0.007274		mg/L		91	45 - 122
2-Chloronaphthalene	0.00800	0.006384		mg/L		80	43 - 120
2-Chlorophenol	0.00800	0.006675		mg/L		83	23 - 134
2-Methylnaphthalene	0.00800	0.006363		mg/L		80	40 - 121
2-Methylphenol	0.00800	0.006448		mg/L		81	34 - 109
2-Nitroaniline	0.00800	0.006377		mg/L		80	42 - 130
2-Nitrophenol	0.00800	0.006609		mg/L		83	40 - 121
3 & 4 Methylphenol	0.00800	0.007194		mg/L		90	27 - 113
3,3'-Dichlorobenzidine	0.00800	0.004971		mg/L		62	38 - 168
3-Nitroaniline	0.00800	0.005866		mg/L		73	47 - 138
4,6-Dinitro-2-methylphenol	0.0160	0.01128		mg/L		71	24 - 122
4-Bromophenyl phenyl ether	0.00800	0.006541		mg/L		82	46 - 129
4-Chloro-3-methylphenol	0.00800	0.006209		mg/L		78	44 - 131
4-Chloroaniline	0.00800	0.005381		mg/L		67	19 - 129
4-Chlorophenyl phenyl ether	0.00800	0.006635		mg/L		83	48 - 125
4-Nitroaniline	0.00800	0.005944		mg/L		74	32 - 139
4-Nitrophenol	0.0160	0.009829		mg/L		61	14 - 132
Acenaphthene	0.00800	0.006322		mg/L		79	47 - 145
Acenaphthylene	0.00800	0.006146		mg/L		77	35 - 135
Aniline	0.00800	0.003290		mg/L		41	13 - 100
Anthracene	0.00800	0.006703		mg/L		84	53 - 124
Benzo[a]anthracene	0.00800	0.006962		mg/L		87	53 - 122
Benzo[a]pyrene	0.00800	0.007016		mg/L		88	50 - 124
Benzo[b]fluoranthene	0.00800	0.006826		mg/L		85	53 - 131
Benzo[g,h,i]perylene	0.00800	0.007508		mg/L		94	46 - 133
Benzo[k]fluoranthene	0.00800	0.006960		mg/L		87	46 - 130
Benzoic acid	0.0160	0.008308		mg/L		52	10 - 110
bis (2-Chloroisopropyl) ether	0.00800	0.006117		mg/L		76	41 - 111
Bis(2-chloroethoxy)methane	0.00800	0.006716		mg/L		84	42 - 119
Bis(2-chloroethyl)ether	0.00800	0.006115		mg/L		76	40 - 112
Bis(2-ethylhexyl) phthalate	0.00800	0.006812		mg/L		85	47 - 132
Butyl benzyl phthalate	0.00800	0.007146		mg/L		89	50 - 126
Chrysene	0.00800	0.006839		mg/L		85	49 - 124
Dibenz(a,h)anthracene	0.00800	0.006606		mg/L		83	42 - 134
Dibenzofuran	0.00800	0.006497		mg/L		81	46 - 123
Diethyl phthalate	0.00800	0.006895		mg/L		86	51 - 123
Dimethyl phthalate	0.00800	0.006663		mg/L		83	49 - 121
Di-n-butyl phthalate	0.00800	0.007371		mg/L		92	54 - 138
Di-n-octyl phthalate	0.00800	0.006323		mg/L		79	27 - 157
Fluoranthene	0.00800	0.007259		mg/L		91	53 - 127
Fluorene	0.00800	0.006672		mg/L		83	48 - 127

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-122929/2-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122929

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobenzene	0.00800	0.006748		mg/L		84	46 - 129
Hexachlorobutadiene	0.00800	0.005968		mg/L		75	32 - 143
Hexachlorocyclopentadiene	0.00800	0.003745		mg/L		47	21 - 126
Hexachloroethane	0.00800	0.005922		mg/L		74	43 - 118
Indeno[1,2,3-cd]pyrene	0.00800	0.007113		mg/L		89	45 - 124
Isophorone	0.00800	0.006452		mg/L		81	42 - 116
Naphthalene	0.00800	0.006216		mg/L		78	39 - 120
Nitrobenzene	0.00800	0.006629		mg/L		83	42 - 119
N-Nitrosodi-n-propylamine	0.00800	0.006307		mg/L		79	39 - 124
N-Nitrosodiphenylamine	0.00800	0.006912		mg/L		86	43 - 107
Pentachlorophenol	0.0160	0.009489		mg/L		59	9 - 147
Phenanthrene	0.00800	0.006460		mg/L		81	52 - 121
Phenol	0.00800	0.005445		mg/L		68	11 - 112
Pyrene	0.00800	0.007119		mg/L		89	49 - 121
Pyridine	0.00800	0.0003734	J *	mg/L		5	10 - 109
Benzyl alcohol	0.00800	0.006826		mg/L		85	39 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*88*		*44 - 123*
2-Fluorobiphenyl	*97*		*43 - 120*
2-Fluorophenol	*92*		*18 - 120*
Nitrobenzene-d5	*94*		*47 - 120*
Terphenyl-d14	*103*		*33 - 141*
Phenol-d5 (Surr)	*76*		*12 - 128*

Lab Sample ID: LCSD 600-122929/3-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122929

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	0.00800	0.006167		mg/L		77	38 - 118	5	20
1,2-Dichlorobenzene	0.00800	0.006158		mg/L		77	40 - 121	4	20
1,3-Dichlorobenzene	0.00800	0.006240		mg/L		78	39 - 122	5	20
1,4-Dichlorobenzene	0.00800	0.006294		mg/L		79	45 - 124	6	20
2,4,5-Trichlorophenol	0.00800	0.006286		mg/L		79	38 - 145	1	20
2,4,6-Trichlorophenol	0.00800	0.006541		mg/L		82	39 - 123	5	20
2,4-Dichlorophenol	0.00800	0.007549		mg/L		94	39 - 118	6	20
2,4-Dimethylphenol	0.00800	0.007410		mg/L		93	36 - 109	6	20
2,4-Dinitrophenol	0.0160	0.01137		mg/L		71	23 - 130	7	20
2,4-Dinitrotoluene	0.00800	0.006731		mg/L		84	43 - 128	1	20
2,6-Dinitrotoluene	0.00800	0.007372		mg/L		92	45 - 122	1	20
2-Chloronaphthalene	0.00800	0.006402		mg/L		80	43 - 120	0	20
2-Chlorophenol	0.00800	0.006849		mg/L		86	23 - 134	3	20
2-Methylnaphthalene	0.00800	0.006609		mg/L		83	40 - 121	4	20
2-Methylphenol	0.00800	0.007185		mg/L		90	34 - 109	11	20
2-Nitroaniline	0.00800	0.006564		mg/L		82	42 - 130	3	20
2-Nitrophenol	0.00800	0.006766		mg/L		85	40 - 121	2	20
3 & 4 Methylphenol	0.00800	0.007484		mg/L		94	27 - 113	4	20

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 600-122929/3-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122929

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
3,3'-Dichlorobenzidine	0.00800	0.006140	*	mg/L		77	38 - 168	21	20
3-Nitroaniline	0.00800	0.006528		mg/L		82	47 - 138	11	20
4,6-Dinitro-2-methylphenol	0.0160	0.01215		mg/L		76	24 - 122	7	20
4-Bromophenyl phenyl ether	0.00800	0.006830		mg/L		85	46 - 129	4	20
4-Chloro-3-methylphenol	0.00800	0.006168		mg/L		77	44 - 131	1	20
4-Chloroaniline	0.00800	0.006146		mg/L		77	19 - 129	13	20
4-Chlorophenyl phenyl ether	0.00800	0.006777		mg/L		85	48 - 125	2	20
4-Nitroaniline	0.00800	0.006443		mg/L		81	32 - 139	8	20
4-Nitrophenol	0.0160	0.01038		mg/L		65	14 - 132	5	20
Acenaphthene	0.00800	0.006587		mg/L		82	47 - 145	4	20
Acenaphthylene	0.00800	0.006359		mg/L		79	35 - 135	3	20
Aniline	0.00800	0.003805		mg/L		48	13 - 100	15	20
Anthracene	0.00800	0.006738		mg/L		84	53 - 124	1	20
Benzo[a]anthracene	0.00800	0.007109		mg/L		89	53 - 122	2	20
Benzo[a]pyrene	0.00800	0.007032		mg/L		88	50 - 124	0	20
Benzo[b]fluoranthene	0.00800	0.006818		mg/L		85	53 - 131	0	20
Benzo[g,h,i]perylene	0.00800	0.007731		mg/L		97	46 - 133	3	20
Benzo[k]fluoranthene	0.00800	0.007078		mg/L		88	46 - 130	2	20
Benzoic acid	0.0160	0.007721		mg/L		48	10 - 110	7	20
bis (2-Chloroisopropyl) ether	0.00800	0.006627		mg/L		83	41 - 111	8	20
Bis(2-chloroethoxy)methane	0.00800	0.006660		mg/L		83	42 - 119	1	20
Bis(2-chloroethyl)ether	0.00800	0.006433		mg/L		80	40 - 112	5	20
Bis(2-ethylhexyl) phthalate	0.00800	0.006979		mg/L		87	47 - 132	2	20
Butyl benzyl phthalate	0.00800	0.007073		mg/L		88	50 - 126	1	20
Chrysene	0.00800	0.007057		mg/L		88	49 - 124	3	20
Dibenz(a,h)anthracene	0.00800	0.006731		mg/L		84	42 - 134	2	20
Dibenzofuran	0.00800	0.006727		mg/L		84	46 - 123	3	20
Diethyl phthalate	0.00800	0.007195		mg/L		90	51 - 123	4	20
Dimethyl phthalate	0.00800	0.006744		mg/L		84	49 - 121	1	20
Di-n-butyl phthalate	0.00800	0.007579		mg/L		95	54 - 138	3	20
Di-n-octyl phthalate	0.00800	0.006793		mg/L		85	27 - 157	7	20
Fluoranthene	0.00800	0.007345		mg/L		92	53 - 127	1	20
Fluorene	0.00800	0.006915		mg/L		86	48 - 127	4	20
Hexachlorobenzene	0.00800	0.006947		mg/L		87	46 - 129	3	20
Hexachlorobutadiene	0.00800	0.006005		mg/L		75	32 - 143	1	20
Hexachlorocyclopentadiene	0.00800	0.003953		mg/L		49	21 - 126	5	20
Hexachloroethane	0.00800	0.006076		mg/L		76	43 - 118	3	20
Indeno[1,2,3-cd]pyrene	0.00800	0.007410		mg/L		93	45 - 124	4	20
Isophorone	0.00800	0.006698		mg/L		84	42 - 116	4	20
Naphthalene	0.00800	0.006382		mg/L		80	39 - 120	3	20
Nitrobenzene	0.00800	0.006677		mg/L		83	42 - 119	1	20
N-Nitrosodi-n-propylamine	0.00800	0.006846		mg/L		86	39 - 124	8	20
N-Nitrosodiphenylamine	0.00800	0.007180		mg/L		90	43 - 107	4	20
Pentachlorophenol	0.0160	0.009345		mg/L		58	9 - 147	2	20
Phenanthrene	0.00800	0.006520		mg/L		82	52 - 121	1	20
Phenol	0.00800	0.005884		mg/L		74	11 - 112	8	20
Pyrene	0.00800	0.007178		mg/L		90	49 - 121	1	20
Pyridine	0.00800	0.0008113	*	mg/L		10	10 - 109	74	40

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 600-122929/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 123138 — **Prep Batch: 122929**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzyl alcohol			0.00800	0.007272		mg/L		91	39 - 115	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*82*		*44 - 123*
2-Fluorobiphenyl	*89*		*43 - 120*
2-Fluorophenol	*95*		*18 - 120*
Nitrobenzene-d5	*90*		*47 - 120*
Terphenyl-d14	*93*		*33 - 141*
Phenol-d5 (Surr)	*78*		*12 - 128*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 600-122969/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 123202 — **Prep Batch: 122969**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000400	U	0.000200	0.0000400	mg/L		12/16/13 14:16	12/17/13 19:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*79*		*10 - 125. 2*	*12/16/13 14:16*	*12/17/13 19:45*	*1*

Lab Sample ID: LCS 600-122969/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 123202 — **Prep Batch: 122969**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D			0.000800	0.0006045		mg/L		76	25 - 151

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*75*		*10 - 125. 2*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 560-96325/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 96434 — **Prep Batch: 96325**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.001532	J	0.00500	0.000733	mg/L		12/18/13 12:00	12/19/13 23:23	1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 560-96325/2-A
Matrix: Water
Analysis Batch: 96434

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 96325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.500	0.4837		mg/L		97	80 - 120

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units	Method
1,1,1,2-Tetrachloroethane	0.00100	0.000180	mg/L	8260B
1,1,1-Trichloroethane	0.00100	0.000150	mg/L	8260B
1,1,2,2-Tetrachloroethane	0.00100	0.000220	mg/L	8260B
1,1,2-Trichloroethane	0.00100	0.000280	mg/L	8260B
1,1-Dichloroethane	0.00100	0.000110	mg/L	8260B
1,1-Dichloroethene	0.00100	0.000190	mg/L	8260B
1,1-Dichloropropene	0.00100	0.000210	mg/L	8260B
1,2,3-Trichlorobenzene	0.00100	0.000570	mg/L	8260B
1,2,3-Trichloropropane	0.00100	0.000290	mg/L	8260B
1,2,4-Trichlorobenzene	0.00100	0.000310	mg/L	8260B
1,2,4-Trimethylbenzene	0.00100	0.000140	mg/L	8260B
1,2-Dibromo-3-Chloropropane	0.00100	0.000810	mg/L	8260B
1,2-Dichlorobenzene	0.00100	0.000100	mg/L	8260B
1,2-Dichloroethane	0.00100	0.000140	mg/L	8260B
1,2-Dichloropropane	0.00100	0.000160	mg/L	8260B
1,3,5-Trimethylbenzene	0.00100	0.000100	mg/L	8260B
1,3-Dichlorobenzene	0.00100	0.000130	mg/L	8260B
1,3-Dichloropropane	0.00100	0.000220	mg/L	8260B
1,4-Dichlorobenzene	0.00100	0.000110	mg/L	8260B
2,2-Dichloropropane	0.00100	0.000130	mg/L	8260B
2-Butanone (MEK)	0.00200	0.000760	mg/L	8260B
2-Chlorotoluene	0.00100	0.000130	mg/L	8260B
4-Chlorotoluene	0.00100	0.000140	mg/L	8260B
4-Isopropyltoluene	0.00100	0.000100	mg/L	8260B
4-Methyl-2-pentanone (MIBK)	0.00200	0.000450	mg/L	8260B
Acetone	0.00200	0.000990	mg/L	8260B
Benzene	0.00100	0.0000800	mg/L	8260B
Bromobenzene	0.00100	0.000190	mg/L	8260B
Bromodichloromethane	0.00100	0.000160	mg/L	8260B
Bromoform	0.00100	0.000190	mg/L	8260B
Bromomethane	0.00200	0.000250	mg/L	8260B
Carbon disulfide	0.00100	0.000240	mg/L	8260B
Carbon tetrachloride	0.00500	0.000150	mg/L	8260B
Chlorobenzene	0.00100	0.000120	mg/L	8260B
Chlorobromomethane	0.00100	0.000180	mg/L	8260B
Chloroethane	0.00200	0.0000800	mg/L	8260B
Chloroform	0.00100	0.000130	mg/L	8260B
Chloromethane	0.00200	0.000180	mg/L	8260B
cis-1,2-Dichloroethene	0.00100	0.0000600	mg/L	8260B
cis-1,3-Dichloropropene	0.00100	0.000180	mg/L	8260B
Dibromochloromethane	0.00100	0.000150	mg/L	8260B
Dibromomethane	0.00100	0.000520	mg/L	8260B
Dichlorodifluoromethane	0.00100	0.000120	mg/L	8260B
Ethylbenzene	0.00100	0.000110	mg/L	8260B
Hexachlorobutadiene	0.00100	0.000170	mg/L	8260B
Isopropylbenzene	0.00100	0.000180	mg/L	8260B
Methyl tert-butyl ether	0.00100	0.000120	mg/L	8260B
Methylene Chloride	0.00100	0.000150	mg/L	8260B
m-Xylene & p-Xylene	0.00200	0.000170	mg/L	8260B
Naphthalene	0.00200	0.000320	mg/L	8260B
n-Butylbenzene	0.00100	0.000160	mg/L	8260B
n-Hexane	0.00100	0.000160	mg/L	8260B

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	MQL	MDL	Units	Method
N-Propylbenzene	0.00100	0.000150	mg/L	8260B
o-Xylene	0.00100	0.000120	mg/L	8260B
sec-Butylbenzene	0.00100	0.000120	mg/L	8260B
Styrene	0.00100	0.0000700	mg/L	8260B
tert-Butylbenzene	0.00100	0.0000800	mg/L	8260B
Tetrachloroethene	0.00100	0.000130	mg/L	8260B
Toluene	0.00100	0.000150	mg/L	8260B
trans-1,2-Dichloroethene	0.00100	0.0000900	mg/L	8260B
trans-1,3-Dichloropropene	0.00100	0.000210	mg/L	8260B
Trichloroethene	0.00100	0.000180	mg/L	8260B
Trichlorofluoromethane	0.00100	0.0000800	mg/L	8260B
Vinyl acetate	0.00100	0.000210	mg/L	8260B
Vinyl chloride	0.00200	0.000110	mg/L	8260B
Xylenes, Total	0.00300	0.000260	mg/L	8260B

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
1,2,4-Trichlorobenzene	0.000500	0.000160	mg/L	8270C LL
1,2-Dichlorobenzene	0.000500	0.000210	mg/L	8270C LL
1,3-Dichlorobenzene	0.000500	0.000100	mg/L	8270C LL
1,4-Dichlorobenzene	0.000500	0.000160	mg/L	8270C LL
2,4,5-Trichlorophenol	0.000500	0.000290	mg/L	8270C LL
2,4,6-Trichlorophenol	0.000500	0.000330	mg/L	8270C LL
2,4-Dichlorophenol	0.000500	0.000260	mg/L	8270C LL
2,4-Dimethylphenol	0.000500	0.000180	mg/L	8270C LL
2,4-Dinitrophenol	0.00100	0.000400	mg/L	8270C LL
2,4-Dinitrotoluene	0.000500	0.000320	mg/L	8270C LL
2,6-Dinitrotoluene	0.000500	0.000290	mg/L	8270C LL
2-Chloronaphthalene	0.000500	0.000190	mg/L	8270C LL
2-Chlorophenol	0.000500	0.000220	mg/L	8270C LL
2-Methylnaphthalene	0.000500	0.000140	mg/L	8270C LL
2-Methylphenol	0.000500	0.000190	mg/L	8270C LL
2-Nitroaniline	0.000500	0.000350	mg/L	8270C LL
2-Nitrophenol	0.000500	0.000220	mg/L	8270C LL
3 & 4 Methylphenol	0.00100	0.000160	mg/L	8270C LL
3,3'-Dichlorobenzidine	0.000500	0.000320	mg/L	8270C LL
3-Nitroaniline	0.000500	0.000130	mg/L	8270C LL
4,6-Dinitro-2-methylphenol	0.00100	0.000160	mg/L	8270C LL
4-Bromophenyl phenyl ether	0.000500	0.000250	mg/L	8270C LL
4-Chloro-3-methylphenol	0.000500	0.000250	mg/L	8270C LL
4-Chloroaniline	0.000500	0.000110	mg/L	8270C LL
4-Chlorophenyl phenyl ether	0.000500	0.000230	mg/L	8270C LL
4-Nitroaniline	0.000500	0.000230	mg/L	8270C LL
4-Nitrophenol	0.00100	0.000330	mg/L	8270C LL
Acenaphthene	0.000500	0.000160	mg/L	8270C LL
Acenaphthylene	0.000500	0.000160	mg/L	8270C LL
Aniline	0.000500	0.000120	mg/L	8270C LL
Anthracene	0.000500	0.000440	mg/L	8270C LL
Benzo[a]anthracene	0.000500	0.000250	mg/L	8270C LL
Benzo[a]pyrene	0.000500	0.000130	mg/L	8270C LL
Benzo[b]fluoranthene	0.000500	0.000180	mg/L	8270C LL

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	MQL	MDL	Units	Method
Benzo[g,h,i]perylene	0.000500	0.000350	mg/L	8270C LL
Benzo[k]fluoranthene	0.000500	0.000160	mg/L	8270C LL
Benzoic acid	0.00250	0.000610	mg/L	8270C LL
Benzyl alcohol	0.000500	0.000510	mg/L	8270C LL
bis (2-Chloroisopropyl) ether	0.000500	0.000180	mg/L	8270C LL
Bis(2-chloroethoxy)methane	0.000500	0.000190	mg/L	8270C LL
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL
Bis(2-ethylhexyl) phthalate	0.00150	0.000590	mg/L	8270C LL
Butyl benzyl phthalate	0.00250	0.000850	mg/L	8270C LL
Chrysene	0.000500	0.000240	mg/L	8270C LL
Dibenz(a,h)anthracene	0.000500	0.000290	mg/L	8270C LL
Dibenzofuran	0.000500	0.000160	mg/L	8270C LL
Diethyl phthalate	0.00500	0.00419	mg/L	8270C LL
Dimethyl phthalate	0.00500	0.000180	mg/L	8270C LL
Di-n-butyl phthalate	0.00500	0.00187	mg/L	8270C LL
Di-n-octyl phthalate	0.00500	0.000160	mg/L	8270C LL
Fluoranthene	0.000500	0.000310	mg/L	8270C LL
Fluorene	0.000500	0.000120	mg/L	8270C LL
Hexachlorobenzene	0.000500	0.000250	mg/L	8270C LL
Hexachlorobutadiene	0.000500	0.000190	mg/L	8270C LL
Hexachlorocyclopentadiene	0.000500	0.000150	mg/L	8270C LL
Hexachloroethane	0.000500	0.000170	mg/L	8270C LL
Indeno[1,2,3-cd]pyrene	0.000500	0.000290	mg/L	8270C LL
Isophorone	0.000500	0.000150	mg/L	8270C LL
Naphthalene	0.000500	0.000160	mg/L	8270C LL
Nitrobenzene	0.000500	0.000200	mg/L	8270C LL
N-Nitrosodi-n-propylamine	0.000500	0.000240	mg/L	8270C LL
N-Nitrosodiphenylamine	0.000500	0.000330	mg/L	8270C LL
Pentachlorophenol	0.00100	0.000960	mg/L	8270C LL
Phenanthrene	0.000500	0.000290	mg/L	8270C LL
Phenol	0.000500	0.000140	mg/L	8270C LL
Pyrene	0.000500	0.000330	mg/L	8270C LL
Pyridine	0.000500	0.000240	mg/L	8270C LL

Method: 8151A - Herbicides (GC)

Analyte	MQL	MDL	Units	Method
2,4-D	0.000200	0.0000400	mg/L	8151A

Method: 6020 - Metals (ICP/MS)

Analyte	MQL	MDL	Units	Method
Lead	0.00500	0.000733	mg/L	6020

GC/MS VOA

Analysis Batch: 123154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	8260B	
600-84138-2	MW-39	Total/NA	Water	8260B	
600-84138-3	Trip Blank	Total/NA	Water	8260B	
LCS 600-123154/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-123154/4	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 122929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	3510C	
600-84138-2	MW-39	Total/NA	Water	3510C	
600-84138-2 - DL	MW-39	Total/NA	Water	3510C	
LCS 600-122929/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-122929/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-122929/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 123138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	8270C LL	122929
600-84138-2	MW-39	Total/NA	Water	8270C LL	122929
LCS 600-122929/2-A	Lab Control Sample	Total/NA	Water	8270C LL	122929
LCSD 600-122929/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	122929
MB 600-122929/1-A	Method Blank	Total/NA	Water	8270C LL	122929

Analysis Batch: 123305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-2 - DL	MW-39	Total/NA	Water	8270C LL	122929

GC Semi VOA

Prep Batch: 122969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	8151A	
600-84138-2	MW-39	Total/NA	Water	8151A	
LCS 600-122969/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 600-122969/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 123202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	8151A	122969
600-84138-2	MW-39	Total/NA	Water	8151A	122969
LCS 600-122969/2-A	Lab Control Sample	Total/NA	Water	8151A	122969
MB 600-122969/1-A	Method Blank	Total/NA	Water	8151A	122969

Metals

Prep Batch: 96325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 96325 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-2	MW-39	Total/NA	Water	3010A	
LCS 560-96325/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 560-96325/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 96434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84138-1	RI-1-15	Total/NA	Water	6020	96325
600-84138-2	MW-39	Total/NA	Water	6020	96325
LCS 560-96325/2-A	Lab Control Sample	Total/NA	Water	6020	96325
MB 560-96325/1-A	Method Blank	Total/NA	Water	6020	96325

Lab Chronicle

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Client Sample ID: RI-1-15

Lab Sample ID: 600-84138-1

Date Collected: 12/09/13 10:17

Matrix: Water

Date Received: 12/14/13 07:02

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	123154	12/17/13 18:02	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.0 mL	122929	12/16/13 10:16	LMB	TAL HOU
Total/NA	Analysis	8270C LL		1	250 mL	1.0 mL	123138	12/17/13 12:05	MBB	TAL HOU
Total/NA	Prep	8151A			1040 mL	5.0 mL	122969	12/16/13 14:16	SMB	TAL HOU
Total/NA	Analysis	8151A		1	1040 mL	5.0 mL	123202	12/17/13 21:50	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	96325	12/18/13 12:00	RLM	TAL CC
Total/NA	Analysis	6020		1	50 mL	50 mL	96434	12/20/13 01:19	JEM	TAL CC

Client Sample ID: MW-39

Lab Sample ID: 600-84138-2

Date Collected: 12/09/13 11:35

Matrix: Water

Date Received: 12/14/13 07:02

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	123154	12/17/13 17:33	DT1	TAL HOU
Total/NA	Prep	3510C			250 mL	1.0 mL	122929	12/16/13 10:16	LMB	TAL HOU
Total/NA	Analysis	8270C LL		1	250 mL	1.0 mL	123138	12/17/13 12:32	MBB	TAL HOU
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	122929	12/16/13 10:16	LMB	TAL HOU
Total/NA	Analysis	8270C LL	DL	10	250 mL	1.0 mL	123305	12/18/13 17:51	MBB	TAL HOU
Total/NA	Prep	8151A			1040 mL	5.0 mL	122969	12/16/13 14:16	SMB	TAL HOU
Total/NA	Analysis	8151A		1	1040 mL	5.0 mL	123202	12/17/13 22:15	JAL	TAL HOU
Total/NA	Prep	3010A			50 mL	50 mL	96325	12/18/13 12:00	RLM	TAL CC
Total/NA	Analysis	6020		1	50 mL	50 mL	96434	12/20/13 01:28	JEM	TAL CC

Client Sample ID: Trip Blank

Lab Sample ID: 600-84138-3

Date Collected: 12/09/13 00:00

Matrix: Water

Date Received: 12/14/13 07:02

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	123154	12/17/13 17:05	DT1	TAL HOU

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84138-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-14
Louisiana	NELAP	6	30643	06-30-14
Oklahoma	State Program	6	1309	08-31-14
Texas	NELAP	6	T104704223	10-31-14
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	TX00083	10-31-14

Laboratory: TestAmerica Corpus Christi

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Kansas	NELAP	7	E-10362	10-31-14
Oklahoma	State Program	6	9968	08-31-14
Texas	NELAP	6	T104704210	03-31-14
USDA	Federal		P330-11-00060	02-03-14

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

600-84138 Chain of Custody

Client Information

Client Contact: ~~Ravi Kommajosyula~~ Celeste Wieting	Sampler: Celeste Wieting	Lab PM: Joiner, Dean A	Carrier Tr
Company: URS Corporation	Phone: 713-914-0519	E-Mail: dean.joiner@testamericainc.com	

Address: 10550 Richmond Ave	Due Date Requested:
City: Houston	TAT Requested (days): ~~7 WD TRRP~~ 5 DAY TAT
State, Zip: TX, 77042	PO #: Subcontract: 284317.US
Phone: 713-914-6303(Tel)	WO #: Project# 25015231 Vendor# 1427536
Email: ravi.kommajosyula@urs.com	Project #: 60002845
Project Name: Kinder Morgan Central Plant GW	SSOW#:
Site: Galena Park, Central Plant	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - Lead	8270C_LL - SVOA CP List LVl	8260B_LL - (MOD) VOA CP List	8151A - (MOD) 8151 2,4-D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	A	N		
RI-1-15	12-9-13	1017	G	Water			X	X	X	X	X 16 cw	Filled extra
MW-39	12-9-13	1135	G	Water			X	X	X	X	X 16 cw	bottles.
Trip Blank	12-9-13		G	Water							X 1 cw	
END OF RECORD			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Celeste Wieting	Date/Time: 12/9/13 1700	Company URS	Received by:		Date/Time: 12-13-13 [illegible]	Company	
Relinquished by:	Date/Time: 12-13-13 702	Company	Received by:		Date/Time: 12/14/13 702	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

12/9/2014

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-84138-1

Login Number: 84138

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.5/1.6/3.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	IDs on containers do not match the COC. Logged in per COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-84138-1

Login Number: 84138
List Number: 1
Creator: Wing, Randi

List Source: TestAmerica Corpus Christi
List Creation: 12/17/13 03:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-59971-1
Client Project/Site: Kinder Morgan Central Plant GW

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Patricia Adoor

Authorized for release by:
8/30/2012 1:34:10 PM
Patricia Adoor
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 8
Method Summary 9
Sample Summary 10
Client Sample Results 11
Definitions/Glossary 12
Surrogate Summary 13
QC Sample Results 14
Default Detection Limits 15
QC Association Summary 16
Lab Chronicle 17
Certification Summary 18
Chain of Custody 19
Receipt Checklists 20

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-59971-1

Project Name/Number: Kinder Morgan Central Plant GW

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Pat Adoor	Patricia Adoor	08/30/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 08/23/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-59971
Reviewer Name: TTD	Prep Batch Number(s): 600-86949-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?			X		
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?	X				
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?			X		
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?			X		
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?			X		
		Are unadjusted MQLs and DCSs included in the laboratory data package?			X		
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?			X		

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 08/23/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-59971
Reviewer Name: TTD	Prep Batch Number(s): 600-86949-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?		X			2
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?			X		
		Is the MDL either adjusted or supported by the analysis of DCSs?			X		
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports		
Laboratory Name: TestAmerica-Houston		LRC Date: 08/23/12
Project Name: Kinder Morgan Central Plant GW		Laboratory Job Number: 600-59971
Reviewer Name: TTD		Prep Batch Number(s): 600-86949-SV
1	The 2-Fluorobiphenyl surrogate recovery for sample, 600-59971-1, was outside control limits. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. 2-Fluorobiphenyl is not associated with the target analyte. The data have been reported.	
2	Internal standard responses were outside of acceptance limits for the following sample, 600-59971-1. The sample shows evidence of matrix interference. Acenaphthene-d10 is not associated with target analyte; therefore, the data have been reported.	

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Detection Check Standard

Matrix:	Water
Method:	8270 SIM
Preparation:	Tram
Date Analyzed:	4/19/2012
Date Prepared:	4/19/2012
TALs Batches:	600-77449/2-A
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
bis(2-Chloroethyl) ether	0.006	0.02	0.00541	0.02
Naphthalene	0.0178	0.05	0.0562	0.05
2-Methylnaphthalene	0.016	0.05	0.0513	0.05
1-Methylnaphthalene	0.0158	0.05	0.0512	0.05
Acenaphthylene	0.0152	0.05	0.0452	0.05
Acenaphthene	0.0194	0.05	0.0462	0.05
Fluorene	0.0129	0.05	0.046	0.05
Pentachlorophenol	0.1	0.05	0.102	0.1
Phenanthrene	0.12	0.05	0.0481	0.05
Anthracene	0.0133	0.02	0.0177	0.05
Fluoranthene	0.0125	0.02	0.0185	0.05
Pyrene	0.0115	0.02	0.0156	0.05
Benzo(a) anthracene	0.0111	0.02	0.019	0.05
Chrysene	0.0095	0.02	0.021	0.05
Benzo(b) fluoranthene	0.0077	0.02	0.0163	0.05
Benzo(k) fluoranthene	0.0077	0.02	0.0246	0.05
Benzo(a) pyrene	0.0037	0.02	0.0168	0.05
Indeno(1,2,3-cd) pyrene	0.0136	0.05	0.0423	0.05
Dibenz(a,h) anthracene	0.0042	0.02	0.0195	0.05
Benzo(g,h,i) perylene	0.0074	0.02	0.0202	0.05

Job ID: 600-59971-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-59971-1

Comments
No additional comments.

Receipt
The samples were received on 8/18/2012 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.9º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-59971-1	POE-2	Water	08/16/12 14:15	08/18/12 10:30
600-59971-2	Trip Blank	Water	08/16/12 00:00	08/18/12 10:30

Client Sample ID: POE-2

Lab Sample ID: 600-59971-1

Date Collected: 08/16/12 14:15

Matrix: Water

Date Received: 08/18/12 10:30

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00249		0.0000198	0.00000594	mg/L		08/22/12 14:54	08/22/12 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*50*		*20 - 120*	*08/22/12 14:54*	*08/22/12 21:01*	*1*
2-Fluorobiphenyl	*10*	*X*	*22 - 145*	*08/22/12 14:54*	*08/22/12 21:01*	*1*
2,4,6-Tribromophenol	*103*		*20 - 120*	*08/22/12 14:54*	*08/22/12 21:01*	*1*
Terphenyl-d14	*96*		*20 - 120*	*08/22/12 14:54*	*08/22/12 21:01*	*1*

Client Sample ID: Trip Blank

Lab Sample ID: 600-59971-2

Date Collected: 08/16/12 00:00

Matrix: Water

Date Received: 08/18/12 10:30

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.0000121	J	0.0000198	0.00000594	mg/L		08/22/12 14:54	08/22/12 21:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*86*		*20 - 120*	*08/22/12 14:54*	*08/22/12 21:29*	*1*
2-Fluorobiphenyl	*79*		*22 - 145*	*08/22/12 14:54*	*08/22/12 21:29*	*1*
2,4,6-Tribromophenol	*84*		*20 - 120*	*08/22/12 14:54*	*08/22/12 21:29*	*1*
Terphenyl-d14	*111*		*20 - 120*	*08/22/12 14:54*	*08/22/12 21:29*	*1*

Definitions/Glossary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		NBZ	FBP	TBP	TPH
Lab Sample ID	Client Sample ID	(20-120)	(22-145)	(20-120)	(20-120)
600-59971-1	POE-2	50	10 X	103	96
600-59971-2	Trip Blank	86	79	84	111
LCS 600-86949/2-A	Lab Control Sample	57	60	53	72
LCSD 600-86949/3-A	Lab Control Sample Dup	66	69	68	79
MB 600-86949/1-A	Method Blank	45	48	29	51

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 600-86949/1-A
Matrix: Water
Analysis Batch: 86991

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 86949

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00000600	U	0.0000200	0.00000600	mg/L		08/22/12 14:54	08/22/12 19:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*45*		*20 - 120*	*08/22/12 14:54*	*08/22/12 19:34*	*1*
2-Fluorobiphenyl	*48*		*22 - 145*	*08/22/12 14:54*	*08/22/12 19:34*	*1*
2,4,6-Tribromophenol	*29*		*20 - 120*	*08/22/12 14:54*	*08/22/12 19:34*	*1*
Terphenyl-d14	*51*		*20 - 120*	*08/22/12 14:54*	*08/22/12 19:34*	*1*

Lab Sample ID: LCS 600-86949/2-A
Matrix: Water
Analysis Batch: 86991

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 86949

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00100	0.0007986		mg/L		80	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*57*		*20 - 120*
2-Fluorobiphenyl	*60*		*22 - 145*
2,4,6-Tribromophenol	*53*		*20 - 120*
Terphenyl-d14	*72*		*20 - 120*

Lab Sample ID: LCSD 600-86949/3-A
Matrix: Water
Analysis Batch: 86991

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 86949

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.00100	0.0008528		mg/L		85	40 - 112	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*66*		*20 - 120*
2-Fluorobiphenyl	*69*		*22 - 145*
2,4,6-Tribromophenol	*68*		*20 - 120*
Terphenyl-d14	*79*		*20 - 120*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.0000200	0.00000600	mg/L	8270C SIM

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

GC/MS Semi VOA

Prep Batch: 86949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-59971-1	POE-2	Total/NA	Water	3510C	
600-59971-2	Trip Blank	Total/NA	Water	3510C	
LCS 600-86949/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-86949/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-86949/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 86991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-59971-1	POE-2	Total/NA	Water	8270C SIM	86949
600-59971-2	Trip Blank	Total/NA	Water	8270C SIM	86949
LCS 600-86949/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	86949
LCSD 600-86949/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	86949
MB 600-86949/1-A	Method Blank	Total/NA	Water	8270C SIM	86949

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Client Sample ID: POE-2

Lab Sample ID: 600-59971-1

Date Collected: 08/16/12 14:15

Matrix: Water

Date Received: 08/18/12 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			86949	08/22/12 14:54	SMB	TAL HOU
Total/NA	Analysis	8270C SIM		1	86991	08/22/12 21:01	TTD	TAL HOU

Client Sample ID: Trip Blank

Lab Sample ID: 600-59971-2

Date Collected: 08/16/12 00:00

Matrix: Water

Date Received: 08/18/12 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			86949	08/22/12 14:54	SMB	TAL HOU
Total/NA	Analysis	8270C SIM		1	86991	08/22/12 21:29	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-59971-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAC Secondary AB	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-12
Texas	NELAC	6	T104704223-10-6-TX	10-31-12
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAC	8	GULF	10-31-12

TestAmerica Houston
6310 ~~Rothway Street~~
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

8/30/2012

Client Information	Sampler: S. Horak	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: 713 914 6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:
City: Houston	TAT Requested (days): 7 WD TRRP
State, Zip: TX, 77042	
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required
Email: ravi.kommajosyula@urs.com	WO #:
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845
Site: Central Plant GW	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	8/16/12	1415	G	Water	N	N	X	2	
Trip Blank	8/16/12	-	G	W	N	N	X	1	

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 8/16/12 1658	Company	Received by:	Date/Time: 8/16/12 1630	Company ~~TAL~~
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-59971-1

Login Number: 59971

List Number: 1

Creator: Capps, Dana

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.9/2.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-62055-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
10/8/2012 3:52:09 PM
Cathy Upton
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-62055-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		10/08/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/02/2012
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-62055
Reviewer Name: TTD	Prep Batch Number(s): 600-89937-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				2
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/02/2012
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-62055
Reviewer Name: TTD	Prep Batch Number(s): 600-89937-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 10/02/2012
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-62055
Reviewer Name: TTD	Prep Batch Number(s): 600-89937-SV

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510
Date Analyzed:	7/3/2012
Date Prepared:	7/3/2012
Lab Sample ID:	600-83605_6-a
File #:	MSD3260.i\073012C.b\07301205.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Aniline	0.08	0.5	0.167	0.5
Phenol	0.04	0.5	0.302	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.244	0.5
2-Chlorophenol	0.13	0.5	0.344	0.5
1,3-Dichlorobenzene	0.17	0.5	0.362	0.5
1,4-Dichlorobenzene	0.13	0.5		0.5
1,2-Dichlorobenzene	0.17	0.5	0.338	0.5
Benzyl alcohol	0.17	0.5	0.313	0.5
2-Methylphenol	0.12	0.5	0.334	0.5
m&p-Cresols	0.2	0.5	0.254	1
bis (2-Chloroisopropyl) ether	0.15	0.5	0.293	0.5
N-Nitroso-di-n-propylamine	0.1	0.5	0.299	0.5
Hexachloroethane	0.1	0.5	0.321	0.5
Nitrobenzene	0.11	0.5	0.355	0.5
Isophorone	0.11	0.5	0.306	0.5
2-Nitrophenol	0.22	0.5	0.244	0.5
2,4-Dimethylphenol	0.31	0.5	0.115	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.286	0.5
2,4-Dichlorophenol	0.15	0.5	0.289	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.335	0.5
Naphthalene	0.08	0.5	0.314	0.5
4-Chloroaniline	0.21	0.5	0.266	0.5
Hexachlorobutadiene	0.18	0.5	0.36	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.297	0.5
2-Methylnaphthalene	0.07	0.5	0.342	0.5
1-Methylnaphthalene	0.09	0.5	0.328	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.308	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.213	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.224	0.5
2-Chloronaphthalene	0.08	0.5	0.32	0.5
2-Nitroaniline	0.19	0.5	0.401	0.5
1,4 Dinitrobenzene	5	0.5	0.204	0.5
1,3- Dinitorbenzene	0.08	0.5	0.289	0.5
1,2-Dinitrobenzene	0.5	0.5	0.243	0.5
Dimethylphthalate	0.07	0.5	0.317	0.5
Acenaphthylene	0.06	0.5	0.307	0.5
2,6-Dinitrotoluene	0.08	0.5	0.158	0.5
3-Nitroaniline	0.16	0.5	0.431	0.5
Acenapthene	0.08	0.5	0.338	0.5

4-Nitrophenol	0.56	0.5	0.414	0.5
Dibenzofuran	0.08	0.5	0.332	0.5
2,4-Dinitrotoluene	0.13	0.5	0.183	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.276	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.212	0.5
Diethylphthalate	1.5	0.5	0.496	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.383	0.5
Fluorene	0.07	0.5	0.326	0.5
4-Nitroaniline	0.25	0.5	0.164	0.5
4,6-Dinitro-2-Methylphenol	0.83	0.5	0.329	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.331	0.5
Diphenylamine	0.1	0.5	0.192	0.5
1,2-Diphenylhydrazine	0.11	0.5	0.416	0.5
Azobenzene	0.07	0.5	0.435	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.502	0.5
Hexachlorobenzene	0.11	0.5	0.142	0.5
Phenanthrene	0.06	0.5	0.346	0.5
Anthracene	0.05	0.5	0.31	0.5
Carbazole	0.17	0.5		0.5
Di-n-butylphthalate	0.11	0.5	0.17	0.5
Fluoranthene	0.07	0.5	0.305	0.5
Pyrene	0.11	0.5	0.246	0.5
Butylbenzylphthalate	0.12	0.5	0.222	0.5
3,3'-Dichlorobenzidene	0.18	0.5	0.164	0.5
Benzo(a)anthracene	0.08	0.5	0.321	0.5
Chrysene	0.08	0.5	0.399	0.5
bis(2-Ethylhexl)phthalate	0.37	0.5	0.241	0.5
Di-n-octylphthalate	0.16	0.5	0.343	0.5
Benzo(b)fluoranthene	0.07	0.5	0.352	0.5
Benzo(k)fluoranthene	0.09	0.5	0.21	0.5
Benzo(a)pyrene	0.08	0.5	0.324	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.622	0.5
Dibenz(a,h)anthracene	0.08	0.5	0.662	0.5
Benzo(g,h,i)perylene	0.08	0.5	0.528	0.5

Job ID: 600-62055-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-62055-1

Comments
No additional comments.

Receipt
The sample was received on 9/27/2012 5:06 PM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 5.9º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-62055-1	POE-2	Water	09/27/12 11:05	09/27/12 17:06

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Client Sample ID: POE-2
Date Collected: 09/27/12 11:05
Date Received: 09/27/12 17:06

Lab Sample ID: 600-62055-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00197		0.000498	0.000149	mg/L		10/01/12 11:58	10/03/12 21:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*20*		*10 - 94*	*10/01/12 11:58*	*10/03/12 21:16*	*1*
Terphenyl-d14	*66*		*33 - 141*	*10/01/12 11:58*	*10/03/12 21:16*	*1*
Nitrobenzene-d5	*74*		*35 - 114*	*10/01/12 11:58*	*10/03/12 21:16*	*1*
2-Fluorophenol	*34*		*10 - 100*	*10/01/12 11:58*	*10/03/12 21:16*	*1*
2-Fluorobiphenyl	*52*		*43 - 116*	*10/01/12 11:58*	*10/03/12 21:16*	*1*
2,4,6-Tribromophenol	*63*		*10 - 123*	*10/01/12 11:58*	*10/03/12 21:16*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-62055-1	POE-2	20	66	74	34	52	63		
LCS 600-89937/2-A	Lab Control Sample	39	76	88	57	83	64		
MB 600-89937/1-A	Method Blank	35	62	76	53	81	40		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-89937/1-A
Matrix: Water
Analysis Batch: 90104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 89937

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		10/01/12 11:58	10/02/12 16:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*35*		*10 - 94*	*10/01/12 11:58*	*10/02/12 16:30*	*1*
Terphenyl-d14	*62*		*33 - 141*	*10/01/12 11:58*	*10/02/12 16:30*	*1*
Nitrobenzene-d5	*76*		*35 - 114*	*10/01/12 11:58*	*10/02/12 16:30*	*1*
2-Fluorophenol	*53*		*10 - 100*	*10/01/12 11:58*	*10/02/12 16:30*	*1*
2-Fluorobiphenyl	*81*		*43 - 116*	*10/01/12 11:58*	*10/02/12 16:30*	*1*
2,4,6-Tribromophenol	*40*		*10 - 123*	*10/01/12 11:58*	*10/02/12 16:30*	*1*

Lab Sample ID: LCS 600-89937/2-A
Matrix: Water
Analysis Batch: 90104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 89937

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007645		mg/L		76	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*39*		*10 - 94*
Terphenyl-d14	*76*		*33 - 141*
Nitrobenzene-d5	*88*		*35 - 114*
2-Fluorophenol	*57*		*10 - 100*
2-Fluorobiphenyl	*83*		*43 - 116*
2,4,6-Tribromophenol	*64*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

GC/MS Semi VOA

Prep Batch: 89937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-62055-1	POE-2	Total/NA	Water	3510C	
LCS 600-89937/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-89937/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 90104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-89937/2-A	Lab Control Sample	Total/NA	Water	8270C LL	89937
MB 600-89937/1-A	Method Blank	Total/NA	Water	8270C LL	89937

Analysis Batch: 90250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-62055-1	POE-2	Total/NA	Water	8270C LL	89937

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Client Sample ID: POE-2
Date Collected: 09/27/12 11:05
Date Received: 09/27/12 17:06

Lab Sample ID: 600-62055-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			89937	10/01/12 11:58	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	90250	10/03/12 21:16	JBP	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-62055-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAC Secondary AB	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAC	6	T104704223-10-6-TX	10-31-12
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAC	8	GULF	10-31-12

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

10/8/2012

Client Information	Sampler: S. Horak	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: 713-914-6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Houston	TAT Requested (days): 7 WD TRRP		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required		
Email: ravi.kommajosyula@urs.com	WO #:		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site: Central Plant GW	SSOW#:		Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	9/27/12	1105	G	Water	N	N	X	2	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	9/27/12 1706		[signature]	09/27/12 1706	TA
2						
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-62055-1

Login Number: 62055

List Number: 1

Creator: Pulumbarit, Josh

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-63428-1

Client Project/Site: Kinder Morgan Central Plant GW

For:

URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
11/8/2012 3:19:13 PM
Cathy Upton
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-63428-1

Project Name/Number: Kinder Morgan Central Plant GW

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		11/08/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 11/06/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-63428
Reviewer Name: JOH	Prep Batch Number(s): 600-92186-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		2
		Were MS/MSD RPDs within laboratory QC limits?			X		2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 11/06/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-63428
Reviewer Name: JOH	Prep Batch Number(s): 600-92186-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 11/06/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-63428
Reviewer Name: JOH	Prep Batch Number(s): 600-92186-SV

ER #[1]	DESCRIPTION
1	Surrogate compounds were inadvertently omitted during the extraction process for the LCS.
2	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510
Date Analyzed:	7/3/2012
Date Prepared:	7/3/2012
Lab Sample ID:	600-83605_6-a
File #:	MSD3260.i\073012C.b\07301205.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Aniline	0.08	0.5	0.167	0.5
Phenol	0.04	0.5	0.302	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.244	0.5
2-Chlorophenol	0.13	0.5	0.344	0.5
1,3-Dichlorobenzene	0.17	0.5	0.362	0.5
1,4-Dichlorobenzene	0.13	0.5		0.5
1,2-Dichlorobenzene	0.17	0.5	0.338	0.5
Benzyl alcohol	0.17	0.5	0.313	0.5
2-Methylphenol	0.12	0.5	0.334	0.5
m&p-Cresols	0.2	0.5	0.254	1
bis (2-Chloroisopropyl) ether	0.15	0.5	0.293	0.5
N-Nitroso-di-n-propylamine	0.1	0.5	0.299	0.5
Hexachloroethane	0.1	0.5	0.321	0.5
Nitrobenzene	0.11	0.5	0.355	0.5
Isophorone	0.11	0.5	0.306	0.5
2-Nitrophenol	0.22	0.5	0.244	0.5
2,4-Dimethylphenol	0.31	0.5	0.115	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.286	0.5
2,4-Dichlorophenol	0.15	0.5	0.289	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.335	0.5
Naphthalene	0.08	0.5	0.314	0.5
4-Chloroaniline	0.21	0.5	0.266	0.5
Hexachlorobutadiene	0.18	0.5	0.36	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.297	0.5
2-Methylnaphthalene	0.07	0.5	0.342	0.5
1-Methylnaphthalene	0.09	0.5	0.328	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.308	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.213	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.224	0.5
2-Chloronaphthalene	0.08	0.5	0.32	0.5
2-Nitroaniline	0.19	0.5	0.401	0.5
1,4 Dinitrobenzene	5	0.5	0.204	0.5
1,3- Dinitorbenzene	0.08	0.5	0.289	0.5
1,2-Dinitrobenzene	0.5	0.5	0.243	0.5
Dimethylphthalate	0.07	0.5	0.317	0.5
Acenaphthylene	0.06	0.5	0.307	0.5
2,6-Dinitrotoluene	0.08	0.5	0.158	0.5
3-Nitroaniline	0.16	0.5	0.431	0.5
Acenapthene	0.08	0.5	0.338	0.5

4-Nitrophenol	0.56	0.5	0.414	0.5
Dibenzofuran	0.08	0.5	0.332	0.5
2,4-Dinitrotoluene	0.13	0.5	0.183	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.276	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.212	0.5
Diethylphthalate	1.5	0.5	0.496	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.383	0.5
Fluorene	0.07	0.5	0.326	0.5
4-Nitroaniline	0.25	0.5	0.164	0.5
4,6-Dinitro-2-Methylphenol	0.83	0.5	0.329	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.331	0.5
Diphenylamine	0.1	0.5	0.192	0.5
1,2-Diphenylhydrazine	0.11	0.5	0.416	0.5
Azobenzene	0.07	0.5	0.435	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.502	0.5
Hexachlorobenzene	0.11	0.5	0.142	0.5
Phenanthrene	0.06	0.5	0.346	0.5
Anthracene	0.05	0.5	0.31	0.5
Carbazole	0.17	0.5		0.5
Di-n-butylphthalate	0.11	0.5	0.17	0.5
Fluoranthene	0.07	0.5	0.305	0.5
Pyrene	0.11	0.5	0.246	0.5
Butylbenzylphthalate	0.12	0.5	0.222	0.5
3,3'-Dichlorobenzidene	0.18	0.5	0.164	0.5
Benzo(a)anthracene	0.08	0.5	0.321	0.5
Chrysene	0.08	0.5	0.399	0.5
bis(2-Ethylhexl)phthalate	0.37	0.5	0.241	0.5
Di-n-octylphthalate	0.16	0.5	0.343	0.5
Benzo(b)fluoranthene	0.07	0.5	0.352	0.5
Benzo(k)fluoranthene	0.09	0.5	0.21	0.5
Benzo(a)pyrene	0.08	0.5	0.324	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.622	0.5
Dibenz(a,h)anthracene	0.08	0.5	0.662	0.5
Benzo(g,h,i)perylene	0.08	0.5	0.528	0.5

Job ID: 600-63428-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-63428-1

Comments
No additional comments.

Receipt
The sample was received on 10/25/2012 2:19 PM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 2.1° C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-63428-1	POE-2	Water	10/24/12 11:15	10/25/12 14:19

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Client Sample ID: POE-2
Date Collected: 10/24/12 11:15
Date Received: 10/25/12 14:19

Lab Sample ID: 600-63428-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00199		0.000481	0.000144	mg/L		10/29/12 17:08	10/31/12 04:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*27*		*10 - 94*	*10/29/12 17:08*	*10/31/12 04:03*	*1*
Terphenyl-d14	*69*		*33 - 141*	*10/29/12 17:08*	*10/31/12 04:03*	*1*
Nitrobenzene-d5	*75*		*35 - 114*	*10/29/12 17:08*	*10/31/12 04:03*	*1*
2-Fluorophenol	*40*		*10 - 100*	*10/29/12 17:08*	*10/31/12 04:03*	*1*
2-Fluorobiphenyl	*54*		*43 - 116*	*10/29/12 17:08*	*10/31/12 04:03*	*1*
2,4,6-Tribromophenol	*48*		*10 - 123*	*10/29/12 17:08*	*10/31/12 04:03*	*1*

Definitions/Glossary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-63428-1	POE-2	27	69	75	40	54	48		
LCS 600-92186/2-A	Lab Control Sample	0 X	0 X	0 X	0 X	0 X	0 X		
MB 600-92186/1-A	Method Blank	33	92	91	48	107	65		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-92186/1-A
Matrix: Water
Analysis Batch: 92368

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 92186

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		10/29/12 17:08	10/30/12 18:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*33*		*10 - 94*	*10/29/12 17:08*	*10/30/12 18:58*	*1*
Terphenyl-d14	*92*		*33 - 141*	*10/29/12 17:08*	*10/30/12 18:58*	*1*
Nitrobenzene-d5	*91*		*35 - 114*	*10/29/12 17:08*	*10/30/12 18:58*	*1*
2-Fluorophenol	*48*		*10 - 100*	*10/29/12 17:08*	*10/30/12 18:58*	*1*
2-Fluorobiphenyl	*107*		*43 - 116*	*10/29/12 17:08*	*10/30/12 18:58*	*1*
2,4,6-Tribromophenol	*65*		*10 - 123*	*10/29/12 17:08*	*10/30/12 18:58*	*1*

Lab Sample ID: LCS 600-92186/2-A
Matrix: Water
Analysis Batch: 92368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 92186

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007215		mg/L		72	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*0*	*X*	*10 - 94*
Terphenyl-d14	*0*	*X*	*33 - 141*
Nitrobenzene-d5	*0*	*X*	*35 - 114*
2-Fluorophenol	*0*	*X*	*10 - 100*
2-Fluorobiphenyl	*0*	*X*	*43 - 116*
2,4,6-Tribromophenol	*0*	*X*	*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

GC/MS Semi VOA

Prep Batch: 92186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-63428-1	POE-2	Total/NA	Water	3510C	
LCS 600-92186/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-92186/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 92368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-63428-1	POE-2	Total/NA	Water	8270C LL	92186
LCS 600-92186/2-A	Lab Control Sample	Total/NA	Water	8270C LL	92186
MB 600-92186/1-A	Method Blank	Total/NA	Water	8270C LL	92186

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Client Sample ID: POE-2
Date Collected: 10/24/12 11:15
Date Received: 10/25/12 14:19

Lab Sample ID: 600-63428-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			92186	10/29/12 17:08	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	92368	10/31/12 04:03	KP	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-63428-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAC	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAC	6	T104704223-10-6-TX	10-31-12
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAC	8	GULF	10-31-12

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: S. Horak	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: 2812227688	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested		Preservation Codes:
City: Houston	TAT Requested (days): 7 WD TRRP			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: TX, 77042				Other:
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845			
Site: Central Plant GW	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	10/24/12	1115	G	Water	N	N	X	2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10-25-12 1114	URS	[signature]	10/25/12 1113	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by: [signature]	Date/Time: 10/25/12 1419	Company	Received by: [signature]	Date/Time: 10/25/12 1419	Company

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-63428-1

Login Number: 63428

List Number: 1

Creator: Trenery, Michael J

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-64966-1
Client Project/Site: Kinder Morgan Central Plant GW

For:
URS Corporation
10550 Richmond Avenue
Suite 155
Houston, Texas 77042

Attn: Raaj Patel

Authorized for release by:
12/6/2012 2:28:37 PM
Cathy Upton
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-64966-1

Project Name/Number: Kinder Morgan Central Plant GW

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		12/06/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/05/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-64966-1
Reviewer Name: JOH	Prep Batch Number(s): 600-94558

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/05/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-64966-1
Reviewer Name: JOH	Prep Batch Number(s): 600-94558

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/05/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-64966-1
Reviewer Name: JOH	Prep Batch Number(s): 600-94558

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510
Date Analyzed:	7/3/2012
Date Prepared:	7/3/2012
Lab Sample ID:	600-83605_6-a
File #:	MSD3260.i\073012C.b\07301205.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Aniline	0.08	0.5	0.167	0.5
Phenol	0.04	0.5	0.302	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.244	0.5
2-Chlorophenol	0.13	0.5	0.344	0.5
1,3-Dichlorobenzene	0.17	0.5	0.362	0.5
1,4-Dichlorobenzene	0.13	0.5		0.5
1,2-Dichlorobenzene	0.17	0.5	0.338	0.5
Benzyl alcohol	0.17	0.5	0.313	0.5
2-Methylphenol	0.12	0.5	0.334	0.5
m&p-Cresols	0.2	0.5	0.254	1
bis (2-Chloroisopropyl) ether	0.15	0.5	0.293	0.5
N-Nitroso-di-n-propylamine	0.1	0.5	0.299	0.5
Hexachloroethane	0.1	0.5	0.321	0.5
Nitrobenzene	0.11	0.5	0.355	0.5
Isophorone	0.11	0.5	0.306	0.5
2-Nitrophenol	0.22	0.5	0.244	0.5
2,4-Dimethylphenol	0.31	0.5	0.115	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.286	0.5
2,4-Dichlorophenol	0.15	0.5	0.289	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.335	0.5
Naphthalene	0.08	0.5	0.314	0.5
4-Chloroaniline	0.21	0.5	0.266	0.5
Hexachlorobutadiene	0.18	0.5	0.36	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.297	0.5
2-Methylnaphthalene	0.07	0.5	0.342	0.5
1-Methylnaphthalene	0.09	0.5	0.328	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.308	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.213	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.224	0.5
2-Chloronaphthalene	0.08	0.5	0.32	0.5
2-Nitroaniline	0.19	0.5	0.401	0.5
1,4 Dinitrobenzene	5	0.5	0.204	0.5
1,3- Dinitorbenzene	0.08	0.5	0.289	0.5
1,2-Dinitrobenzene	0.5	0.5	0.243	0.5
Dimethylphthalate	0.07	0.5	0.317	0.5
Acenaphthylene	0.06	0.5	0.307	0.5
2,6-Dinitrotoluene	0.08	0.5	0.158	0.5
3-Nitroaniline	0.16	0.5	0.431	0.5
Acenapthene	0.08	0.5	0.338	0.5

4-Nitrophenol	0.56	0.5	0.414	0.5
Dibenzofuran	0.08	0.5	0.332	0.5
2,4-Dinitrotoluene	0.13	0.5	0.183	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.276	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.212	0.5
Diethylphthalate	1.5	0.5	0.496	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.383	0.5
Fluorene	0.07	0.5	0.326	0.5
4-Nitroaniline	0.25	0.5	0.164	0.5
4,6-Dinitro-2-Methylphenol	0.83	0.5	0.329	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.331	0.5
Diphenylamine	0.1	0.5	0.192	0.5
1,2-Diphenylhydrazine	0.11	0.5	0.416	0.5
Azobenzene	0.07	0.5	0.435	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.502	0.5
Hexachlorobenzene	0.11	0.5	0.142	0.5
Phenanthrene	0.06	0.5	0.346	0.5
Anthracene	0.05	0.5	0.31	0.5
Carbazole	0.17	0.5		0.5
Di-n-butylphthalate	0.11	0.5	0.17	0.5
Fluoranthene	0.07	0.5	0.305	0.5
Pyrene	0.11	0.5	0.246	0.5
Butylbenzylphthalate	0.12	0.5	0.222	0.5
3,3'-Dichlorobenzidene	0.18	0.5	0.164	0.5
Benzo(a)anthracene	0.08	0.5	0.321	0.5
Chrysene	0.08	0.5	0.399	0.5
bis(2-Ethylhexl)phthalate	0.37	0.5	0.241	0.5
Di-n-octylphthalate	0.16	0.5	0.343	0.5
Benzo(b)fluoranthene	0.07	0.5	0.352	0.5
Benzo(k)fluoranthene	0.09	0.5	0.21	0.5
Benzo(a)pyrene	0.08	0.5	0.324	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.622	0.5
Dibenz(a,h)anthracene	0.08	0.5	0.662	0.5
Benzo(g,h,i)perylene	0.08	0.5	0.528	0.5

Job ID: 600-64966-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-64966-1

Comments
No additional comments.

Receipt
The sample was received on 11/30/2012 1:35 PM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 2.3º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-64966-1	POE-2	Water	11/29/12 12:11	11/30/12 13:35

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Client Sample ID: POE-2
Date Collected: 11/29/12 12:11
Date Received: 11/30/12 13:35

Lab Sample ID: 600-64966-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00292		0.000495	0.000149	mg/L		12/04/12 08:19	12/04/12 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*26*		*10 - 94*	*12/04/12 08:19*	*12/04/12 21:20*	*1*
Terphenyl-d14	*90*		*33 - 141*	*12/04/12 08:19*	*12/04/12 21:20*	*1*
Nitrobenzene-d5	*91*		*35 - 114*	*12/04/12 08:19*	*12/04/12 21:20*	*1*
2-Fluorophenol	*40*		*10 - 100*	*12/04/12 08:19*	*12/04/12 21:20*	*1*
2-Fluorobiphenyl	*56*		*43 - 116*	*12/04/12 08:19*	*12/04/12 21:20*	*1*
2,4,6-Tribromophenol	*62*		*10 - 123*	*12/04/12 08:19*	*12/04/12 21:20*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-64966-1	POE-2	26	90	91	40	56	62		
LCS 600-94558/2-A	Lab Control Sample	77	88	86	76	90	86		
MB 600-94558/1-A	Method Blank	31	97	92	51	96	73		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-94558/1-A
Matrix: Water
Analysis Batch: 94664

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94558

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		12/04/12 08:19	12/04/12 14:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*31*		*10 - 94*	*12/04/12 08:19*	*12/04/12 14:52*	*1*
Terphenyl-d14	*97*		*33 - 141*	*12/04/12 08:19*	*12/04/12 14:52*	*1*
Nitrobenzene-d5	*92*		*35 - 114*	*12/04/12 08:19*	*12/04/12 14:52*	*1*
2-Fluorophenol	*51*		*10 - 100*	*12/04/12 08:19*	*12/04/12 14:52*	*1*
2-Fluorobiphenyl	*96*		*43 - 116*	*12/04/12 08:19*	*12/04/12 14:52*	*1*
2,4,6-Tribromophenol	*73*		*10 - 123*	*12/04/12 08:19*	*12/04/12 14:52*	*1*

Lab Sample ID: LCS 600-94558/2-A
Matrix: Water
Analysis Batch: 94664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94558

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007456		mg/L		75	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*77*		*10 - 94*
Terphenyl-d14	*88*		*33 - 141*
Nitrobenzene-d5	*86*		*35 - 114*
2-Fluorophenol	*76*		*10 - 100*
2-Fluorobiphenyl	*90*		*43 - 116*
2,4,6-Tribromophenol	*86*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

GC/MS Semi VOA

Prep Batch: 94558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-64966-1	POE-2	Total/NA	Water	3510C	
LCS 600-94558/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-94558/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 94664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-64966-1	POE-2	Total/NA	Water	8270C LL	94558
LCS 600-94558/2-A	Lab Control Sample	Total/NA	Water	8270C LL	94558
MB 600-94558/1-A	Method Blank	Total/NA	Water	8270C LL	94558

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Client Sample ID: POE-2
Date Collected: 11/29/12 12:11
Date Received: 11/30/12 13:35

Lab Sample ID: 600-64966-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			94558	12/04/12 08:19	LR	TAL HOU
Total/NA	Analysis	8270C LL		1	94664	12/04/12 21:20	JH	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-64966-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAC	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAC	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAC	8	GULF	10-31-12

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

12/6/2012

Client Information	Sampler: Clinton Hebert	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested
City: Houston	TAT Requested (days): 7 WD TRRP	
State, Zip: TX, 77042		
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required	
Email: ravi.kommajosyula@urs.com	WO #:	
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845	
Site: Central Plant GW	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	11/29/12	1211	G	Water	N	N	X	2	
Temp Blank	LAB								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
Clinton Hebert	11-29-12 1335			11/30/12 1335	TA
Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time: 11/30/12 1321	Company TA	Received by:	Date/Time: 11/30/12 1321	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-64966-1

Login Number: 64966

List Number: 1

Creator: Capps, Dana

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-66282-1
Client Project/Site: Kinder Morgan Central Plant GW

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
1/9/2013 12:44:29 PM
Cathy Upton
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-66282-1

Project Name/Number: Kinder Morgan Central Plant GW

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		01/09/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 01/08/13
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-66282
Reviewer Name: KP	Prep Batch Number(s): 600-96308-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 01/08/13
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-66282
Reviewer Name: KP	Prep Batch Number(s): 600-96308-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 01/08/13
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-66282
Reviewer Name: KP	Prep Batch Number(s): 600-96308-SV

ER #[1]	DESCRIPTION
1	The laboratory selected another client's sample to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report
Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	10/18/2012
Date Prepared:	10/16/2012
Lab Sample ID:	600-91246_18-a
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.25	0.067	0.5
N-Nitrosodimethyalamine	0.26	0.25	0.121	0.5
Aniline	0.08	0.25	0.085	0.5
Phenol	0.04	0.25	0.054	0.5
bis(2-Chloroethyl)ether	0.15	0.25	0.149	0.5
2-Chlorophenol	0.13	0.25	0.097	0.5
1,3-Dichlorobenzene	0.17	0.25	0.152	0.5
1,4-Dichlorobenzene	0.13	0.25	0.166	0.5
1,2-Dichlorobenzene	0.17	0.25	0.167	0.5
Benzyl alcohol	0.17	0.25	0.075	0.5
2-Methylphenol	0.12	0.25	0.112	0.5
m&p-Cresols	0.2	0.25	0.053	1
bis (2-Chloroisopropyl) ether	0.4	0.25	0.143	0.5
N-Nitroso-di-n-propylamine	0.1	0.25	0.177	0.5
Hexachloroethane	0.1	0.25	0.185	0.5
Nitrobenzene	0.11	0.25	0.131	0.5
Isophorone	0.11	0.25	0.149	0.5
2-Nitrophenol	0.22	0.5	0.205	0.5
Benzoic acid	2.51	5	6.530	2.5
2,4-Dimethylphenol	0.31	0.5	0.130	0.5
bis(2-Chloroethoxy)methane	0.13	0.25	0.122	0.5
2,4-Dichlorophenol	0.15	0.25	0.068	0.5
1,2,4-Trichlorobenzene	0.12	0.25	0.125	0.5
Naphthalene	0.08	0.25	0.161	0.5
4-Chloroaniline	0.21	0.5	0.232	0.5
Hexachlorobutadiene	0.18	0.25	0.160	0.5
4-Chloro-3-methylphenol	0.17	0.25	0.075	0.5
2-Methylnaphthalene	0.07	0.25	0.128	0.5
1-Methylnaphthalene	0.09	0.25	0.147	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.487	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.062	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.107	0.5
2-Chloronaphthalene	0.08	0.25	0.148	0.5
2-Nitroaniline	0.19	0.5	0.213	0.5
Dimethylphthalate	0.07	0.25	0.145	0.5
1,4 Dinitrobenzene	5	0.25	0.363	0.5
1,3-Dinitrobenzene	0.08	0.25	0.381	0.5
1,2-Dinitrobenzene	0.5	0.25	0.040	0.5
Acenaphthylene	0.06	0.25	0.137	0.5

2,6-Dinitrotoluene	0.08	0.25	0.178	0.5
3-Nitroaniline	0.16	0.5	0.240	0.5
Acenaphthene	0.08	0.25	0.151	0.5
Dibenzofuran	0.08	0.25	0.127	0.5
2,4-Dinitrotoluene	0.13	0.25	0.144	0.5
Diethylphthalate	1.5	0.5	0.431	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.102	0.5
Fluorene	0.07	0.25	0.107	0.5
4-Nitroaniline	0.25	0.5	0.124	0.5
4,6-Dinitro-2-Methylphenol	0.83	2.5	0.530	1
N-Nitrosodiphenylamine	0.1	0.25	0.176	0.5
Diphenylamine	0.1	0.25	0.099	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.224	0.5
Azobenzene	0.07	0.25	0.117	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.112	0.5
Hexachlorobenzene	0.11	0.25	0.130	0.5
Phenanthrene	0.06	0.25	0.169	0.5
Anthracene	0.05	0.25	0.144	0.5
Carbazole	0.17	0.25	0.140	0.5
Di-n-butylphthalate	0.11	0.25	0.238	0.5
Fluoranthene	0.07	0.25	0.196	0.5
Pyrene	0.11	0.25	0.153	0.5
Butylbenzylphthalate	0.12	0.25	0.238	0.5
3,3'-Dichlorobenzidene	0.5	0.25	0.066	0.5
Benzo(a)anthracene	0.08	0.25	0.175	0.5
bis(2-Ethylhexl)phthalate	0.37	0.5	0.420	0.5
Chrysene	0.08	0.25	0.212	0.5
Di-n-octylphthalate	0.16	0.25	0.091	0.5
Benzo(b)fluoranthene	0.07	0.25	0.143	0.5
Benzo(k)fluoranthene	0.09	0.25	0.201	0.5
Benzo(a)pyrene	0.08	0.25	0.137	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.454	0.5
Dibenz(a,h)anthracene	0.08	0.25	0.123	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.112	0.5

Job ID: 600-66282-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-66282-1

Comments
No additional comments.

Receipt
The sample was received on 12/28/2012 8:26 AM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 0.6° C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-66282-1	POE-2	Water	12/27/12 12:30	12/28/12 08:26

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Client Sample ID: POE-2
Date Collected: 12/27/12 12:30
Date Received: 12/28/12 08:26

Lab Sample ID: 600-66282-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00294		0.000490	0.000147	mg/L		12/28/12 15:39	12/31/12 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*19*		*10 - 94*	*12/28/12 15:39*	*12/31/12 12:41*	*1*
Terphenyl-d14	*86*		*33 - 141*	*12/28/12 15:39*	*12/31/12 12:41*	*1*
Nitrobenzene-d5	*81*		*35 - 114*	*12/28/12 15:39*	*12/31/12 12:41*	*1*
2-Fluorophenol	*31*		*10 - 100*	*12/28/12 15:39*	*12/31/12 12:41*	*1*
2-Fluorobiphenyl	*85*		*43 - 116*	*12/28/12 15:39*	*12/31/12 12:41*	*1*
2,4,6-Tribromophenol	*100*		*10 - 123*	*12/28/12 15:39*	*12/31/12 12:41*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-66282-1	POE-2	19	86	81	31	85	100		
LCS 600-96308/2-A	Lab Control Sample	62	78	71	61	71	69		
MB 600-96308/1-A	Method Blank	65	81	71	62	69	60		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-96308/1-A
Matrix: Water
Analysis Batch: 96397

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 96308

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		12/28/12 15:38	12/31/12 09:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*65*		*10 - 94*	*12/28/12 15:38*	*12/31/12 09:33*	*1*
Terphenyl-d14	*81*		*33 - 141*	*12/28/12 15:38*	*12/31/12 09:33*	*1*
Nitrobenzene-d5	*71*		*35 - 114*	*12/28/12 15:38*	*12/31/12 09:33*	*1*
2-Fluorophenol	*62*		*10 - 100*	*12/28/12 15:38*	*12/31/12 09:33*	*1*
2-Fluorobiphenyl	*69*		*43 - 116*	*12/28/12 15:38*	*12/31/12 09:33*	*1*
2,4,6-Tribromophenol	*60*		*10 - 123*	*12/28/12 15:38*	*12/31/12 09:33*	*1*

Lab Sample ID: LCS 600-96308/2-A
Matrix: Water
Analysis Batch: 96397

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 96308

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007042		mg/L		70	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*62*		*10 - 94*
Terphenyl-d14	*78*		*33 - 141*
Nitrobenzene-d5	*71*		*35 - 114*
2-Fluorophenol	*61*		*10 - 100*
2-Fluorobiphenyl	*71*		*43 - 116*
2,4,6-Tribromophenol	*69*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

GC/MS Semi VOA

Prep Batch: 96308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-66282-1	POE-2	Total/NA	Water	3510C	
LCS 600-96308/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-96308/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 96397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-66282-1	POE-2	Total/NA	Water	8270C LL	96308
LCS 600-96308/2-A	Lab Control Sample	Total/NA	Water	8270C LL	96308
MB 600-96308/1-A	Method Blank	Total/NA	Water	8270C LL	96308

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Client Sample ID: POE-2
Date Collected: 12/27/12 12:30
Date Received: 12/28/12 08:26

Lab Sample ID: 600-66282-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			96308	12/28/12 15:39	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	96397	12/31/12 12:41	KP	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-66282-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAP	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

TestAmerica Houston
6310 Rothway ~~Street~~
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

1/9/2013

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:
City: Houston	TAT Requested (days): 7 WD TRRP
State, Zip: TX, 77042	
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required
Email: ravi.kommajosyula@urs.com	WO #:
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845
Site: Central Plant GW	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	12/27/12	1230	G	Water	N	N		2	
Temp Blank	LAB								

Possible Hazard Identification
☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Ravi K	12/28/12 0815			12/28/12 0815	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-66282-1

Login Number: 66282

List Source: TestAmerica Houston

List Number: 1

Creator: Pulumbarit, Josh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Analytical Report 302091

for

URS Corporation

Project Manager: Johnny Kennedy

Kinder Morgan

07-MAY-08

E84880

11381 Meadowglen, Suite L Houston, TX 77082 Ph:(281) 589-0692 Fax:(281) 589-0695

Texas certification numbers:
Houston, TX T104704215

Florida certification numbers:
Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675
Norcross(Atlanta), GA E87429

South Carolina certification numbers:
Norcross(Atlanta), GA 98015

North Carolina certification numbers:
Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America
Midland - Corpus Christi - Atlanta

07-MAY-08

Project Manager: **Johnny Kennedy**
URS Corporation
9801 Westheimer
Suite 101
Houston, TX 77042

Reference: XENCO Report No: **302091**
Kinder Morgan
Project Address: Galena Park

Johnny Kennedy:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 302091. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 302091 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Carlos Castro

Managing Director, Texas

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 302091

URS Corporation, Houston, TX

Kinder Morgan

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
WP-RW-16-4-18-18	W	Apr-18-08 09:36		302091-001
WP-ROW-17-4-18-08	W	Apr-18-08 11:43		302091-002
CP-POE-2-4-18-08	W	Apr-18-08 12:41		302091-003
CP-DUP1-4-18-08	W	Apr-18-08 12:51		302091-004
CP-EB-4-18-08	W	Apr-18-08 00:00		302091-005

Sample Id: **WP-RW-16-4-18-18** Matrix: WATER Sample Depth:
Lab Sample Id: **302091-001** Date Collected: Apr-18-08 09:36 Date Received: Apr-18-08 16:04

Analytical Method: **SVOA by GCMS SIM** % Moist: Prep Method: 3510C
Date Anal: May-05-08 20:53 Analyst: KRB Date Prep: Apr-21-08 16:08 Tech: KRB
Anal seq: 721814 Prep seq: 507856

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
bis(2-ethylhexyl) phthalate	117-81-7	7.00	0.050	0.250	0.0180	0.090	ug/L		5

Sample Id: **WP-ROW-17-4-18-08** Matrix: WATER Sample Depth:
Lab Sample Id: **302091-002** Date Collected: Apr-18-08 11:43 Date Received: Apr-18-08 16:04

Analytical Method: **SVOA by GCMS SIM** % Moist: Prep Method: 3510C
Date Anal: May-05-08 21:36 Analyst: KRB Date Prep: Apr-21-08 16:10 Tech: KRB
Anal seq: 721814 Prep seq: 507856

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
Pentachlorophenol	87-86-5	U	0.500	2.50	0.0260	0.130	ug/L	U	5

Sample Id: **CP-POE-2-4-18-08** Matrix: WATER Sample Depth:
Lab Sample Id: **302091-003** Date Collected: Apr-18-08 12:41 Date Received: Apr-18-08 16:04

Analytical Method: **SVOA by GCMS SIM** % Moist: Prep Method: 3510C
Date Anal: May-05-08 20:09 Analyst: KRB Date Prep: Apr-21-08 16:12 Tech: KRB
Anal seq: 721814 Prep seq: 507856

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	16.7	0.050	0.250	0.0180	0.090	ug/L		5

Sample Id: **CP-DUP1-4-18-08** Matrix: WATER Sample Depth:
Lab Sample Id: **302091-004** Date Collected: Apr-18-08 12:51 Date Received: Apr-18-08 16:04

Analytical Method: **SVOA by GCMS SIM** % Moist: Prep Method: 3510C
Date Anal: May-05-08 18:42 Analyst: KRB Date Prep: Apr-21-08 16:14 Tech: KRB
Anal seq: 721814 Prep seq: 507856

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	15.9	0.050	0.250	0.0180	0.090	ug/L		5

Sample Id: **CP-EB-4-18-08** Matrix: WATER Sample Depth:
Lab Sample Id: **302091-005** Date Collected: Apr-18-08 00:00 Date Received: Apr-18-08 16:04

Analytical Method: **SVOA by GCMS SIM** % Moist: Prep Method: 3510C
Date Anal: May-05-08 19:25 Analyst: KRB Date Prep: Apr-21-08 16:18 Tech: KRB
Anal seq: 721814 Prep seq: 507856

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	U	0.050	0.250	0.0180	0.090	ug/L	U	5
bis(2-ethylhexyl) phthalate	117-81-7	0.250	0.050	0.250	0.0180	0.090	ug/L		5
Pentachlorophenol	87-86-5	U	0.500	2.50	0.0260	0.130	ug/L	U	5

Sample Id: **507856-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **507856-1-BLK** Date Collected: Date Received: Apr-18-08 16:04

Analytical Method: **SVOA by GCMS SIM** % Moist: Prep Method: 3510C
Date Anal: May-05-08 01:33 Analyst: KRB Date Prep: Apr-21-08 16:00 Tech: KRB
Anal seq: 721814 Prep seq: 507856

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SQL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	U	0.050	0.050	0.0180	0.018	ug/L	U	1
bis(2-ethylhexyl) phthalate	117-81-7	U	0.050	0.050	0.0180	0.018	ug/L	U	1
Pentachlorophenol	87-86-5	U	0.500	0.500	0.0260	0.026	ug/L	U	1

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : SVOA by GCMS SIM Client : URS Corporation

Work Order #: 302091 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
CP-EB-4-18-08	Apr. 18, 2008	Apr. 18, 2008	Apr. 21, 2008	7	3	May.5, 2008	40	14	P
WP-ROW-17-4-18-08	Apr. 18, 2008	Apr. 18, 2008	Apr. 21, 2008	7	3	May.5, 2008	40	14	P
CP-POE-2-4-18-08	Apr. 18, 2008	Apr. 18, 2008	Apr. 21, 2008	7	3	May.5, 2008	40	14	P
CP-DUP1-4-18-08	Apr. 18, 2008	Apr. 18, 2008	Apr. 21, 2008	7	3	May.5, 2008	40	14	P
WP-RW-16-4-18-18	Apr. 18, 2008	Apr. 18, 2008	Apr. 21, 2008	7	3	May.5, 2008	40	14	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL(PQL) and above the SQL(MDL).

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

* Outside XENCO'S scope of NELAC Accreditation

Analytical Log

Analytical Method:	SVOA by GCMS SIM	Batch #:	721814
Project Name:	Kinder Morgan	Project ID:	
Client Name:	URS Corporation	WO Number:	302091

Client Sample Id	Lab Sample Id	QC Types
CP-DUP1-4-18-08	302091-004	SMP
CP-EB-4-18-08	302091-005	SMP
CP-POE-2-4-18-08	302091-003	SMP
WP-ROW-17-4-18-08	302091-002	SMP
WP-RW-16-4-18-18	302091-001	SMP
	507856-1-BKS	BKS
	507856-1-BLK	BLK
	507856-1-BSD	BSD

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 302091 **Project ID:**

Lab Batch #: 721814 **Sample:** 302091-001 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	1.55	5.00	31	33-141	***
2-Fluorophenol	1.80	5.00	36	21-100	
Phenol-d6	U	5.00	0	10-94	***
2,4,6-Tribromophenol	2.30	5.00	46	10-123	

Lab Batch #: 721814 **Sample:** 302091-002 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	1.60	5.00	32	33-141	***
2-Fluorophenol	1.10	5.00	22	21-100	
Phenol-d6	U	5.00	0	10-94	***
2,4,6-Tribromophenol	2.45	5.00	49	10-123	

Lab Batch #: 721814 **Sample:** 302091-003 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	1.85	5.00	37	33-141	
2-Fluorophenol	1.50	5.00	30	21-100	
Phenol-d6	1.80	5.00	36	10-94	
2,4,6-Tribromophenol	2.85	5.00	57	10-123	

Lab Batch #: 721814 **Sample:** 302091-004 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	1.90	5.00	38	33-141	
2-Fluorophenol	1.50	5.00	30	21-100	
Phenol-d6	1.55	5.00	31	10-94	
2,4,6-Tribromophenol	3.10	5.00	62	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan

Work Order #: 302091 **Project ID:**

Lab Batch #: 721814 **Sample:** 302091-005 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	2.15	5.00	43	33-141	
2-Fluorophenol	1.05	5.00	21	21-100	
Phenol-d6	1.25	5.00	25	10-94	
2,4,6-Tribromophenol	2.00	5.00	40	10-123	

Lab Batch #: 721814 **Sample:** 507856-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	2.59	5.00	52	33-141	
2-Fluorophenol	1.77	5.00	35	21-100	
Phenol-d6	2.01	5.00	40	10-94	
2,4,6-Tribromophenol	2.48	5.00	50	10-123	

Lab Batch #: 721814 **Sample:** 507856-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	3.22	5.00	64	33-141	
2-Fluorophenol	3.12	5.00	62	21-100	
Phenol-d6	2.36	5.00	47	10-94	
2,4,6-Tribromophenol	3.20	5.00	64	10-123	

Lab Batch #: 721814 **Sample:** 507856-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: ug/L

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	2.67	5.00	53	33-141	
2-Fluorophenol	2.17	5.00	43	21-100	
Phenol-d6	2.47	5.00	49	10-94	
2,4,6-Tribromophenol	2.39	5.00	48	10-123	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Kinder Morgan

Work Order #: 302091 **Project ID:**

Analyst: KRB **Date Prepared:** 04/21/2008 **Date Analyzed:** 05/05/2008

Lab Batch ID: 721814 **Sample:** 507856-1-BKS **Batch #:** 1 **Matrix:** Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOA by GCMS SIM Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
bis(2-ethylhexyl) phthalate	<0.050	5.00	3.20	64	5	3.16	63	1	70-130	25	L
bis(2-chloroethyl) ether	<0.050	5.00	3.73	75	5	4.59	92	21	70-130	25	
Pentachlorophenol	<0.500	5.00	4.26	85	5	4.38	88	3	23-152	25	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

XENCO Laboratories

☑ 11381 Meadowglen, Suite L, Houston, TX 77082 **281-589-0692**
☐ 5309 Wurzbach, Suite 104, San Antonio, TX 78238 **210-509-3334**
☐ 9700 Harry Hines Blvd., Dallas, TX 75220 **972-902-0300**
☐ 5757 N.W. 158th Street, Miami Lakes, Fl 33014 **305-823-8500**
☐ 3016 US Highway 301 N., Suite 900, Tampa, Fl 33619 **813-620-2000**

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

LAB ONLY: 30209 1-H

Serial #: 215775 Page 1 of 1

Company-City URS-HOUSTON	**Phone** 713-914-6699	**TAT:** 5h 12h 24h 48h 3d 5d 7d 10d 21d (Standard TAT) is project specific. It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.	
Project Name ☐Previously performed at XENCO: Kinder Morgan	**Site** Galena Park	**Project ID**	
Proj. Manager (PM) Johnny Kennedy			
Fax Results to ☐PM or **e-mail to:** Johnny_Kennedy@URSCORP.com	**Fax No:**		
Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O Bill to:			
Quote No:	**P.O No:**	☐ Call for a P.O.	
Reg Program: CLP AFCEE **TRRP** DW UST State Other:			
Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)			
TRRP PCLs: Tier 1 Tier 2 Residential Industrial			
LPST No.:(Required)			
Sampler Name	Signature		

	Sample ID	Sampling Date	Time	Depth ft In m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 8260 624 Other	TPH by TX1005 FL-Pro 1664 8015GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	Bis-2-(Chloroethyl)ether 8270Sim	Bis-2-(ethylhexyl)phthalate 8270	Pentachlorophenol 8270	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Remarks: Sample Clean-ups are pre-approved
WP 1	RW-16-4-18-08	4-18-08	936		W		X	1	1L	A	NA									X						
2	WP-RW-17-4-18-08	4-18-08	1143		W		X	1	1L	A	NA										X						
3	CP-POE-2-4-18-08	4-18-08	1241		W		X	1	1L	A	NA									X						
4	CP-DUP1-4-18-08	4-18-08	1251		W		X	1	1L	A	NA									X						
5	CP-EB-4-18-08	4-18-08			W		X	1	1L	A	NA									X	X	X				
6																										
7																										
8																										
9																										
10																										

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1 Ellen Rein ER	4-18-08 1532		
2			
3		Lab: N. Kemp	04/18/08 16:04

Rush Charges are Pre-Approved upon requesting them.
Instructions:
All XENCO Standard Terms and Conditions Apply.
Containers Received: 5 Cooler Temperature: 1.2°C

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____
Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (1), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

SDBE Committed to Excellence in Service and Quality since 1990 www.xenco.com

30209 1-H

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: UAS

Date/ Time: 4/18/18

Lab ID # : 302091-61

Initials: A

Sample Receipt Checklist

#1	Temperature of container/ cooler?	Yes	No	N/A	1.2 °C
#2	Shipping container in good condition?	Yes	No	None	
#3	Samples received on ice?	Yes	No	N/A	Blue/Water
#4	Custody Seals intact on shipping container/ cooler?	Yes	No	N/A	
#5	Custody Seals intact on sample bottles/ container?	Yes	No	N/A	
#6	Chain of Custody present?	Yes	No		
#7	Sample instructions complete of Chain of Custody?	Yes	No		
#8	Any missing/extra samples?	Yes	No		
#9	Chain of Custody signed when relinquished/ received?	Yes	No		
#10	Chain of Custody agrees with sample label(s)?	Yes	No		
#11	Container label(s) legible and intact?	Yes	No		
#12	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#13	Samples in proper container/ bottle?	Yes	No		
#14	Samples properly preserved?	Yes	No	N/A	
#15	Sample container intact?	Yes	No		
#16	Sufficient sample amount for indicated test(s)?	Yes	No		
#17	All samples received within sufficient hold time?	Yes	No		
#18	Subcontract of sample(s)?	Yes	No	N/A	
#19	VOC samples have zero headspace?	Yes	No	N/A	

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

Analytical Report 360189

for

URS Corporation

Project Manager: Raaj Patel

Kinder Morgan-Center Plant RAP

11-FEB-10

4143 Greenbriar Dr., Stafford, TX 77477
Ph:(281) 240-4200 Fax:(281) 240-4280

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL00449):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295)

11-FEB-10

Project Manager: **Raaj Patel**
URS Corporation
10550 Richmond Ave, Suite 155
Houston, TX 77042

Reference: XENCO Report No: **360189**
Kinder Morgan-Center Plant RAP
Project Address:

Raaj Patel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 360189. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 360189 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY
Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 360189

URS Corporation, Houston, TX

Kinder Morgan-Center Plant RAP

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
POE-2-1012710	W	Jan-27-10 13:32		360189-001
POE-2-DUP-1012710	W	Jan-27-10 13:35		360189-002

URS Corporation, Houston, TX

Kinder Morgan-Center Plant RAP

Sample Id: **POE-2-1012710** Matrix:Water Sample Depth:

Lab Sample Id: **360189-001** Date Collected: Jan-27-10 13:32 Date Received: Jan-28-10 09:08

Analytical Method: **SVOCs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-05-10 11:09 Analyst: KAN Date Prep: Jan-30-10 08:30 Tech: KAN

Anal seq: 792456 Prep seq: 549475

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	0.009	0.010	0.005	0.0010	0.001	mg/L		1

Sample Id: **POE-2-DUP-1012710** Matrix:Water Sample Depth:

Lab Sample Id: **360189-002** Date Collected: Jan-27-10 13:35 Date Received: Jan-28-10 09:08

Analytical Method: **SVOCs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-05-10 11:33 Analyst: KAN Date Prep: Jan-30-10 08:33 Tech: KAN

Anal seq: 792456 Prep seq: 549475

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	0.009	0.010	0.005	0.0010	0.001	mg/L		1

Sample Id: **549475-1-BLK** Matrix:Water Sample Depth:

Lab Sample Id: **549475-1-BLK** Date Collected: Date Received: Jan-28-10 09:08

Analytical Method: **SVOCs by EPA 8270C** % Moist: Prep Method: 3510C

Date Anal: Feb-05-10 10:45 Analyst: KAN Date Prep: Jan-30-10 08:00 Tech: KAN

Anal seq: 792456 Prep seq: 549475

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	U	0.010	0.010	0.0010	0.001	mg/L	U	2

XENCO
CHRONOLOGY OF HOLDING TIMES

Analytical Method : SVOCs by EPA 8270C Client : URS Corporation

Work Order #: 360189 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
POE-2-DUP-1012710	Jan. 27, 2010	Jan. 28, 2010	Jan. 30, 2010	7	3	Feb.5, 2010	40	6	P
POE-2-1012710	Jan. 27, 2010	Jan. 28, 2010	Jan. 30, 2010	7	3	Feb.5, 2010	40	6	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL and above the SQL.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

***** Outside XENCO's scope of NELAC Accreditation.

Analytical Log

Analytical Method:	SVOCs by EPA 8270C	Batch #:	792456
Project Name:	Kinder Morgan-Center Plant RAP	Project ID:	
Client Name:	URS Corporation	WO Number:	360189

Client Sample Id	Lab Sample Id	QC Types
POE-2-1012710	360189-001	SMP
POE-2-DUP-1012710	360189-002	SMP
	549475-1-BKS	BKS
	549475-1-BLK	BLK
	549475-1-BSD	BSD

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan-Center Plant RAP

Work Orders : 360189,

Project ID:

Lab Batch #: 792456 **Sample:** 549475-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/05/10 09:57

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.002	0.004	59	43-116	
2-Fluorophenol	0.002	0.004	47	21-100	
Nitrobenzene-d5	0.002	0.004	57	35-114	
Phenol-d6	0.001	0.004	27	10-94	
Terphenyl-D14	0.003	0.004	67	33-141	
2,4,6-Tribromophenol	0.001	0.004	33	10-123	

Lab Batch #: 792456 **Sample:** 549475-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/05/10 10:21

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.003	0.004	84	43-116	
2-Fluorophenol	0.002	0.004	56	21-100	
Nitrobenzene-d5	0.003	0.004	80	35-114	
Phenol-d6	0.002	0.004	42	10-94	
Terphenyl-D14	0.004	0.004	93	33-141	
2,4,6-Tribromophenol	0.003	0.004	78	10-123	

Lab Batch #: 792456 **Sample:** 549475-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/05/10 10:45

SVOCs by EPA 8270C Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.002	0.002	77	43-116	
2-Fluorophenol	0.001	0.002	57	21-100	
Nitrobenzene-d5	0.002	0.002	75	35-114	
Phenol-d6	0.001	0.002	68	10-94	
Terphenyl-D14	0.002	0.002	87	33-141	
2,4,6-Tribromophenol	0.001	0.002	68	10-123	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan-Center Plant RAP

Work Orders : 360189,

Project ID:

Lab Batch #: 792456 **Sample:** 360189-001 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 02/05/10 11:09

SURROGATE RECOVERY STUDY

SVOCs by EPA 8270C Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.720	1.00	72	43-116	
2-Fluorophenol	0.600	1.00	60	21-100	
Nitrobenzene-d5	0.745	1.00	75	35-114	
Phenol-d6	0.340	1.00	34	10-94	
Terphenyl-D14	0.800	1.00	80	33-141	
2,4,6-Tribromophenol	0.895	1.00	90	10-123	

Lab Batch #: 792456 **Sample:** 360189-002 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 02/05/10 11:33

SURROGATE RECOVERY STUDY

SVOCs by EPA 8270C Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	0.550	1.00	55	43-116	
2-Fluorophenol	0.675	1.00	68	21-100	
Nitrobenzene-d5	0.760	1.00	76	35-114	
Phenol-d6	0.330	1.00	33	10-94	
Terphenyl-D14	0.820	1.00	82	33-141	
2,4,6-Tribromophenol	0.870	1.00	87	10-123	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Kinder Morgan-Center Plant RAP

Work Order #: 360189 **Project ID:**

Analyst: KAN **Date Prepared:** 01/30/2010 **Date Analyzed:** 02/05/2010

Lab Batch ID: 792456 **Sample:** 549475-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOCs by EPA 8270C Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
bis(2-chloroethyl) ether	<0.001	0.002	0.002	100	0.002	0.002	100	0	57-108	25	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

XENCO Laboratories

☐ 4141 Greenbriar Drive, Stafford, Tx 77477 281-589-0692
☐ 5332 Blackberry Drive, San Antonio, Tx 78238 210-509-3334
☐ 9701 Harry Hines Blvd., Dallas, Tx 75220 214-902-0300
☐ 12600 West I-20 East, Odessa, Tx 79765 432-563-1800
☐ 842 Cantwell, Corpus Christi, Tx 78408 361-884-0371

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

Serial #: 224858 Page 1 of 1

Company-City: URS Corporation - Houston
Phone: 713 914-6699
Lab Only: 360189-H
Proj Name-Location: ☐ Previously done at XENCO — Kinder Morgan - Center Plant RAP
Project ID:
Proj State: AL, CO, FL, GA, LA, MS, NC, NJ, NM, OK, PA, SC, TN, TX, UT Other
Proj. Manager (PM): Raaj Patel
e-mail to PM and e-mail to: Raaj Patel
Fax to:
Invoice to ☐ Accounting ☐ Inc. Invoice with Report ☐ Invoice must have a P.O or Bill to: URS - Raaj Patel
Quote/Pricing:
P.O No:
☐ Call for P.O.
Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW
QAPP Per-Contract CLP AFCEE NAVY DOE DOD USACE OTHER:
Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)
LPST No.:
☐ Dry Basis
Sampler Name: S. Horak
Signature:

TAT: ASAP 5h 12h 24h 48h 3d 5d 7d (10d) 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

#	Sample ID	Sampling Date	Time	Depth ft" In" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
1	POE-2-012710	1/27/2010	13:32		W		X	1	1	A	NA
2	POE-2-DUP-012710	1/27/2010	13:35		W		X	1	1	A	NA
3											
4											
5											
6											
7											
8											
9											
10											

#	VOCs BTEX-MTBE OXYG ETOH VOHs	8260 8021 602 624 524 TCLP/SPLP ( )	PAHs 8270 8270-SIM 8310	TPH: TX1005 8015B 8015Mod 8015DRO 8015GRO 8015ORO	SVOCs 8270 8270-SIM 625 TCLP\SPLP ( )	Metals: RCRA (4, 8, 11) Pb TCLP/SPLP ( ) Other:	Metals Method: 6010 6020 200.8 7470/245.1 7471	NORM Ra 226 228 Uranium	Asbestos PLM PCM	Pesticides 8081 608 TCLP\SPLP ( )	Herbicides 8151 615 TCLP\SPLP ( )	PCBS 8082 608	X Bis(2-chloroethyl)ether - SIM 8270	TAT ASAP 5h 12h 24h 48h 3d 5d 7d (10d) 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Samples (Surcharges will apply and are pre-approved)	Sample Clean-ups are pre-approved as needed
1												X				
2												X				
3																
4																
5																
6																
7																
8																
9																
10																

Remarks

Addn: Date: Rcv by: From:

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1	1/28/10 09:08		
2			
3		Lab:	1/28/10 09008

Total Containers per COC: 2 Cooler Temp: 1.5C

Upon signings this COC you accept XENCO terms and Conditions unless otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be hold 30 days after final report is e-mailed unless hereby requested. Rush Charges are pre-approved.

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____

Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (1), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

Committed to Excellence in Service and Quality since 1989 www.xenco.com

XENCO Laboratories

Prelogin / Nonconformance Report - Sample Log-In

Client: URS Corp

Date/Time: 11/28/10

Lab ID #: 360189

Initials: EM

Sample Receipt Checklist

1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Yes	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	N/A	
4. Chain of Custody present?	Yes	No		
5. Sample instructions complete on chain of custody?	Yes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No		
8. Chain of custody agrees with sample label(s)?	Yes	No		
9. Container labels legible and intact?	Yes	No		
10. Sample matrix / properties agree with chain of custody?	Yes	No		
11. Samples in proper container / bottle?	Yes	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No		
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		
16. Subcontract of sample(s)?	Yes	No	N/A	
17. VOC sample have zero head space?	Yes	No	N/A	

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	1.5 °C	lbs	°C	lbs	°C	lbs	°C	lbs	°C

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that apply:
- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

Analytical Report 390388

for

URS Corporation

Project Manager: Raaj Patel

Kinder Morgan Central Plant

04-OCT-10

Celebrating 20 Years of commitment to excellence in Environmental Testing Services

4143 Greenbriar Dr., Stafford, TX 77477
Ph:(281) 240-4200 Fax:(281) 240-4280

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

04-OCT-10

Project Manager: **Raaj Patel**
URS Corporation
10550 Richmond Ave, Suite 155
Houston, TX 77042

Reference: XENCO Report No: **390388**
Kinder Morgan Central Plant
Project Address: TX

Raaj Patel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 390388. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 390388 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY
Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 390388

URS Corporation, Houston, TX

Kinder Morgan Central Plant

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
POE-2-091710	W	Sep-17-10 08:52		390388-001

URS Corporation, Houston, TX

Kinder Morgan Central Plant

Sample Id: **POE-2-091710**	Matrix:Water	Sample Depth:	
Lab Sample Id: **390388-001**	Date Collected: Sep-17-10 08:52	Date Received: Sep-17-10 15:10	
Analytical Method: **SVOA by GCMS SIM**	% Moist:	Prep Method: 3510C	
Date Anal: Sep-22-10 18:55	Analyst: DAE	Date Prep: Sep-20-10 15:09	Tech: DAE
Anal seq: 824805		Prep seq: 573914	

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	4.48	0.050	0.047	0.0180	0.017	ug/L		1

Sample Id: **573914-1-BLK**	Matrix:Water	Sample Depth:	
Lab Sample Id: **573914-1-BLK**	Date Collected:	Date Received: Sep-17-10 15:10	
Analytical Method: **SVOA by GCMS SIM**	% Moist:	Prep Method: 3510C	
Date Anal: Sep-22-10 16:44	Analyst: DAE	Date Prep: Sep-20-10 14:45	Tech: DAE
Anal seq: 824805		Prep seq: 573914	

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
bis(2-chloroethyl) ether	111-44-4	<0.050	0.050	0.050	0.0180	0.018	ug/L	U	1

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : SVOA by GCMS SIM Client : URS Corporation

Work Order #: 390388 Project ID:

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
POE-2-091710	Sep. 17, 2010	Sep. 17, 2010	Sep. 20, 2010	7	3	Sep.22, 2010	40	2	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL and above the SQL.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

***** Outside XENCO's scope of NELAC Accreditation.

Analytical Log

Analytical Method:	SVOA by GCMS SIM	Batch #:	824805
Project Name:	Kinder Morgan Central Plant	Project ID:	
Client Name:	URS Corporation	WO Number:	390388

Client Sample Id	Lab Sample Id	QC Types
POE-2-091710	390388-001	SMP
	390265-006 S	MS
	390265-006 SD	MSD
	573914-1-BKS	BKS
	573914-1-BLK	BLK
	573914-1-BSD	BSD

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Central Plant

Work Orders : 390388,

Project ID:

Lab Batch #: 824805 **Sample:** 573914-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 09/21/10 23:14

SURROGATE RECOVERY STUDY

SVOA by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.850	1.00	85	33-141	
2-Fluorobiphenyl	0.710	1.00	71	43-116	
Nitrobenzene-d5	0.910	1.00	91	35-114	
2,4,6-Tribromophenol	0.900	1.00	90	10-123	

Lab Batch #: 824805 **Sample:** 573914-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 09/22/10 16:44

SURROGATE RECOVERY STUDY

SVOA by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.810	1.00	81	33-141	
2-Fluorobiphenyl	0.780	1.00	78	43-116	
Nitrobenzene-d5	0.930	1.00	93	35-114	
2,4,6-Tribromophenol	0.770	1.00	77	10-123	

Lab Batch #: 824805 **Sample:** 390265-006 S / MS **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 09/22/10 18:12

SURROGATE RECOVERY STUDY

SVOA by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.792	0.943	84	33-141	
2-Fluorobiphenyl	0.670	0.943	71	43-116	
Nitrobenzene-d5	0.821	0.943	87	35-114	
2,4,6-Tribromophenol	0.830	0.943	88	10-123	

Lab Batch #: 824805 **Sample:** 390265-006 SD / MSD **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 09/22/10 18:33

SURROGATE RECOVERY STUDY

SVOA by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.792	0.943	84	33-141	
2-Fluorobiphenyl	0.660	0.943	70	43-116	
Nitrobenzene-d5	0.802	0.943	85	35-114	
2,4,6-Tribromophenol	0.830	0.943	88	10-123	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Final 1.000

Form 2 - Surrogate Recoveries

Project Name: Kinder Morgan Central Plant

Work Orders : 390388,

Project ID:

Lab Batch #: 824805 **Sample:** 390388-001 / SMP **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 09/22/10 18:55

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.815	0.948	86	33-141	
2-Fluorobiphenyl	0.739	0.948	78	43-116	
Nitrobenzene-d5	1.00	0.948	105	35-114	
2,4,6-Tribromophenol	0.976	0.948	103	10-123	

Lab Batch #: 824805 **Sample:** 573914-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: ug/L **Date Analyzed:** 09/28/10 12:38

SVOA by GCMS SIM Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.870	1.00	87	33-141	
2-Fluorobiphenyl	0.790	1.00	79	43-116	
Nitrobenzene-d5	0.920	1.00	92	35-114	
2,4,6-Tribromophenol	0.820	1.00	82	10-123	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Kinder Morgan Central Plant

Work Order #: 390388 **Project ID:**

Analyst: DAE **Date Prepared:** 09/20/2010 **Date Analyzed:** 09/28/2010

Lab Batch ID: 824805 **Sample:** 573914-1-BKS **Batch #:** 1 **Matrix:** Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

SVOA by GCMS SIM Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
bis(2-chloroethyl) ether	<0.018	5.00	4.51	90	5	2.00	40	77	70-130	25	FL

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Kinder Morgan Central Plant

Work Order # : 390388 **Project ID:**

Lab Batch ID: 824805 **QC- Sample ID:** 390265-006 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 09/22/2010 **Date Prepared:** 09/20/2010 **Analyst:** DAE

Reporting Units: ug/L

SVOA by GCMS SIM Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
bis(2-chloroethyl) ether	<0.236	4.72	1.81	38	4.72	1.73	37	5	70-130	25	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

XENCO Laboratories

☐ 4143 Greenbriar Drive, Stafford, Tx 77477 281-240-4200
☐ 5332 Blackberry Drive, San Antonio, Tx 78238 210-509-3334
☐ 9701 Harry Hines Blvd., Dallas, Tx 75220 214-902-0300
☐ 12600 West I-20 East, Odessa, Tx 79765 432-563-1800
☐ 842 Cantwell, Corpus Christi, Tx 78408 361-884-0371

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

Serial #: 254775 Page 1 of 1

Lab Only: 390388-H

Company-City: URS Corporation - Houston	Phone: 713-914-6699
Proj Name-Location: Kinder Morgan - Central Plant	☐ Previously done at XENCO / Project ID:
Proj State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other	Proj. Manager (PM): Raaj Patel
e-Mail Results to ☐ PM and	Fax No: 713-789-8404
Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O Bill to: URS - Raaj Patel	
Quote/Pricing:	P.O No: ☐ Call for P.O.
Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP	
QAPP Per-Contract CLP AFCEE NAVY DOE DOD USACE OTHER:	
Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)	
Sampler Name: Steven Horak Signature:	

TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level I and 10-14 working days for level III and IV data.

Sample ID	Sampling Date	Time	Depth (ft In" m)	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
1 POE-2-091710	9/17/2010	0852		W		X	1	1	A	N/A
2										
3										
4										
5										
6										
7										
8										
9										
10										

VOCs: Full-List BTEX-MTBE EtOH Oxyg VOHs VOAs	VOC's PP TCL DW Appdx-1 Appdx-2 CALL Other:	PAHs	TX-1005 DRO GRO MA EPH MA VPH	SVOCs: Full-List DW BN&AE TCL PP Appdx-2 CALL	OC Pesticides PCBs Herbicides OP Pesticides	Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx 2	SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)	EDB / DBCP	BIS-2(Chloroethyl) ether (EPA SIM 8270)	TAT ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Samples (Surcharges will apply and are pre-approved)	Remarks: Sample Clean-ups are pre-approved as needed
									X				Samples kept on ice / 1 cooler

Addn: From: Rcv by: Date

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1)	9/17/2010 1433	2)	9/17/10 1433
3)	9/17/10 1510	4)	9/17/10 1510
5)		6)	

Total Containers per COC: 1 Cooler Temp: 1-3°C

otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be held 30 days after final report is e-mailed unless hereby requested. Rush Charges and Collection Fees are pre-approved if needed.

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____

Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**40**), 1L (**1**), 500ml (**5**), Tedlar Bag (**B**), Various (V), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Various (**V**)

Matrix: Air (**A**), Product (**P**), Solid(**S**), Water (**W**), Liquid (**L**)

Committed to Excellence in Service and Quality www.xenco.com

Notice: Signature of this document and relinquishment of these samples constitutes a valid purchase order from client company to Xenco Laboratories and its affiliates, subcontractors and assigns under Xenco's standard terms and conditions of service unless previoiusly negotiated under a fully executed client contract.

XENCO Laboratories	Document Title: Sample Receipt Checklist
Atlanta, Boca Raton, Corpus Christi, Dallas	Document No.: SYS-SRC
Houston, Miami, Odessa, Philadelphia	Revision/Date: No. 01, 5/27/2010
Phoenix, San Antonio, Tampa	Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: URS CORPORATION

Date/Time: 09/17/10

Lab ID # : 390388

Initials: Q.M. AL

Sample Receipt Checklist

1. Samples on ice?	Blue	(Water)	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	(N/A)	
4. Chain of Custody present?	(Yes)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	(No)		
7. Chain of custody signed when relinquished / received?	(Yes)	No		
8. Chain of custody agrees with sample label(s)?	(Yes)	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	(Yes)	No	N/A	
13. Sample container intact?	(Yes)	No		
14. Sufficient sample amount for indicated test(s)?	(Yes)	No		
15. All samples received within sufficient hold time?	(Yes)	No		
16. Subcontract of sample(s)?	Yes	No	N/A	
17. VOC sample have zero head space?	Yes	No	(N/A)	

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	1.5 °C	lbs	°C	lbs	°C	lbs	°C	lbs	°C

Nonconformance Documentation

Contact:_____ Contacted by:_____ Date/Time:_____

Regarding: _____

Corrective Action Taken: _____

Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
- ☐ Initial and Backup Temperature confirm out of temperature conditions
- ☐ Client understands and would like to proceed with analysis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-51321-1
Client Project/Site: Kinder Morgan Central Plant GW

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
3/15/2012 5:37:28 PM
Cathy Upton
LAN Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 11
Method Summary 12
Sample Summary 13
Client Sample Results 14
Definitions/Glossary 15
Surrogate Summary 16
QC Sample Results 17
Default Detection Limits 18
QC Association Summary 19
Lab Chronicle 20
Certification Summary 21
Chain of Custody 22
Receipt Checklists 23

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-51321-1

Project Name/Number: Kinder Morgan Central Plant GW

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		03/15/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 03/13/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-51321
Reviewer Name: JOH	Prep Batch Number(s): 600-74097-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 03/13/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-51321
Reviewer Name: JOH	Prep Batch Number(s): 600-74097-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 03/13/12
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-51321
Reviewer Name: JOH	Prep Batch Number(s): 600-74097-SV

ER #[1]	DESCRIPTION
1	Surrogate recovery for the following sample was outside control limits: 600-51321-1. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510
Date Analyzed:	11/2/2011
Date Prepared:	11/2/2011
Lab Sample ID:	DCS -LL Water 0.5
File #:	MSD3260.i\100110C.b\10011008.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.09	0.5
N-Nitrosodimethylamine	0.26	0.5		0.5
Aniline	0.08	0.5	0.211	0.5
Phenol	0.04	0.5	0.115	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.411	0.5
2-Chlorophenol	0.13	0.5	0.365	0.5
1,3-Dichlorobenzene	0.17	0.5	0.392	0.5
1,4-Dichlorobenzene	0.13	0.5	0.448	0.5
1,2-Dichlorobenzene	0.17	0.5	0.448	0.5
bis(2-Chloroisopropyl)ether		0.5		
Benzyl alcohol	0.17	0.5	0.281	0.5
2-Methylphenol	0.12	0.5	0.272	0.5
m&p-Cresols		0.5	0.258	
N-Nitroso-di-n-propylamine	0.1	0.5		0.5
Hexachloroethane	0.1	0.5	0.449	0.5
Nitrobenzene	0.11	0.5	0.539	0.5
Isophorone	0.11	0.5	0.339	0.5
2-Nitrophenol	0.22	0.5	0.353	0.5
2,4-Dimethylphenol	0.31	0.5	0.401	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.445	0.5
Benzoic acid	2.51	0.5		2.5
2,4-Dichlorophenol	0.15	0.5	0.493	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.492	0.5
Naphthalene	0.08	0.5	0.467	0.5
4-Chloroaniline	0.21	0.5	0.344	0.5
Hexachlorobutadiene	0.18	0.5	0.589	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.388	0.5
2-Methylnaphthalene	0.07	0.5	0.469	0.5
1-Methylnaphthalene	0.09	0.5	0.449	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.313	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.295	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.359	0.5
2-Chloronaphthalene	0.08	0.5	0.517	0.5
2-Nitroaniline	0.19	0.5	0.377	0.5
Dimethylphthalate	0.07	0.5	0.478	0.5
Acenaphthylene	0.06	0.5	0.433	0.5
2,6-Dinitrotoluene	0.08	0.5	0.362	0.5
3-Nitroaniline	0.16	0.5	0.351	0.5
Acenaphthene	0.08	0.5		0.5

2,4-Dinitrophenol	0.39	0.5		1
Dibenzofuran	0.08	0.5	0.457	0.5
2,4-Dinitrotoluene	0.13	0.5	0.317	0.5
4-Nitrophenol	0.56	0.5		1
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.369	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.311	0.5
Diethylphthalate	1.5	0.5	0.053	0.5
Fluorene	0.07	0.5		0.5
4-Chlorophenyl-phenylether	0.1	0.5		0.5
4-Nitroaniline	0.25	0.5	0.226	0.5
4,6-Dinitro-2-methylphenol	0.83	0.5	0.163	1
N-Nitrosodiphenylamine	0.1	0.5		0.5
Diphenylamine	0.1	0.5		0.5
1,2-Diphenylhydrazine	0.11	0.5	0.356	0.5
Azobenzene	0.07	0.5	0.3	0.5
4-Bromophenyl-phenylether	0.1	0.5		0.5
Hexachlorobenzene	0.11	0.5		0.5
Pentachlorophenol	0.61	0.5	0.302	1
Phenanthrene	0.06	0.5	0.494	0.5
Anthracene	0.05	0.5	0.456	0.5
Carbazole	0.17	0.5	0.447	0.5
Di-n-butylphthalate	0.11	0.5	0.448	0.5
Fluoranthene	0.07	0.5	0.437	0.5
Pyrene	0.11	0.5	0.489	0.5
Benzidine	0.61	0.5	0.171	2.5
Butylbenzylphthalate	0.12	0.5	0.459	0.5
Benzo(a)anthracene	0.08	0.5	0.479	0.5
Chrysene	0.08	0.5	0.498	0.5
3,3'-Dichlorobenzidine	0.18	0.5		0.5
bis(2-Ethylhexl)phthalate	0.37	0.5		0.5
Di-n-octylphthalate	0.16	0.5	0.265	0.5
Benzo(b)fluoranthene	0.07	0.5	0.46	0.5
Benzo(k)fluoranthene	0.09	0.5	0.509	0.5
Benzo(a)pyrene	0.08	0.5	0.401	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.284	0.5
Dibenz(a,h)anthracene	0.08	0.5	0.365	0.5
Benzo(g,h,i)perylene	0.08	0.5	0.434	0.5
1,4-Dinitrobenzene	5	0.5	0.225	0.5
1,3-Dinitrobenzene	0.08	0.5	0.331	0.5
1,2-Dinitrobenzene	0.5	0.5	0.478	0.5

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510
Date Analyzed:	11/2/2011
Date Prepared:	11/2/2011
Lab Sample ID:	MSD1778.I
File #:	MSD1778.i\110211V.b\8270c.6.m
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
2-Picoline	0.39	1	0.0738	0.5
N-Nitrosomethylethylamine	0.11	1	0.605	0.5
Methylmethanesulfonate	0.2	1	0.506	0.5
N-Nitrosodiethylamine	0.38	1	0.729	0.5
Ethyl methanesulfonate	0.17	1	0.729	0.5
Benzaldehyde	0.5	1	0.729	0.5
Pentachloroethane	0.15	1	1.02	0.5
o-Toludine		1		
N-Nitrosopyrrolidine	0.21	1	0.423	0.5
N-Nitrosomorpholine	0.19	1	0.415	0.5
Acetophenone	0.15	1	0.546	0.5
N-Nitrosopiperdine	0.19	1	0.96	0.5
O,O,O-Triethylphosphorothioat	0.5	1	0.911	0.5
a,a-Dimethylphenethylamine	5	1	0.261	0.5
2,6-Dichlorophenol	0.12	1	0.832	0.5
Hexachloropropene	0.16	1	0.842	0.5
1,4-Phenylenediamine		1		
N-Nitrosodi-n-butylamine	0.23	1	0.842	0.5
Caprolactam	1	1	0.116	1
Safrole	5	1	0.91	0.5
1,2,4,5-Tetrachlorobenzene	0.1	1	1.01	0.5
Isosafrole	0.1	1	0.575	0.5
1,1'-Biphenyl	0.1	1	0.983	0.5
1,4-Naphthoquinone	0.15	1	0.45	0.5
Pentachlorobenzene	0.13	1	1.09	0.5
1-Naphthylamine	0.17	1		0.5
2-Naphthylamine	0.14	1		0.5
Thionazine	0.07	1	0.648	0.5
5-Nitro-o-toludine		1		
Phorate	0.07	1	0.665	0.5
1,3,5-Trinitrobenzene	0.5	1	0.731	0.5
Phenacetin	0.19	1	0.535	0.5
Diallate isomer	0.09	1	0.722	0.5
Dimethoate	0.1	1	0.58	0.5
Atrazine	0.16	1		0.5
4-Aminobiphenyl	0.17	1	0.0217	0.5
Disulfoton		1	0.484	0.5
Methylparathion	0.14	1	0.537	0.14
Parathion		1	0.581	

Pronamide	0.11	1	0.771	0.11
Pentachloronitrobenzene	0.12	1	1.04	0.12
4-Nitroquinoline-1-oxide	0.2	1		0.5
Methapyrilene	1.06	1		0.5
Isodrin	0.15	1	0.792	0.15
Aramite	5	1		5
p-Dimethylaminoazobenzene	0.11	1	0.536	0.11
Chlorobenzilate	0.08	1	1.05	0.08
3,3'-Dimethylbenzidine	0.5	1	0.0292	0.5
2-Acetylaminofluorene	5	1	0.623	5
7,12-Dimethylbenz(a)anthracen	0.07	1	0.132	0.07
Methylcholanthrene		1	0.361	
Dibenz(a,j) acridine		1	0.633	0.5

Job ID: 600-51321-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-51321-1

Comments
No additional comments.

Receipt
The sample was received at the laboratory outside the required temperature criteria.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-51321-1	POE-2	Water	02/29/12 12:30	03/01/12 08:57

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Client Sample ID: POE-2
Date Collected: 02/29/12 12:30
Date Received: 03/01/12 08:57

Lab Sample ID: 600-51321-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00333		0.000498	0.000149	mg/L		03/07/12 09:24	03/08/12 17:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*21*		*10 - 94*	*03/07/12 09:24*	*03/08/12 17:49*	*1*
Terphenyl-d14	*67*		*33 - 141*	*03/07/12 09:24*	*03/08/12 17:49*	*1*
Nitrobenzene-d5	*66*		*35 - 114*	*03/07/12 09:24*	*03/08/12 17:49*	*1*
2-Fluorophenol	*32*		*10 - 100*	*03/07/12 09:24*	*03/08/12 17:49*	*1*
2-Fluorobiphenyl	*39*	*X*	*43 - 116*	*03/07/12 09:24*	*03/08/12 17:49*	*1*
2,4,6-Tribromophenol	*40*		*10 - 123*	*03/07/12 09:24*	*03/08/12 17:49*	*1*

Definitions/Glossary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-51321-1	POE-2	21	67	66	32	39 X	40		
LCS 600-74097/2-A	Lab Control Sample	25	76	79	38	75	72		
LCSD 600-74097/3-A	Lab Control Sample Dup	20	77	76	33	73	66		
MB 600-74097/1-A	Method Blank	20	78	73	33	70	47		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-74097/1-A
Matrix: Water
Analysis Batch: 74335

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 74097

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		03/07/12 09:24	03/08/12 16:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*20*		*10 - 94*	*03/07/12 09:24*	*03/08/12 16:31*	*1*
Terphenyl-d14	*78*		*33 - 141*	*03/07/12 09:24*	*03/08/12 16:31*	*1*
Nitrobenzene-d5	*73*		*35 - 114*	*03/07/12 09:24*	*03/08/12 16:31*	*1*
2-Fluorophenol	*33*		*10 - 100*	*03/07/12 09:24*	*03/08/12 16:31*	*1*
2-Fluorobiphenyl	*70*		*43 - 116*	*03/07/12 09:24*	*03/08/12 16:31*	*1*
2,4,6-Tribromophenol	*47*		*10 - 123*	*03/07/12 09:24*	*03/08/12 16:31*	*1*

Lab Sample ID: LCS 600-74097/2-A
Matrix: Water
Analysis Batch: 74335

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 74097

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007406		mg/L		74	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*25*		*10 - 94*
Terphenyl-d14	*76*		*33 - 141*
Nitrobenzene-d5	*79*		*35 - 114*
2-Fluorophenol	*38*		*10 - 100*
2-Fluorobiphenyl	*75*		*43 - 116*
2,4,6-Tribromophenol	*72*		*10 - 123*

Lab Sample ID: LCSD 600-74097/3-A
Matrix: Water
Analysis Batch: 74335

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 74097

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.0100	0.007310		mg/L		73	40 - 112	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d6	*20*		*10 - 94*
Terphenyl-d14	*77*		*33 - 141*
Nitrobenzene-d5	*76*		*35 - 114*
2-Fluorophenol	*33*		*10 - 100*
2-Fluorobiphenyl	*73*		*43 - 116*
2,4,6-Tribromophenol	*66*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

GC/MS Semi VOA

Prep Batch: 74097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-51321-1	POE-2	Total/NA	Water	3510C	
LCS 600-74097/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-74097/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-74097/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 74335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-51321-1	POE-2	Total/NA	Water	8270C LL	74097
LCS 600-74097/2-A	Lab Control Sample	Total/NA	Water	8270C LL	74097
LCSD 600-74097/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	74097
MB 600-74097/1-A	Method Blank	Total/NA	Water	8270C LL	74097

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Client Sample ID: POE-2
Date Collected: 02/29/12 12:30
Date Received: 03/01/12 08:57

Lab Sample ID: 600-51321-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			74097	03/07/12 09:24	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	74335	03/08/12 17:49	JH	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-51321-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Houston	Arkansas DEQ	State Program	6	88-0759
TestAmerica Houston	Louisiana	NELAC	6	30643
TestAmerica Houston	Oklahoma	State Program	6	9503
TestAmerica Houston	Texas	NELAC	6	T104704223-10-6-TX
TestAmerica Houston	USDA	Federal		P330-08-00217
TestAmerica Houston	Utah	NELAC	8	GULF

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation			Loc: 600 51321	Job #:
Address: 10550 Richmond Ave	Due Date Requested:		Analysis Reque	Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify); Other:
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845			
Site: Central Plant GW	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	2/29/12	1230	G	Water	N	N	X	2	
Trip Blank							X		
Temp Blank	Lab								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Ravi Kommajosyula	3/1/12 0855		Brandi Kleeb	3/1/12 0857	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

3/15/2012

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-51321-1

Login Number: 51321

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	12.6/8.7/6.2
Cooler Temperature is recorded.	True	545
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-54421-1
Client Project/Site: POE-2

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Patricia Adoor

Authorized for release by:
5/10/2012 3:27:57 PM
Patricia Adoor
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Method Summary 11
Sample Summary 12
Client Sample Results 13
Definitions/Glossary 14
Surrogate Summary 15
QC Sample Results 16
Default Detection Limits 17
QC Association Summary 18
Lab Chronicle 19
Certification Summary 20
Chain of Custody 21
Receipt Checklists 22

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-54421-1

Project Name/Number: POE-2

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Pat Adoor	Patricia Adoor	05/10/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/08-2012
Project Name: POE-2	Laboratory Job Number: 600-54421
Reviewer Name: TTD	Prep Batch Number: 600-78607-SIM

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		2
		Were MS/MSD RPDs within laboratory QC limits?			X		2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				3
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/08-2012
Project Name: POE-2	Laboratory Job Number: 600-54421
Reviewer Name: TTD	Prep Batch Number: 600-78607-SIM

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/08-2012
Project Name: POE-2	Laboratory Job Number: 600-54421
Reviewer Name: TTD	Prep Batch Number: 600-78607-SIM

ER #[1]	DESCRIPTION
1	Due to the level of dilution required for sample 600-54421-1 surrogate recoveries are not reported.
2	The laboratory selected a sample from another group to perform as the MS/MSD.
3	The SDL in sample 600-54421-1 was elevated due to the concentration of the analyte and the nature of the sample matrix.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270
Preparation:	3510
Date Analyzed:	2/11/2012
Date Prepared:	2/11/2012
Lab Sample ID:	DCS REG-W 5PPM
File #:	msd1526.il\021112A.b\02111209.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
N-Nitrosodimethylamine	1.93	5	0.893	5
Aniline	1.62	5	0.683	5
Phenol	0.95	5	3.71	5
bis(2-Chloroethyl)ether	1.19	5	4.12	5
2-Chlorophenol	0.67	5	3.86	5
1,3-Dichlorobenzene	1.15	5	4.21	5
1,4-Dichlorobenzene	1.26	5	4.22	5
1,2-Dichlorobenzene	1.09	5	4.24	5
bis(2-Chloroisopropyl)ether	1.24	5	3.99	5
Benzyl alcohol	2.51	5	0.535	5
2-Methylphenol	1.01	5	3.58	5
m&p-Cresols	1.88	5	4.26	5
N-Nitroso-di-n-propylamine	0.66	5	3.99	5
Hexachloroethane	1.16	5	3.74	5
Nitrobenzene	1.18	5	4.04	5
Isophorone	0.73	5	3.79	5
2-Nitrophenol	0.63	5	3.68	5
2,4-Dimethylphenol	1.34	5	3.63	5
Benzoic acid	2.51	5	2.55	5
2,4-Dichlorophenol	1.54	5	3.68	5
1,2,4-Trichlorobenzene	1.14	5	3.76	5
Naphthalene	0.51	5	5.53	5
4-Chloroaniline	0.98	5	1.11	5
Hexachlorobutadiene	1.11	5	3.56	5
4-Chloro-3-methylphenol	0.82	5	3.38	5
2-Methylnaphthalene	1.1	5	4.21	5
1-Methylnaphthalene	0.53	5	4.4	5
Hexachlorocyclopentadiene	0.58	5	3.96	5
2,4,6-Trichlorophenol	0.92	5	4.4	5
2,4,5-Trichlorophenol	1.26	5	4.4	5
2-Chloronaphthalene	1	5	5.27	5
2-Nitroaniline	1.13	5	1.6	5
1,4-Dinitrobenzene	0.68	5	4.46	5
1,3-Dinitrobenzene	34.7	5	4.69	5
1,2-Dinitrobenzene	1.02	5	4.9	5
Dimethylphthalate	0.52	5	5.83	5
Acenaphthylene	0.9	5	0.89	5
2,6-Dinitrotoluene	0.64	5	5.02	5
3-Nitroaniline	0.51	5	0.973	5

Acenaphthene	0.53	5	4.71	5
2,4-Dinitrophenol	0.89	5	3.01	5
Dibenzofuran	0.99	5	5.6	5
2,4-Dinitrotoluene	0.95	5	5.1	5
4-Nitrophenol	0.99	5	4.36	5
2,3,5,6-Tetrachlorophenol	0.83	5	4.21	5
Diethylphthalate	1.14	5	4.63	5
Fluorene	1.42	5	5.68	5
4-Chlorophenyl-phenylether	0.79	5	5.16	5
4-Nitroaniline	1.01	5	0.733	5
4,6-Dinitro-2-methylphenol	1.88	5	3.07	5
N-Nitrosodiphenylamine	1.03	5	2.51	5
Diphenylamine	1.13	5	2.15	5
1,2-Diphenylhydrazine	0.9	5	1.08	5
Azobenzene		5	1.08	5
4-Bromophenyl-phenylether	0.68	5	4.28	5
Hexachlorobenzene	0.9	5	4.25	5
Pentachlorophenol	0.89	5	3.32	5
Phenanthrene	0.79	5	4.91	5
Anthracene	0.67	5	4.54	5
Carbazole	1.14	5	0.454	5
Di-n-butylphthalate	1.04	5	5.09	5
Fluoranthene	0.52	5	4.51	5
Pyrene	1.12	5	3.99	5
Butylbenzylphthalate	0.61	5	3.9	5
Benzo(a)anthracene	0.58	5	4.32	5
Chrysene	0.6	5	4.74	5
bis(2-Ethylhexl)phthalate	0.52	5	4.78	5
Di-n-octylphthalate	0.69	5	4.06	5
Benzo(b)fluoranthene	1.05	5	6.31	5
Benzo(k)fluoranthene	0.93	5	7.66	5
Benzo(a)pyrene	0.57	5	4.6	5
Indeno(1,2,3-cd)pyrene	0.67	5	4.58	5
Dibebz(a,h)anthracene	0.72	5	6.11	5
Benzo(g,h,i)perylene	0.83	5	5.11	5

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270
Preparation:	3510
Date Analyzed:	2/13/2012
Date Prepared:	2/13/2012
Lab Sample ID:	DCS REG-W 10PPM
File #:	MSD2348.i\021312Z.b\02131207.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	1.04	10	0.145	10
N-Nitrosodimethylamine	1.93	10	4.38	10
Aniline	1.62	10	0.743	10
Phenol	0.95	10	5.42	10
bis(2-Chloroethyl)ether	1.19	10	5.36	10
2-Chlorophenol	0.67	10	6.41	10
1,3-Dichlorobenzene	1.15	10	6.43	10
1,4-Dichlorobenzene	1.26	10	6.56	10
1,2-Dichlorobenzene	1.09	10	6.36	10
bis(2-Chloroisopropyl)ether	1.19	10	4.69	
Benzyl alcohol	2.51	10	4.99	10
2-Methylphenol	1.01	10	5.28	10
m&p-Cresols	1.88	10	6.05	
N-Nitroso-di-n-propylamine	0.66	10	4.99	10
Hexachloroethane	1.16	10	5.99	10
Nitrobenzene	1.18	10	7.13	10
Isophorone	0.73	10	5.74	10
2-Nitrophenol	0.63	10	6.67	10
2,4-Dimethylphenol	1.34	10	5.76	10
bis(2-Chloroethoxy)methane	1.24	10	5.74	10
Benzoic acid	2.51	10	8.67	10
2,4-Dichlorophenol	1.54	10	6.1	10
1,2,4-Trichlorobenzene	1.14	10	6.6	10
Naphthalene	0.51	10	6.8	10
4-Chloroaniline	0.98	10	3.7	10
Hexachlorobutadiene	1.11	10	7.9	10
4-Chloro-3-methylphenol	0.82	10	6.13	10
2-Methylnaphthalene	1.1	10	6.6	10
1-Methylnaphthalene	0.53	10	6.97	10
Hexachlorocyclopentadiene	0.58	10	2.82	10
2,4,6-Trichlorophenol	0.92	10	6.89	10
2,4,5-Trichlorophenol	1.26	10	6.92	10
2-Chloronaphthalene	1	10	7.06	10
2-Nitroaniline	1.13	10	6.32	50
1,4-Dinitrobenzene	0.68	10	7.05	10
1,3-Dinitrobenzene	34.7	10	7.45	10
1,2-Dinitrobenzene	1.02	10	8.27	10
Dimethylphthalate	0.52	10	7.9	10
Acenaphthylene	0.9	10	7.47	10

2,6-Dinitrotoluene	0.64	10	7.08	10
3-Nitroaniline	0.51	10	7.91	50
Acenaphthene	0.53	10	6.74	10
2,4-Dinitrophenol	0.89	10	8.61	50
Dibenzofuran	0.99	10	7.34	10
2,4-Dinitrotoluene	0.95	10	7.89	10
4-Nitrophenol	0.99	10	5.73	50
2,3,4,6-Tetrachlorophenol	0.83	10	6.1	10
Diethylphthalate	1.14	10	8.04	10
Fluorene	1.42	10	6.91	10
4-Chlorophenyl-phenylether	0.79	10	7.89	10
4-Nitroaniline	1.01	10	8.47	50
4,6-Dinitro-2-methylphenol	1.88	10	5.71	50
N-Nitrosodiphenylamine	1.03	10	6.91	10
Diphenylamine	1.13	10	5.9	10
1,2-Diphenylhydrazine	0.9	10	9.32	10
Azobenzene		10	9.31	10
4-Bromophenyl-phenylether	0.68	10	7.44	10
Hexachlorobenzene	0.9	10	8.18	10
Pentachlorophenol	0.89	10	3.42	50
Phenanthrene	0.79	10	7.32	10
Anthracene	0.67	10	7.38	10
Carbazole	1.14	10	7.12	10
Di-n-butylphthalate	1.04	10	7.54	10
Fluoranthene	0.52	10	7.83	10
Pyrene	1.12	10	7.14	10
Butylbenzylphthalate	0.61	10	6.88	10
Benzo(a)anthracene	0.58	10	7.36	10
Chrysene	0.6	10	7.47	10
3,3'-Dichlorobenzidine	0.58	10	5.82	20
bis(2-Ethylhexl)phthalate	0.52	10	6.73	10
Di-n-octylphthalate	0.69	10	7.37	10
Benzo(b)fluoranthene	1.05	10	6.68	10
Benzo(k)fluoranthene	0.93	10	9.01	10
Benzo(a)pyrene	0.57	10	7.88	10
Indeno(1,2,3-cd)pyrene	0.67	10	8.14	10
Dibebz(a,h)anthracene	0.72	10	7.89	10
Benzo(g,h,i)perylene	0.83	10	7.88	10

Method Summary

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-54421-1	POE-2	Water	05/02/12 08:45	05/03/12 08:48

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Client Sample ID: POE-2
Date Collected: 05/02/12 08:45
Date Received: 05/03/12 08:48

Lab Sample ID: 600-54421-1
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00359		0.000197	0.0000591	mg/L		05/04/12 12:31	05/08/12 10:40	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*0*	*X*	*20 - 120*	*05/04/12 12:31*	*05/08/12 10:40*	*10*
2-Fluorobiphenyl	*0*	*X*	*22 - 145*	*05/04/12 12:31*	*05/08/12 10:40*	*10*
2,4,6-Tribromophenol	*0*	*X*	*20 - 120*	*05/04/12 12:31*	*05/08/12 10:40*	*10*
Terphenyl-d14	*0*	*X*	*20 - 120*	*05/04/12 12:31*	*05/08/12 10:40*	*10*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		NBZ	FBP	TBP	TPH				
Lab Sample ID	Client Sample ID	(20-120)	(22-145)	(20-120)	(20-120)				
600-54421-1	POE-2	0 X	0 X	0 X	0 X				
LCS 600-78607/2-A	Lab Control Sample	56	52	48	73				
MB 600-78607/1-A	Method Blank	47	45	36	67				

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 600-78607/1-A
Matrix: Water
Analysis Batch: 78732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 78607

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00000600	U	0.0000200	0.00000600	mg/L		05/04/12 12:31	05/07/12 09:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*47*		*20 - 120*	*05/04/12 12:31*	*05/07/12 09:15*	*1*
2-Fluorobiphenyl	*45*		*22 - 145*	*05/04/12 12:31*	*05/07/12 09:15*	*1*
2,4,6-Tribromophenol	*36*		*20 - 120*	*05/04/12 12:31*	*05/07/12 09:15*	*1*
Terphenyl-d14	*67*		*20 - 120*	*05/04/12 12:31*	*05/07/12 09:15*	*1*

Lab Sample ID: LCS 600-78607/2-A
Matrix: Water
Analysis Batch: 78732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 78607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-chloroethyl)ether	0.00100	0.0007627		mg/L		76	40 - 112

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*56*		*20 - 120*
2-Fluorobiphenyl	*52*		*22 - 145*
2,4,6-Tribromophenol	*48*		*20 - 120*
Terphenyl-d14	*73*		*20 - 120*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.0000200	0.00000600	mg/L	8270C SIM

QC Association Summary

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

GC/MS Semi VOA

Prep Batch: 78607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-54421-1	POE-2	Total/NA	Water	3510C	
LCS 600-78607/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-78607/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 78732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-78607/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	78607
MB 600-78607/1-A	Method Blank	Total/NA	Water	8270C SIM	78607

Analysis Batch: 78786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-54421-1	POE-2	Total/NA	Water	8270C SIM	78607

Lab Chronicle

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Client Sample ID: POE-2
Date Collected: 05/02/12 08:45
Date Received: 05/03/12 08:48

Lab Sample ID: 600-54421-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			78607	05/04/12 12:31	SMB	TAL HOU
Total/NA	Analysis	8270C SIM		10	78786	05/08/12 10:40	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: POE-2

TestAmerica Job ID: 600-54421-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Houston	Arkansas DEQ	State Program	6	88-0759
TestAmerica Houston	Louisiana	NELAC	6	30643
TestAmerica Houston	Oklahoma	State Program	6	9503
TestAmerica Houston	Texas	NELAC	6	T104704223-10-6-TX
TestAmerica Houston	USDA	Federal		P330-08-00217
TestAmerica Houston	Utah	NELAC	8	GULF

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

[redacted]

Chain of Custody Record

TAL-4124 (1007)

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

57421.

Client: URS	Project Manager: Ranj Patel	Date: 5/2/12	Chain of Custody Number: 202600
Address: 10550 Richmond Avenue, Suite 155	Telephone Number (Area Code)/Fax Number: (713) 914 6422	Lab Number:	Page 1 of 1
City: Houston; State: TX; Zip Code: 77042	Site Contact: Ravi Kommajosyula; Lab Contact: Dean Toiver		
Project Name and Location (State): Central Plant, Kinder Morgan, TX	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed): SW8270 (SIM); Bis-2 chloro-ethyl ether

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	#c	SW8270 (SIM)	Bis-2 chloro-ethyl ether	Special Instructions/ Conditions of Receipt
POE-2	5/2/12	0845		X			X						2	X		TRRP QA/QC
Temp Blank	LAB															

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☒ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Ravi Kommajosyula	5/2/12	1600	1. Received By: [signature]	5/3/12	0848.
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-54421-1

Login Number: 54421

List Source: TestAmerica Houston

List Number: 1

Creator: Fuentes Jr, Fabio

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-56169-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Patricia Adoor

Authorized for release by:
6/19/2012 3:46:35 PM
Patricia Adoor
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 11
Method Summary 12
Sample Summary 13
Client Sample Results 14
Definitions/Glossary 15
Surrogate Summary 16
QC Sample Results 17
Default Detection Limits 18
QC Association Summary 19
Lab Chronicle 20
Certification Summary 21
Chain of Custody 22
Receipt Checklists 23

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-56169-1

Project Name/Number: Kinder Morgan Central Plant.

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Pat Adoor	Patricia Adoor	06/19/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 06/14/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-56169
Reviewer Name: JOH	Prep Batch Number(s): 600-81044-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?				X	1
		Were MS/MSD RPDs within laboratory QC limits?				X	1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 06/14/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-56169
Reviewer Name: JOH	Prep Batch Number(s): 600-81044-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 06/14/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-56169
Reviewer Name: JOH	Prep Batch Number(s): 600-81044-SV

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270
Preparation:	3510
Date Analyzed:	2/13/2012
Date Prepared:	2/13/2012
Lab Sample ID:	DCS REG-W 10PPM
File #:	MSD2348.i\021312Z.b\02131207.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	1.04	10	0.145	10
N-Nitrosodimethylamine	1.93	10	4.38	10
Aniline	1.62	10	0.743	10
Phenol	0.95	10	5.42	10
bis(2-Chloroethyl)ether	1.19	10	5.36	10
2-Chlorophenol	0.67	10	6.41	10
1,3-Dichlorobenzene	1.15	10	6.43	10
1,4-Dichlorobenzene	1.26	10	6.56	10
1,2-Dichlorobenzene	1.09	10	6.36	10
bis(2-Chloroisopropyl)ether	1.19	10	4.69	
Benzyl alcohol	2.51	10	4.99	10
2-Methylphenol	1.01	10	5.28	10
m&p-Cresols	1.88	10	6.05	
N-Nitroso-di-n-propylamine	0.66	10	4.99	10
Hexachloroethane	1.16	10	5.99	10
Nitrobenzene	1.18	10	7.13	10
Isophorone	0.73	10	5.74	10
2-Nitrophenol	0.63	10	6.67	10
2,4-Dimethylphenol	1.34	10	5.76	10
bis(2-Chloroethoxy)methane	1.24	10	5.74	10
Benzoic acid	2.51	10	8.67	10
2,4-Dichlorophenol	1.54	10	6.1	10
1,2,4-Trichlorobenzene	1.14	10	6.6	10
Naphthalene	0.51	10	6.8	10
4-Chloroaniline	0.98	10	3.7	10
Hexachlorobutadiene	1.11	10	7.9	10
4-Chloro-3-methylphenol	0.82	10	6.13	10
2-Methylnaphthalene	1.1	10	6.6	10
1-Methylnaphthalene	0.53	10	6.97	10
Hexachlorocyclopentadiene	0.58	10	2.82	10
2,4,6-Trichlorophenol	0.92	10	6.89	10
2,4,5-Trichlorophenol	1.26	10	6.92	10
2-Chloronaphthalene	1	10	7.06	10
2-Nitroaniline	1.13	10	6.32	50
1,4-Dinitrobenzene	0.68	10	7.05	10
1,3-Dinitrobenzene	34.7	10	7.45	10
1,2-Dinitrobenzene	1.02	10	8.27	10
Dimethylphthalate	0.52	10	7.9	10
Acenaphthylene	0.9	10	7.47	10

2,6-Dinitrotoluene	0.64	10	7.08	10
3-Nitroaniline	0.51	10	7.91	50
Acenaphthene	0.53	10	6.74	10
2,4-Dinitrophenol	0.89	10	8.61	50
Dibenzofuran	0.99	10	7.34	10
2,4-Dinitrotoluene	0.95	10	7.89	10
4-Nitrophenol	0.99	10	5.73	50
2,3,4,6-Tetrachlorophenol	0.83	10	6.1	10
Diethylphthalate	1.14	10	8.04	10
Fluorene	1.42	10	6.91	10
4-Chlorophenyl-phenylether	0.79	10	7.89	10
4-Nitroaniline	1.01	10	8.47	50
4,6-Dinitro-2-methylphenol	1.88	10	5.71	50
N-Nitrosodiphenylamine	1.03	10	6.91	10
Diphenylamine	1.13	10	5.9	10
1,2-Diphenylhydrazine	0.9	10	9.32	10
Azobenzene		10	9.31	10
4-Bromophenyl-phenylether	0.68	10	7.44	10
Hexachlorobenzene	0.9	10	8.18	10
Pentachlorophenol	0.89	10	3.42	50
Phenanthrene	0.79	10	7.32	10
Anthracene	0.67	10	7.38	10
Carbazole	1.14	10	7.12	10
Di-n-butylphthalate	1.04	10	7.54	10
Fluoranthene	0.52	10	7.83	10
Pyrene	1.12	10	7.14	10
Butylbenzylphthalate	0.61	10	6.88	10
Benzo(a)anthracene	0.58	10	7.36	10
Chrysene	0.6	10	7.47	10
3,3'-Dichlorobenzidine	0.58	10	5.82	20
bis(2-Ethylhexl)phthalate	0.52	10	6.73	10
Di-n-octylphthalate	0.69	10	7.37	10
Benzo(b)fluoranthene	1.05	10	6.68	10
Benzo(k)fluoranthene	0.93	10	9.01	10
Benzo(a)pyrene	0.57	10	7.88	10
Indeno(1,2,3-cd)pyrene	0.67	10	8.14	10
Dibebz(a,h)anthracene	0.72	10	7.89	10
Benzo(g,h,i)perylene	0.83	10	7.88	10

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270
Preparation:	3510
Date Analyzed:	2/11/2012
Date Prepared:	2/11/2012
Lab Sample ID:	DCS REG-W 5PPM
File #:	msd1526.il\021112A.b\02111209.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
N-Nitrosodimethylamine	1.93	5	0.893	5
Aniline	1.62	5	0.683	5
Phenol	0.95	5	3.71	5
bis(2-Chloroethyl)ether	1.19	5	4.12	5
2-Chlorophenol	0.67	5	3.86	5
1,3-Dichlorobenzene	1.15	5	4.21	5
1,4-Dichlorobenzene	1.26	5	4.22	5
1,2-Dichlorobenzene	1.09	5	4.24	5
bis(2-Chloroisopropyl)ether	1.24	5	3.99	5
Benzyl alcohol	2.51	5	0.535	5
2-Methylphenol	1.01	5	3.58	5
m&p-Cresols	1.88	5	4.26	5
N-Nitroso-di-n-propylamine	0.66	5	3.99	5
Hexachloroethane	1.16	5	3.74	5
Nitrobenzene	1.18	5	4.04	5
Isophorone	0.73	5	3.79	5
2-Nitrophenol	0.63	5	3.68	5
2,4-Dimethylphenol	1.34	5	3.63	5
Benzoic acid	2.51	5	2.55	5
2,4-Dichlorophenol	1.54	5	3.68	5
1,2,4-Trichlorobenzene	1.14	5	3.76	5
Naphthalene	0.51	5	5.53	5
4-Chloroaniline	0.98	5	1.11	5
Hexachlorobutadiene	1.11	5	3.56	5
4-Chloro-3-methylphenol	0.82	5	3.38	5
2-Methylnaphthalene	1.1	5	4.21	5
1-Methylnaphthalene	0.53	5	4.4	5
Hexachlorocyclopentadiene	0.58	5	3.96	5
2,4,6-Trichlorophenol	0.92	5	4.4	5
2,4,5-Trichlorophenol	1.26	5	4.4	5
2-Chloronaphthalene	1	5	5.27	5
2-Nitroaniline	1.13	5	1.6	5
1,4-Dinitrobenzene	0.68	5	4.46	5
1,3-Dinitrobenzene	34.7	5	4.69	5
1,2-Dinitrobenzene	1.02	5	4.9	5
Dimethylphthalate	0.52	5	5.83	5
Acenaphthylene	0.9	5	0.89	5
2,6-Dinitrotoluene	0.64	5	5.02	5
3-Nitroaniline	0.51	5	0.973	5

Acenaphthene	0.53	5	4.71	5
2,4-Dinitrophenol	0.89	5	3.01	5
Dibenzofuran	0.99	5	5.6	5
2,4-Dinitrotoluene	0.95	5	5.1	5
4-Nitrophenol	0.99	5	4.36	5
2,3,5,6-Tetrachlorophenol	0.83	5	4.21	5
Diethylphthalate	1.14	5	4.63	5
Fluorene	1.42	5	5.68	5
4-Chlorophenyl-phenylether	0.79	5	5.16	5
4-Nitroaniline	1.01	5	0.733	5
4,6-Dinitro-2-methylphenol	1.88	5	3.07	5
N-Nitrosodiphenylamine	1.03	5	2.51	5
Diphenylamine	1.13	5	2.15	5
1,2-Diphenylhydrazine	0.9	5	1.08	5
Azobenzene		5	1.08	5
4-Bromophenyl-phenylether	0.68	5	4.28	5
Hexachlorobenzene	0.9	5	4.25	5
Pentachlorophenol	0.89	5	3.32	5
Phenanthrene	0.79	5	4.91	5
Anthracene	0.67	5	4.54	5
Carbazole	1.14	5	0.454	5
Di-n-butylphthalate	1.04	5	5.09	5
Fluoranthene	0.52	5	4.51	5
Pyrene	1.12	5	3.99	5
Butylbenzylphthalate	0.61	5	3.9	5
Benzo(a)anthracene	0.58	5	4.32	5
Chrysene	0.6	5	4.74	5
bis(2-Ethylhexl)phthalate	0.52	5	4.78	5
Di-n-octylphthalate	0.69	5	4.06	5
Benzo(b)fluoranthene	1.05	5	6.31	5
Benzo(k)fluoranthene	0.93	5	7.66	5
Benzo(a)pyrene	0.57	5	4.6	5
Indeno(1,2,3-cd)pyrene	0.67	5	4.58	5
Dibebz(a,h)anthracene	0.72	5	6.11	5
Benzo(g,h,i)perylene	0.83	5	5.11	5

Job ID: 600-56169-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-56169-1

Comments
No additional comments.

Receipt
The samples were received on 6/7/2012 5:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.0º C and 2.1º C.

Except:

The Chain-of-Custody (COC) was not properly filled out. The date for sample POE-2 was incorrect. The sample date was taken from the bottle.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-56169-1	POE-2	Water	06/06/12 14:35	06/07/12 17:05
600-56169-2	Trip Blank	Water	06/06/12 00:00	06/07/12 17:05

Client Sample ID: POE-2

Lab Sample ID: 600-56169-1

Date Collected: 06/06/12 14:35

Matrix: Water

Date Received: 06/07/12 17:05

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00256		0.000490	0.000147	mg/L		06/08/12 14:57	06/14/12 11:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*18*		*10 - 94*	*06/08/12 14:57*	*06/14/12 11:49*	*1*
Terphenyl-d14	*69*		*33 - 141*	*06/08/12 14:57*	*06/14/12 11:49*	*1*
Nitrobenzene-d5	*64*		*35 - 114*	*06/08/12 14:57*	*06/14/12 11:49*	*1*
2-Fluorophenol	*32*		*10 - 100*	*06/08/12 14:57*	*06/14/12 11:49*	*1*
2-Fluorobiphenyl	*47*		*43 - 116*	*06/08/12 14:57*	*06/14/12 11:49*	*1*
2,4,6-Tribromophenol	*50*		*10 - 123*	*06/08/12 14:57*	*06/14/12 11:49*	*1*

Client Sample ID: Trip Blank

Lab Sample ID: 600-56169-2

Date Collected: 06/06/12 00:00

Matrix: Water

Date Received: 06/07/12 17:05

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000147	U	0.000490	0.000147	mg/L		06/08/12 14:57	06/14/12 12:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*29*		*10 - 94*	*06/08/12 14:57*	*06/14/12 12:17*	*1*
Terphenyl-d14	*73*		*33 - 141*	*06/08/12 14:57*	*06/14/12 12:17*	*1*
Nitrobenzene-d5	*74*		*35 - 114*	*06/08/12 14:57*	*06/14/12 12:17*	*1*
2-Fluorophenol	*45*		*10 - 100*	*06/08/12 14:57*	*06/14/12 12:17*	*1*
2-Fluorobiphenyl	*83*		*43 - 116*	*06/08/12 14:57*	*06/14/12 12:17*	*1*
2,4,6-Tribromophenol	*71*		*10 - 123*	*06/08/12 14:57*	*06/14/12 12:17*	*1*

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-56169-1	POE-2	18	69	64	32	47	50		
600-56169-2	Trip Blank	29	73	74	45	83	71		
LCS 600-81044/2-A	Lab Control Sample	21	75	78	43	89	62		
MB 600-81044/1-A	Method Blank	25	67	76	47	82	63		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-81044/1-A
Matrix: Water
Analysis Batch: 81284

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 81044

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000600	U	0.00200	0.000600	mg/L		06/08/12 14:57	06/11/12 19:00	4

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*25*		*10 - 94*	*06/08/12 14:57*	*06/11/12 19:00*	*4*
Terphenyl-d14	*67*		*33 - 141*	*06/08/12 14:57*	*06/11/12 19:00*	*4*
Nitrobenzene-d5	*76*		*35 - 114*	*06/08/12 14:57*	*06/11/12 19:00*	*4*
2-Fluorophenol	*47*		*10 - 100*	*06/08/12 14:57*	*06/11/12 19:00*	*4*
2-Fluorobiphenyl	*82*		*43 - 116*	*06/08/12 14:57*	*06/11/12 19:00*	*4*
2,4,6-Tribromophenol	*63*		*10 - 123*	*06/08/12 14:57*	*06/11/12 19:00*	*4*

Lab Sample ID: LCS 600-81044/2-A
Matrix: Water
Analysis Batch: 81284

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 81044

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007877		mg/L		79	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*21*		*10 - 94*
Terphenyl-d14	*75*		*33 - 141*
Nitrobenzene-d5	*78*		*35 - 114*
2-Fluorophenol	*43*		*10 - 100*
2-Fluorobiphenyl	*89*		*43 - 116*
2,4,6-Tribromophenol	*62*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

GC/MS Semi VOA

Prep Batch: 81044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-56169-1	POE-2	Total/NA	Water	3510C	
600-56169-2	Trip Blank	Total/NA	Water	3510C	
LCS 600-81044/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-81044/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 81284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-81044/2-A	Lab Control Sample	Total/NA	Water	8270C LL	81044
MB 600-81044/1-A	Method Blank	Total/NA	Water	8270C LL	81044

Analysis Batch: 81549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-56169-1	POE-2	Total/NA	Water	8270C LL	81044
600-56169-2	Trip Blank	Total/NA	Water	8270C LL	81044

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Client Sample ID: POE-2

Lab Sample ID: 600-56169-1

Date Collected: 06/06/12 14:35

Matrix: Water

Date Received: 06/07/12 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			81044	06/08/12 14:57	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	81549	06/14/12 11:49	JH	TAL HOU

Client Sample ID: Trip Blank

Lab Sample ID: 600-56169-2

Date Collected: 06/06/12 00:00

Matrix: Water

Date Received: 06/07/12 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			81044	06/08/12 14:57	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	81549	06/14/12 12:17	JH	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-56169-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Houston	Arkansas DEQ	State Program	6	88-0759
TestAmerica Houston	Louisiana	NELAC	6	30643
TestAmerica Houston	Oklahoma	State Program	6	9503
TestAmerica Houston	Texas	NELAC	6	T104704223-10-6-TX
TestAmerica Houston	USDA	Federal		P330-08-00217
TestAmerica Houston	Utah	NELAC	8	GULF

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

...rica Houston
...thway Street
...uston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Phone: (713) 914 6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
			Job #:

Client Information

Client Contact: Ravi Kommajosyula
Company: URS Corporation
Address: 10550 Richmond Ave
City: Houston
State, Zip: TX, 77042
Phone: 713-914-6303(Tel)
Email: ravi.kommajosyula@urs.com
Project Name: Kinder Morgan Central Plant GW
Site: Central Plant GW

Due Date Requested:
TAT Requested (days): 7 WD TRRP
PO #: Purchase Order not required
WO #:
Project #: 60002845
SSOW#:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:		N	N	N	2	
POE-2	5/6/12	1435	G	Water	N	N	X		
Trip Blank	LAB			Water			X		
Temp Blank	LAB								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Deliverable Requested: I, II, III, IV, Other (specify)

Method of Shipment:

	Date	Time	Company
Empty Kit Relinquished by:			
Relinquished by: Ravi	6/7/12	1631	
Relinquished by:			
Relinquished by:	6/7/12	1705	TA

	Date/Time	Company
Received by:	6/7/12 1631	TA
Received by:		
Received by:	6/8 0708	

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-56169-1

Login Number: 56169

List Source: TestAmerica Houston

List Number: 1

Creator: Trenery, Michael J

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0 2.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-57821-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Patricia Adoor

Authorized for release by:
7/27/2012 5:01:47 PM
Patricia Adoor
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-57821-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Pat Adoor	Patricia Adoor	07/27/2012
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 07/18/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-57821
Reviewer Name: JOH	Prep Batch Number(s): 600-83605-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 07/18/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-57821
Reviewer Name: JOH	Prep Batch Number(s): 600-83605-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 07/18/12
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-57821
Reviewer Name: JOH	Prep Batch Number(s): 600-83605-SV

ER #[1]	DESCRIPTION

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270
Preparation:	3510
Date Analyzed:	4/5/2012
Date Prepared:	4/5/2012
Lab Sample ID:	DCS REG-W 5PPM
File #:	MSD2772.i\040512L.b\04051205.D
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	1.04	10	0.719	10
N-Nitrosodimethylamine	1.93	5	2.57	10
Aniline	1.62	5	2.85	10
Phenol	0.95	5	1.46	10
bis(2-Chloroethyl)ether	1.19	5	5.23	10
2-Chlorophenol	0.67	5	4.54	10
1,3-Dichlorobenzene	1.15	5	4.61	10
1,4-Dichlorobenzene	1.26	5	4.67	10
1,2-Dichlorobenzene	1.09	5	4.71	10
bis(2-Chloroisopropyl)ether	1.19	5	4.76	10
Benzyl alcohol	2.51	5	3.01	10
2-Methylphenol	1.01	5	3.58	10
m&p-Cresols	1.88	5	3.01	10
N-Nitroso-di-n-propylamine	0.66	5	5.38	10
Hexachloroethane	1.16	5	5.04	10
Nitrobenzene	1.18	5	4.4	10
Isophorone	0.73	5	4.33	10
2-Nitrophenol	0.63	5	4.01	10
2,4-Dimethylphenol	1.34	5	3.68	10
bis(2-Chloroethoxy)methane	1.24	5	4.46	10
2,4-Dichlorophenol	1.54	5	3.77	10
1,2,4-Trichlorobenzene	1.14	5	3.96	10
Naphthalene	0.51	5	4.42	10
4-Chloroaniline	0.98	5	4.05	10
Hexachlorobutadiene	1.11	5	4.22	10
4-Chloro-3-methylphenol	0.82	5	3.7	10
2-Methylnaphthalene	1.1	5	4.34	10
1-Methylnaphthalene	0.53	5	4.52	10
Hexachlorocyclopentadiene	0.58	5	2.99	10
2,4,6-Trichlorophenol	0.92	5	3.98	10
2,4,5-Trichlorophenol	1.26	10	3.78	10
2-Chloronaphthalene	1	5	4.56	10
2-Nitroaniline	1.13	5	3.73	50
1,4-Dinitrobenzene	0.68	5	4.18	10
1,3-Dinitrobenzene	3.47	10	8.63	10
1,2-Dinitrobenzene	1.02	5	4.56	10
Dimethylphthalate	0.52	10	5.14	10
Acenaphthylene	0.9	5	4.9	10
2,6-Dinitrotoluene	0.64	10	4.55	10

3-Nitroaniline	0.51	10	3.58	50
Acenaphthene	0.53	5	4.74	10
2,4-Dinitrophenol	0.89	10	1.48	50
Dibenzofuran	0.99	5	4.72	10
2,4-Dinitrotoluene	0.95	5	4.51	10
4-Nitrophenol	0.99	10	0.571	50
2,3,4,6-Tetrachlorophenol	0.83	5	4.02	10
Diethylphthalate	1.14	5	0.911	10
Fluorene	1.42	5	5.11	10
4-Chlorophenyl-phenylether	0.79	10	5.13	10
4-Nitroaniline	1.01	5	4.25	50
4,6-Dinitro-2-methylphenol	1.88	5	2.78	50
N-Nitrosodiphenylamine	1.03	5	5.04	10
Diphenylamine	1.13	5	4.3	10
1,2-Diphenylhydrazine	0.9	5	4.88	10
Azobenzene	10	10	7.93	10
4-Bromophenyl-phenylether	0.68	5	5.03	10
Hexachlorobenzene	0.9	10	5.2	10
Pentachlorophenol	0.89	5	2.69	50
Phenanthrene	0.79	5	4.82	10
Anthracene	0.67	5	5.02	10
Carbazole	1.14	5	4.91	10
Di-n-butylphthalate	1.04	5	5.12	10
Fluoranthene	0.52	5	5.04	10
Pyrene	1.12	5	5.11	10
Butylbenzylphthalate	0.61	5	4.66	10
Benzo(a)anthracene	0.58	5	4.75	10
Chrysene	0.6	5	4.95	10
3,3'-Dichlorobenzidine	0.58	5	3.84	20
bis(2-Ethylhexl)phthalate	0.52	5	4.83	10
Di-n-octylphthalate	0.69	5	4.39	10
Benzo(b)fluoranthene	1.05	5	3.6	10
Benzo(k)fluoranthene	0.93	10	4.07	10
Benzo(a)pyrene	0.57	5	4.35	10
Indeno(1,2,3-cd)pyrene	0.67	5	4.3	10
Dibebz(a,h)anthracene	0.72	5	4.31	10
Benzo(g,h,i)perylene	0.83	5	3.74	10

Job ID: 600-57821-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-57821-1

Comments
No additional comments.

Receipt
The samples were received on 7/10/2012 3:03 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 3.5º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-57821-1	POE-2	Water	07/10/12 10:30	07/10/12 15:03
600-57821-2	Trip Blank	Water	07/10/12 00:00	07/10/12 15:03

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Client Sample ID: POE-2

Lab Sample ID: 600-57821-1

Date Collected: 07/10/12 10:30

Matrix: Water

Date Received: 07/10/12 15:03

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00276		0.000490	0.000147	mg/L		07/11/12 16:33	07/13/12 23:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*25*		*10 - 94*	*07/11/12 16:33*	*07/13/12 23:34*	*1*
Terphenyl-d14	*85*		*33 - 141*	*07/11/12 16:33*	*07/13/12 23:34*	*1*
Nitrobenzene-d5	*89*		*35 - 114*	*07/11/12 16:33*	*07/13/12 23:34*	*1*
2-Fluorophenol	*47*		*10 - 100*	*07/11/12 16:33*	*07/13/12 23:34*	*1*
2-Fluorobiphenyl	*53*		*43 - 116*	*07/11/12 16:33*	*07/13/12 23:34*	*1*
2,4,6-Tribromophenol	*55*		*10 - 123*	*07/11/12 16:33*	*07/13/12 23:34*	*1*

Client Sample ID: Trip Blank

Lab Sample ID: 600-57821-2

Date Collected: 07/10/12 00:00

Matrix: Water

Date Received: 07/10/12 15:03

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000147	U	0.000490	0.000147	mg/L		07/11/12 16:33	07/13/12 23:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*21*		*10 - 94*	*07/11/12 16:33*	*07/13/12 23:59*	*1*
Terphenyl-d14	*80*		*33 - 141*	*07/11/12 16:33*	*07/13/12 23:59*	*1*
Nitrobenzene-d5	*83*		*35 - 114*	*07/11/12 16:33*	*07/13/12 23:59*	*1*
2-Fluorophenol	*44*		*10 - 100*	*07/11/12 16:33*	*07/13/12 23:59*	*1*
2-Fluorobiphenyl	*86*		*43 - 116*	*07/11/12 16:33*	*07/13/12 23:59*	*1*
2,4,6-Tribromophenol	*74*		*10 - 123*	*07/11/12 16:33*	*07/13/12 23:59*	*1*

Definitions/Glossary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		PHL	TPH	NBZ	2FP	FBP	TBP
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)
600-57821-1	POE-2	25	85	89	47	53	55
600-57821-2	Trip Blank	21	80	83	44	86	74
LCS 600-83605/2-A	Lab Control Sample	22	77	84	40	89	78
LCSD 600-83605/3-A	Lab Control Sample Dup	24	85	94	40	92	85
MB 600-83605/1-A	Method Blank	18	71	70	35	76	65

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-83605/1-A
Matrix: Water
Analysis Batch: 83800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 83605

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		07/11/12 16:33	07/13/12 19:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*18*		*10 - 94*	*07/11/12 16:33*	*07/13/12 19:28*	*1*
Terphenyl-d14	*71*		*33 - 141*	*07/11/12 16:33*	*07/13/12 19:28*	*1*
Nitrobenzene-d5	*70*		*35 - 114*	*07/11/12 16:33*	*07/13/12 19:28*	*1*
2-Fluorophenol	*35*		*10 - 100*	*07/11/12 16:33*	*07/13/12 19:28*	*1*
2-Fluorobiphenyl	*76*		*43 - 116*	*07/11/12 16:33*	*07/13/12 19:28*	*1*
2,4,6-Tribromophenol	*65*		*10 - 123*	*07/11/12 16:33*	*07/13/12 19:28*	*1*

Lab Sample ID: LCS 600-83605/2-A
Matrix: Water
Analysis Batch: 83800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83605

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007024		mg/L		70	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*22*		*10 - 94*
Terphenyl-d14	*77*		*33 - 141*
Nitrobenzene-d5	*84*		*35 - 114*
2-Fluorophenol	*40*		*10 - 100*
2-Fluorobiphenyl	*89*		*43 - 116*
2,4,6-Tribromophenol	*78*		*10 - 123*

Lab Sample ID: LCSD 600-83605/3-A
Matrix: Water
Analysis Batch: 83800

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 83605

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.0100	0.007761		mg/L		78	40 - 112	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d6	*24*		*10 - 94*
Terphenyl-d14	*85*		*33 - 141*
Nitrobenzene-d5	*94*		*35 - 114*
2-Fluorophenol	*40*		*10 - 100*
2-Fluorobiphenyl	*92*		*43 - 116*
2,4,6-Tribromophenol	*85*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

GC/MS Semi VOA

Prep Batch: 83605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-57821-1	POE-2	Total/NA	Water	3510C	
600-57821-2	Trip Blank	Total/NA	Water	3510C	
LCS 600-83605/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-83605/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-83605/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 83800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-57821-1	POE-2	Total/NA	Water	8270C LL	83605
600-57821-2	Trip Blank	Total/NA	Water	8270C LL	83605
LCS 600-83605/2-A	Lab Control Sample	Total/NA	Water	8270C LL	83605
LCSD 600-83605/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	83605
MB 600-83605/1-A	Method Blank	Total/NA	Water	8270C LL	83605

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Client Sample ID: POE-2

Lab Sample ID: 600-57821-1

Date Collected: 07/10/12 10:30

Matrix: Water

Date Received: 07/10/12 15:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			83605	07/11/12 16:33	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	83800	07/13/12 23:34	JH	TAL HOU

Client Sample ID: Trip Blank

Lab Sample ID: 600-57821-2

Date Collected: 07/10/12 00:00

Matrix: Water

Date Received: 07/10/12 15:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			83605	07/11/12 16:33	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	83800	07/13/12 23:59	JH	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-57821-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Houston	Arkansas DEQ	State Program	6	88-0759
TestAmerica Houston	Oklahoma	State Program	6	9503
TestAmerica Houston	Texas	NELAC	6	T104704223-10-6-TX
TestAmerica Houston	USDA	Federal		P330-08-00217
TestAmerica Houston	Utah	NELAC	8	GULF

Accreditation may not be offered or required for all methods and analytes reported in this package . Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-15808-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days):			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845			
Site: Central Plant	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	7/10/12	1030	G	Water			X		TRRP Qa/Qc
Trip Blank	LAB			Water			X		
Temp Blank	LAB		→						

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Ravi Kommajosyula	Date/Time: 7/10/12 1400	Company	Received by: [signature]	Date/Time: 7/10/12 1400	Company TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: [signature]	Date/Time: 7/10/12 1503	Company TA	Received by: Dean Cerpos	Date/Time: 7/10/12 1503	Company TAL

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-57821-1

Login Number: 57821

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-67918-1
Client Project/Site: Kinder Morgan Central Plant GW

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
2/20/2013 11:23:09 AM
Cathy Upton
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-67918-1

Project Name/Number: Kinder Morgan Central Plant GW

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		02/20/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 2/14/13
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-67918
Reviewer Name: TTD	Prep Batch Number(s): 600-98988- SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		2
		Were MS/MSD RPDs within laboratory QC limits?			X		2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 2/14/13
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-67918
Reviewer Name: TTD	Prep Batch Number(s): 600-98988- SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 2/14/13
Project Name: Kinder Morgan Central Plant GW	Laboratory Job Number: 600-67918
Reviewer Name: TTD	Prep Batch Number(s): 600-98988- SV

ER #[1]	DESCRIPTION
1	Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. Sample 600-67918-1 contained one surrogate compound, 2-Fluorobipheny,l outside limits. These results have been reported and qualified.
2	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report
Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	10/18/2012
Date Prepared:	10/16/2012
Lab Sample ID:	600-91246_18-a
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.25	0.067	0.5
N-Nitrosodimethyalamine	0.26	0.25	0.121	0.5
Aniline	0.08	0.25	0.085	0.5
Phenol	0.04	0.25	0.054	0.5
bis(2-Chloroethyl)ether	0.15	0.25	0.149	0.5
2-Chlorophenol	0.13	0.25	0.097	0.5
1,3-Dichlorobenzene	0.17	0.25	0.152	0.5
1,4-Dichlorobenzene	0.13	0.25	0.166	0.5
1,2-Dichlorobenzene	0.17	0.25	0.167	0.5
Benzyl alcohol	0.17	0.25	0.075	0.5
2-Methylphenol	0.12	0.25	0.112	0.5
m&p-Cresols	0.2	0.25	0.053	1
bis (2-Chloroisopropyl) ether	0.4	0.25	0.143	0.5
N-Nitroso-di-n-propylamine	0.1	0.25	0.177	0.5
Hexachloroethane	0.1	0.25	0.185	0.5
Nitrobenzene	0.11	0.25	0.131	0.5
Isophorone	0.11	0.25	0.149	0.5
2-Nitrophenol	0.22	0.5	0.205	0.5
Benzoic acid	2.51	5	6.530	2.5
2,4-Dimethylphenol	0.31	0.5	0.130	0.5
bis(2-Chloroethoxy)methane	0.13	0.25	0.122	0.5
2,4-Dichlorophenol	0.15	0.25	0.068	0.5
1,2,4-Trichlorobenzene	0.12	0.25	0.125	0.5
Naphthalene	0.08	0.25	0.161	0.5
4-Chloroaniline	0.21	0.5	0.232	0.5
Hexachlorobutadiene	0.18	0.25	0.160	0.5
4-Chloro-3-methylphenol	0.17	0.25	0.075	0.5
2-Methylnaphthalene	0.07	0.25	0.128	0.5
1-Methylnaphthalene	0.09	0.25	0.147	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.487	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.062	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.107	0.5
2-Chloronaphthalene	0.08	0.25	0.148	0.5
2-Nitroaniline	0.19	0.5	0.213	0.5
Dimethylphthalate	0.07	0.25	0.145	0.5
1,4 Dinitrobenzene	5	0.25	0.363	0.5
1,3-Dinitrobenzene	0.08	0.25	0.381	0.5
1,2-Dinitrobenzene	0.5	0.25	0.040	0.5
Acenaphthylene	0.06	0.25	0.137	0.5

2,6-Dinitrotoluene	0.08	0.25	0.178	0.5
3-Nitroaniline	0.16	0.5	0.240	0.5
Acenaphthene	0.08	0.25	0.151	0.5
Dibenzofuran	0.08	0.25	0.127	0.5
2,4-Dinitrotoluene	0.13	0.25	0.144	0.5
Diethylphthalate	1.5	0.5	0.431	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.102	0.5
Fluorene	0.07	0.25	0.107	0.5
4-Nitroaniline	0.25	0.5	0.124	0.5
4,6-Dinitro-2-Methylphenol	0.83	2.5	0.530	1
N-Nitrosodiphenylamine	0.1	0.25	0.176	0.5
Diphenylamine	0.1	0.25	0.099	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.224	0.5
Azobenzene	0.07	0.25	0.117	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.112	0.5
Hexachlorobenzene	0.11	0.25	0.130	0.5
Phenanthrene	0.06	0.25	0.169	0.5
Anthracene	0.05	0.25	0.144	0.5
Carbazole	0.17	0.25	0.140	0.5
Di-n-butylphthalate	0.11	0.25	0.238	0.5
Fluoranthene	0.07	0.25	0.196	0.5
Pyrene	0.11	0.25	0.153	0.5
Butylbenzylphthalate	0.12	0.25	0.238	0.5
3,3'-Dichlorobenzidene	0.5	0.25	0.066	0.5
Benzo(a)anthracene	0.08	0.25	0.175	0.5
bis(2-Ethylhexl)phthalate	0.37	0.5	0.420	0.5
Chrysene	0.08	0.25	0.212	0.5
Di-n-octylphthalate	0.16	0.25	0.091	0.5
Benzo(b)fluoranthene	0.07	0.25	0.143	0.5
Benzo(k)fluoranthene	0.09	0.25	0.201	0.5
Benzo(a)pyrene	0.08	0.25	0.137	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.454	0.5
Dibenz(a,h)anthracene	0.08	0.25	0.123	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.112	0.5

Job ID: 600-67918-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-67918-1

Comments
No additional comments.

Receipt
The sample was received on 1/31/2013 3:07 PM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 1.0º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-67918-1	POE-2	Water	01/31/13 09:51	01/31/13 15:07

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Client Sample ID: POE-2
Date Collected: 01/31/13 09:51
Date Received: 01/31/13 15:07

Lab Sample ID: 600-67918-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00156		0.000472	0.000142	mg/L		02/06/13 15:00	02/15/13 01:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*17*		*10 - 94*	*02/06/13 15:00*	*02/15/13 01:03*	*1*
Terphenyl-d14	*64*		*33 - 141*	*02/06/13 15:00*	*02/15/13 01:03*	*1*
Nitrobenzene-d5	*59*		*35 - 114*	*02/06/13 15:00*	*02/15/13 01:03*	*1*
2-Fluorophenol	*28*		*10 - 100*	*02/06/13 15:00*	*02/15/13 01:03*	*1*
2-Fluorobiphenyl	*42*	*X*	*43 - 116*	*02/06/13 15:00*	*02/15/13 01:03*	*1*
2,4,6-Tribromophenol	*20*		*10 - 123*	*02/06/13 15:00*	*02/15/13 01:03*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-67918-1	POE-2	17	64	59	28	42 X	20		
LCS 600-98988/2-A	Lab Control Sample	18	71	64	31	72	72		
MB 600-98988/1-A	Method Blank	11	59	52	21	63	43		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-98988/1-A
Matrix: Water
Analysis Batch: 99614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 98988

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		02/06/13 15:00	02/14/13 14:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*11*		*10 - 94*	*02/06/13 15:00*	*02/14/13 14:46*	*1*
Terphenyl-d14	*59*		*33 - 141*	*02/06/13 15:00*	*02/14/13 14:46*	*1*
Nitrobenzene-d5	*52*		*35 - 114*	*02/06/13 15:00*	*02/14/13 14:46*	*1*
2-Fluorophenol	*21*		*10 - 100*	*02/06/13 15:00*	*02/14/13 14:46*	*1*
2-Fluorobiphenyl	*63*		*43 - 116*	*02/06/13 15:00*	*02/14/13 14:46*	*1*
2,4,6-Tribromophenol	*43*		*10 - 123*	*02/06/13 15:00*	*02/14/13 14:46*	*1*

Lab Sample ID: LCS 600-98988/2-A
Matrix: Water
Analysis Batch: 99614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 98988

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.005644		mg/L		56	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*18*		*10 - 94*
Terphenyl-d14	*71*		*33 - 141*
Nitrobenzene-d5	*64*		*35 - 114*
2-Fluorophenol	*31*		*10 - 100*
2-Fluorobiphenyl	*72*		*43 - 116*
2,4,6-Tribromophenol	*72*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

GC/MS Semi VOA

Prep Batch: 98988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-67918-1	POE-2	Total/NA	Water	3510C	
LCS 600-98988/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-98988/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 99614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-98988/2-A	Lab Control Sample	Total/NA	Water	8270C LL	98988
MB 600-98988/1-A	Method Blank	Total/NA	Water	8270C LL	98988

Analysis Batch: 99633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-67918-1	POE-2	Total/NA	Water	8270C LL	98988

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Client Sample ID: POE-2
Date Collected: 01/31/13 09:51
Date Received: 01/31/13 15:07

Lab Sample ID: 600-67918-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			98988	02/06/13 15:00	RK	TAL HOU
Total/NA	Analysis	8270C LL		1	99633	02/15/13 01:03	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW

TestAmerica Job ID: 600-67918-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAP	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

...nerica Houston
...Rodway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Loc: 600
67918

TestAmerica

Client Information	Sampler: Clinton Hebert	Lab PM: Joiner, Dean A	Ca	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845			
Site: Central Plant GW	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	1/31/13	0951	G	Water	N	N	X	2	
Temp Blank	LAB								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date: 1/31/13	Time:		Method of Shipment:		
Relinquished by:	Date/Time: 1/31/13 1400	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time: 1/31/13 1502	Company RA	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-67918-1

Login Number: 67918

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-69314-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
3/13/2013 2:03:22 PM
Cathy Upton
Data Delivery Analyst
[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-69314-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		03/13/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 03/12/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-69314
Reviewer Name: JOH	Prep Batch Number(s): 600-101051 SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 03/12/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-69314
Reviewer Name: JOH	Prep Batch Number(s): 600-101051 SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 03/12/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-69314
Reviewer Name: JOH	Prep Batch Number(s): 600-101051 SV

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report
Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	10/18/2012
Date Prepared:	10/16/2012
Lab Sample ID:	600-91246_18-a
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.25	0.067	0.5
N-Nitrosodimethyalamine	0.26	0.25	0.121	0.5
Aniline	0.08	0.25	0.085	0.5
Phenol	0.04	0.25	0.054	0.5
bis(2-Chloroethyl)ether	0.15	0.25	0.149	0.5
2-Chlorophenol	0.13	0.25	0.097	0.5
1,3-Dichlorobenzene	0.17	0.25	0.152	0.5
1,4-Dichlorobenzene	0.13	0.25	0.166	0.5
1,2-Dichlorobenzene	0.17	0.25	0.167	0.5
Benzyl alcohol	0.17	0.25	0.075	0.5
2-Methylphenol	0.12	0.25	0.112	0.5
m&p-Cresols	0.2	0.25	0.053	1
bis (2-Chloroisopropyl) ether	0.4	0.25	0.143	0.5
N-Nitroso-di-n-propylamine	0.1	0.25	0.177	0.5
Hexachloroethane	0.1	0.25	0.185	0.5
Nitrobenzene	0.11	0.25	0.131	0.5
Isophorone	0.11	0.25	0.149	0.5
2-Nitrophenol	0.22	0.5	0.205	0.5
Benzoic acid	2.51	5	6.530	2.5
2,4-Dimethylphenol	0.31	0.5	0.130	0.5
bis(2-Chloroethoxy)methane	0.13	0.25	0.122	0.5
2,4-Dichlorophenol	0.15	0.25	0.068	0.5
1,2,4-Trichlorobenzene	0.12	0.25	0.125	0.5
Naphthalene	0.08	0.25	0.161	0.5
4-Chloroaniline	0.21	0.5	0.232	0.5
Hexachlorobutadiene	0.18	0.25	0.160	0.5
4-Chloro-3-methylphenol	0.17	0.25	0.075	0.5
2-Methylnaphthalene	0.07	0.25	0.128	0.5
1-Methylnaphthalene	0.09	0.25	0.147	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.487	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.062	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.107	0.5
2-Chloronaphthalene	0.08	0.25	0.148	0.5
2-Nitroaniline	0.19	0.5	0.213	0.5
Dimethylphthalate	0.07	0.25	0.145	0.5
1,4 Dinitrobenzene	5	0.25	0.363	0.5
1,3-Dinitrobenzene	0.08	0.25	0.381	0.5
1,2-Dinitrobenzene	0.5	0.25	0.040	0.5
Acenaphthylene	0.06	0.25	0.137	0.5

2,6-Dinitrotoluene	0.08	0.25	0.178	0.5
3-Nitroaniline	0.16	0.5	0.240	0.5
Acenaphthene	0.08	0.25	0.151	0.5
Dibenzofuran	0.08	0.25	0.127	0.5
2,4-Dinitrotoluene	0.13	0.25	0.144	0.5
Diethylphthalate	1.5	0.5	0.431	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.102	0.5
Fluorene	0.07	0.25	0.107	0.5
4-Nitroaniline	0.25	0.5	0.124	0.5
4,6-Dinitro-2-Methylphenol	0.83	2.5	0.530	1
N-Nitrosodiphenylamine	0.1	0.25	0.176	0.5
Diphenylamine	0.1	0.25	0.099	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.224	0.5
Azobenzene	0.07	0.25	0.117	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.112	0.5
Hexachlorobenzene	0.11	0.25	0.130	0.5
Phenanthrene	0.06	0.25	0.169	0.5
Anthracene	0.05	0.25	0.144	0.5
Carbazole	0.17	0.25	0.140	0.5
Di-n-butylphthalate	0.11	0.25	0.238	0.5
Fluoranthene	0.07	0.25	0.196	0.5
Pyrene	0.11	0.25	0.153	0.5
Butylbenzylphthalate	0.12	0.25	0.238	0.5
3,3'-Dichlorobenzidene	0.5	0.25	0.066	0.5
Benzo(a)anthracene	0.08	0.25	0.175	0.5
bis(2-Ethylhexl)phthalate	0.37	0.5	0.420	0.5
Chrysene	0.08	0.25	0.212	0.5
Di-n-octylphthalate	0.16	0.25	0.091	0.5
Benzo(b)fluoranthene	0.07	0.25	0.143	0.5
Benzo(k)fluoranthene	0.09	0.25	0.201	0.5
Benzo(a)pyrene	0.08	0.25	0.137	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.454	0.5
Dibenz(a,h)anthracene	0.08	0.25	0.123	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.112	0.5

Job ID: 600-69314-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-69314-1

Comments
No additional comments.

Receipt
The samples were received on 3/1/2013 8:41 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 3 coolers at receipt time were 0.7º C, 0.8º C and 3.1º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-69314-1	POE-2	Water	02/28/13 15:00	03/01/13 08:41

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Client Sample ID: POE-2
Date Collected: 02/28/13 15:00
Date Received: 03/01/13 08:41

Lab Sample ID: 600-69314-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00187		0.000472	0.000142	mg/L		03/06/13 14:51	03/08/13 12:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*22*		*10 - 94*	*03/06/13 14:51*	*03/08/13 12:04*	*1*
Terphenyl-d14	*70*		*33 - 141*	*03/06/13 14:51*	*03/08/13 12:04*	*1*
Nitrobenzene-d5	*67*		*35 - 114*	*03/06/13 14:51*	*03/08/13 12:04*	*1*
2-Fluorophenol	*45*		*10 - 100*	*03/06/13 14:51*	*03/08/13 12:04*	*1*
2-Fluorobiphenyl	*43*		*43 - 116*	*03/06/13 14:51*	*03/08/13 12:04*	*1*
2,4,6-Tribromophenol	*47*		*10 - 123*	*03/06/13 14:51*	*03/08/13 12:04*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(10-94)	(33-141)	(35-114)	(10-100)	(43-116)	(10-123)		
600-69314-1	POE-2	22	70	67	45	43	47		
LCS 600-101051/2-A	Lab Control Sample	39	89	85	59	89	96		
MB 600-101051/1-A	Method Blank	29	79	77	46	85	73		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-101051/1-A
Matrix: Water
Analysis Batch: 101341

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101051

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		03/06/13 14:51	03/08/13 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*29*		*10 - 94*	*03/06/13 14:51*	*03/08/13 11:11*	*1*
Terphenyl-d14	*79*		*33 - 141*	*03/06/13 14:51*	*03/08/13 11:11*	*1*
Nitrobenzene-d5	*77*		*35 - 114*	*03/06/13 14:51*	*03/08/13 11:11*	*1*
2-Fluorophenol	*46*		*10 - 100*	*03/06/13 14:51*	*03/08/13 11:11*	*1*
2-Fluorobiphenyl	*85*		*43 - 116*	*03/06/13 14:51*	*03/08/13 11:11*	*1*
2,4,6-Tribromophenol	*73*		*10 - 123*	*03/06/13 14:51*	*03/08/13 11:11*	*1*

Lab Sample ID: LCS 600-101051/2-A
Matrix: Water
Analysis Batch: 101341

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101051

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007619		mg/L		76	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*39*		*10 - 94*
Terphenyl-d14	*89*		*33 - 141*
Nitrobenzene-d5	*85*		*35 - 114*
2-Fluorophenol	*59*		*10 - 100*
2-Fluorobiphenyl	*89*		*43 - 116*
2,4,6-Tribromophenol	*96*		*10 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

GC/MS Semi VOA

Prep Batch: 101051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-69314-1	POE-2	Total/NA	Water	3510C	
LCS 600-101051/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-101051/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 101341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-69314-1	POE-2	Total/NA	Water	8270C LL	101051
LCS 600-101051/2-A	Lab Control Sample	Total/NA	Water	8270C LL	101051
MB 600-101051/1-A	Method Blank	Total/NA	Water	8270C LL	101051

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Client Sample ID: POE-2
Date Collected: 02/28/13 15:00
Date Received: 03/01/13 08:41

Lab Sample ID: 600-69314-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			101051	03/06/13 14:51	LR	TAL HOU
Total/NA	Analysis	8270C LL		1	101341	03/08/13 12:04	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-69314-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAP	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

testamerica

3/13/2013

Client Information	Sampler: Clinton Hebert	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-19269-7336.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6303	E-Mail: dean.joiner@testamericainc.com		Page: Page
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6422(Tel)	PO #: Subcontract # 284556.US			
Email: ravi.kommajosyula@urs.com	WO #: Project # 25015232 Vendor # 1219195			
Project Name: Kinder Morgan ~~West Pearl Ridge~~ Central Plant	Project #: 60002846			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	~~8260B_LL - VOA Special List~~	8270C_LL - SVOC (bis(2-chloroethyl)ether	Total Number of containers	Special Instructions/Note:
Preservation Code:							A	N		
POE-2	2/28/13	1500	G	Water			X	X	5	
Temp Blank	LKB		G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	
			G	Water			X	X	5	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:		
Relinquished by: Ravi Kommajosyula	Date/Time: 3/1/13 0830	Company	Received by:	Date/Time: 3/1/13 840	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 03/01/13 0841	Company TAH	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-69314-1

Login Number: 69314

List Source: TestAmerica Houston

List Number: 1

Creator: Pulumbarit, Josh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7 0.8 3.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-70796-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

[redacted]

Designee for

Dean Joiner
Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-70796-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		04/10/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 04/08/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-70796
Reviewer Name: TTD	Prep Batch Number: 600-103151-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 04/08/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-70796
Reviewer Name: TTD	Prep Batch Number: 600-103151-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 04/08/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-70796
Reviewer Name: TTD	Prep Batch Number: 600-103151-SV

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	1/3/2013
Date Prepared:	1/3/2013
Lab Sample ID:	600-96501/6-A
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.25	0.062	0.5
N-Nitrosodimethylamine	0.26	0.5	0.305	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.692	0.5
Aniline	0.08	0.25	0.143	0.5
Phenol	0.04	0.25	0.087	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.371	0.5
2-Chlorophenol	0.13	0.5	0.368	0.5
1,3-Dichlorobenzene	0.17	0.5	0.433	0.5
1,4-Dichlorobenzene	0.13	0.5	0.533	0.5
1,2-Dichlorobenzene	0.17	0.5	0.469	0.5
Benzyl alcohol	0.17	0.5	0.211	0.5
2-Methylphenol (o-cresol)	0.12	0.5	0.353	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.287	1
N-Nitroso-di-n-propylamine	0.1	0.5	0.455	0.5
Hexachloroethane	0.1	0.5	0.490	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.889	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.972	0.5
Nitrobenzene	0.11	0.25	0.298	0.5
Isophorone	0.11	0.25	0.207	0.5
2-Nitrophenol	0.22	0.5	0.608	0.5
Benzoic acid	2.51	5	7.32	2.5
2,4-Dimethylphenol	0.15	0.5	0.513	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.455	0.5
2,4-Dichlorophenol	0.15	0.5	0.457	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.340	0.5
Naphthalene	0.08	0.25	0.242	0.5
Benzo(a)pyrene	0.08	0.25	0.530	0.5
Hexachlorobutadiene	0.18	0.5	0.611	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.419	0.5
2-Methylnaphthalene	0.07	0.25	0.229	0.5
1-Methylnaphthalene	0.09	0.25	0.215	0.5
Benzo(k)fluoranthene	0.09	0.25	0.196	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.560	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.638	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.656	0.5
2-Chloronaphthalene	0.08	0.25	0.231	0.5
2-Nitroaniline	0.19	0.5	0.787	0.5
1,4-Dinitrobenzene	0.5	0.5	0.747	0.5
1,3-Dinitrobenzene	0.08	0.25	0.637	0.5
1,2-Dinitrobenzene	0.5	0.5	0.832	0.5

Dimethylphthalate	0.07	0.25	0.220	0.5
Acenaphthylene	0.06	0.25	0.191	0.5
2,6-Dinitrotoluene	0.08	0.5	0.618	0.5
Benzo(b)fluoranthene	0.07	0.5	0.701	0.5
Acenaphthene	0.08	0.5	0.382	0.5
Di-n-octylphthalate	0.16	0.5	1.910	0.5
4-Nitrophenol	0.56	2.5	1.34	1
Dibenzofuran	0.08	0.25	0.181	0.5
2,4-Dinitrotoluene	0.13	0.5	0.538	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.501	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.201	0.5
Diethylphthalate	1.5	0.5	0.584	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.544	0.5
Fluorene	0.07	0.25	0.245	0.5
4-Nitroaniline	0.25	0.5	1.070	0.5
Chrysene	0.08	0.25	0.180	0.5
4,6-Dinitro-2-methylphenol	0.83	2.5	1.27	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.366	0.5
Diphenylamine	0.1	0.5	0.344	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.136	0.5
Azobenzene	0.07	0.25	0.156	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.432	0.5
Hexachlorobenzene	0.11	0.25	0.218	0.5
Pentachlorophenol	0.61	0.5	1.460	0.5
Phenanthrene	0.06	0.25	0.222	0.5
Anthracene	0.05	0.25	0.234	0.5
Carbazole	0.17	0.5	0.418	0.5
Di-n-butylphthalate	0.11	0.25	0.503	0.5
Fluoranthene	0.07	0.25	0.198	0.5
Benzidine	0.61	1	0.434	0.5
Pyrene	0.11	0.25	0.205	0.5
Butylbenzylphthalate	0.12	0.5	0.857	0.5
3,3'-Dichlorobenzidine	0.18	0.5	0.463	0.5
Benzo(a)anthracene	0.08	0.25	0.184	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	1.010	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.554	0.5
4-Chloroaniline	0.21	0.5	0.380	0.5
3-Nitroaniline	0.16	0.5	0.691	0.5

Job ID: 600-70796-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-70796-1

Comments
No additional comments.

Receipt
The samples were received on 3/29/2013 3:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 2 coolers at receipt time were 1.8º C and 4.6º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-70796-1	POE-2	Water	03/28/13 08:56	03/29/13 15:10

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Client Sample ID: POE-2
Date Collected: 03/28/13 08:56
Date Received: 03/29/13 15:10

Lab Sample ID: 600-70796-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00183		0.000495	0.000149	mg/L		04/03/13 13:22	04/04/13 23:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*29*		*12 - 128*	*04/03/13 13:22*	*04/04/13 23:13*	*1*
Terphenyl-d14	*80*		*33 - 141*	*04/03/13 13:22*	*04/04/13 23:13*	*1*
Nitrobenzene-d5	*72*		*47 - 120*	*04/03/13 13:22*	*04/04/13 23:13*	*1*
2-Fluorophenol	*44*		*18 - 120*	*04/03/13 13:22*	*04/04/13 23:13*	*1*
2-Fluorobiphenyl	*50*		*43 - 120*	*04/03/13 13:22*	*04/04/13 23:13*	*1*
2,4,6-Tribromophenol	*50*		*44 - 123*	*04/03/13 13:22*	*04/04/13 23:13*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		PHL	TPH	NBZ	2FP	FBP	TBP		
Lab Sample ID	Client Sample ID	(12-128)	(33-141)	(47-120)	(18-120)	(43-120)	(44-123)		
600-70796-1	POE-2	29	80	72	44	50	50		
LCS 600-103151/2-A	Lab Control Sample	105	93	87	97	82	78		
MB 600-103151/1-A	Method Blank	112	91	90	102	88	71		

Surrogate Legend

PHL = Phenol-d6
TPH = Terphenyl-d14
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-103151/1-A
Matrix: Water
Analysis Batch: 103333

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103151

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000150	U	0.000500	0.000150	mg/L		04/03/13 13:22	04/04/13 17:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d6	*112*		*12 - 128*	*04/03/13 13:22*	*04/04/13 17:52*	*1*
Terphenyl-d14	*91*		*33 - 141*	*04/03/13 13:22*	*04/04/13 17:52*	*1*
Nitrobenzene-d5	*90*		*47 - 120*	*04/03/13 13:22*	*04/04/13 17:52*	*1*
2-Fluorophenol	*102*		*18 - 120*	*04/03/13 13:22*	*04/04/13 17:52*	*1*
2-Fluorobiphenyl	*88*		*43 - 120*	*04/03/13 13:22*	*04/04/13 17:52*	*1*
2,4,6-Tribromophenol	*71*		*44 - 123*	*04/03/13 13:22*	*04/04/13 17:52*	*1*

Lab Sample ID: LCS 600-103151/2-A
Matrix: Water
Analysis Batch: 103333

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103151

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.0100	0.007997		mg/L		80	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d6	*105*		*12 - 128*
Terphenyl-d14	*93*		*33 - 141*
Nitrobenzene-d5	*87*		*47 - 120*
2-Fluorophenol	*97*		*18 - 120*
2-Fluorobiphenyl	*82*		*43 - 120*
2,4,6-Tribromophenol	*78*		*44 - 123*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000150	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

GC/MS Semi VOA

Prep Batch: 103151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-70796-1	POE-2	Total/NA	Water	3510C	
LCS 600-103151/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-103151/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 103333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-70796-1	POE-2	Total/NA	Water	8270C LL	103151
LCS 600-103151/2-A	Lab Control Sample	Total/NA	Water	8270C LL	103151
MB 600-103151/1-A	Method Blank	Total/NA	Water	8270C LL	103151

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Client Sample ID: POE-2
Date Collected: 03/28/13 08:56
Date Received: 03/29/13 15:10

Lab Sample ID: 600-70796-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			103151	04/03/13 13:22	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	103333	04/04/13 23:13	JH	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-70796-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12 *
Louisiana	NELAP	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody

600-70796 Chain of Custody

4/10/2013

Client Information	Sampler: Clinton Hebert	Lab PM: Joiner, Dean A	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6699	E-Mail: dean.joiner@testamericainc.com	Page: Page 1 of 1
Company: URS Corporation			Job #:
Address: 10550 Richmond Ave	Due Date Requested:		
City: Houston	TAT Requested (days): 7 WD TRRP		
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required		
Email: ravi.kommajosyula@urs.com	WO #:		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site: Central Plant GW	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code.				N		
POE-2	3-28-13	0856	G	Water	N	N	X	2	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	3/29/13 1510		[signature]	03/29/13 1570	TAH
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time:	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-70796-1

Login Number: 70796

List Source: TestAmerica Houston

List Number: 1

Creator: Pulumbarit, Josh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8 4.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-72465-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
5/16/2013 7:12:41 PM
Cathy Upton, Data Delivery Analyst
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 22
Method Summary 23
Sample Summary 24
Client Sample Results 25
Definitions/Glossary 68
Surrogate Summary 69
QC Sample Results 71
Default Detection Limits 93
QC Association Summary 96
Lab Chronicle 100
Certification Summary 105
Chain of Custody 106
Receipt Checklists 108

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-72465-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		05/15/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: YX	Prep Batch Number: 600-105345, 105484 and 105530-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				1
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			2
		Were MS/MSD RPDs within laboratory QC limits?		X			2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				3
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?		X			4

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: YX	Prep Batch Number: 600-105345, 105484 and 105530-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: YX	Prep Batch Number: 600-105345, 105484 and 105530-VOA

ER #[1]	DESCRIPTION
1	Ethylbenzene and Naphthalene were detected above the MDL, but below the MQL in the method blank for batch 600-105484. The levels of detection are below the recommended reporting limits and the appropriate flags have been applied to the report.
2	The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision associated with batches 600-105345 and 105484 were outside control limits. Matrix interference is suspected.
3	All of the SDLs in sample 600-72465-3 were elevated due to the high concentration of target analytes
4	The laboratory is not NELAC certified for Bromomethane. Recertification is in progress.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/15/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-72465
Reviewer Name: JOH	Prep Batch Number(s): 600-105411 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?		X			2
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		X			3
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?		X			4
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				5
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				6
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/15/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-72465
Reviewer Name: JOH	Prep Batch Number(s): 600-105411 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?		X			7
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/15/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-72465
Reviewer Name: JOH	Prep Batch Number(s): 600-105411 - SV

ER #[1]	DESCRIPTION
1	Surrogate recoveries for samples 600-72465-2, 6, and 8 were outside control limits. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. The Phenol-d5 surrogate recovery in sample 600-72465-7 analyzed on 05/10/13 was below acceptance limits. Since this surrogate was not linked to the reported analytes, no corrective action was required. Due to the level of dilution required for samples 600-72465-3, 3DL, 5 and 12; surrogate recoveries are not reported.
2	Naphthalene was detected above the MQL in the method blank. This analyte is a possible laboratory contaminant and the appropriate flags have been applied.
3	The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 105411 recovered outside control limits for the following analytes: 4-Chloroaniline and 3-Nitroaniline. These analytes were biased high in the LCS/LCSD and were not detected in the associated samples; therefore, the data have been reported.
4	The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 105411 recovered above the control limits for the following analyte: 4-Nitrophenol.
5	Since the Perylene-d12 ISTD response was outside acceptance criteria in sample 600-72465-7 RA, the analyst reported the analytes associated with this ISTD from the original analysis.
6	All of the SDLs in samples 600-72465-3, 5 and 12 were elevated due to the nature of the sample matrix and/or the high concentration of target analytes.
7	The continuing calibration verification (CCV) for 2,4-Dinitrophenol and 2,4-Dinitrotoluene associated with batch 106041 recovered above the upper control limit. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: JL	Prep Batch Number(s): 600-105273 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			2
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				3
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: JL	Prep Batch Number(s): 600-105273 - Herb

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S1	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S1	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S1	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S1	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S1	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S1	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S1	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 05/10/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-72465
Reviewer Name: JL	Prep Batch Number(s): 600-105273 - Herb

ER #[1]	DESCRIPTION
1	See Case Narrative.
2	Due to the level of dilution required for the following sample, surrogate recoveries are not reported: R1-3-02 (600-72465-8). The surrogate amounts in the matrix spike (MS) and matrix spike dup (MSD) were outside the calibration range due to double the amount of surrogate added. The recoveries were within acceptance limits.
3	The 2,4-D SDL were elevated in sample 600-72465-8 due to the high concentration of this analyte.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

TestAmerica Corpus Christi
TRRP Data Package Cover Page

Job Number: 600-72465-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: "I am the laboratory manager, or his/her designee, and I am responsible for the release of this data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data has been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld."

Erica H. Padilla	Erica H Padilla	May 10, 2013
Name (printed)	Signature	Date

Project Manager

Official Title (printed)

LRC Date: May 10, 2013	Laboratory Job Number: 600-72465-1
Reviewer Name: Erica H. Padilla	Project Name/Number: Kinder Morgan Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	**OI**	**CHAIN-OF-CUSTODY (C-O-C)**					
		1) Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		2) Were all departures from standard conditions described in an exception report or case narrative?			X		
R2	**OI**	**SAMPLE AND QUALITY CONTROL (QC) IDENTIFICATION**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	**OI**	**TEST REPORTS**					
		1) Were all samples prepared and analyzed within holding time?	X				
		2) Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample quantitation limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035			X		
		9) If required for the project, TICs reported?			X		
R4	**O**	**SURROGATE RECOVERY DATA**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	**OI**	**TEST REPORTS/SUMMARY FORMS FOR BLANK SAMPLES**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations <MQL?	X				
R6	**OI**	**LABORATORY CONTROL SAMPLES (LCS)**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits?			X		
R7	**OI**	**MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?				X	1
		4) Were MS/MSD RPDs within laboratory QC limits?				X	
R8	**OI**	**ANALYTICAL DUPLICATE DATA**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	**OI**	**METHOD QUANTITATION LIMITS (MQLs)**					
		1) Are the MQLs for each method analyte listed and included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCS included in the laboratory data package?	X				2

LRC Date: May 10, 2013	Laboratory Job Number: 600-72465-1
Reviewer Name: Erica H. Padilla	Project Name/Number: Kinder Morgan Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R10	**OI**	**OTHER PROBLEMS/ANOMALIES**					
		1) Are all known problems/anomalies/special conditions noted in this LRC, ER, or case narrative?	X				3
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
S1	**OI**	**INITIAL CALIBRATION (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within the QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	**OI**	**INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV and CCV) AND CONTINUING CALIBRATION BLANK (CCB)**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analytes within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB <MDL?	X				
S3	**O**	**MASS SPECTRAL TUNING**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	**O**	**INTERNAL STANDARDS (IS)**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	**OI**	**RAW DATA (NELAC SECTION 5.5.10)**					
		1) Were the raw data (e.g. chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	**O**	**DUAL COLUMN CONFIRMATION**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	**O**	**TENTATIVELY IDENTIFIED COMPOUNDS (TICs)**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	**I**	**INTERFERENCE CHECK SAMPLE (ICS) RESULTS**					
		1) Were percent recoveries within method QC limits?	X				
S9	**I**	**SERIAL DILUTIONS, POST DIGESTION SPIKES, AND METHOD OF STANDARD ADDITIONS**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	**OI**	**METHOD DETECTION LIMIT (MDL) STUDIES**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCS?	X				
S11	**OI**	**PROFICIENCY TEST REPORTS**					
		1) Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	**OI**	**STANDARDS DOCUMENTATION**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	**OI**	**COMPOUND/ANALYTE IDENTIFICATION PROCEDURES**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	**OI**	**DEMONSTRATION OF ANALYST COMPETENCY (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				

LRC Date: May 10, 2013	Laboratory Job Number: 600-72465-1
Reviewer Name: Erica H. Padilla	Project Name/Number: Kinder Morgan Central Plant

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S15	**OI**	**VERIFICATION/VALIDATION DOCUMENTATION FOR METHODS (NELAC CHAPTER 5)**					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	**OI**	**LABORATORY STANDARD OPERATING PROCEDURES (SOPs)**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

EXCEPTION REPORTS

ER#[5]	DESCRIPTION
1	Please note that MS/MSD pairs were analyzed at the minimum required frequency. However, none of the client's samples happened to be chosen as an MS/MSD sample for batches 560-87480/87532.
2	Included with this checklist are the laboratory's Quarter 1 DCS results. These results are greater than 90 days old at this time; however, new DCS samples are scheduled to be analyzed in Quarter 2: April-June. The new results can be forwarded upon compilation, if requested.
3	This TestAmerica Corpus Christi LRC addresses metals preparation and analysis using EPA Methods 3010A and 6020.

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable)
3 NA = Not applicable
4 NR = Not reviewed
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica - Corpus Christi

TRRP DCS EVALUATION SPREADSHEET - WATER MATRIX

MDLV STUDY INFO	
DATE COMPLETED:	02/05/2013 - 1Q13
METHOD NUMBER:	6020/200.8
METHOD DESCRIPTION:	ICPMS
PREP METHOD:	3010A
INSTRUMENT:	Agilent ICPMS

		SPIKE RANGE				
ANALYTE	CURRENT MDL (ug/L)	MINIMUM (ug/L)	MAXIMUM (ug/L)	SPIKE (ug/L)	MEAS VALUE (ug/L)	ANALYTE IS DETECTED
Aluminum	22.5	22.5	67.5	40	33.1	yes
Antimony	1.61	1.61	4.83	4	4.27	yes
Arsenic	1.09	1.09	3.27	2	1.9	yes
Barium	0.81	0.81	2.43	1	1.01	yes
Beryllium	1.24	1.24	3.72	2	1.87	yes
Boron	70	70	210	100	97.7	yes
Cadmium	0.854	0.854	2.562	1	0.927	yes
Calcium	198	198	594	400	394	yes
Chromium	1.4	1.4	4.2	4	4.18	yes
Cobalt	1.36	1.36	4.08	4	4.43	yes
Copper	2	2	6	4	44.8	yes
Iron	101	101	303	200	240	yes
Lead	0.733	0.733	2.199	1	0.962	yes
Lithium	2.26	2.26	6.78	4	3.46	yes
Magnesium	113	113	339	200	200	yes
Manganese	11.6	11.6	34.8	20	20.3	yes
Molybdenum	1.4	1.4	4.2	4	3.91	yes
Nickel	2.17	2.17	6.51	4	9.02	yes
Phosphorus	18.1	18.1	54.3	40	35.8	yes
Potassium	407	407	1221	500	412	yes
Selenium	1.08	1.08	3.24	2	1.96	yes
Silicon	62.8	62.8	188.4	80	72.8	yes
Silver	0.941	0.941	2.823	1	0.949	yes
Sodium	727	727	2181	1000	1060	yes
Strontium	0.768	0.768	2.304	1	0.967	yes
Thallium	0.693	0.693	2.079	2	1.63	yes
Tin	5.08	5.08	15.24	10	11.7	yes
Titanium	1.53	1.53	4.59	4	4.1	yes
Vanadium	1.44	1.44	4.32	4	3.94	yes
Zinc	3.55	3.55	10.65	4	8.2	yes

Detection Check Standard

Matrix:	Water
Method:	8151A
Preparation:	8151A
Date Analyzed:	2/27/2013
Date Prepared:	2/22/2013
TALs Batches:	600-100148/7-a
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Dalapon	1	0.4	0.0102	10
Dicamba	0.01	0.04	0.138	0.2
MCPP	2.64	4	13.95	20
MCPA	5.78	4	8.27	20
Dichloroprop	0.03	0.04	0.0479	0.2
2,4-D	0.04	0.04	0.109	0.2
2,4,5-TP (Silvex)	0.02	0.04	0.184	0.2
2,4,5-T	0.02	0.04	0.157	0.2
2,4-DB	0.05	0.04	0.254	0.2
Dinoseb (DNBP)	0.02	0.04	0.0177	0.2

Detection Check Standard

Matrix: Water
Method: 8260B_LL
Preparation: Wei Shen
Date Analyzed: 1/7/2013
Date Prepared: 1/7/2013
TALs Batches: 600-96768
Units: ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Chloromethane	0.18	0.5	0	2
Vinyl Chloride	0.11	0.5	0.461	2
Chloroethane	0.08	0.5	0.475	2
1,1-Dichloroethene	0.19	0.5	0.367	1
trans-1,2-Dichloroethene	0.09	0.5	0.506	1
Acetone	0.99	0.5	0	2
Carbon Disulfide	0.24	0.5	0.85	1
Methylene Chloride	0.15	0.5	0	1
Vinyl Acetate	0.21	0.5	0	1
cis-1,2-Dichloroethene	0.3	0.5	0.497	1
2-Butanone (MEK)	0.76	0.5	0	5
Bromochloromethane	0.18	0.5	0.459	1
Carbon Tetrachloride	0.15	0.5	2.45	5
Benzene	0.08	0.5	0.47	1
1,2-Dichloroethane	0.14	0.5	0.367	1
Trichloroethene	0.13	0.5	0.494	1
1,1,1-Trichloroethane	0.15	0.5	0.937	1
1,1-Dichloroethane	0.11	0.5	0.483	1
1,2-Dichloropropane	0.16	0.5	0.48	1
cis-1,3-Dichloropropene	0.18	0.5	0	1
4-Methyl-2-pentanone	0.45	0.5	0.861	2
Toluene	0.15	0.5	0.462	1
trans-1,3-Dichloropropene	0.21	0.5	0	1
1,1,2-Trichloroethane	0.28	0.5	0.41	1
Tetrachloroethene	0.18	0.5	0.477	1
2-Hexanone	0.35	0.5	0	
Chlorobenzene	0.12	0.5	0.502	1
Ethylbenzene	0.11	0.5	0.473	1
m,p-Xylene	0.17	0.5	0.844	2
o-Xylene	0.12	0.5	0.469	1
Xylenes (total)	0.26	0.5	1.31	3
Styrene	0.07	0.25	0.36	1
Bromoform	0.19	0.25	0	1
1,1,2,2-Tetrachloroethane	0.22	0.5	0	1
Chlorobromomethane	0.18	0.5	0.513	1
Chlorodibromomethane	0.15	0.5	1.08	1
Chloroform	0.13	0.5	0.505	1
Chloroform	0.16	0.5	0.392	1

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	1/3/2013
Date Prepared:	1/3/2013
Lab Sample ID:	600-96501/6-A
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.25	0.062	0.5
N-Nitrosodimethylamine	0.26	0.5	0.305	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.692	0.5
Aniline	0.08	0.25	0.143	0.5
Phenol	0.04	0.25	0.087	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.371	0.5
2-Chlorophenol	0.13	0.5	0.368	0.5
1,3-Dichlorobenzene	0.17	0.5	0.433	0.5
1,4-Dichlorobenzene	0.13	0.5	0.533	0.5
1,2-Dichlorobenzene	0.17	0.5	0.469	0.5
Benzyl alcohol	0.17	0.5	0.211	0.5
2-Methylphenol (o-cresol)	0.12	0.5	0.353	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.287	1
N-Nitroso-di-n-propylamine	0.1	0.5	0.455	0.5
Hexachloroethane	0.1	0.5	0.490	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.889	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.972	0.5
Nitrobenzene	0.11	0.25	0.298	0.5
Isophorone	0.11	0.25	0.207	0.5
2-Nitrophenol	0.22	0.5	0.608	0.5
Benzoic acid	2.51	5	7.32	2.5
2,4-Dimethylphenol	0.15	0.5	0.513	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.455	0.5
2,4-Dichlorophenol	0.15	0.5	0.457	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.340	0.5
Naphthalene	0.08	0.25	0.242	0.5
Benzo(a)pyrene	0.08	0.25	0.530	0.5
Hexachlorobutadiene	0.18	0.5	0.611	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.419	0.5
2-Methylnaphthalene	0.07	0.25	0.229	0.5
1-Methylnaphthalene	0.09	0.25	0.215	0.5
Benzo(k)fluoranthene	0.09	0.25	0.196	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.560	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.638	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.656	0.5
2-Chloronaphthalene	0.08	0.25	0.231	0.5
2-Nitroaniline	0.19	0.5	0.787	0.5
1,4-Dinitrobenzene	0.5	0.5	0.747	0.5
1,3-Dinitrobenzene	0.08	0.25	0.637	0.5
1,2-Dinitrobenzene	0.5	0.5	0.832	0.5

Dimethylphthalate	0.07	0.25	0.220	0.5
Acenaphthylene	0.06	0.25	0.191	0.5
2,6-Dinitrotoluene	0.08	0.5	0.618	0.5
Benzo(b)fluoranthene	0.07	0.5	0.701	0.5
Acenaphthene	0.08	0.5	0.382	0.5
Di-n-octylphthalate	0.16	0.5	1.910	0.5
4-Nitrophenol	0.56	2.5	1.34	1
Dibenzofuran	0.08	0.25	0.181	0.5
2,4-Dinitrotoluene	0.13	0.5	0.538	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.501	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.201	0.5
Diethylphthalate	1.5	0.5	0.584	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.544	0.5
Fluorene	0.07	0.25	0.245	0.5
4-Nitroaniline	0.25	0.5	1.070	0.5
Chrysene	0.08	0.25	0.180	0.5
4,6-Dinitro-2-methylphenol	0.83	2.5	1.27	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.366	0.5
Diphenylamine	0.1	0.5	0.344	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.136	0.5
Azobenzene	0.07	0.25	0.156	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.432	0.5
Hexachlorobenzene	0.11	0.25	0.218	0.5
Pentachlorophenol	0.61	0.5	1.460	0.5
Phenanthrene	0.06	0.25	0.222	0.5
Anthracene	0.05	0.25	0.234	0.5
Carbazole	0.17	0.5	0.418	0.5
Di-n-butylphthalate	0.11	0.25	0.503	0.5
Fluoranthene	0.07	0.25	0.198	0.5
Benzidine	0.61	1	0.434	0.5
Pyrene	0.11	0.25	0.205	0.5
Butylbenzylphthalate	0.12	0.5	0.857	0.5
3,3'-Dichlorobenzidine	0.18	0.5	0.463	0.5
Benzo(a)anthracene	0.08	0.25	0.184	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	1.010	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.554	0.5
4-Chloroaniline	0.21	0.5	0.380	0.5
3-Nitroaniline	0.16	0.5	0.691	0.5

Job ID: 600-72465-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-72465-1

Comments
No additional comments.

Receipt
The samples were received on 5/1/2013 6:14 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 4 coolers at receipt time were 1.5º C, 1.5º C, 1.8º C and 2.2º C.

Organic Prep
Method(s) 8151A: Emulsions formed in the samples during the concentration step.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU
8151A	Herbicides (GC)	SW846	TAL HOU
6020	Metals (ICP/MS)	SW846	TAL CC

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-72465-1	Equipment Blank	Water	04/30/13 11:30	05/01/13 18:14
600-72465-2	R1-3-01	Water	04/30/13 12:00	05/01/13 18:14
600-72465-3	MW-35	Water	04/30/13 13:00	05/01/13 18:14
600-72465-4	MW-37	Water	04/30/13 14:00	05/01/13 18:14
600-72465-5	AMP-3	Water	04/30/13 15:00	05/01/13 18:14
600-72465-6	POE-2	Water	04/30/13 15:30	05/01/13 18:14
600-72465-7	R1-3-03	Water	05/01/13 08:30	05/01/13 18:14
600-72465-8	R1-3-02	Water	05/01/13 09:20	05/01/13 18:14
600-72465-9	R1-1-14	Water	05/01/13 10:30	05/01/13 18:14
600-72465-10	POE-1	Water	05/01/13 11:30	05/01/13 18:14
600-72465-11	AMP-2	Water	05/01/13 12:20	05/01/13 18:14
600-72465-12	AMP-1	Water	05/01/13 13:30	05/01/13 18:14
600-72465-13	R1-1-18	Water	05/01/13 14:20	05/01/13 18:14
600-72465-14	Trip Blank	Water	05/01/13 00:00	05/01/13 18:14

Client Sample ID: Equipment Blank
Date Collected: 04/30/13 11:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 12:49	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 12:49	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:49	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:49	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 12:49	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 12:49	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 12:49	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 12:49	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:49	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 12:49	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:49	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:49	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:49	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:49	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 12:49	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:49	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:49	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:49	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:49	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:49	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:49	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:49	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 12:49	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 12:49	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 12:49	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 12:49	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/03/13 12:49	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 12:49	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:49	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 12:49	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 12:49	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 12:49	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:49	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1

Client Sample ID: Equipment Blank

Lab Sample ID: 600-72465-1

Date Collected: 04/30/13 11:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:49	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 12:49	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:49	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:49	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:49	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 12:49	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 12:49	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:49	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:49	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 12:49	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*		*05/03/13 12:49*	*1*
4-Bromofluorobenzene	*87*		*67 - 139*		*05/03/13 12:49*	*1*
Dibromofluoromethane	*98*		*62 - 130*		*05/03/13 12:49*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*05/03/13 12:49*	*1*

Client Sample ID: R1-3-01

Lab Sample ID: 600-72465-2

Date Collected: 04/30/13 12:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 17:09	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 17:09	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:09	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:09	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 17:09	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 17:09	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 17:09	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 17:09	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 17:09	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 17:09	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:09	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 17:09	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:09	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:09	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 17:09	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:09	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 17:09	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:09	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 17:09	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:09	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:09	1

Client Sample ID: R1-3-01
Date Collected: 04/30/13 12:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:09	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 17:09	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 17:09	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 17:09	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 17:09	1
cis-1,2-Dichloroethene	**0.000934**	**J**	0.00100	0.0000600	mg/L			05/04/13 17:09	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 17:09	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:09	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 17:09	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 17:09	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 17:09	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:09	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:09	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 17:09	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 17:09	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:09	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:09	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 17:09	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 17:09	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:09	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 17:09	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 17:09	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*05/04/13 17:09*	*1*
4-Bromofluorobenzene	*122*		*67 - 139*		*05/04/13 17:09*	*1*
Dibromofluoromethane	*74*		*62 - 130*		*05/04/13 17:09*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*05/04/13 17:09*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 18:59	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 18:59	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 18:59	1

Client Sample ID: R1-3-01
Date Collected: 04/30/13 12:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-2
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 18:59	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Methylnaphthalene	**0.000198**	**J**	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 18:59	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 18:59	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 18:59	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 18:59	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 18:59	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 18:59	1
Acenaphthene	**0.000262**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 18:59	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 18:59	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 18:59	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 18:59	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 18:59	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 18:59	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
Dibenzofuran	**0.000344**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 18:59	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 18:59	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 18:59	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Fluoranthene	**0.000415**	**J**	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 18:59	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 18:59	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 18:59	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 18:59	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 18:59	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 18:59	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1

Client Sample ID: R1-3-01

Date Collected: 04/30/13 12:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-2

Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 18:59	1
Naphthalene	**0.00130**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 18:59	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 18:59	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 18:59	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 18:59	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 18:59	1
Phenanthrene	**0.000370**	**J**	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 18:59	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 18:59	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 18:59	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 18:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*75*		*44 - 123*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
2-Fluorobiphenyl	*53*		*43 - 120*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
2-Fluorophenol	*28*		*18 - 120*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
Nitrobenzene-d5	*58*		*47 - 120*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
Terphenyl-d14	*66*		*33 - 141*	*05/03/13 07:53*	*05/13/13 18:59*	*1*
Phenol-d5 (Surr)	*11*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 18:59*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	**0.000859**		0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*65*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 13:40*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:18	1

Client Sample ID: MW-35

Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.0180	U	0.100	0.0180	mg/L			05/03/13 20:34	100
1,1,1-Trichloroethane	0.0150	U	0.100	0.0150	mg/L			05/03/13 20:34	100
1,1,2,2-Tetrachloroethane	0.0220	U	0.100	0.0220	mg/L			05/03/13 20:34	100
1,1,2-Trichloroethane	0.0280	U	0.100	0.0280	mg/L			05/03/13 20:34	100
1,1-Dichloroethane	0.0110	U	0.100	0.0110	mg/L			05/03/13 20:34	100
1,1-Dichloroethene	**0.219**		0.100	0.0190	mg/L			05/03/13 20:34	100
1,1-Dichloropropene	0.0210	U	0.100	0.0210	mg/L			05/03/13 20:34	100
1,2,3-Trichlorobenzene	0.0570	U	0.100	0.0570	mg/L			05/03/13 20:34	100
1,2,3-Trichloropropane	0.0290	U	0.100	0.0290	mg/L			05/03/13 20:34	100
1,2,4-Trichlorobenzene	0.0310	U	0.100	0.0310	mg/L			05/03/13 20:34	100
1,2,4-Trimethylbenzene	**0.0995**	**J**	0.100	0.0140	mg/L			05/03/13 20:34	100
1,2-Dibromo-3-Chloropropane	0.0810	U	0.100	0.0810	mg/L			05/03/13 20:34	100
1,2-Dichlorobenzene	0.0100	U	0.100	0.0100	mg/L			05/03/13 20:34	100
1,2-Dichloroethane	0.0140	U	0.100	0.0140	mg/L			05/03/13 20:34	100

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: MW-35
Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	0.0160	U	0.100	0.0160	mg/L			05/03/13 20:34	100
1,3,5-Trimethylbenzene	**0.0449**	**J**	0.100	0.0100	mg/L			05/03/13 20:34	100
1,3-Dichlorobenzene	0.0130	U	0.100	0.0130	mg/L			05/03/13 20:34	100
1,3-Dichloropropane	0.0220	U	0.100	0.0220	mg/L			05/03/13 20:34	100
1,4-Dichlorobenzene	0.0110	U	0.100	0.0110	mg/L			05/03/13 20:34	100
2,2-Dichloropropane	0.0130	U	0.100	0.0130	mg/L			05/03/13 20:34	100
2-Chlorotoluene	0.0130	U	0.100	0.0130	mg/L			05/03/13 20:34	100
4-Chlorotoluene	0.0140	U	0.100	0.0140	mg/L			05/03/13 20:34	100
4-Isopropyltoluene	0.0100	U	0.100	0.0100	mg/L			05/03/13 20:34	100
Benzene	**0.667**		0.100	0.00800	mg/L			05/03/13 20:34	100
Bromobenzene	0.0190	U	0.100	0.0190	mg/L			05/03/13 20:34	100
Bromodichloromethane	0.0160	U	0.100	0.0160	mg/L			05/03/13 20:34	100
Bromoform	0.0190	U	0.100	0.0190	mg/L			05/03/13 20:34	100
Bromomethane	0.0250	U	0.200	0.0250	mg/L			05/03/13 20:34	100
Carbon tetrachloride	0.0150	U	0.500	0.0150	mg/L			05/03/13 20:34	100
Chlorobenzene	0.0120	U	0.100	0.0120	mg/L			05/03/13 20:34	100
Chlorobromomethane	0.0180	U	0.100	0.0180	mg/L			05/03/13 20:34	100
Chloroethane	0.00800	U	0.200	0.00800	mg/L			05/03/13 20:34	100
Chloroform	0.0130	U	0.100	0.0130	mg/L			05/03/13 20:34	100
Chloromethane	0.0180	U	0.200	0.0180	mg/L			05/03/13 20:34	100
cis-1,3-Dichloropropene	0.0180	U	0.100	0.0180	mg/L			05/03/13 20:34	100
Dibromochloromethane	0.0150	U	0.100	0.0150	mg/L			05/03/13 20:34	100
Dibromomethane	0.0520	U	0.100	0.0520	mg/L			05/03/13 20:34	100
Dichlorodifluoromethane	0.0120	U	0.100	0.0120	mg/L			05/03/13 20:34	100
Ethylbenzene	**0.188**		0.100	0.0110	mg/L			05/03/13 20:34	100
Hexachlorobutadiene	0.0170	U	0.100	0.0170	mg/L			05/03/13 20:34	100
Isopropylbenzene	0.0180	U	0.100	0.0180	mg/L			05/03/13 20:34	100
Methyl tert-butyl ether	0.0120	U	0.100	0.0120	mg/L			05/03/13 20:34	100
Methylene Chloride	0.0150	U	0.100	0.0150	mg/L			05/03/13 20:34	100
m-Xylene & p-Xylene	**0.261**		0.200	0.0170	mg/L			05/03/13 20:34	100
n-Butylbenzene	0.0160	U	0.100	0.0160	mg/L			05/03/13 20:34	100
N-Propylbenzene	0.0150	U	0.100	0.0150	mg/L			05/03/13 20:34	100
o-Xylene	**0.119**		0.100	0.0120	mg/L			05/03/13 20:34	100
sec-Butylbenzene	0.0120	U	0.100	0.0120	mg/L			05/03/13 20:34	100
Styrene	0.00700	U	0.100	0.00700	mg/L			05/03/13 20:34	100
tert-Butylbenzene	0.00800	U	0.100	0.00800	mg/L			05/03/13 20:34	100
Tetrachloroethene	**0.0602**	**J**	0.100	0.0130	mg/L			05/03/13 20:34	100
Toluene	**0.675**		0.100	0.0150	mg/L			05/03/13 20:34	100
trans-1,3-Dichloropropene	0.0210	U	0.100	0.0210	mg/L			05/03/13 20:34	100
Trichloroethene	**2.02**		0.100	0.0180	mg/L			05/03/13 20:34	100
Trichlorofluoromethane	0.00800	U	0.100	0.00800	mg/L			05/03/13 20:34	100
Vinyl chloride	**2.28**		0.200	0.0110	mg/L			05/03/13 20:34	100
Xylenes, Total	**0.380**		0.300	0.0260	mg/L			05/03/13 20:34	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*50 - 134*		*05/03/13 20:34*	*100*
4-Bromofluorobenzene	*88*		*67 - 139*		*05/03/13 20:34*	*100*
Dibromofluoromethane	*101*		*62 - 130*		*05/03/13 20:34*	*100*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/03/13 20:34*	*100*

Client Sample ID: MW-35
Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**5.71**		1.00	0.160	mg/L			05/06/13 20:54	500
trans-1,2-Dichloroethene	**0.723**		0.500	0.0450	mg/L			05/06/13 20:54	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*05/06/13 20:54*	*500*
4-Bromofluorobenzene	*111*		*67 - 139*		*05/06/13 20:54*	*500*
Dibromofluoromethane	*78*		*62 - 130*		*05/06/13 20:54*	*500*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/06/13 20:54*	*500*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**226**		10.0	0.600	mg/L			05/04/13 14:47	10000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*05/04/13 14:47*	*10000*
4-Bromofluorobenzene	*117*		*67 - 139*		*05/04/13 14:47*	*10000*
Dibromofluoromethane	*79*		*62 - 130*		*05/04/13 14:47*	*10000*
Toluene-d8 (Surr)	*91*		*70 - 130*		*05/04/13 14:47*	*10000*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
1,2-Dichlorobenzene	0.0105	U	0.0250	0.0105	mg/L		05/03/13 07:53	05/13/13 14:41	50
1,3-Dichlorobenzene	0.00500	U	0.0250	0.00500	mg/L		05/03/13 07:53	05/13/13 14:41	50
1,4-Dichlorobenzene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4,5-Trichlorophenol	0.0145	U	0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4,6-Trichlorophenol	0.0165	U	0.0250	0.0165	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4-Dichlorophenol	0.0130	U	0.0250	0.0130	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4-Dimethylphenol	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4-Dinitrophenol	0.0200	U	0.0500	0.0200	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,4-Dinitrotoluene	0.0160	U	0.0250	0.0160	mg/L		05/03/13 07:53	05/13/13 14:41	50
2,6-Dinitrotoluene	0.0145	U	0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Chloronaphthalene	0.00950	U	0.0250	0.00950	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Chlorophenol	0.0110	U	0.0250	0.0110	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Methylnaphthalene	**0.918**		0.0250	0.00700	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Methylphenol	0.00950	U	0.0250	0.00950	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Nitroaniline	0.0175	U	0.0250	0.0175	mg/L		05/03/13 07:53	05/13/13 14:41	50
2-Nitrophenol	0.0110	U	0.0250	0.0110	mg/L		05/03/13 07:53	05/13/13 14:41	50
3 & 4 Methylphenol	0.00800	U	0.0500	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
3,3'-Dichlorobenzidine	0.0160	U	0.0250	0.0160	mg/L		05/03/13 07:53	05/13/13 14:41	50
3-Nitroaniline	0.00650	U *	0.0250	0.00650	mg/L		05/03/13 07:53	05/13/13 14:41	50
4,6-Dinitro-2-methylphenol	0.00800	U	0.0500	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Bromophenyl phenyl ether	0.0125	U	0.0250	0.0125	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Chloro-3-methylphenol	0.0125	U	0.0250	0.0125	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Chloroaniline	0.00550	U *	0.0250	0.00550	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Chlorophenyl phenyl ether	0.0115	U	0.0250	0.0115	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Nitroaniline	0.0115	U	0.0250	0.0115	mg/L		05/03/13 07:53	05/13/13 14:41	50
4-Nitrophenol	0.0165	U *	0.0500	0.0165	mg/L		05/03/13 07:53	05/13/13 14:41	50
Acenaphthene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Acenaphthylene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: MW-35
Date Collected: 04/30/13 13:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-3
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Aniline	0.00600	U	0.0250	0.00600	mg/L		05/03/13 07:53	05/13/13 14:41	50
Anthracene	**0.0224**	**J**	0.0250	0.0220	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[a]anthracene	0.0125	U	0.0250	0.0125	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[a]pyrene	0.00650	U	0.0250	0.00650	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[b]fluoranthene	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[g,h,i]perylene	0.0175	U	0.0250	0.0175	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzo[k]fluoranthene	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Benzoic acid	0.0305	U	0.125	0.0305	mg/L		05/03/13 07:53	05/13/13 14:41	50
bis (2-Chloroisopropyl) ether	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
Bis(2-chloroethoxy)methane	0.00950	U	0.0250	0.00950	mg/L		05/03/13 07:53	05/13/13 14:41	50
Bis(2-chloroethyl)ether	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
Bis(2-ethylhexyl) phthalate	0.0295	U	0.0250	0.0295	mg/L		05/03/13 07:53	05/13/13 14:41	50
Butyl benzyl phthalate	0.0425	U	0.0250	0.0425	mg/L		05/03/13 07:53	05/13/13 14:41	50
Chrysene	0.0120	U	0.0250	0.0120	mg/L		05/03/13 07:53	05/13/13 14:41	50
Dibenz(a,h)anthracene	0.0145	U	0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
Dibenzofuran	**0.308**		0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Diethyl phthalate	0.210	U	0.250	0.210	mg/L		05/03/13 07:53	05/13/13 14:41	50
Dimethyl phthalate	0.00900	U	0.0250	0.00900	mg/L		05/03/13 07:53	05/13/13 14:41	50
Di-n-butyl phthalate	0.0935	U	0.250	0.0935	mg/L		05/03/13 07:53	05/13/13 14:41	50
Di-n-octyl phthalate	0.00800	U	0.0250	0.00800	mg/L		05/03/13 07:53	05/13/13 14:41	50
Fluoranthene	**0.0278**		0.0250	0.0155	mg/L		05/03/13 07:53	05/13/13 14:41	50
Fluorene	**0.243**		0.0250	0.00600	mg/L		05/03/13 07:53	05/13/13 14:41	50
Hexachlorobenzene	0.0125	U	0.0250	0.0125	mg/L		05/03/13 07:53	05/13/13 14:41	50
Hexachlorobutadiene	0.00950	U	0.0250	0.00950	mg/L		05/03/13 07:53	05/13/13 14:41	50
Hexachlorocyclopentadiene	0.00750	U	0.0250	0.00750	mg/L		05/03/13 07:53	05/13/13 14:41	50
Hexachloroethane	0.00850	U	0.0250	0.00850	mg/L		05/03/13 07:53	05/13/13 14:41	50
Indeno[1,2,3-cd]pyrene	0.0145	U	0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
Isophorone	0.00750	U	0.0250	0.00750	mg/L		05/03/13 07:53	05/13/13 14:41	50
Nitrobenzene	0.0100	U	0.0250	0.0100	mg/L		05/03/13 07:53	05/13/13 14:41	50
N-Nitrosodi-n-propylamine	0.0120	U	0.0250	0.0120	mg/L		05/03/13 07:53	05/13/13 14:41	50
N-Nitrosodiphenylamine	0.0165	U	0.0250	0.0165	mg/L		05/03/13 07:53	05/13/13 14:41	50
Pentachlorophenol	0.0480	U	0.0500	0.0480	mg/L		05/03/13 07:53	05/13/13 14:41	50
Phenanthrene	**0.107**		0.0250	0.0145	mg/L		05/03/13 07:53	05/13/13 14:41	50
Phenol	0.00700	U	0.0250	0.00700	mg/L		05/03/13 07:53	05/13/13 14:41	50
Pyrene	0.0165	U	0.0250	0.0165	mg/L		05/03/13 07:53	05/13/13 14:41	50
Pyridine	0.0120	U	0.0250	0.0120	mg/L		05/03/13 07:53	05/13/13 14:41	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 14:41*	*50*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 14:41*	*50*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**2.46**	**b**	0.250	0.0800	mg/L		05/03/13 07:53	05/13/13 23:07	500

Client Sample ID: MW-35

Lab Sample ID: 600-72465-3

Date Collected: 04/30/13 13:00

Matrix: Water

Date Received: 05/01/13 18:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 23:07*	*500*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 23:07*	*500*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 14:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	*82*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 14:05*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00154**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:23	1

Client Sample ID: MW-37

Lab Sample ID: 600-72465-4

Date Collected: 04/30/13 14:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:17	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:17	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 13:17	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 13:17	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 13:17	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:17	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 13:17	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 13:17	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 13:17	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 13:17	1
1,2,4-Trimethylbenzene	**0.000677**	**J**	0.00100	0.000140	mg/L			05/03/13 13:17	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 13:17	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:17	1
1,2-Dichloroethane	**0.000231**	**J**	0.00100	0.000140	mg/L			05/03/13 13:17	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:17	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:17	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 13:17	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 13:17	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 13:17	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:17	1
Benzene	**0.0273**		0.00100	0.0000800	mg/L			05/03/13 13:17	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:17	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:17	1

Client Sample ID: MW-37
Date Collected: 04/30/13 14:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:17	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 13:17	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 13:17	1
Chlorobenzene	**0.000935**	**J**	0.00100	0.000120	mg/L			05/03/13 13:17	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:17	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 13:17	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 13:17	1
cis-1,2-Dichloroethene	**0.00148**		0.00100	0.0000600	mg/L			05/03/13 13:17	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:17	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:17	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 13:17	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:17	1
Ethylbenzene	**0.000445**	**J**	0.00100	0.000110	mg/L			05/03/13 13:17	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 13:17	1
Isopropylbenzene	**0.00686**		0.00100	0.000180	mg/L			05/03/13 13:17	1
Methyl tert-butyl ether	**0.00181**		0.00100	0.000120	mg/L			05/03/13 13:17	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:17	1
m-Xylene & p-Xylene	**0.00243**		0.00200	0.000170	mg/L			05/03/13 13:17	1
Naphthalene	**0.000557**	**J**	0.00200	0.000320	mg/L			05/03/13 13:17	1
n-Butylbenzene	**0.000490**	**J**	0.00100	0.000160	mg/L			05/03/13 13:17	1
N-Propylbenzene	**0.00321**		0.00100	0.000150	mg/L			05/03/13 13:17	1
o-Xylene	**0.00704**		0.00100	0.000120	mg/L			05/03/13 13:17	1
sec-Butylbenzene	**0.00250**		0.00100	0.000120	mg/L			05/03/13 13:17	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 13:17	1
tert-Butylbenzene	**0.00215**		0.00100	0.0000800	mg/L			05/03/13 13:17	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:17	1
Toluene	**0.00200**		0.00100	0.000150	mg/L			05/03/13 13:17	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 13:17	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 13:17	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:17	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 13:17	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 13:17	1
Xylenes, Total	**0.00947**		0.00300	0.000260	mg/L			05/03/13 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*50 - 134*		*05/03/13 13:17*	*1*
4-Bromofluorobenzene	*87*		*67 - 139*		*05/03/13 13:17*	*1*
Dibromofluoromethane	*87*		*62 - 130*		*05/03/13 13:17*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/03/13 13:17*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 19:26	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 19:26	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 19:26	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: MW-37
Date Collected: 04/30/13 14:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-4
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 19:26	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 19:26	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 19:26	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 19:26	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 19:26	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 19:26	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 19:26	1
Acenaphthene	**0.000487**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:26	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 19:26	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:26	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 19:26	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 19:26	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:26	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
Dibenzofuran	**0.000284**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 19:26	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:26	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 19:26	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 19:26	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:26	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:26	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:26	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 19:26	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 19:26	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1

Client Sample ID: MW-37

Date Collected: 04/30/13 14:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-4
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 19:26	1
Naphthalene	**0.000665**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:26	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 19:26	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:26	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:26	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 19:26	1
Phenanthrene	**0.000310**	**J**	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:26	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:26	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:26	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*44 - 123*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
2-Fluorobiphenyl	*50*		*43 - 120*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
2-Fluorophenol	*31*		*18 - 120*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
Nitrobenzene-d5	*69*		*47 - 120*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
Terphenyl-d14	*69*		*33 - 141*	*05/03/13 07:53*	*05/13/13 19:26*	*1*
Phenol-d5 (Surr)	*20*		*12 - 128*	*05/03/13 07:53*	*05/13/13 19:26*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*70*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 14:30*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:29	1

Client Sample ID: AMP-3

Date Collected: 04/30/13 15:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 13:44	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 13:44	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 13:44	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:44	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 13:44	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 13:44	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 13:44	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 13:44	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 13:44	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 13:44	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:44	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 13:44	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: AMP-3
Date Collected: 04/30/13 15:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:44	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:44	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 13:44	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 13:44	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 13:44	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 13:44	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 13:44	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:44	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:44	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 13:44	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 13:44	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 13:44	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 13:44	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 13:44	1
cis-1,2-Dichloroethene	**0.000364**	**J**	0.00100	0.0000600	mg/L			05/03/13 13:44	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 13:44	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 13:44	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 13:44	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
Methyl tert-butyl ether	**0.000336**	**J**	0.00100	0.000120	mg/L			05/03/13 13:44	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 13:44	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 13:44	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/03/13 13:44	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 13:44	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 13:44	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 13:44	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 13:44	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 13:44	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 13:44	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 13:44	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 13:44	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 13:44	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 13:44	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 13:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*		*05/03/13 13:44*	*1*
4-Bromofluorobenzene	*85*		*67 - 139*		*05/03/13 13:44*	*1*

Client Sample ID: AMP-3
Date Collected: 04/30/13 15:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*86*		*62 - 130*		*05/03/13 13:44*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/03/13 13:44*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
1,2-Dichlorobenzene	0.00210	U	0.00500	0.00210	mg/L		05/03/13 07:53	05/13/13 15:08	10
1,3-Dichlorobenzene	0.00100	U	0.00500	0.00100	mg/L		05/03/13 07:53	05/13/13 15:08	10
1,4-Dichlorobenzene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4,5-Trichlorophenol	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4,6-Trichlorophenol	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4-Dichlorophenol	0.00260	U	0.00500	0.00260	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4-Dimethylphenol	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4-Dinitrophenol	0.00400	U	0.0100	0.00400	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,4-Dinitrotoluene	0.00320	U	0.00500	0.00320	mg/L		05/03/13 07:53	05/13/13 15:08	10
2,6-Dinitrotoluene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Chloronaphthalene	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Chlorophenol	0.00220	U	0.00500	0.00220	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Methylnaphthalene	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Methylphenol	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Nitroaniline	0.00350	U	0.00500	0.00350	mg/L		05/03/13 07:53	05/13/13 15:08	10
2-Nitrophenol	0.00220	U	0.00500	0.00220	mg/L		05/03/13 07:53	05/13/13 15:08	10
3 & 4 Methylphenol	0.00160	U	0.0100	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
3,3'-Dichlorobenzidine	0.00320	U	0.00500	0.00320	mg/L		05/03/13 07:53	05/13/13 15:08	10
3-Nitroaniline	0.00130	U *	0.00500	0.00130	mg/L		05/03/13 07:53	05/13/13 15:08	10
4,6-Dinitro-2-methylphenol	**0.0161**		0.0100	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Bromophenyl phenyl ether	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Chloro-3-methylphenol	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Chloroaniline	0.00110	U *	0.00500	0.00110	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Chlorophenyl phenyl ether	0.00230	U	0.00500	0.00230	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Nitroaniline	0.00230	U	0.00500	0.00230	mg/L		05/03/13 07:53	05/13/13 15:08	10
4-Nitrophenol	0.00330	U *	0.0100	0.00330	mg/L		05/03/13 07:53	05/13/13 15:08	10
Acenaphthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Acenaphthylene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Aniline	0.00120	U	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:08	10
Anthracene	0.00440	U	0.00500	0.00440	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[a]anthracene	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[a]pyrene	0.00130	U	0.00500	0.00130	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[b]fluoranthene	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[g,h,i]perylene	0.00350	U	0.00500	0.00350	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzo[k]fluoranthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Benzoic acid	0.00610	U	0.0250	0.00610	mg/L		05/03/13 07:53	05/13/13 15:08	10
bis (2-Chloroisopropyl) ether	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
Bis(2-chloroethoxy)methane	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:08	10
Bis(2-chloroethyl)ether	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
Bis(2-ethylhexyl) phthalate	0.00590	U	0.00500	0.00590	mg/L		05/03/13 07:53	05/13/13 15:08	10
Butyl benzyl phthalate	0.00850	U	0.00500	0.00850	mg/L		05/03/13 07:53	05/13/13 15:08	10
Chrysene	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:08	10
Dibenz(a,h)anthracene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10

Client Sample ID: AMP-3

Lab Sample ID: 600-72465-5

Date Collected: 04/30/13 15:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Diethyl phthalate	0.0419	U	0.0500	0.0419	mg/L		05/03/13 07:53	05/13/13 15:08	10
Dimethyl phthalate	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:08	10
Di-n-butyl phthalate	0.0187	U	0.0500	0.0187	mg/L		05/03/13 07:53	05/13/13 15:08	10
Di-n-octyl phthalate	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Fluoranthene	0.00310	U	0.00500	0.00310	mg/L		05/03/13 07:53	05/13/13 15:08	10
Fluorene	0.00120	U	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:08	10
Hexachlorobenzene	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:08	10
Hexachlorobutadiene	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:08	10
Hexachlorocyclopentadiene	0.00150	U	0.00500	0.00150	mg/L		05/03/13 07:53	05/13/13 15:08	10
Hexachloroethane	0.00170	U	0.00500	0.00170	mg/L		05/03/13 07:53	05/13/13 15:08	10
Indeno[1,2,3-cd]pyrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
Isophorone	0.00150	U	0.00500	0.00150	mg/L		05/03/13 07:53	05/13/13 15:08	10
Naphthalene	**0.00657**	**b**	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:08	10
Nitrobenzene	0.00200	U	0.00500	0.00200	mg/L		05/03/13 07:53	05/13/13 15:08	10
N-Nitrosodi-n-propylamine	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:08	10
N-Nitrosodiphenylamine	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:08	10
Pentachlorophenol	0.00960	U	0.0100	0.00960	mg/L		05/03/13 07:53	05/13/13 15:08	10
Phenanthrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:08	10
Phenol	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:08	10
Pyrene	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:08	10
Pyridine	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 15:08*	*10*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 15:08*	*10*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 15:58*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:34	1

Client Sample ID: POE-2

Lab Sample ID: 600-72465-6

Date Collected: 04/30/13 15:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1

Client Sample ID: POE-2
Date Collected: 04/30/13 15:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 17:37	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 17:37	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:37	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:37	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 17:37	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 17:37	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 17:37	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 17:37	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 17:37	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 17:37	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:37	1
1,2-Dichloroethane	**0.00115**		0.00100	0.000140	mg/L			05/04/13 17:37	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:37	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:37	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 17:37	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:37	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 17:37	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 17:37	1
Benzene	**0.000305**	**J**	0.00100	0.0000800	mg/L			05/04/13 17:37	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:37	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:37	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 17:37	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 17:37	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 17:37	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 17:37	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 17:37	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/04/13 17:37	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 17:37	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 17:37	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 17:37	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
Methyl tert-butyl ether	**0.00189**		0.00100	0.000120	mg/L			05/04/13 17:37	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 17:37	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 17:37	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 17:37	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 17:37	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 17:37	1

Client Sample ID: POE-2
Date Collected: 04/30/13 15:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butylbenzene	0.000315	J	0.00100	0.0000800	mg/L			05/04/13 17:37	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 17:37	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 17:37	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 17:37	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 17:37	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 17:37	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 17:37	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 17:37	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*05/04/13 17:37*	*1*
4-Bromofluorobenzene	*105*		*67 - 139*		*05/04/13 17:37*	*1*
Dibromofluoromethane	*76*		*62 - 130*		*05/04/13 17:37*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*05/04/13 17:37*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 19:54	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 19:54	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 19:54	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 19:54	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 19:54	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 19:54	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 19:54	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 19:54	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 19:54	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:54	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:54	1

Client Sample ID: POE-2
Date Collected: 04/30/13 15:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-6
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzo[k]fluoranthene	**0.000298**	**J**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 19:54	1
bis (2-Chloroisopropyl) ether	**0.000963**		0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
Bis(2-chloroethoxy)methane	**0.00121**		0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:54	1
Bis(2-chloroethyl)ether	**0.00112**		0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 19:54	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 19:54	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:54	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 19:54	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 19:54	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 19:54	1
Di-n-octyl phthalate	**0.000587**		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 19:54	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 19:54	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 19:54	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 19:54	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 19:54	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 19:54	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 19:54	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 19:54	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 19:54	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:54	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:54	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 19:54	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 19:54	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 19:54	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 19:54	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*46*		*44 - 123*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
2-Fluorobiphenyl	*28*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
2-Fluorophenol	*16*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
Nitrobenzene-d5	*43*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
Terphenyl-d14	*51*		*33 - 141*	*05/03/13 07:53*	*05/13/13 19:54*	*1*
Phenol-d5 (Surr)	*2*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 19:54*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 16:23*	*1*

Client Sample ID: POE-2

Lab Sample ID: 600-72465-6

Date Collected: 04/30/13 15:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:40	1

Client Sample ID: R1-3-03

Lab Sample ID: 600-72465-7

Date Collected: 05/01/13 08:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:30	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 19:30	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 19:30	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 19:30	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:30	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 19:30	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 19:30	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 19:30	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 19:30	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:30	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 19:30	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:30	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:30	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:30	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:30	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 19:30	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 19:30	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:30	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:30	1
Benzene	**0.0000940**	**J**	0.00100	0.0000800	mg/L			05/04/13 19:30	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:30	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:30	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:30	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 19:30	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 19:30	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:30	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 19:30	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 19:30	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/04/13 19:30	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:30	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 19:30	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Ethylbenzene	**0.000139**	**J b**	0.00100	0.000110	mg/L			05/04/13 19:30	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 19:30	1
Isopropylbenzene	**0.000285**	**J**	0.00100	0.000180	mg/L			05/04/13 19:30	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-03
Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 19:30	1
Naphthalene	**0.000919**	**J b**	0.00200	0.000320	mg/L			05/04/13 19:30	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:30	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:30	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 19:30	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 19:30	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:30	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:30	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 19:30	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 19:30	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:30	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 19:30	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 19:30	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*05/04/13 19:30*	*1*
4-Bromofluorobenzene	*103*		*67 - 139*		*05/04/13 19:30*	*1*
Dibromofluoromethane	*76*		*62 - 130*		*05/04/13 19:30*	*1*
Toluene-d8 (Surr)	*88*		*70 - 130*		*05/04/13 19:30*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/10/13 18:58	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/10/13 18:58	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/10/13 18:58	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/10/13 18:58	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 18:58	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*120*		*44 - 123*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
2-Fluorobiphenyl	*81*		*43 - 120*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
2-Fluorophenol	*35*		*18 - 120*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
Nitrobenzene-d5	*85*		*47 - 120*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
Terphenyl-d14	*81*		*33 - 141*	*05/03/13 07:53*	*05/10/13 18:58*	*1*
Phenol-d5 (Surr)	*11*	*X*	*12 - 128*	*05/03/13 07:53*	*05/10/13 18:58*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - RA

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 20:22	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 20:22	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:22	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-03
Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - RA (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 20:22	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 20:22	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 20:22	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 20:22	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 20:22	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 20:22	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 20:22	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:22	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 20:22	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:22	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 20:22	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:22	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:22	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:22	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 20:22	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 20:22	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:22	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 20:22	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:22	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 20:22	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 20:22	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:22	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:22	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:22	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 20:22	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 20:22	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 20:22	1
Naphthalene	**0.000667**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:22	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 20:22	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:22	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:22	1

Client Sample ID: R1-3-03
Date Collected: 05/01/13 08:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-7
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels - RA (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 20:22	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:22	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:22	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:22	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*104*		*44 - 123*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
2-Fluorobiphenyl	*77*		*43 - 120*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
2-Fluorophenol	*35*		*18 - 120*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
Nitrobenzene-d5	*81*		*47 - 120*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
Terphenyl-d14	*85*		*33 - 141*	*05/03/13 07:53*	*05/13/13 20:22*	*1*
Phenol-d5 (Surr)	*16*		*12 - 128*	*05/03/13 07:53*	*05/13/13 20:22*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*55*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 18:34*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.000921**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 19:45	1

Client Sample ID: R1-3-02
Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 18:06	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 18:06	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:06	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:06	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 18:06	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 18:06	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 18:06	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 18:06	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:06	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 18:06	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:06	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:06	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:06	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:06	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:06	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 18:06	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:06	1

Client Sample ID: R1-3-02
Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:06	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:06	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:06	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:06	1
Benzene	**0.000109**	**J**	0.00100	0.0000800	mg/L			05/04/13 18:06	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:06	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:06	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:06	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 18:06	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 18:06	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 18:06	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:06	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 18:06	1
cis-1,2-Dichloroethene	**0.000578**	**J**	0.00100	0.0000600	mg/L			05/04/13 18:06	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 18:06	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:06	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 18:06	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
Methyl tert-butyl ether	**0.000275**	**J**	0.00100	0.000120	mg/L			05/04/13 18:06	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 18:06	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 18:06	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:06	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:06	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 18:06	1
tert-Butylbenzene	**0.000118**	**J**	0.00100	0.0000800	mg/L			05/04/13 18:06	1
Tetrachloroethene	**0.000344**	**J**	0.00100	0.000130	mg/L			05/04/13 18:06	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:06	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 18:06	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 18:06	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:06	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 18:06	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 18:06	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*		*05/04/13 18:06*	*1*
4-Bromofluorobenzene	*113*		*67 - 139*		*05/04/13 18:06*	*1*
Dibromofluoromethane	*77*		*62 - 130*		*05/04/13 18:06*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/04/13 18:06*	*1*

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-02
Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 20:49	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 20:49	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4-Dichlorophenol	**0.00361**		0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 20:49	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 20:49	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 20:49	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 20:49	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 20:49	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 20:49	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 20:49	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:49	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 20:49	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/10/13 19:26	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 20:49	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:49	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:49	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:49	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 20:49	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 20:49	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:49	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 19:26	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 20:49	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 20:49	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 20:49	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-02
Date Collected: 05/01/13 09:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-8
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	**0.000445**	**J**	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 20:49	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 20:49	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 20:49	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 20:49	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 20:49	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 20:49	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/10/13 19:26	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 20:49	1
Naphthalene	**0.000682**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 20:49	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 20:49	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:49	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:49	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 20:49	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 20:49	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 20:49	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 20:49	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 20:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*53*		*44 - 123*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
2,4,6-Tribromophenol	*56*		*44 - 123*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
2-Fluorobiphenyl	*58*		*43 - 120*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
2-Fluorobiphenyl	*57*		*43 - 120*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
2-Fluorophenol	*9*	*X*	*18 - 120*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
2-Fluorophenol	*5*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
Nitrobenzene-d5	*62*		*47 - 120*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
Nitrobenzene-d5	*61*		*47 - 120*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
Terphenyl-d14	*74*		*33 - 141*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
Terphenyl-d14	*70*		*33 - 141*	*05/03/13 07:53*	*05/13/13 20:49*	*1*
Phenol-d5 (Surr)	*17*		*12 - 128*	*05/03/13 07:53*	*05/10/13 19:26*	*1*
Phenol-d5 (Surr)	*14*		*12 - 128*	*05/03/13 07:53*	*05/13/13 20:49*	*1*

Method: 8151A - Herbicides (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*32*		*10 - 125.* *2*	*05/02/13 14:57*	*05/09/13 18:59*	*1*

Method: 8151A - Herbicides (GC) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	**0.497**		0.190	0.0381	mg/L		05/02/13 14:57	05/10/13 12:10	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*0*	*X*	*10 - 125.* *2*	*05/02/13 14:57*	*05/10/13 12:10*	*1000*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:19	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-1-14
Date Collected: 05/01/13 10:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 16:40	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 16:40	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 16:40	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 16:40	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 16:40	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 16:40	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 16:40	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 16:40	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 16:40	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 16:40	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 16:40	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 16:40	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 16:40	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 16:40	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 16:40	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 16:40	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 16:40	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 16:40	1
Benzene	**0.0000847**	**J**	0.00100	0.0000800	mg/L			05/04/13 16:40	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 16:40	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 16:40	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 16:40	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 16:40	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 16:40	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 16:40	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 16:40	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/04/13 16:40	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 16:40	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 16:40	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 16:40	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 16:40	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 16:40	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 16:40	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1

Client Sample ID: R1-1-14
Date Collected: 05/01/13 10:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 16:40	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 16:40	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 16:40	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 16:40	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 16:40	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 16:40	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 16:40	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 16:40	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 16:40	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 16:40	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*		*05/04/13 16:40*	*1*
4-Bromofluorobenzene	*120*		*67 - 139*		*05/04/13 16:40*	*1*
Dibromofluoromethane	*77*		*62 - 130*		*05/04/13 16:40*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/04/13 16:40*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 21:17	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 21:17	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 21:17	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 21:17	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 21:17	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 21:17	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 21:17	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 21:17	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 21:17	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:17	1

Client Sample ID: R1-1-14
Date Collected: 05/01/13 10:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-9
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Benzoic acid	**0.00817**		0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 21:17	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:17	1
Bis(2-chloroethyl)ether	**0.000291**	**J**	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
Bis(2-ethylhexyl) phthalate	**0.000617**		0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 21:17	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 21:17	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:17	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 21:17	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:17	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 21:17	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 21:17	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:17	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:17	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:17	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 21:17	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 21:17	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 21:17	1
Naphthalene	**0.000656**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:17	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 21:17	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:17	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:17	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 21:17	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:17	1
Phenol	**0.000152**	**J**	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:17	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:17	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*99*		*44 - 123*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
2-Fluorobiphenyl	*64*		*43 - 120*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
2-Fluorophenol	*32*		*18 - 120*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
Nitrobenzene-d5	*68*		*47 - 120*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
Terphenyl-d14	*75*		*33 - 141*	*05/03/13 07:53*	*05/13/13 21:17*	*1*
Phenol-d5 (Surr)	*16*		*12 - 128*	*05/03/13 07:53*	*05/13/13 21:17*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 19:24	1

Client Sample ID: R1-1-14

Lab Sample ID: 600-72465-9

Date Collected: 05/01/13 10:30

Matrix: Water

Date Received: 05/01/13 18:14

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*63*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 19:24*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.00130	J	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:24	1

Client Sample ID: POE-1

Lab Sample ID: 600-72465-10

Date Collected: 05/01/13 11:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 14:12	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 14:12	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:12	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:12	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 14:12	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 14:12	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 14:12	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 14:12	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:12	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 14:12	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:12	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:12	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:12	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:12	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 14:12	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:12	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:12	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:12	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:12	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:12	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:12	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:12	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 14:12	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 14:12	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 14:12	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 14:12	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/03/13 14:12	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 14:12	1

Client Sample ID: POE-1
Date Collected: 05/01/13 11:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:12	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 14:12	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
Methyl tert-butyl ether	**0.00261**		0.00100	0.000120	mg/L			05/03/13 14:12	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 14:12	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 14:12	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:12	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:12	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 14:12	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:12	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:12	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:12	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 14:12	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 14:12	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:12	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:12	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 14:12	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 14:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*50 - 134*		*05/03/13 14:12*	*1*
4-Bromofluorobenzene	*83*		*67 - 139*		*05/03/13 14:12*	*1*
Dibromofluoromethane	*90*		*62 - 130*		*05/03/13 14:12*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*05/03/13 14:12*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 21:44	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 21:44	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 21:44	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 21:44	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 21:44	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 21:44	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: POE-1
Date Collected: 05/01/13 11:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-10
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 21:44	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 21:44	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 21:44	1
Acenaphthene	**0.00509**		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:44	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Benzoic acid	**0.00781**		0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 21:44	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:44	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 21:44	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 21:44	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:44	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 21:44	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 21:44	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 21:44	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 21:44	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 21:44	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 21:44	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 21:44	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 21:44	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 21:44	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 21:44	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 21:44	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 21:44	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:44	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:44	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 21:44	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 21:44	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 21:44	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 21:44	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 21:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*90*		*44 - 123*	*05/03/13 07:53*	*05/13/13 21:44*	*1*

Client Sample ID: POE-1

Lab Sample ID: 600-72465-10

Date Collected: 05/01/13 11:30
Matrix: Water
Date Received: 05/01/13 18:14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*61*		*43 - 120*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
2-Fluorophenol	*32*		*18 - 120*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
Nitrobenzene-d5	*61*		*47 - 120*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
Terphenyl-d14	*70*		*33 - 141*	*05/03/13 07:53*	*05/13/13 21:44*	*1*
Phenol-d5 (Surr)	*16*		*12 - 128*	*05/03/13 07:53*	*05/13/13 21:44*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 19:50*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00114**	**J**	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:30	1

Client Sample ID: AMP-2

Lab Sample ID: 600-72465-11

Date Collected: 05/01/13 12:20
Matrix: Water
Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 18:34	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 18:34	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:34	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:34	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 18:34	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 18:34	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 18:34	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 18:34	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:34	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 18:34	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:34	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:34	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:34	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:34	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 18:34	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:34	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 18:34	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 18:34	1
Benzene	**0.000167**	**J**	0.00100	0.0000800	mg/L			05/04/13 18:34	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:34	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:34	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: AMP-2
Date Collected: 05/01/13 12:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 18:34	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 18:34	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 18:34	1
Chlorobenzene	**0.000892**	**J**	0.00100	0.000120	mg/L			05/04/13 18:34	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 18:34	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 18:34	1
cis-1,2-Dichloroethene	**0.000294**	**J**	0.00100	0.0000600	mg/L			05/04/13 18:34	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 18:34	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:34	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 18:34	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 18:34	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:34	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 18:34	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/04/13 18:34	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 18:34	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
o-Xylene	**0.000286**	**J**	0.00100	0.000120	mg/L			05/04/13 18:34	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 18:34	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 18:34	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 18:34	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 18:34	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 18:34	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 18:34	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 18:34	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 18:34	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 18:34	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 18:34	1
Xylenes, Total	**0.000286**	**J**	0.00300	0.000260	mg/L			05/04/13 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*05/04/13 18:34*	*1*
4-Bromofluorobenzene	*111*		*67 - 139*		*05/04/13 18:34*	*1*
Dibromofluoromethane	*74*		*62 - 130*		*05/04/13 18:34*	*1*
Toluene-d8 (Surr)	*87*		*70 - 130*		*05/04/13 18:34*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 22:12	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 22:12	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 22:12	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: AMP-2
Date Collected: 05/01/13 12:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-11
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 22:12	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 22:12	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 22:12	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 22:12	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 22:12	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 22:12	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 22:12	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:12	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[a]pyrene	**0.00106**		0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Benzoic acid	**0.00830**		0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 22:12	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:12	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 22:12	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 22:12	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:12	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 22:12	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:12	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 22:12	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Fluoranthene	**0.000512**		0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 22:12	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:12	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:12	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:12	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 22:12	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 22:12	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1

Client Sample ID: AMP-2

Lab Sample ID: 600-72465-11

Date Collected: 05/01/13 12:20

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 22:12	1
Naphthalene	**0.000661**	**b**	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:12	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 22:12	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:12	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:12	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 22:12	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:12	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:12	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:12	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*110*		*44 - 123*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
2-Fluorobiphenyl	*75*		*43 - 120*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
2-Fluorophenol	*37*		*18 - 120*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
Nitrobenzene-d5	*81*		*47 - 120*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
Terphenyl-d14	*90*		*33 - 141*	*05/03/13 07:53*	*05/13/13 22:12*	*1*
Phenol-d5 (Surr)	*15*		*12 - 128*	*05/03/13 07:53*	*05/13/13 22:12*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 20:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*91*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 20:15*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:36	1

Client Sample ID: AMP-1

Lab Sample ID: 600-72465-12

Date Collected: 05/01/13 13:30

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:02	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:02	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 19:02	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 19:02	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 19:02	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:02	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 19:02	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 19:02	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 19:02	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 19:02	1
1,2,4-Trimethylbenzene	**0.000356**	**J**	0.00100	0.000140	mg/L			05/04/13 19:02	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 19:02	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:02	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:02	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: AMP-1
Date Collected: 05/01/13 13:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:02	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:02	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 19:02	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 19:02	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 19:02	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 19:02	1
Benzene	**0.00499**		0.00100	0.0000800	mg/L			05/04/13 19:02	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:02	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 19:02	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 19:02	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 19:02	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 19:02	1
Chlorobenzene	**0.00872**		0.00100	0.000120	mg/L			05/04/13 19:02	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:02	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 19:02	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 19:02	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/04/13 19:02	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:02	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:02	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 19:02	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 19:02	1
Ethylbenzene	**0.000279**	**J b**	0.00100	0.000110	mg/L			05/04/13 19:02	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 19:02	1
Isopropylbenzene	**0.0243**		0.00100	0.000180	mg/L			05/04/13 19:02	1
Methyl tert-butyl ether	**0.000184**	**J**	0.00100	0.000120	mg/L			05/04/13 19:02	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 19:02	1
m-Xylene & p-Xylene	**0.00103**	**J**	0.00200	0.000170	mg/L			05/04/13 19:02	1
Naphthalene	**0.00218**	**b**	0.00200	0.000320	mg/L			05/04/13 19:02	1
n-Butylbenzene	**0.000974**	**J**	0.00100	0.000160	mg/L			05/04/13 19:02	1
N-Propylbenzene	**0.00823**		0.00100	0.000150	mg/L			05/04/13 19:02	1
o-Xylene	**0.000465**	**J**	0.00100	0.000120	mg/L			05/04/13 19:02	1
sec-Butylbenzene	**0.00857**		0.00100	0.000120	mg/L			05/04/13 19:02	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 19:02	1
tert-Butylbenzene	**0.00358**		0.00100	0.0000800	mg/L			05/04/13 19:02	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 19:02	1
Toluene	**0.000706**	**J**	0.00100	0.000150	mg/L			05/04/13 19:02	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 19:02	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 19:02	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 19:02	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 19:02	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 19:02	1
Xylenes, Total	**0.00150**	**J**	0.00300	0.000260	mg/L			05/04/13 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*05/04/13 19:02*	*1*
4-Bromofluorobenzene	*104*		*67 - 139*		*05/04/13 19:02*	*1*

Client Sample ID: AMP-1
Date Collected: 05/01/13 13:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	*74*		*62 - 130*		*05/04/13 19:02*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/04/13 19:02*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
1,2-Dichlorobenzene	0.00210	U	0.00500	0.00210	mg/L		05/03/13 07:53	05/13/13 15:35	10
1,3-Dichlorobenzene	0.00100	U	0.00500	0.00100	mg/L		05/03/13 07:53	05/13/13 15:35	10
1,4-Dichlorobenzene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4,5-Trichlorophenol	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4,6-Trichlorophenol	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4-Dichlorophenol	0.00260	U	0.00500	0.00260	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4-Dimethylphenol	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4-Dinitrophenol	0.00400	U	0.0100	0.00400	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,4-Dinitrotoluene	0.00320	U	0.00500	0.00320	mg/L		05/03/13 07:53	05/13/13 15:35	10
2,6-Dinitrotoluene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Chloronaphthalene	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Chlorophenol	0.00220	U	0.00500	0.00220	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Methylnaphthalene	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Methylphenol	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Nitroaniline	0.00350	U	0.00500	0.00350	mg/L		05/03/13 07:53	05/13/13 15:35	10
2-Nitrophenol	0.00220	U	0.00500	0.00220	mg/L		05/03/13 07:53	05/13/13 15:35	10
3 & 4 Methylphenol	0.00160	U	0.0100	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
3,3'-Dichlorobenzidine	0.00320	U	0.00500	0.00320	mg/L		05/03/13 07:53	05/13/13 15:35	10
3-Nitroaniline	0.00130	U *	0.00500	0.00130	mg/L		05/03/13 07:53	05/13/13 15:35	10
4,6-Dinitro-2-methylphenol	0.00160	U	0.0100	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Bromophenyl phenyl ether	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Chloro-3-methylphenol	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Chloroaniline	0.00110	U *	0.00500	0.00110	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Chlorophenyl phenyl ether	0.00230	U	0.00500	0.00230	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Nitroaniline	0.00230	U	0.00500	0.00230	mg/L		05/03/13 07:53	05/13/13 15:35	10
4-Nitrophenol	0.00330	U *	0.0100	0.00330	mg/L		05/03/13 07:53	05/13/13 15:35	10
Acenaphthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Acenaphthylene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Aniline	0.00120	U	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:35	10
Anthracene	0.00440	U	0.00500	0.00440	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[a]anthracene	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[a]pyrene	0.00130	U	0.00500	0.00130	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[b]fluoranthene	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[g,h,i]perylene	0.00350	U	0.00500	0.00350	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzo[k]fluoranthene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Benzoic acid	0.00610	U	0.0250	0.00610	mg/L		05/03/13 07:53	05/13/13 15:35	10
bis (2-Chloroisopropyl) ether	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
Bis(2-chloroethoxy)methane	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:35	10
Bis(2-chloroethyl)ether	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
Bis(2-ethylhexyl) phthalate	0.00590	U	0.00500	0.00590	mg/L		05/03/13 07:53	05/13/13 15:35	10
Butyl benzyl phthalate	0.00850	U	0.00500	0.00850	mg/L		05/03/13 07:53	05/13/13 15:35	10
Chrysene	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:35	10
Dibenz(a,h)anthracene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10

Client Sample ID: AMP-1

Date Collected: 05/01/13 13:30
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-12
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Diethyl phthalate	0.0419	U	0.0500	0.0419	mg/L		05/03/13 07:53	05/13/13 15:35	10
Dimethyl phthalate	0.00180	U	0.00500	0.00180	mg/L		05/03/13 07:53	05/13/13 15:35	10
Di-n-butyl phthalate	0.0187	U	0.0500	0.0187	mg/L		05/03/13 07:53	05/13/13 15:35	10
Di-n-octyl phthalate	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Fluoranthene	0.00310	U	0.00500	0.00310	mg/L		05/03/13 07:53	05/13/13 15:35	10
Fluorene	**0.00283**	**J**	0.00500	0.00120	mg/L		05/03/13 07:53	05/13/13 15:35	10
Hexachlorobenzene	0.00250	U	0.00500	0.00250	mg/L		05/03/13 07:53	05/13/13 15:35	10
Hexachlorobutadiene	0.00190	U	0.00500	0.00190	mg/L		05/03/13 07:53	05/13/13 15:35	10
Hexachlorocyclopentadiene	0.00150	U	0.00500	0.00150	mg/L		05/03/13 07:53	05/13/13 15:35	10
Hexachloroethane	0.00170	U	0.00500	0.00170	mg/L		05/03/13 07:53	05/13/13 15:35	10
Indeno[1,2,3-cd]pyrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
Isophorone	0.00150	U	0.00500	0.00150	mg/L		05/03/13 07:53	05/13/13 15:35	10
Naphthalene	0.00160	U	0.00500	0.00160	mg/L		05/03/13 07:53	05/13/13 15:35	10
Nitrobenzene	0.00200	U	0.00500	0.00200	mg/L		05/03/13 07:53	05/13/13 15:35	10
N-Nitrosodi-n-propylamine	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:35	10
N-Nitrosodiphenylamine	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:35	10
Pentachlorophenol	0.00960	U	0.0100	0.00960	mg/L		05/03/13 07:53	05/13/13 15:35	10
Phenanthrene	0.00290	U	0.00500	0.00290	mg/L		05/03/13 07:53	05/13/13 15:35	10
Phenol	0.00140	U	0.00500	0.00140	mg/L		05/03/13 07:53	05/13/13 15:35	10
Pyrene	0.00330	U	0.00500	0.00330	mg/L		05/03/13 07:53	05/13/13 15:35	10
Pyridine	0.00240	U	0.00500	0.00240	mg/L		05/03/13 07:53	05/13/13 15:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X*	*44 - 123*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
2-Fluorobiphenyl	*0*	*X*	*43 - 120*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
2-Fluorophenol	*0*	*X*	*18 - 120*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
Nitrobenzene-d5	*0*	*X*	*47 - 120*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
Terphenyl-d14	*0*	*X*	*33 - 141*	*05/03/13 07:53*	*05/13/13 15:35*	*10*
Phenol-d5 (Surr)	*0*	*X*	*12 - 128*	*05/03/13 07:53*	*05/13/13 15:35*	*10*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*85*		*10 - 125. 2*	*05/02/13 14:57*	*05/09/13 20:40*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:41	1

Client Sample ID: R1-1-18

Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:39	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1

Client Sample ID: R1-1-18
Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 14:39	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 14:39	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:39	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:39	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 14:39	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 14:39	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 14:39	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 14:39	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:39	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 14:39	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:39	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:39	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:39	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:39	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 14:39	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:39	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 14:39	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 14:39	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:39	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:39	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:39	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 14:39	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 14:39	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 14:39	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:39	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:39	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 14:39	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 14:39	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/03/13 14:39	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:39	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 14:39	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:39	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 14:39	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 14:39	1
Isopropylbenzene	**0.000583**	**J**	0.00100	0.000180	mg/L			05/03/13 14:39	1
Methyl tert-butyl ether	**0.00486**		0.00100	0.000120	mg/L			05/03/13 14:39	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 14:39	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 14:39	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/03/13 14:39	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 14:39	1
sec-Butylbenzene	**0.000911**	**J**	0.00100	0.000120	mg/L			05/03/13 14:39	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 14:39	1

Client Sample ID: R1-1-18
Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butylbenzene	**0.00375**		0.00100	0.0000800	mg/L			05/03/13 14:39	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 14:39	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 14:39	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 14:39	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 14:39	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 14:39	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 14:39	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 14:39	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*05/03/13 14:39*	*1*
4-Bromofluorobenzene	*86*		*67 - 139*		*05/03/13 14:39*	*1*
Dibromofluoromethane	*92*		*62 - 130*		*05/03/13 14:39*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*05/03/13 14:39*	*1*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 22:40	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 22:40	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 22:40	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 22:40	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 22:40	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 22:40	1
3-Nitroaniline	0.000130	U *	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 22:40	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Chloroaniline	0.000110	U *	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 22:40	1
4-Nitrophenol	0.000330	U *	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 22:40	1
Acenaphthene	**0.000556**		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:40	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:40	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-1-18
Date Collected: 05/01/13 14:20
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-13
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 22:40	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:40	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 22:40	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 22:40	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:40	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 22:40	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 22:40	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 22:40	1
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 22:40	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 22:40	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 22:40	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 22:40	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 22:40	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 22:40	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 22:40	1
Naphthalene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 22:40	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 22:40	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:40	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:40	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 22:40	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 22:40	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 22:40	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 22:40	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*108*		*44 - 123*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
2-Fluorobiphenyl	*77*		*43 - 120*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
2-Fluorophenol	*43*		*18 - 120*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
Nitrobenzene-d5	*79*		*47 - 120*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
Terphenyl-d14	*92*		*33 - 141*	*05/03/13 07:53*	*05/13/13 22:40*	*1*
Phenol-d5 (Surr)	*29*		*12 - 128*	*05/03/13 07:53*	*05/13/13 22:40*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000381	U	0.000190	0.0000381	mg/L		05/02/13 14:57	05/09/13 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*83*		*10 - 125.*	*05/02/13 14:57*	*05/09/13 21:06*	*1*

2

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-1-18

Lab Sample ID: 600-72465-13

Date Collected: 05/01/13 14:20

Matrix: Water

Date Received: 05/01/13 18:14

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.00164	J	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 20:47	1

Client Sample ID: Trip Blank

Lab Sample ID: 600-72465-14

Date Collected: 05/01/13 00:00

Matrix: Water

Date Received: 05/01/13 18:14

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 12:22	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 12:22	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:22	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:22	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 12:22	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 12:22	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 12:22	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 12:22	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:22	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 12:22	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:22	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:22	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:22	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:22	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 12:22	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:22	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 12:22	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 12:22	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:22	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:22	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:22	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 12:22	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 12:22	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 12:22	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 12:22	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 12:22	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/03/13 12:22	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 12:22	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 12:22	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 12:22	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: Trip Blank
Date Collected: 05/01/13 00:00
Date Received: 05/01/13 18:14

Lab Sample ID: 600-72465-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 12:22	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 12:22	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/03/13 12:22	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 12:22	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 12:22	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:22	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 12:22	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 12:22	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 12:22	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 12:22	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 12:22	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 12:22	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 12:22	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 12:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*05/03/13 12:22*	*1*
4-Bromofluorobenzene	*86*		*67 - 139*		*05/03/13 12:22*	*1*
Dibromofluoromethane	*94*		*62 - 130*		*05/03/13 12:22*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*05/03/13 12:22*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
b	The compound was found in the blank and sample
N	MS, MSD: Spike recovery exceeds upper or lower control limits.
N	RPD of the MS and MSD exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
*	LCS or LCSD exceeds the control limits
*	RPD of the LCS and LCSD exceeds the control limits
b	The compound was found in the blank and sample
X	Surrogate is outside control limits
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

GC Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
E	Result is greater then the UQL and the concentration is an estimated value.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(50-134)	(67-139)	(62-130)	(70-130)
600-72465-1	Equipment Blank	88	87	98	96
600-72465-2	R1-3-01	80	122	74	86
600-72465-3	MW-35	98	88	101	101
600-72465-3 - DL2	MW-35	77	117	79	91
600-72465-3 - DL	MW-35	74	111	78	93
600-72465-3 MS - DL2	MW-35	75	104	82	94
600-72465-3 MSD - DL2	MW-35	77	106	84	88
600-72465-4	MW-37	89	87	87	95
600-72465-5	AMP-3	91	85	86	95
600-72465-5 MS	AMP-3	90	87	96	97
600-72465-5 MSD	AMP-3	91	88	89	97
600-72465-6	POE-2	76	105	76	94
600-72465-7	R1-3-03	77	103	76	88
600-72465-8	R1-3-02	75	113	77	92
600-72465-9	R1-1-14	75	120	77	93
600-72465-10	POE-1	89	83	90	96
600-72465-11	AMP-2	76	111	74	87
600-72465-12	AMP-1	76	104	74	93
600-72465-13	R1-1-18	87	86	92	94
600-72465-14	Trip Blank	87	86	94	98
LCS 600-105345/3	Lab Control Sample	86	88	98	98
LCS 600-105484/4	Lab Control Sample	77	104	84	88
LCS 600-105530/4	Lab Control Sample	74	106	83	94
MB 600-105345/4	Method Blank	86	85	97	99
MB 600-105484/6	Method Blank	80	117	77	90
MB 600-105530/6	Method Blank	74	121	75	94

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(44-123)	(43-120)	(18-120)	(47-120)	(33-141)	(12-128)
600-72465-2	R1-3-01	75	53	28	58	66	11 X
600-72465-3	MW-35	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-3 - DL	MW-35	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-4	MW-37	79	50	31	69	69	20
600-72465-5	AMP-3	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-6	POE-2	46	28 X	16 X	43 X	51	2 X
600-72465-7 - RA	R1-3-03	104	77	35	81	85	16
600-72465-7	R1-3-03	120	81	35	85	81	11 X
600-72465-8	R1-3-02	56	57	5 X	61	70	14
600-72465-8	R1-3-02	53	58	9 X	62	74	17

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(44-123)	(43-120)	(18-120)	(47-120)	(33-141)	(12-128)
600-72465-9	R1-1-14	99	64	32	68	75	16
600-72465-10	POE-1	90	61	32	61	70	16
600-72465-11	AMP-2	110	75	37	81	90	15
600-72465-12	AMP-1	0 X	0 X	0 X	0 X	0 X	0 X
600-72465-13	R1-1-18	108	77	43	79	92	29
LCS 600-105411/2-A	Lab Control Sample	65	54	31	62	70	18
LCSD 600-105411/3-A	Lab Control Sample Dup	74	55	32	61	70	15
MB 600-105411/1-A	Method Blank	64	73	36	70	80	21

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPA2
Lab Sample ID	Client Sample ID	(10-125.2)
600-72465-2	R1-3-01	65
600-72465-3	MW-35	82
600-72465-4	MW-37	70
600-72465-5	AMP-3	69
600-72465-6	POE-2	73
600-72465-6 MS	POE-2	113 E
600-72465-6 MSD	POE-2	116 E
600-72465-7	R1-3-03	55
600-72465-8	R1-3-02	32
600-72465-8 - DL	R1-3-02	0 X
600-72465-9	R1-1-14	63
600-72465-10	POE-1	69
600-72465-11	AMP-2	91
600-72465-12	AMP-1	85
600-72465-13	R1-1-18	83
LCS 600-105273/2-A	Lab Control Sample	72
MB 600-105273/1-A	Method Blank	73

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-105345/4
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 11:55	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/03/13 11:55	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/03/13 11:55	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 11:55	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 11:55	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/03/13 11:55	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/03/13 11:55	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/03/13 11:55	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 11:55	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/03/13 11:55	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 11:55	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/03/13 11:55	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 11:55	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 11:55	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/03/13 11:55	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 11:55	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/03/13 11:55	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/03/13 11:55	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 11:55	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/03/13 11:55	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/03/13 11:55	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/03/13 11:55	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/03/13 11:55	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/03/13 11:55	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/03/13 11:55	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/03/13 11:55	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/03/13 11:55	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/03/13 11:55	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/03/13 11:55	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/03/13 11:55	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/03/13 11:55	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/03/13 11:55	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/03/13 11:55	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-105345/4
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/03/13 11:55	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/03/13 11:55	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 11:55	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/03/13 11:55	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/03/13 11:55	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/03/13 11:55	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/03/13 11:55	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/03/13 11:55	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/03/13 11:55	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/03/13 11:55	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/03/13 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*		*05/03/13 11:55*	*1*
4-Bromofluorobenzene	*85*		*67 - 139*		*05/03/13 11:55*	*1*
Dibromofluoromethane	*97*		*62 - 130*		*05/03/13 11:55*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*05/03/13 11:55*	*1*

Lab Sample ID: LCS 600-105345/3
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.0100	0.01065		mg/L		107	57 - 136
1,1,1-Trichloroethane	0.0100	0.01023		mg/L		102	65 - 142
1,1,2,2-Tetrachloroethane	0.0100	0.009871		mg/L		99	68 - 134
1,1,2-Trichloroethane	0.0100	0.01001		mg/L		100	68 - 130
1,1-Dichloroethane	0.0100	0.01003		mg/L		100	66 - 126
1,1-Dichloroethene	0.0100	0.009706		mg/L		97	59 - 145
1,1-Dichloropropene	0.0100	0.01140		mg/L		114	59 - 134
1,2,3-Trichlorobenzene	0.0100	0.01136		mg/L		114	38 - 152
1,2,3-Trichloropropane	0.0100	0.009523		mg/L		95	52 - 157
1,2,4-Trichlorobenzene	0.0100	0.01099		mg/L		110	55 - 151
1,2,4-Trimethylbenzene	0.0100	0.01006		mg/L		101	63 - 131
1,2-Dibromo-3-Chloropropane	0.0100	0.01019		mg/L		102	43 - 141
1,2-Dichlorobenzene	0.0100	0.009913		mg/L		99	71 - 133
1,2-Dichloroethane	0.0100	0.009062		mg/L		91	66 - 140
1,2-Dichloropropane	0.0100	0.009807		mg/L		98	72 - 125
1,3,5-Trimethylbenzene	0.0100	0.01032		mg/L		103	63 - 132
1,3-Dichlorobenzene	0.0100	0.009972		mg/L		100	71 - 132
1,3-Dichloropropane	0.0100	0.009915		mg/L		99	62 - 132
1,4-Dichlorobenzene	0.0100	0.01021		mg/L		102	72 - 131
2,2-Dichloropropane	0.0100	0.009164		mg/L		92	43 - 169
2-Chlorotoluene	0.0100	0.01008		mg/L		101	58 - 135
4-Chlorotoluene	0.0100	0.009791		mg/L		98	64 - 134
4-Isopropyltoluene	0.0100	0.01136		mg/L		114	63 - 138
Benzene	0.0100	0.01033		mg/L		103	69 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-105345/3
Matrix: Water
Analysis Batch: 105345

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromobenzene	0.0100	0.01026		mg/L		103	61 - 134
Bromodichloromethane	0.0100	0.009767		mg/L		98	73 - 130
Bromoform	0.0100	0.009714		mg/L		97	39 - 149
Bromomethane	0.0100	0.006170		mg/L		62	52 - 146
Carbon tetrachloride	0.0100	0.01071		mg/L		107	59 - 147
Chlorobenzene	0.0100	0.01042		mg/L		104	60 - 136
Chlorobromomethane	0.0100	0.009720		mg/L		97	60 - 141
Chloroethane	0.0100	0.006630		mg/L		66	56 - 144
Chloroform	0.0100	0.01031		mg/L		103	69 - 128
Chloromethane	0.0100	0.006689		mg/L		67	32 - 151
cis-1,2-Dichloroethene	0.0100	0.01008		mg/L		101	69 - 129
cis-1,3-Dichloropropene	0.0100	0.01032		mg/L		103	60 - 135
Dibromochloromethane	0.0100	0.01018		mg/L		102	58 - 132
Dibromomethane	0.0100	0.01016		mg/L		102	68 - 134
Dichlorodifluoromethane	0.0100	0.001204		mg/L		12	12 - 136
Ethylbenzene	0.0100	0.01060		mg/L		106	68 - 128
Hexachlorobutadiene	0.0100	0.01365		mg/L		136	53 - 140
Isopropylbenzene	0.0100	0.01054		mg/L		105	79 - 146
Methyl tert-butyl ether	0.0100	0.009094		mg/L		91	63 - 142
Methylene Chloride	0.0100	0.01053		mg/L		105	62 - 134
m-Xylene & p-Xylene	0.0100	0.01041		mg/L		104	67 - 132
Naphthalene	0.0100	0.009960		mg/L		100	19 - 195
n-Butylbenzene	0.0100	0.01180		mg/L		118	62 - 132
N-Propylbenzene	0.0100	0.01072		mg/L		107	61 - 137
o-Xylene	0.0100	0.01015		mg/L		101	68 - 134
sec-Butylbenzene	0.0100	0.01163		mg/L		116	61 - 134
Styrene	0.0100	0.009945		mg/L		99	68 - 133
tert-Butylbenzene	0.0100	0.01110		mg/L		111	67 - 148
Tetrachloroethene	0.0100	0.01071		mg/L		107	61 - 142
Toluene	0.0100	0.01037		mg/L		104	67 - 130
trans-1,2-Dichloroethene	0.0100	0.01004		mg/L		100	70 - 132
trans-1,3-Dichloropropene	0.0100	0.01024		mg/L		102	63 - 133
Trichloroethene	0.0100	0.01156		mg/L		116	68 - 130
Trichlorofluoromethane	0.0100	0.008068		mg/L		81	55 - 142
Vinyl chloride	0.0100	0.004870		mg/L		49	47 - 146
Xylenes, Total	0.0200	0.02056		mg/L		103	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*
4-Bromofluorobenzene	*88*		*67 - 139*
Dibromofluoromethane	*98*		*62 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-72465-5 MS
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.000180	U	0.0100	0.01042		mg/L		104	60 - 140
1,1,1-Trichloroethane	0.000150	U	0.0100	0.01075		mg/L		107	60 - 140
1,1,2,2-Tetrachloroethane	0.000220	U	0.0100	0.009951		mg/L		100	60 - 140
1,1,2-Trichloroethane	0.000280	U	0.0100	0.009806		mg/L		98	60 - 140
1,1-Dichloroethane	0.000110	U	0.0100	0.009836		mg/L		98	60 - 140
1,1-Dichloroethene	0.000190	U	0.0100	0.009592		mg/L		96	22 - 143
1,1-Dichloropropene	0.000210	U	0.0100	0.01100		mg/L		110	60 - 140
1,2,3-Trichlorobenzene	0.000570	U	0.0100	0.01040		mg/L		104	60 - 140
1,2,3-Trichloropropane	0.000290	U	0.0100	0.009540		mg/L		95	60 - 140
1,2,4-Trichlorobenzene	0.000310	U	0.0100	0.01054		mg/L		105	60 - 140
1,2,4-Trimethylbenzene	0.000140	U	0.0100	0.009902		mg/L		99	60 - 140
1,2-Dibromo-3-Chloropropane	0.000810	U	0.0100	0.01010		mg/L		101	60 - 140
1,2-Dichlorobenzene	0.000100	U	0.0100	0.009886		mg/L		99	60 - 140
1,2-Dichloroethane	0.000140	U	0.0100	0.009183		mg/L		92	60 - 140
1,2-Dichloropropane	0.000160	U	0.0100	0.009699		mg/L		97	60 - 140
1,3,5-Trimethylbenzene	0.000100	U	0.0100	0.01014		mg/L		101	60 - 140
1,3-Dichlorobenzene	0.000130	U	0.0100	0.009914		mg/L		99	60 - 140
1,3-Dichloropropane	0.000220	U	0.0100	0.009472		mg/L		95	60 - 140
1,4-Dichlorobenzene	0.000110	U	0.0100	0.01029		mg/L		103	60 - 140
2,2-Dichloropropane	0.000130	U	0.0100	0.008836		mg/L		88	60 - 140
2-Chlorotoluene	0.000130	U	0.0100	0.009858		mg/L		99	60 - 140
4-Chlorotoluene	0.000140	U	0.0100	0.009492		mg/L		95	60 - 140
4-Isopropyltoluene	0.000100	U	0.0100	0.01102		mg/L		110	60 - 140
Benzene	0.0000800	U	0.0100	0.01020		mg/L		102	65 - 125
Bromobenzene	0.000190	U	0.0100	0.009882		mg/L		99	60 - 140
Bromodichloromethane	0.000160	U	0.0100	0.009884		mg/L		99	60 - 140
Bromoform	0.000190	U	0.0100	0.008574		mg/L		86	60 - 140
Bromomethane	0.000250	U	0.0100	0.004856	N	mg/L		49	60 - 140
Carbon tetrachloride	0.000150	U	0.0100	0.01078		mg/L		108	60 - 140
Chlorobenzene	0.000120	U	0.0100	0.01041		mg/L		104	72 - 122
Chlorobromomethane	0.000180	U	0.0100	0.009181		mg/L		92	60 - 140
Chloroethane	0.0000800	U	0.0100	0.005743	N	mg/L		57	60 - 140
Chloroform	0.000130	U	0.0100	0.01012		mg/L		101	60 - 140
Chloromethane	0.000180	U	0.0100	0.003212	N	mg/L		32	60 - 140
cis-1,2-Dichloroethene	0.000364	J	0.0100	0.01017		mg/L		98	60 - 140
cis-1,3-Dichloropropene	0.000180	U	0.0100	0.009699		mg/L		97	60 - 140
Dibromochloromethane	0.000150	U	0.0100	0.01154		mg/L		115	60 - 140
Dibromomethane	0.000520	U	0.0100	0.01055		mg/L		106	60 - 140
Dichlorodifluoromethane	0.000120	U	0.0100	0.001078	N	mg/L		11	60 - 140
Ethylbenzene	0.000110	U	0.0100	0.01047		mg/L		105	60 - 140
Hexachlorobutadiene	0.000170	U	0.0100	0.01260		mg/L		126	60 - 140
Isopropylbenzene	0.000180	U	0.0100	0.01013		mg/L		101	60 - 140
Methyl tert-butyl ether	0.000336	J	0.0100	0.009247		mg/L		89	60 - 140
Methylene Chloride	0.000150	U	0.0100	0.008641		mg/L		86	60 - 140
m-Xylene & p-Xylene	0.000170	U	0.0100	0.01037		mg/L		104	60 - 140
Naphthalene	0.000320	U	0.0100	0.009617		mg/L		96	60 - 140
n-Butylbenzene	0.000160	U	0.0100	0.01145		mg/L		114	60 - 140
N-Propylbenzene	0.000150	U	0.0100	0.01035		mg/L		104	60 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-72465-5 MS
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	0.000120	U	0.0100	0.01048		mg/L		105	60 - 140
sec-Butylbenzene	0.000120	U	0.0100	0.01143		mg/L		114	60 - 140
Styrene	0.0000700	U	0.0100	0.0005896	J N	mg/L		6	60 - 140
tert-Butylbenzene	0.0000800	U	0.0100	0.01088		mg/L		109	60 - 140
Tetrachloroethene	0.000130	U	0.0100	0.01032		mg/L		103	60 - 140
Toluene	0.000150	U	0.0100	0.009979		mg/L		100	76 - 125
trans-1,2-Dichloroethene	0.0000900	U	0.0100	0.009748		mg/L		97	60 - 140
trans-1,3-Dichloropropene	0.000210	U	0.0100	0.009565		mg/L		96	60 - 140
Trichloroethene	0.000180	U	0.0100	0.01157		mg/L		116	56 - 118
Trichlorofluoromethane	0.0000800	U	0.0100	0.007493		mg/L		75	60 - 140
Vinyl chloride	0.000110	U	0.0100	0.004191	N	mg/L		42	60 - 140
Xylenes, Total	0.000260	U	0.0200	0.02085		mg/L		104	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*50 - 134*
4-Bromofluorobenzene	*87*		*67 - 139*
Dibromofluoromethane	*96*		*62 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: 600-72465-5 MSD
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.000180	U	0.0100	0.01091		mg/L		109	60 - 140	5	30
1,1,1-Trichloroethane	0.000150	U	0.0100	0.01101		mg/L		110	60 - 140	2	30
1,1,2,2-Tetrachloroethane	0.000220	U	0.0100	0.01065		mg/L		107	60 - 140	7	30
1,1,2-Trichloroethane	0.000280	U	0.0100	0.01071		mg/L		107	60 - 140	9	30
1,1-Dichloroethane	0.000110	U	0.0100	0.01028		mg/L		103	60 - 140	4	30
1,1-Dichloroethene	0.000190	U	0.0100	0.009030		mg/L		90	22 - 143	6	30
1,1-Dichloropropene	0.000210	U	0.0100	0.01171		mg/L		117	60 - 140	6	30
1,2,3-Trichlorobenzene	0.000570	U	0.0100	0.01302		mg/L		130	60 - 140	22	30
1,2,3-Trichloropropane	0.000290	U	0.0100	0.01029		mg/L		103	60 - 140	8	30
1,2,4-Trichlorobenzene	0.000310	U	0.0100	0.01195		mg/L		120	60 - 140	13	30
1,2,4-Trimethylbenzene	0.000140	U	0.0100	0.01015		mg/L		102	60 - 140	3	30
1,2-Dibromo-3-Chloropropane	0.000810	U	0.0100	0.01155		mg/L		116	60 - 140	13	30
1,2-Dichlorobenzene	0.000100	U	0.0100	0.01034		mg/L		103	60 - 140	4	30
1,2-Dichloroethane	0.000140	U	0.0100	0.009869		mg/L		99	60 - 140	7	30
1,2-Dichloropropane	0.000160	U	0.0100	0.01041		mg/L		104	60 - 140	7	30
1,3,5-Trimethylbenzene	0.000100	U	0.0100	0.01045		mg/L		105	60 - 140	3	30
1,3-Dichlorobenzene	0.000130	U	0.0100	0.01030		mg/L		103	60 - 140	4	30
1,3-Dichloropropane	0.000220	U	0.0100	0.01026		mg/L		103	60 - 140	8	30
1,4-Dichlorobenzene	0.000110	U	0.0100	0.01046		mg/L		105	60 - 140	2	30
2,2-Dichloropropane	0.000130	U	0.0100	0.009208		mg/L		92	60 - 140	4	30
2-Chlorotoluene	0.000130	U	0.0100	0.01034		mg/L		103	60 - 140	5	30
4-Chlorotoluene	0.000140	U	0.0100	0.009727		mg/L		97	60 - 140	2	30
4-Isopropyltoluene	0.000100	U	0.0100	0.01158		mg/L		116	60 - 140	5	30
Benzene	0.0000800	U	0.0100	0.01065		mg/L		106	65 - 125	4	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-72465-5 MSD
Matrix: Water
Analysis Batch: 105345

Client Sample ID: AMP-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromobenzene	0.000190	U	0.0100	0.01022		mg/L		102	60 - 140	3	30
Bromodichloromethane	0.000160	U	0.0100	0.01048		mg/L		105	60 - 140	6	30
Bromoform	0.000190	U	0.0100	0.009231		mg/L		92	60 - 140	7	30
Bromomethane	0.000250	U	0.0100	0.005366	N	mg/L		54	60 - 140	10	30
Carbon tetrachloride	0.000150	U	0.0100	0.01128		mg/L		113	60 - 140	5	30
Chlorobenzene	0.000120	U	0.0100	0.01097		mg/L		110	72 - 122	5	30
Chlorobromomethane	0.000180	U	0.0100	0.009177		mg/L		92	60 - 140	0	30
Chloroethane	0.0000800	U	0.0100	0.005352	N	mg/L		54	60 - 140	7	30
Chloroform	0.000130	U	0.0100	0.01069		mg/L		107	60 - 140	6	30
Chloromethane	0.000180	U	0.0100	0.003269	N	mg/L		33	60 - 140	2	30
cis-1,2-Dichloroethene	0.000364	J	0.0100	0.009659		mg/L		93	60 - 140	5	30
cis-1,3-Dichloropropene	0.000180	U	0.0100	0.01016		mg/L		102	60 - 140	5	30
Dibromochloromethane	0.000150	U	0.0100	0.01074		mg/L		107	60 - 140	7	30
Dibromomethane	0.000520	U	0.0100	0.01078		mg/L		108	60 - 140	2	30
Dichlorodifluoromethane	0.000120	U	0.0100	0.001023	N	mg/L		10	60 - 140	5	30
Ethylbenzene	0.000110	U	0.0100	0.01097		mg/L		110	60 - 140	5	30
Hexachlorobutadiene	0.000170	U	0.0100	0.01376		mg/L		138	60 - 140	9	30
Isopropylbenzene	0.000180	U	0.0100	0.01045		mg/L		104	60 - 140	3	30
Methyl tert-butyl ether	0.000336	J	0.0100	0.009350		mg/L		90	60 - 140	1	30
Methylene Chloride	0.000150	U	0.0100	0.008139		mg/L		81	60 - 140	6	30
m-Xylene & p-Xylene	0.000170	U	0.0100	0.01064		mg/L		106	60 - 140	3	30
Naphthalene	0.000320	U	0.0100	0.01165		mg/L		116	60 - 140	19	30
n-Butylbenzene	0.000160	U	0.0100	0.01194		mg/L		119	60 - 140	4	30
N-Propylbenzene	0.000150	U	0.0100	0.01087		mg/L		109	60 - 140	5	30
o-Xylene	0.000120	U	0.0100	0.01050		mg/L		105	60 - 140	0	30
sec-Butylbenzene	0.000120	U	0.0100	0.01187		mg/L		119	60 - 140	4	30
Styrene	0.0000700	U	0.0100	0.0003387	J N	mg/L		3	60 - 140	54	30
tert-Butylbenzene	0.0000800	U	0.0100	0.01118		mg/L		112	60 - 140	3	30
Tetrachloroethene	0.000130	U	0.0100	0.01108		mg/L		111	60 - 140	7	30
Toluene	0.000150	U	0.0100	0.01044		mg/L		104	76 - 125	5	30
trans-1,2-Dichloroethene	0.0000900	U	0.0100	0.009191		mg/L		92	60 - 140	6	30
trans-1,3-Dichloropropene	0.000210	U	0.0100	0.01001		mg/L		100	60 - 140	5	30
Trichloroethene	0.000180	U	0.0100	0.01191	N	mg/L		119	56 - 118	3	30
Trichlorofluoromethane	0.0000800	U	0.0100	0.006978		mg/L		70	60 - 140	7	30
Vinyl chloride	0.000110	U	0.0100	0.003940	N	mg/L		39	60 - 140	6	30
Xylenes, Total	0.000260	U	0.0200	0.02114		mg/L		106	60 - 140	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*
4-Bromofluorobenzene	*88*		*67 - 139*
Dibromofluoromethane	*89*		*62 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-105484/6
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 12:53	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/04/13 12:53	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/04/13 12:53	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 12:53	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 12:53	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/04/13 12:53	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/04/13 12:53	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/04/13 12:53	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 12:53	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/04/13 12:53	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 12:53	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/04/13 12:53	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 12:53	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 12:53	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/04/13 12:53	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/04/13 12:53	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/04/13 12:53	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/04/13 12:53	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 12:53	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/04/13 12:53	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/04/13 12:53	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/04/13 12:53	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/04/13 12:53	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/04/13 12:53	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/04/13 12:53	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/04/13 12:53	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/04/13 12:53	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/04/13 12:53	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Ethylbenzene	0.0001371	J	0.00100	0.000110	mg/L			05/04/13 12:53	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/04/13 12:53	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/04/13 12:53	1
Naphthalene	0.0009128	J	0.00200	0.000320	mg/L			05/04/13 12:53	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/04/13 12:53	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-105484/6
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/04/13 12:53	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/04/13 12:53	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 12:53	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/04/13 12:53	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/04/13 12:53	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/04/13 12:53	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/04/13 12:53	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/04/13 12:53	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/04/13 12:53	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/04/13 12:53	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/04/13 12:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*05/04/13 12:53*	*1*
4-Bromofluorobenzene	*117*		*67 - 139*		*05/04/13 12:53*	*1*
Dibromofluoromethane	*77*		*62 - 130*		*05/04/13 12:53*	*1*
Toluene-d8 (Surr)	*90*		*70 - 130*		*05/04/13 12:53*	*1*

Lab Sample ID: LCS 600-105484/4
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.0100	0.009151		mg/L		92	57 - 136
1,1,1-Trichloroethane	0.0100	0.01013		mg/L		101	65 - 142
1,1,2,2-Tetrachloroethane	0.0100	0.01068		mg/L		107	68 - 134
1,1,2-Trichloroethane	0.0100	0.009636		mg/L		96	68 - 130
1,1-Dichloroethane	0.0100	0.009966		mg/L		100	66 - 126
1,1-Dichloroethene	0.0100	0.009123		mg/L		91	59 - 145
1,1-Dichloropropene	0.0100	0.009853		mg/L		99	59 - 134
1,2,3-Trichlorobenzene	0.0100	0.007123		mg/L		71	38 - 152
1,2,3-Trichloropropane	0.0100	0.01042		mg/L		104	52 - 157
1,2,4-Trichlorobenzene	0.0100	0.006489		mg/L		65	55 - 151
1,2,4-Trimethylbenzene	0.0100	0.01056		mg/L		106	63 - 131
1,2-Dibromo-3-Chloropropane	0.0100	0.008085		mg/L		81	43 - 141
1,2-Dichlorobenzene	0.0100	0.009980		mg/L		100	71 - 133
1,2-Dichloroethane	0.0100	0.009968		mg/L		100	66 - 140
1,2-Dichloropropane	0.0100	0.01045		mg/L		104	72 - 125
1,3,5-Trimethylbenzene	0.0100	0.01085		mg/L		108	63 - 132
1,3-Dichlorobenzene	0.0100	0.01050		mg/L		105	71 - 132
1,3-Dichloropropane	0.0100	0.009603		mg/L		96	62 - 132
1,4-Dichlorobenzene	0.0100	0.01003		mg/L		100	72 - 131
2,2-Dichloropropane	0.0100	0.009687		mg/L		97	43 - 169
2-Chlorotoluene	0.0100	0.01156		mg/L		116	58 - 135
4-Chlorotoluene	0.0100	0.01109		mg/L		111	64 - 134
4-Isopropyltoluene	0.0100	0.01206		mg/L		121	63 - 138
Benzene	0.0100	0.01027		mg/L		103	69 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-105484/4
Matrix: Water
Analysis Batch: 105484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromobenzene	0.0100	0.01014		mg/L		101	61 - 134
Bromodichloromethane	0.0100	0.009278		mg/L		93	73 - 130
Bromoform	0.0100	0.008451		mg/L		85	39 - 149
Bromomethane	0.0100	0.009301		mg/L		93	52 - 146
Carbon tetrachloride	0.0100	0.01073		mg/L		107	59 - 147
Chlorobenzene	0.0100	0.01040		mg/L		104	60 - 136
Chlorobromomethane	0.0100	0.009792		mg/L		98	60 - 141
Chloroethane	0.0100	0.009059		mg/L		91	56 - 144
Chloroform	0.0100	0.009959		mg/L		100	69 - 128
Chloromethane	0.0100	0.006940		mg/L		69	32 - 151
cis-1,2-Dichloroethene	0.0100	0.009261		mg/L		93	69 - 129
cis-1,3-Dichloropropene	0.0100	0.008548		mg/L		85	60 - 135
Dibromochloromethane	0.0100	0.008440		mg/L		84	58 - 132
Dibromomethane	0.0100	0.01012		mg/L		101	68 - 134
Dichlorodifluoromethane	0.0100	0.003566		mg/L		36	12 - 136
Ethylbenzene	0.0100	0.01047		mg/L		105	68 - 128
Hexachlorobutadiene	0.0100	0.01040		mg/L		104	53 - 140
Isopropylbenzene	0.0100	0.01193		mg/L		119	79 - 146
Methyl tert-butyl ether	0.0100	0.009721		mg/L		97	63 - 142
Methylene Chloride	0.0100	0.009185		mg/L		92	62 - 134
m-Xylene & p-Xylene	0.0200	0.02112		mg/L		106	67 - 132
Naphthalene	0.0100	0.006718		mg/L		67	19 - 195
n-Butylbenzene	0.0100	0.01078		mg/L		108	62 - 132
N-Propylbenzene	0.0100	0.01179		mg/L		118	61 - 137
o-Xylene	0.0100	0.01083		mg/L		108	68 - 134
sec-Butylbenzene	0.0100	0.01202		mg/L		120	61 - 134
Styrene	0.0100	0.01036		mg/L		104	68 - 133
tert-Butylbenzene	0.0100	0.01309		mg/L		131	67 - 148
Tetrachloroethene	0.0100	0.01043		mg/L		104	61 - 142
Toluene	0.0100	0.01009		mg/L		101	67 - 130
trans-1,2-Dichloroethene	0.0100	0.009400		mg/L		94	70 - 132
trans-1,3-Dichloropropene	0.0100	0.007881		mg/L		79	63 - 133
Trichloroethene	0.0100	0.009916		mg/L		99	68 - 130
Trichlorofluoromethane	0.0100	0.009126		mg/L		91	55 - 142
Vinyl chloride	0.0100	0.007231		mg/L		72	47 - 146
Xylenes, Total	0.0300	0.03195		mg/L		107	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*
4-Bromofluorobenzene	*104*		*67 - 139*
Dibromofluoromethane	*84*		*62 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-105530/6
Matrix: Water
Analysis Batch: 105530

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
1,1,1-Trichloroethane	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1
1,1,2,2-Tetrachloroethane	0.000220	U	0.00100	0.000220	mg/L			05/06/13 11:53	1
1,1,2-Trichloroethane	0.000280	U	0.00100	0.000280	mg/L			05/06/13 11:53	1
1,1-Dichloroethane	0.000110	U	0.00100	0.000110	mg/L			05/06/13 11:53	1
1,1-Dichloroethene	0.000190	U	0.00100	0.000190	mg/L			05/06/13 11:53	1
1,1-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/06/13 11:53	1
1,2,3-Trichlorobenzene	0.000570	U	0.00100	0.000570	mg/L			05/06/13 11:53	1
1,2,3-Trichloropropane	0.000290	U	0.00100	0.000290	mg/L			05/06/13 11:53	1
1,2,4-Trichlorobenzene	0.000310	U	0.00100	0.000310	mg/L			05/06/13 11:53	1
1,2,4-Trimethylbenzene	0.000140	U	0.00100	0.000140	mg/L			05/06/13 11:53	1
1,2-Dibromo-3-Chloropropane	0.000810	U	0.00100	0.000810	mg/L			05/06/13 11:53	1
1,2-Dichlorobenzene	0.000100	U	0.00100	0.000100	mg/L			05/06/13 11:53	1
1,2-Dichloroethane	0.000140	U	0.00100	0.000140	mg/L			05/06/13 11:53	1
1,2-Dichloropropane	0.000160	U	0.00100	0.000160	mg/L			05/06/13 11:53	1
1,3,5-Trimethylbenzene	0.000100	U	0.00100	0.000100	mg/L			05/06/13 11:53	1
1,3-Dichlorobenzene	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
1,3-Dichloropropane	0.000220	U	0.00100	0.000220	mg/L			05/06/13 11:53	1
1,4-Dichlorobenzene	0.000110	U	0.00100	0.000110	mg/L			05/06/13 11:53	1
2,2-Dichloropropane	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
2-Chlorotoluene	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
4-Chlorotoluene	0.000140	U	0.00100	0.000140	mg/L			05/06/13 11:53	1
4-Isopropyltoluene	0.000100	U	0.00100	0.000100	mg/L			05/06/13 11:53	1
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			05/06/13 11:53	1
Bromobenzene	0.000190	U	0.00100	0.000190	mg/L			05/06/13 11:53	1
Bromodichloromethane	0.000160	U	0.00100	0.000160	mg/L			05/06/13 11:53	1
Bromoform	0.000190	U	0.00100	0.000190	mg/L			05/06/13 11:53	1
Bromomethane	0.000250	U	0.00200	0.000250	mg/L			05/06/13 11:53	1
Carbon tetrachloride	0.000150	U	0.00500	0.000150	mg/L			05/06/13 11:53	1
Chlorobenzene	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Chlorobromomethane	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
Chloroethane	0.0000800	U	0.00200	0.0000800	mg/L			05/06/13 11:53	1
Chloroform	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
Chloromethane	0.000180	U	0.00200	0.000180	mg/L			05/06/13 11:53	1
cis-1,2-Dichloroethene	0.0000600	U	0.00100	0.0000600	mg/L			05/06/13 11:53	1
cis-1,3-Dichloropropene	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
Dibromochloromethane	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1
Dibromomethane	0.000520	U	0.00100	0.000520	mg/L			05/06/13 11:53	1
Dichlorodifluoromethane	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			05/06/13 11:53	1
Hexachlorobutadiene	0.000170	U	0.00100	0.000170	mg/L			05/06/13 11:53	1
Isopropylbenzene	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
Methyl tert-butyl ether	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Methylene Chloride	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			05/06/13 11:53	1
Naphthalene	0.000320	U	0.00200	0.000320	mg/L			05/06/13 11:53	1
n-Butylbenzene	0.000160	U	0.00100	0.000160	mg/L			05/06/13 11:53	1
N-Propylbenzene	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-105530/6
Matrix: Water
Analysis Batch: 105530

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
sec-Butylbenzene	0.000120	U	0.00100	0.000120	mg/L			05/06/13 11:53	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			05/06/13 11:53	1
tert-Butylbenzene	0.0000800	U	0.00100	0.0000800	mg/L			05/06/13 11:53	1
Tetrachloroethene	0.000130	U	0.00100	0.000130	mg/L			05/06/13 11:53	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			05/06/13 11:53	1
trans-1,2-Dichloroethene	0.0000900	U	0.00100	0.0000900	mg/L			05/06/13 11:53	1
trans-1,3-Dichloropropene	0.000210	U	0.00100	0.000210	mg/L			05/06/13 11:53	1
Trichloroethene	0.000180	U	0.00100	0.000180	mg/L			05/06/13 11:53	1
Trichlorofluoromethane	0.0000800	U	0.00100	0.0000800	mg/L			05/06/13 11:53	1
Vinyl chloride	0.000110	U	0.00200	0.000110	mg/L			05/06/13 11:53	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			05/06/13 11:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*05/06/13 11:53*	*1*
4-Bromofluorobenzene	*121*		*67 - 139*		*05/06/13 11:53*	*1*
Dibromofluoromethane	*75*		*62 - 130*		*05/06/13 11:53*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*05/06/13 11:53*	*1*

Lab Sample ID: LCS 600-105530/4
Matrix: Water
Analysis Batch: 105530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.0100	0.009081		mg/L		91	57 - 136
1,1,1-Trichloroethane	0.0100	0.009184		mg/L		92	65 - 142
1,1,2,2-Tetrachloroethane	0.0100	0.01067		mg/L		107	68 - 134
1,1,2-Trichloroethane	0.0100	0.01003		mg/L		100	68 - 130
1,1-Dichloroethane	0.0100	0.009263		mg/L		93	66 - 126
1,1-Dichloroethene	0.0100	0.009170		mg/L		92	59 - 145
1,1-Dichloropropene	0.0100	0.01016		mg/L		102	59 - 134
1,2,3-Trichlorobenzene	0.0100	0.007032		mg/L		70	38 - 152
1,2,3-Trichloropropane	0.0100	0.009919		mg/L		99	52 - 157
1,2,4-Trichlorobenzene	0.0100	0.006224		mg/L		62	55 - 151
1,2,4-Trimethylbenzene	0.0100	0.01052		mg/L		105	63 - 131
1,2-Dibromo-3-Chloropropane	0.0100	0.009376		mg/L		94	43 - 141
1,2-Dichlorobenzene	0.0100	0.01034		mg/L		103	71 - 133
1,2-Dichloroethane	0.0100	0.009216		mg/L		92	66 - 140
1,2-Dichloropropane	0.0100	0.009300		mg/L		93	72 - 125
1,3,5-Trimethylbenzene	0.0100	0.01060		mg/L		106	63 - 132
1,3-Dichlorobenzene	0.0100	0.01058		mg/L		106	71 - 132
1,3-Dichloropropane	0.0100	0.009690		mg/L		97	62 - 132
1,4-Dichlorobenzene	0.0100	0.01012		mg/L		101	72 - 131
2,2-Dichloropropane	0.0100	0.008296		mg/L		83	43 - 169
2-Chlorotoluene	0.0100	0.01150		mg/L		115	58 - 135
4-Chlorotoluene	0.0100	0.01111		mg/L		111	64 - 134
4-Isopropyltoluene	0.0100	0.01193		mg/L		119	63 - 138
Benzene	0.0100	0.009441		mg/L		94	69 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-105530/4
Matrix: Water
Analysis Batch: 105530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromobenzene	0.0100	0.009990		mg/L		100	61 - 134
Bromodichloromethane	0.0100	0.009294		mg/L		93	73 - 130
Bromoform	0.0100	0.008506		mg/L		85	39 - 149
Bromomethane	0.0100	0.008548		mg/L		85	52 - 146
Carbon tetrachloride	0.0100	0.009603		mg/L		96	59 - 147
Chlorobenzene	0.0100	0.01047		mg/L		105	60 - 136
Chlorobromomethane	0.0100	0.008976		mg/L		90	60 - 141
Chloroethane	0.0100	0.008630		mg/L		86	56 - 144
Chloroform	0.0100	0.01042		mg/L		104	69 - 128
Chloromethane	0.0100	0.005834		mg/L		58	32 - 151
cis-1,2-Dichloroethene	0.0100	0.008637		mg/L		86	69 - 129
cis-1,3-Dichloropropene	0.0100	0.008253		mg/L		83	60 - 135
Dibromochloromethane	0.0100	0.008158		mg/L		82	58 - 132
Dibromomethane	0.0100	0.009098		mg/L		91	68 - 134
Dichlorodifluoromethane	0.0100	0.002587		mg/L		26	12 - 136
Ethylbenzene	0.0100	0.01020		mg/L		102	68 - 128
Hexachlorobutadiene	0.0100	0.01046		mg/L		105	53 - 140
Isopropylbenzene	0.0100	0.01210		mg/L		121	79 - 146
Methyl tert-butyl ether	0.0100	0.008919		mg/L		89	63 - 142
Methylene Chloride	0.0100	0.008212		mg/L		82	62 - 134
m-Xylene & p-Xylene	0.0200	0.02134		mg/L		107	67 - 132
Naphthalene	0.0100	0.006608		mg/L		66	19 - 195
n-Butylbenzene	0.0100	0.01072		mg/L		107	62 - 132
N-Propylbenzene	0.0100	0.01217		mg/L		122	61 - 137
o-Xylene	0.0100	0.01074		mg/L		107	68 - 134
sec-Butylbenzene	0.0100	0.01202		mg/L		120	61 - 134
Styrene	0.0100	0.01003		mg/L		100	68 - 133
tert-Butylbenzene	0.0100	0.01283		mg/L		128	67 - 148
Tetrachloroethene	0.0100	0.01049		mg/L		105	61 - 142
Toluene	0.0100	0.01037		mg/L		104	67 - 130
trans-1,2-Dichloroethene	0.0100	0.008735		mg/L		87	70 - 132
trans-1,3-Dichloropropene	0.0100	0.007419		mg/L		74	63 - 133
Trichloroethene	0.0100	0.009105		mg/L		91	68 - 130
Trichlorofluoromethane	0.0100	0.008807		mg/L		88	55 - 142
Vinyl chloride	0.0100	0.006576		mg/L		66	47 - 146
Xylenes, Total	0.0300	0.03208		mg/L		107	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*
4-Bromofluorobenzene	*106*		*67 - 139*
Dibromofluoromethane	*83*		*62 - 130*
Toluene-d8 (Surr)	*94*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Lab Sample ID: 600-72465-3 MS
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane - DL2	1.80		100	93.12		mg/L		93	60 - 140
1,1,1-Trichloroethane - DL2	1.50		100	98.28		mg/L		98	60 - 140
1,1,2,2-Tetrachloroethane - DL2	2.20		100	102.2		mg/L		102	60 - 140
1,1,2-Trichloroethane - DL2	2.80		100	101.3		mg/L		101	60 - 140
1,1-Dichloroethane - DL2	1.10		100	99.27		mg/L		99	60 - 140
1,1-Dichloroethene - DL2	1.90		100	91.44		mg/L		91	22 - 143
1,1-Dichloropropene - DL2	2.10		100	107.8		mg/L		108	60 - 140
1,2,3-Trichlorobenzene - DL2	28.8		100	61.95	N	mg/L		33	60 - 140
1,2,3-Trichloropropane - DL2	2.90		100	97.97		mg/L		98	60 - 140
1,2,4-Trichlorobenzene - DL2	16.4		100	57.31	N	mg/L		41	60 - 140
1,2,4-Trimethylbenzene - DL2	2.04		100	102.0		mg/L		100	60 - 140
1,2-Dibromo-3-Chloropropane - DL2	8.10		100	74.88		mg/L		75	60 - 140
1,2-Dichlorobenzene - DL2	6.75		100	98.22		mg/L		91	60 - 140
1,2-Dichloroethane - DL2	1.40		100	94.97		mg/L		95	60 - 140
1,2-Dichloropropane - DL2	1.60		100	100.5		mg/L		100	60 - 140
1,3,5-Trimethylbenzene - DL2	1.54		100	104.8		mg/L		103	60 - 140
1,3-Dichlorobenzene - DL2	4.73		100	101.7		mg/L		97	60 - 140
1,3-Dichloropropane - DL2	2.20		100	102.3		mg/L		102	60 - 140
1,4-Dichlorobenzene - DL2	5.03		100	96.08		mg/L		91	60 - 140
2,2-Dichloropropane - DL2	1.30		100	96.53		mg/L		97	60 - 140
2-Chlorotoluene - DL2	1.30		100	111.2		mg/L		111	60 - 140
4-Chlorotoluene - DL2	2.27		100	107.9		mg/L		106	60 - 140
4-Isopropyltoluene - DL2	1.00		100	115.4		mg/L		115	60 - 140
Benzene - DL2	1.40		100	102.3		mg/L		101	65 - 125
Bromobenzene - DL2	2.71		100	96.11		mg/L		93	60 - 140
Bromodichloromethane - DL2	1.60		100	97.83		mg/L		98	60 - 140
Bromoform - DL2	1.90		100	81.20		mg/L		81	60 - 140
Bromomethane - DL2	2.50		100	81.74		mg/L		82	60 - 140
Carbon tetrachloride - DL2	1.50		100	100.8		mg/L		101	60 - 140
Chlorobenzene - DL2	1.20		100	105.5		mg/L		106	72 - 122
Chlorobromomethane - DL2	1.80		100	93.59		mg/L		94	60 - 140
Chloroethane - DL2	0.800		100	82.58		mg/L		83	60 - 140
Chloroform - DL2	2.99		100	108.7		mg/L		106	60 - 140
Chloromethane - DL2	1.80		100	60.92		mg/L		61	60 - 140
cis-1,2-Dichloroethene - DL2	226		100	306.4		mg/L		81	60 - 140
cis-1,3-Dichloropropene - DL2	1.80		100	86.56		mg/L		87	60 - 140
Dibromochloromethane - DL2	1.50		100	83.46		mg/L		83	60 - 140
Dibromomethane - DL2	5.20		100	92.23		mg/L		92	60 - 140
Dichlorodifluoromethane - DL2	1.20		100	28.80	N	mg/L		29	60 - 140
Ethylbenzene - DL2	1.86		100	106.9		mg/L		105	60 - 140
Hexachlorobutadiene - DL2	1.70		100	99.49		mg/L		99	60 - 140
Isopropylbenzene - DL2	1.80		100	117.4		mg/L		117	60 - 140
Methyl tert-butyl ether - DL2	1.20		100	93.36		mg/L		93	60 - 140
Methylene Chloride - DL2	1.50		100	82.84		mg/L		83	60 - 140
m-Xylene & p-Xylene - DL2	1.70		200	217.3		mg/L		109	60 - 140
Naphthalene - DL2	42.6		100	82.27	N	mg/L		40	60 - 140
n-Butylbenzene - DL2	2.63		100	102.4		mg/L		100	60 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2 (Continued)

Lab Sample ID: 600-72465-3 MS
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
N-Propylbenzene - DL2	1.50		100	115.6		mg/L		116	60 - 140
o-Xylene - DL2	1.20		100	109.8		mg/L		110	60 - 140
sec-Butylbenzene - DL2	1.20		100	117.3		mg/L		117	60 - 140
Styrene - DL2	0.700		100	104.1		mg/L		104	60 - 140
tert-Butylbenzene - DL2	0.800		100	125.9		mg/L		126	60 - 140
Tetrachloroethene - DL2	1.30		100	110.0		mg/L		110	60 - 140
Toluene - DL2	1.50		100	107.7		mg/L		108	76 - 125
trans-1,2-Dichloroethene - DL2	0.900		100	93.72		mg/L		94	60 - 140
trans-1,3-Dichloropropene - DL2	2.10		100	77.16		mg/L		77	60 - 140
Trichloroethene - DL2	2.63		100	99.05		mg/L		96	56 - 118
Trichlorofluoromethane - DL2	0.800		100	83.61		mg/L		84	60 - 140
Vinyl chloride - DL2	1.10		100	66.24		mg/L		66	60 - 140
Xylenes, Total - DL2	2.60		300	327.1		mg/L		109	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL2	*75*		*50 - 134*
4-Bromofluorobenzene - DL2	*104*		*67 - 139*
Dibromofluoromethane - DL2	*82*		*62 - 130*
Toluene-d8 (Surr) - DL2	*94*		*70 - 130*

Lab Sample ID: 600-72465-3 MSD
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane - DL2	1.80		100	91.60		mg/L		92	60 - 140	2	30
1,1,1-Trichloroethane - DL2	1.50		100	97.68		mg/L		98	60 - 140	1	30
1,1,2,2-Tetrachloroethane - DL2	2.20		100	109.5		mg/L		110	60 - 140	7	30
1,1,2-Trichloroethane - DL2	2.80		100	97.30		mg/L		97	60 - 140	4	30
1,1-Dichloroethane - DL2	1.10		100	97.74		mg/L		98	60 - 140	2	30
1,1-Dichloroethene - DL2	1.90		100	90.25		mg/L		90	22 - 143	1	30
1,1-Dichloropropene - DL2	2.10		100	99.43		mg/L		99	60 - 140	8	30
1,2,3-Trichlorobenzene - DL2	28.8		100	88.39	N	mg/L		60	60 - 140	35	30
1,2,3-Trichloropropane - DL2	2.90		100	106.1		mg/L		106	60 - 140	8	30
1,2,4-Trichlorobenzene - DL2	16.4		100	74.60	N	mg/L		58	60 - 140	26	30
1,2,4-Trimethylbenzene - DL2	2.04		100	105.9		mg/L		104	60 - 140	4	30
1,2-Dibromo-3-Chloropropane - DL2	8.10		100	96.39		mg/L		96	60 - 140	25	30
1,2-Dichlorobenzene - DL2	6.75		100	104.7		mg/L		98	60 - 140	6	30
1,2-Dichloroethane - DL2	1.40		100	98.78		mg/L		99	60 - 140	4	30
1,2-Dichloropropane - DL2	1.60		100	102.2		mg/L		102	60 - 140	2	30
1,3,5-Trimethylbenzene - DL2	1.54		100	107.4		mg/L		106	60 - 140	2	30
1,3-Dichlorobenzene - DL2	4.73		100	110.0		mg/L		105	60 - 140	8	30
1,3-Dichloropropane - DL2	2.20		100	100.9		mg/L		101	60 - 140	1	30
1,4-Dichlorobenzene - DL2	5.03		100	104.2		mg/L		99	60 - 140	8	30
2,2-Dichloropropane - DL2	1.30		100	93.52		mg/L		94	60 - 140	3	30
2-Chlorotoluene - DL2	1.30		100	114.4		mg/L		114	60 - 140	3	30

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2 (Continued)

Lab Sample ID: 600-72465-3 MSD
Matrix: Water
Analysis Batch: 105484

Client Sample ID: MW-35
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chlorotoluene - DL2	2.27		100	113.0		mg/L		111	60 - 140	5	30
4-Isopropyltoluene - DL2	1.00		100	120.6		mg/L		121	60 - 140	4	30
Benzene - DL2	1.40		100	99.48		mg/L		98	65 - 125	3	30
Bromobenzene - DL2	2.71		100	102.9		mg/L		100	60 - 140	7	30
Bromodichloromethane - DL2	1.60		100	92.43		mg/L		92	60 - 140	6	30
Bromoform - DL2	1.90		100	85.24		mg/L		85	60 - 140	5	30
Bromomethane - DL2	2.50		100	85.21		mg/L		85	60 - 140	4	30
Carbon tetrachloride - DL2	1.50		100	102.5		mg/L		103	60 - 140	2	30
Chlorobenzene - DL2	1.20		100	104.4		mg/L		104	72 - 122	1	30
Chlorobromomethane - DL2	1.80		100	96.87		mg/L		97	60 - 140	3	30
Chloroethane - DL2	0.800		100	85.19		mg/L		85	60 - 140	3	30
Chloroform - DL2	2.99		100	102.0		mg/L		99	60 - 140	6	30
Chloromethane - DL2	1.80		100	65.03		mg/L		65	60 - 140	7	30
cis-1,2-Dichloroethene - DL2	226		100	299.5		mg/L		74	60 - 140	2	30
cis-1,3-Dichloropropene - DL2	1.80		100	86.97		mg/L		87	60 - 140	0	30
Dibromochloromethane - DL2	1.50		100	82.44		mg/L		82	60 - 140	1	30
Dibromomethane - DL2	5.20		100	98.91		mg/L		99	60 - 140	7	30
Dichlorodifluoromethane - DL2	1.20		100	34.51	N	mg/L		35	60 - 140	18	30
Ethylbenzene - DL2	1.86		100	104.7		mg/L		103	60 - 140	2	30
Hexachlorobutadiene - DL2	1.70		100	111.7		mg/L		112	60 - 140	12	30
Isopropylbenzene - DL2	1.80		100	119.2		mg/L		119	60 - 140	2	30
Methyl tert-butyl ether - DL2	1.20		100	94.53		mg/L		95	60 - 140	1	30
Methylene Chloride - DL2	1.50		100	85.32		mg/L		85	60 - 140	3	30
m-Xylene & p-Xylene - DL2	1.70		200	213.3		mg/L		107	60 - 140	2	30
Naphthalene - DL2	42.6		100	101.5	N	mg/L		59	60 - 140	21	30
n-Butylbenzene - DL2	2.63		100	107.4		mg/L		105	60 - 140	5	30
N-Propylbenzene - DL2	1.50		100	119.9		mg/L		120	60 - 140	4	30
o-Xylene - DL2	1.20		100	107.9		mg/L		108	60 - 140	2	30
sec-Butylbenzene - DL2	1.20		100	120.3		mg/L		120	60 - 140	2	30
Styrene - DL2	0.700		100	105.1		mg/L		105	60 - 140	1	30
tert-Butylbenzene - DL2	0.800		100	130.0		mg/L		130	60 - 140	3	30
Tetrachloroethene - DL2	1.30		100	105.1		mg/L		105	60 - 140	5	30
Toluene - DL2	1.50		100	102.1		mg/L		102	76 - 125	5	30
trans-1,2-Dichloroethene - DL2	0.900		100	93.16		mg/L		93	60 - 140	1	30
trans-1,3-Dichloropropene - DL2	2.10		100	79.12		mg/L		79	60 - 140	3	30
Trichloroethene - DL2	2.63		100	98.52		mg/L		96	56 - 118	1	30
Trichlorofluoromethane - DL2	0.800		100	89.14		mg/L		89	60 - 140	6	30
Vinyl chloride - DL2	1.10		100	72.59		mg/L		73	60 - 140	9	30
Xylenes, Total - DL2	2.60		300	321.2		mg/L		107	60 - 140	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL2	*77*		*50 - 134*
4-Bromofluorobenzene - DL2	*106*		*67 - 139*
Dibromofluoromethane - DL2	*84*		*62 - 130*
Toluene-d8 (Surr) - DL2	*88*		*70 - 130*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-105411/1-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105411

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
1,2-Dichlorobenzene	0.000210	U	0.000500	0.000210	mg/L		05/03/13 07:53	05/13/13 17:37	1
1,3-Dichlorobenzene	0.000100	U	0.000500	0.000100	mg/L		05/03/13 07:53	05/13/13 17:37	1
1,4-Dichlorobenzene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4,5-Trichlorophenol	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4,6-Trichlorophenol	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4-Dichlorophenol	0.000260	U	0.000500	0.000260	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4-Dimethylphenol	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4-Dinitrophenol	0.000400	U	0.00100	0.000400	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,4-Dinitrotoluene	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 17:37	1
2,6-Dinitrotoluene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Chloronaphthalene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Chlorophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Methylnaphthalene	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Methylphenol	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Nitroaniline	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 17:37	1
2-Nitrophenol	0.000220	U	0.000500	0.000220	mg/L		05/03/13 07:53	05/13/13 17:37	1
3 & 4 Methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
3,3'-Dichlorobenzidine	0.000320	U	0.000500	0.000320	mg/L		05/03/13 07:53	05/13/13 17:37	1
3-Nitroaniline	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 17:37	1
4,6-Dinitro-2-methylphenol	0.000160	U	0.00100	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Bromophenyl phenyl ether	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Chloro-3-methylphenol	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Chloroaniline	0.000110	U	0.000500	0.000110	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Chlorophenyl phenyl ether	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Nitroaniline	0.000230	U	0.000500	0.000230	mg/L		05/03/13 07:53	05/13/13 17:37	1
4-Nitrophenol	0.000330	U	0.00100	0.000330	mg/L		05/03/13 07:53	05/13/13 17:37	1
Acenaphthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Acenaphthylene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Aniline	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 17:37	1
Anthracene	0.000440	U	0.000500	0.000440	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[a]anthracene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[a]pyrene	0.000130	U	0.000500	0.000130	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[b]fluoranthene	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[g,h,i]perylene	0.000350	U	0.000500	0.000350	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzo[k]fluoranthene	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Benzoic acid	0.000610	U	0.00250	0.000610	mg/L		05/03/13 07:53	05/13/13 17:37	1
bis (2-Chloroisopropyl) ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
Bis(2-chloroethoxy)methane	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 17:37	1
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
Bis(2-ethylhexyl) phthalate	0.000590	U	0.000500	0.000590	mg/L		05/03/13 07:53	05/13/13 17:37	1
Butyl benzyl phthalate	0.000850	U	0.000500	0.000850	mg/L		05/03/13 07:53	05/13/13 17:37	1
Chrysene	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 17:37	1
Dibenz(a,h)anthracene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
Dibenzofuran	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Diethyl phthalate	0.00419	U	0.00500	0.00419	mg/L		05/03/13 07:53	05/13/13 17:37	1
Dimethyl phthalate	0.000180	U	0.000500	0.000180	mg/L		05/03/13 07:53	05/13/13 17:37	1
Di-n-butyl phthalate	0.00187	U	0.00500	0.00187	mg/L		05/03/13 07:53	05/13/13 17:37	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: MB 600-105411/1-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105411

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	0.000160	U	0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Fluoranthene	0.000310	U	0.000500	0.000310	mg/L		05/03/13 07:53	05/13/13 17:37	1
Fluorene	0.000120	U	0.000500	0.000120	mg/L		05/03/13 07:53	05/13/13 17:37	1
Hexachlorobenzene	0.000250	U	0.000500	0.000250	mg/L		05/03/13 07:53	05/13/13 17:37	1
Hexachlorobutadiene	0.000190	U	0.000500	0.000190	mg/L		05/03/13 07:53	05/13/13 17:37	1
Hexachlorocyclopentadiene	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 17:37	1
Hexachloroethane	0.000170	U	0.000500	0.000170	mg/L		05/03/13 07:53	05/13/13 17:37	1
Indeno[1,2,3-cd]pyrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
Isophorone	0.000150	U	0.000500	0.000150	mg/L		05/03/13 07:53	05/13/13 17:37	1
Naphthalene	0.0006574		0.000500	0.000160	mg/L		05/03/13 07:53	05/13/13 17:37	1
Nitrobenzene	0.000200	U	0.000500	0.000200	mg/L		05/03/13 07:53	05/13/13 17:37	1
N-Nitrosodi-n-propylamine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 17:37	1
N-Nitrosodiphenylamine	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 17:37	1
Pentachlorophenol	0.000960	U	0.00100	0.000960	mg/L		05/03/13 07:53	05/13/13 17:37	1
Phenanthrene	0.000290	U	0.000500	0.000290	mg/L		05/03/13 07:53	05/13/13 17:37	1
Phenol	0.000140	U	0.000500	0.000140	mg/L		05/03/13 07:53	05/13/13 17:37	1
Pyrene	0.000330	U	0.000500	0.000330	mg/L		05/03/13 07:53	05/13/13 17:37	1
Pyridine	0.000240	U	0.000500	0.000240	mg/L		05/03/13 07:53	05/13/13 17:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*64*		*44 - 123*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
2-Fluorobiphenyl	*73*		*43 - 120*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
2-Fluorophenol	*36*		*18 - 120*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
Nitrobenzene-d5	*70*		*47 - 120*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
Terphenyl-d14	*80*		*33 - 141*	*05/03/13 07:53*	*05/13/13 17:37*	*1*
Phenol-d5 (Surr)	*21*		*12 - 128*	*05/03/13 07:53*	*05/13/13 17:37*	*1*

Lab Sample ID: LCS 600-105411/2-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	0.00800	0.005053		mg/L		63	38 - 118
1,2-Dichlorobenzene	0.00800	0.005101		mg/L		64	40 - 121
1,3-Dichlorobenzene	0.00800	0.004967		mg/L		62	39 - 122
1,4-Dichlorobenzene	0.00800	0.004868		mg/L		61	45 - 124
2,4,5-Trichlorophenol	0.00800	0.005226		mg/L		65	38 - 145
2,4,6-Trichlorophenol	0.00800	0.005286		mg/L		66	39 - 123
2,4-Dichlorophenol	0.00800	0.004833		mg/L		60	39 - 118
2,4-Dimethylphenol	0.00800	0.003844		mg/L		48	36 - 109
2,4-Dinitrophenol	0.00800	0.008204		mg/L		103	23 - 130
2,4-Dinitrotoluene	0.00800	0.008059		mg/L		101	43 - 128
2,6-Dinitrotoluene	0.00800	0.006875		mg/L		86	45 - 122
2-Chloronaphthalene	0.00800	0.004807		mg/L		60	43 - 120
2-Chlorophenol	0.00800	0.005336		mg/L		67	23 - 134
2-Methylnaphthalene	0.00800	0.005533		mg/L		69	40 - 121
2-Methylphenol	0.00800	0.004195		mg/L		52	34 - 109
2-Nitroaniline	0.00800	0.007905		mg/L		99	42 - 130

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-105411/2-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Nitrophenol	0.00800	0.006549		mg/L		82	40 - 121
3 & 4 Methylphenol	0.00800	0.004081		mg/L		51	27 - 113
3,3'-Dichlorobenzidine	0.00800	0.008224		mg/L		103	38 - 168
3-Nitroaniline	0.00800	0.01581	*	mg/L		198	47 - 138
4,6-Dinitro-2-methylphenol	0.00800	0.005651		mg/L		71	24 - 122
4-Bromophenyl phenyl ether	0.00800	0.005692		mg/L		71	46 - 129
4-Chloro-3-methylphenol	0.00800	0.005515		mg/L		69	44 - 131
4-Chloroaniline	0.00800	0.01070	*	mg/L		134	19 - 129
4-Chlorophenyl phenyl ether	0.00800	0.005901		mg/L		74	48 - 125
4-Nitroaniline	0.00800	0.005875		mg/L		73	32 - 139
4-Nitrophenol	0.00800	0.004973		mg/L		62	14 - 132
Acenaphthene	0.00800	0.005783		mg/L		72	47 - 145
Acenaphthylene	0.00800	0.005193		mg/L		65	35 - 135
Aniline	0.00800	0.006634		mg/L		83	13 - 100
Anthracene	0.00800	0.005017		mg/L		63	53 - 124
Benzo[a]anthracene	0.00800	0.005991		mg/L		75	53 - 122
Benzo[a]pyrene	0.00800	0.006383		mg/L		80	50 - 124
Benzo[b]fluoranthene	0.00800	0.006667		mg/L		83	53 - 131
Benzo[g,h,i]perylene	0.00800	0.006076		mg/L		76	46 - 133
Benzo[k]fluoranthene	0.00800	0.006044		mg/L		76	46 - 130
Benzoic acid	0.0160	0.007727		mg/L		48	10 - 110
bis (2-Chloroisopropyl) ether	0.00800	0.005475		mg/L		68	41 - 111
Bis(2-chloroethoxy)methane	0.00800	0.004899		mg/L		61	42 - 119
Bis(2-chloroethyl)ether	0.00800	0.004250		mg/L		53	40 - 112
Bis(2-ethylhexyl) phthalate	0.00800	0.006639		mg/L		83	47 - 132
Butyl benzyl phthalate	0.00800	0.006432		mg/L		80	50 - 126
Chrysene	0.00800	0.005819		mg/L		73	49 - 124
Dibenz(a,h)anthracene	0.00800	0.006523		mg/L		82	42 - 134
Dibenzofuran	0.00800	0.005310		mg/L		66	46 - 123
Diethyl phthalate	0.00800	0.005550		mg/L		69	51 - 123
Dimethyl phthalate	0.00800	0.005868		mg/L		73	49 - 121
Di-n-butyl phthalate	0.00800	0.005408		mg/L		68	54 - 138
Di-n-octyl phthalate	0.00800	0.006609		mg/L		83	27 - 157
Fluoranthene	0.00800	0.005412		mg/L		68	53 - 127
Fluorene	0.00800	0.006018		mg/L		75	48 - 127
Hexachlorobenzene	0.00800	0.005591		mg/L		70	46 - 129
Hexachlorobutadiene	0.00800	0.004845		mg/L		61	32 - 143
Hexachlorocyclopentadiene	0.00800	0.001730		mg/L		22	21 - 126
Hexachloroethane	0.00800	0.004427		mg/L		55	43 - 118
Indeno[1,2,3-cd]pyrene	0.00800	0.006321		mg/L		79	45 - 124
Isophorone	0.00800	0.004915		mg/L		61	42 - 116
Naphthalene	0.00800	0.004493		mg/L		56	39 - 120
Nitrobenzene	0.00800	0.005563		mg/L		70	42 - 119
N-Nitrosodi-n-propylamine	0.00800	0.004270		mg/L		53	39 - 124
N-Nitrosodiphenylamine	0.00800	0.007299		mg/L		91	43 - 107
Pentachlorophenol	0.00800	0.004843		mg/L		61	9 - 147
Phenanthrene	0.00800	0.005428		mg/L		68	52 - 121
Phenol	0.00800	0.002835		mg/L		35	11 - 112

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-105411/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 106041 — **Prep Batch: 105411**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pyrene	0.00800	0.006227		mg/L		78	49 - 121
Pyridine	0.00800	0.002012		mg/L		25	10 - 109

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*65*		*44 - 123*
2-Fluorobiphenyl	*54*		*43 - 120*
2-Fluorophenol	*31*		*18 - 120*
Nitrobenzene-d5	*62*		*47 - 120*
Terphenyl-d14	*70*		*33 - 141*
Phenol-d5 (Surr)	*18*		*12 - 128*

Lab Sample ID: LCSD 600-105411/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 106041 — **Prep Batch: 105411**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	0.00800	0.005052		mg/L		63	38 - 118	0	20
1,2-Dichlorobenzene	0.00800	0.005162		mg/L		65	40 - 121	1	20
1,3-Dichlorobenzene	0.00800	0.005022		mg/L		63	39 - 122	1	20
1,4-Dichlorobenzene	0.00800	0.004923		mg/L		62	45 - 124	1	20
2,4,5-Trichlorophenol	0.00800	0.005989		mg/L		75	38 - 145	14	20
2,4,6-Trichlorophenol	0.00800	0.005417		mg/L		68	39 - 123	2	20
2,4-Dichlorophenol	0.00800	0.004635		mg/L		58	39 - 118	4	20
2,4-Dimethylphenol	0.00800	0.003792		mg/L		47	36 - 109	1	20
2,4-Dinitrophenol	0.00800	0.008303		mg/L		104	23 - 130	1	20
2,4-Dinitrotoluene	0.00800	0.008243		mg/L		103	43 - 128	2	20
2,6-Dinitrotoluene	0.00800	0.006813		mg/L		85	45 - 122	1	20
2-Chloronaphthalene	0.00800	0.004928		mg/L		62	43 - 120	2	20
2-Chlorophenol	0.00800	0.005380		mg/L		67	23 - 134	1	20
2-Methylnaphthalene	0.00800	0.005411		mg/L		68	40 - 121	2	20
2-Methylphenol	0.00800	0.003946		mg/L		49	34 - 109	6	20
2-Nitroaniline	0.00800	0.007986		mg/L		100	42 - 130	1	20
2-Nitrophenol	0.00800	0.006508		mg/L		81	40 - 121	1	20
3 & 4 Methylphenol	0.00800	0.003948		mg/L		49	27 - 113	3	20
3,3'-Dichlorobenzidine	0.00800	0.008068		mg/L		101	38 - 168	2	20
3-Nitroaniline	0.00800	0.01577	*	mg/L		197	47 - 138	0	20
4,6-Dinitro-2-methylphenol	0.00800	0.005585		mg/L		70	24 - 122	1	20
4-Bromophenyl phenyl ether	0.00800	0.005718		mg/L		71	46 - 129	0	20
4-Chloro-3-methylphenol	0.00800	0.005207		mg/L		65	44 - 131	6	20
4-Chloroaniline	0.00800	0.01028		mg/L		128	19 - 129	4	20
4-Chlorophenyl phenyl ether	0.00800	0.005918		mg/L		74	48 - 125	0	20
4-Nitroaniline	0.00800	0.006993		mg/L		87	32 - 139	17	20
4-Nitrophenol	0.00800	0.002988	*	mg/L		37	14 - 132	50	20
Acenaphthene	0.00800	0.005935		mg/L		74	47 - 145	3	20
Acenaphthylene	0.00800	0.005299		mg/L		66	35 - 135	2	20
Aniline	0.00800	0.006510		mg/L		81	13 - 100	2	20
Anthracene	0.00800	0.005131		mg/L		64	53 - 124	2	20
Benzo[a]anthracene	0.00800	0.005979		mg/L		75	53 - 122	0	20

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 600-105411/3-A
Matrix: Water
Analysis Batch: 106041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 105411

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]pyrene			0.00800	0.006308		mg/L		79	50 - 124	1	20
Benzo[b]fluoranthene			0.00800	0.006411		mg/L		80	53 - 131	4	20
Benzo[g,h,i]perylene			0.00800	0.006185		mg/L		77	46 - 133	2	20
Benzo[k]fluoranthene			0.00800	0.005578		mg/L		70	46 - 130	8	20
Benzoic acid			0.0160	0.008068		mg/L		50	10 - 110	4	20
bis (2-Chloroisopropyl) ether			0.00800	0.005429		mg/L		68	41 - 111	1	20
Bis(2-chloroethoxy)methane			0.00800	0.005335		mg/L		67	42 - 119	9	20
Bis(2-chloroethyl)ether			0.00800	0.004762		mg/L		60	40 - 112	11	20
Bis(2-ethylhexyl) phthalate			0.00800	0.006569		mg/L		82	47 - 132	1	20
Butyl benzyl phthalate			0.00800	0.006515		mg/L		81	50 - 126	1	20
Chrysene			0.00800	0.005941		mg/L		74	49 - 124	2	20
Dibenz(a,h)anthracene			0.00800	0.006531		mg/L		82	42 - 134	0	20
Dibenzofuran			0.00800	0.005220		mg/L		65	46 - 123	2	20
Diethyl phthalate			0.00800	0.005510		mg/L		69	51 - 123	1	20
Dimethyl phthalate			0.00800	0.005898		mg/L		74	49 - 121	1	20
Di-n-butyl phthalate			0.00800	0.005434		mg/L		68	54 - 138	0	20
Di-n-octyl phthalate			0.00800	0.006706		mg/L		84	27 - 157	1	20
Fluoranthene			0.00800	0.005316		mg/L		66	53 - 127	2	20
Fluorene			0.00800	0.006188		mg/L		77	48 - 127	3	20
Hexachlorobenzene			0.00800	0.005593		mg/L		70	46 - 129	0	20
Hexachlorobutadiene			0.00800	0.004768		mg/L		60	32 - 143	2	20
Hexachlorocyclopentadiene			0.00800	0.001997		mg/L		25	21 - 126	14	20
Hexachloroethane			0.00800	0.004410		mg/L		55	43 - 118	0	20
Indeno[1,2,3-cd]pyrene			0.00800	0.006225		mg/L		78	45 - 124	2	20
Isophorone			0.00800	0.004746		mg/L		59	42 - 116	4	20
Naphthalene			0.00800	0.004559		mg/L		57	39 - 120	1	20
Nitrobenzene			0.00800	0.005547		mg/L		69	42 - 119	0	20
N-Nitrosodi-n-propylamine			0.00800	0.004395		mg/L		55	39 - 124	3	20
N-Nitrosodiphenylamine			0.00800	0.007125		mg/L		89	43 - 107	2	20
Pentachlorophenol			0.00800	0.005118		mg/L		64	9 - 147	6	20
Phenanthrene			0.00800	0.005454		mg/L		68	52 - 121	0	20
Phenol			0.00800	0.002740		mg/L		34	11 - 112	3	20
Pyrene			0.00800	0.006124		mg/L		77	49 - 121	2	20
Pyridine			0.00800	0.001911		mg/L		24	10 - 109	5	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*74*		*44 - 123*
2-Fluorobiphenyl	*55*		*43 - 120*
2-Fluorophenol	*32*		*18 - 120*
Nitrobenzene-d5	*61*		*47 - 120*
Terphenyl-d14	*70*		*33 - 141*
Phenol-d5 (Surr)	*15*		*12 - 128*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 600-105273/1-A
Matrix: Water
Analysis Batch: 105523

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105273

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0000400	U	0.000200	0.0000400	mg/L		05/02/13 14:57	05/06/13 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*10 - 125.2*	*05/02/13 14:57*	*05/06/13 11:03*	*1*

Lab Sample ID: LCS 600-105273/2-A
Matrix: Water
Analysis Batch: 105523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105273

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4-D			0.000800	0.0005307		mg/L		66	25 - 151		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*72*		*10 - 125.2*

Lab Sample ID: 600-72465-6 MS
Matrix: Water
Analysis Batch: 105810

Client Sample ID: POE-2
Prep Type: Total/NA
Prep Batch: 105273

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4-D	0.0000381	U	0.000792	0.0008161		mg/L		103	25 - 151		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*113*	*E*	*10 - 125.2*

Lab Sample ID: 600-72465-6 MSD
Matrix: Water
Analysis Batch: 105810

Client Sample ID: POE-2
Prep Type: Total/NA
Prep Batch: 105273

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D	0.0000381	U	0.000792	0.0009497		mg/L		120	25 - 151	15	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*116*	*E*	*10 - 125.2*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 560-87480/1-A
Matrix: Water
Analysis Batch: 87532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 87480

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.000733	U	0.00500	0.000733	mg/L		05/06/13 12:20	05/06/13 18:11	1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 560-87480/2-A
Matrix: Water
Analysis Batch: 87532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 87480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.500	0.4549		mg/L		91	80 - 120

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units	Method
1,1,1,2-Tetrachloroethane	0.00100	0.000180	mg/L	8260B
1,1,1-Trichloroethane	0.00100	0.000150	mg/L	8260B
1,1,2,2-Tetrachloroethane	0.00100	0.000220	mg/L	8260B
1,1,2-Trichloroethane	0.00100	0.000280	mg/L	8260B
1,1-Dichloroethane	0.00100	0.000110	mg/L	8260B
1,1-Dichloroethene	0.00100	0.000190	mg/L	8260B
1,1-Dichloropropene	0.00100	0.000210	mg/L	8260B
1,2,3-Trichlorobenzene	0.00100	0.000570	mg/L	8260B
1,2,3-Trichloropropane	0.00100	0.000290	mg/L	8260B
1,2,4-Trichlorobenzene	0.00100	0.000310	mg/L	8260B
1,2,4-Trimethylbenzene	0.00100	0.000140	mg/L	8260B
1,2-Dibromo-3-Chloropropane	0.00100	0.000810	mg/L	8260B
1,2-Dichlorobenzene	0.00100	0.000100	mg/L	8260B
1,2-Dichloroethane	0.00100	0.000140	mg/L	8260B
1,2-Dichloropropane	0.00100	0.000160	mg/L	8260B
1,3,5-Trimethylbenzene	0.00100	0.000100	mg/L	8260B
1,3-Dichlorobenzene	0.00100	0.000130	mg/L	8260B
1,3-Dichloropropane	0.00100	0.000220	mg/L	8260B
1,4-Dichlorobenzene	0.00100	0.000110	mg/L	8260B
2,2-Dichloropropane	0.00100	0.000130	mg/L	8260B
2-Chlorotoluene	0.00100	0.000130	mg/L	8260B
4-Chlorotoluene	0.00100	0.000140	mg/L	8260B
4-Isopropyltoluene	0.00100	0.000100	mg/L	8260B
Benzene	0.00100	0.0000800	mg/L	8260B
Bromobenzene	0.00100	0.000190	mg/L	8260B
Bromodichloromethane	0.00100	0.000160	mg/L	8260B
Bromoform	0.00100	0.000190	mg/L	8260B
Bromomethane	0.00200	0.000250	mg/L	8260B
Carbon tetrachloride	0.00500	0.000150	mg/L	8260B
Chlorobenzene	0.00100	0.000120	mg/L	8260B
Chlorobromomethane	0.00100	0.000180	mg/L	8260B
Chloroethane	0.00200	0.0000800	mg/L	8260B
Chloroform	0.00100	0.000130	mg/L	8260B
Chloromethane	0.00200	0.000180	mg/L	8260B
cis-1,2-Dichloroethene	0.00100	0.0000600	mg/L	8260B
cis-1,3-Dichloropropene	0.00100	0.000180	mg/L	8260B
Dibromochloromethane	0.00100	0.000150	mg/L	8260B
Dibromomethane	0.00100	0.000520	mg/L	8260B
Dichlorodifluoromethane	0.00100	0.000120	mg/L	8260B
Ethylbenzene	0.00100	0.000110	mg/L	8260B
Hexachlorobutadiene	0.00100	0.000170	mg/L	8260B
Isopropylbenzene	0.00100	0.000180	mg/L	8260B
Methyl tert-butyl ether	0.00100	0.000120	mg/L	8260B
Methylene Chloride	0.00100	0.000150	mg/L	8260B
m-Xylene & p-Xylene	0.00200	0.000170	mg/L	8260B
Naphthalene	0.00200	0.000320	mg/L	8260B
n-Butylbenzene	0.00100	0.000160	mg/L	8260B
N-Propylbenzene	0.00100	0.000150	mg/L	8260B
o-Xylene	0.00100	0.000120	mg/L	8260B
sec-Butylbenzene	0.00100	0.000120	mg/L	8260B
Styrene	0.00100	0.0000700	mg/L	8260B
tert-Butylbenzene	0.00100	0.0000800	mg/L	8260B

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	MQL	MDL	Units	Method
Tetrachloroethene	0.00100	0.000130	mg/L	8260B
Toluene	0.00100	0.000150	mg/L	8260B
trans-1,2-Dichloroethene	0.00100	0.0000900	mg/L	8260B
trans-1,3-Dichloropropene	0.00100	0.000210	mg/L	8260B
Trichloroethene	0.00100	0.000180	mg/L	8260B
Trichlorofluoromethane	0.00100	0.0000800	mg/L	8260B
Vinyl chloride	0.00200	0.000110	mg/L	8260B
Xylenes, Total	0.00300	0.000260	mg/L	8260B

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
1,2,4-Trichlorobenzene	0.000500	0.000160	mg/L	8270C LL
1,2-Dichlorobenzene	0.000500	0.000210	mg/L	8270C LL
1,3-Dichlorobenzene	0.000500	0.000100	mg/L	8270C LL
1,4-Dichlorobenzene	0.000500	0.000160	mg/L	8270C LL
2,4,5-Trichlorophenol	0.000500	0.000290	mg/L	8270C LL
2,4,6-Trichlorophenol	0.000500	0.000330	mg/L	8270C LL
2,4-Dichlorophenol	0.000500	0.000260	mg/L	8270C LL
2,4-Dimethylphenol	0.000500	0.000180	mg/L	8270C LL
2,4-Dinitrophenol	0.00100	0.000400	mg/L	8270C LL
2,4-Dinitrotoluene	0.000500	0.000320	mg/L	8270C LL
2,6-Dinitrotoluene	0.000500	0.000290	mg/L	8270C LL
2-Chloronaphthalene	0.000500	0.000190	mg/L	8270C LL
2-Chlorophenol	0.000500	0.000220	mg/L	8270C LL
2-Methylnaphthalene	0.000500	0.000140	mg/L	8270C LL
2-Methylphenol	0.000500	0.000190	mg/L	8270C LL
2-Nitroaniline	0.000500	0.000350	mg/L	8270C LL
2-Nitrophenol	0.000500	0.000220	mg/L	8270C LL
3 & 4 Methylphenol	0.00100	0.000160	mg/L	8270C LL
3,3'-Dichlorobenzidine	0.000500	0.000320	mg/L	8270C LL
3-Nitroaniline	0.000500	0.000130	mg/L	8270C LL
4,6-Dinitro-2-methylphenol	0.00100	0.000160	mg/L	8270C LL
4-Bromophenyl phenyl ether	0.000500	0.000250	mg/L	8270C LL
4-Chloro-3-methylphenol	0.000500	0.000250	mg/L	8270C LL
4-Chloroaniline	0.000500	0.000110	mg/L	8270C LL
4-Chlorophenyl phenyl ether	0.000500	0.000230	mg/L	8270C LL
4-Nitroaniline	0.000500	0.000230	mg/L	8270C LL
4-Nitrophenol	0.00100	0.000330	mg/L	8270C LL
Acenaphthene	0.000500	0.000160	mg/L	8270C LL
Acenaphthylene	0.000500	0.000160	mg/L	8270C LL
Aniline	0.000500	0.000120	mg/L	8270C LL
Anthracene	0.000500	0.000440	mg/L	8270C LL
Benzo[a]anthracene	0.000500	0.000250	mg/L	8270C LL
Benzo[a]pyrene	0.000500	0.000130	mg/L	8270C LL
Benzo[b]fluoranthene	0.000500	0.000180	mg/L	8270C LL
Benzo[g,h,i]perylene	0.000500	0.000350	mg/L	8270C LL
Benzo[k]fluoranthene	0.000500	0.000160	mg/L	8270C LL
Benzoic acid	0.00250	0.000610	mg/L	8270C LL
bis (2-Chloroisopropyl) ether	0.000500	0.000180	mg/L	8270C LL
Bis(2-chloroethoxy)methane	0.000500	0.000190	mg/L	8270C LL
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	MQL	MDL	Units	Method
Bis(2-ethylhexyl) phthalate	0.000500	0.000590	mg/L	8270C LL
Butyl benzyl phthalate	0.000500	0.000850	mg/L	8270C LL
Chrysene	0.000500	0.000240	mg/L	8270C LL
Dibenz(a,h)anthracene	0.000500	0.000290	mg/L	8270C LL
Dibenzofuran	0.000500	0.000160	mg/L	8270C LL
Diethyl phthalate	0.00500	0.00419	mg/L	8270C LL
Dimethyl phthalate	0.000500	0.000180	mg/L	8270C LL
Di-n-butyl phthalate	0.00500	0.00187	mg/L	8270C LL
Di-n-octyl phthalate	0.000500	0.000160	mg/L	8270C LL
Fluoranthene	0.000500	0.000310	mg/L	8270C LL
Fluorene	0.000500	0.000120	mg/L	8270C LL
Hexachlorobenzene	0.000500	0.000250	mg/L	8270C LL
Hexachlorobutadiene	0.000500	0.000190	mg/L	8270C LL
Hexachlorocyclopentadiene	0.000500	0.000150	mg/L	8270C LL
Hexachloroethane	0.000500	0.000170	mg/L	8270C LL
Indeno[1,2,3-cd]pyrene	0.000500	0.000290	mg/L	8270C LL
Isophorone	0.000500	0.000150	mg/L	8270C LL
Naphthalene	0.000500	0.000160	mg/L	8270C LL
Nitrobenzene	0.000500	0.000200	mg/L	8270C LL
N-Nitrosodi-n-propylamine	0.000500	0.000240	mg/L	8270C LL
N-Nitrosodiphenylamine	0.000500	0.000330	mg/L	8270C LL
Pentachlorophenol	0.00100	0.000960	mg/L	8270C LL
Phenanthrene	0.000500	0.000290	mg/L	8270C LL
Phenol	0.000500	0.000140	mg/L	8270C LL
Pyrene	0.000500	0.000330	mg/L	8270C LL
Pyridine	0.000500	0.000240	mg/L	8270C LL

Method: 8151A - Herbicides (GC)

Analyte	MQL	MDL	Units	Method
2,4-D	0.000200	0.0000400	mg/L	8151A

Method: 6020 - Metals (ICP/MS)

Analyte	MQL	MDL	Units	Method
Lead	0.00500	0.000733	mg/L	6020

GC/MS VOA

Analysis Batch: 105345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-1	Equipment Blank	Total/NA	Water	8260B	
600-72465-3	MW-35	Total/NA	Water	8260B	
600-72465-4	MW-37	Total/NA	Water	8260B	
600-72465-5	AMP-3	Total/NA	Water	8260B	
600-72465-5 MS	AMP-3	Total/NA	Water	8260B	
600-72465-5 MSD	AMP-3	Total/NA	Water	8260B	
600-72465-10	POE-1	Total/NA	Water	8260B	
600-72465-13	R1-1-18	Total/NA	Water	8260B	
600-72465-14	Trip Blank	Total/NA	Water	8260B	
LCS 600-105345/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-105345/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 105484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8260B	
600-72465-3 - DL2	MW-35	Total/NA	Water	8260B	
600-72465-3 MS - DL2	MW-35	Total/NA	Water	8260B	
600-72465-3 MSD - DL2	MW-35	Total/NA	Water	8260B	
600-72465-6	POE-2	Total/NA	Water	8260B	
600-72465-7	R1-3-03	Total/NA	Water	8260B	
600-72465-8	R1-3-02	Total/NA	Water	8260B	
600-72465-9	R1-1-14	Total/NA	Water	8260B	
600-72465-11	AMP-2	Total/NA	Water	8260B	
600-72465-12	AMP-1	Total/NA	Water	8260B	
LCS 600-105484/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-105484/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 105530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-3 - DL	MW-35	Total/NA	Water	8260B	
LCS 600-105530/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-105530/6	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 105411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	3510C	
600-72465-3	MW-35	Total/NA	Water	3510C	
600-72465-3 - DL	MW-35	Total/NA	Water	3510C	
600-72465-4	MW-37	Total/NA	Water	3510C	
600-72465-5	AMP-3	Total/NA	Water	3510C	
600-72465-6	POE-2	Total/NA	Water	3510C	
600-72465-7 - RA	R1-3-03	Total/NA	Water	3510C	
600-72465-7	R1-3-03	Total/NA	Water	3510C	
600-72465-8	R1-3-02	Total/NA	Water	3510C	
600-72465-9	R1-1-14	Total/NA	Water	3510C	
600-72465-10	POE-1	Total/NA	Water	3510C	
600-72465-11	AMP-2	Total/NA	Water	3510C	
600-72465-12	AMP-1	Total/NA	Water	3510C	

GC/MS Semi VOA (Continued)

Prep Batch: 105411 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-13	R1-1-18	Total/NA	Water	3510C	
LCS 600-105411/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-105411/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-105411/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 106041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8270C LL	105411
600-72465-3	MW-35	Total/NA	Water	8270C LL	105411
600-72465-3 - DL	MW-35	Total/NA	Water	8270C LL	105411
600-72465-4	MW-37	Total/NA	Water	8270C LL	105411
600-72465-5	AMP-3	Total/NA	Water	8270C LL	105411
600-72465-6	POE-2	Total/NA	Water	8270C LL	105411
600-72465-7 - RA	R1-3-03	Total/NA	Water	8270C LL	105411
600-72465-8	R1-3-02	Total/NA	Water	8270C LL	105411
600-72465-9	R1-1-14	Total/NA	Water	8270C LL	105411
600-72465-10	POE-1	Total/NA	Water	8270C LL	105411
600-72465-11	AMP-2	Total/NA	Water	8270C LL	105411
600-72465-12	AMP-1	Total/NA	Water	8270C LL	105411
600-72465-13	R1-1-18	Total/NA	Water	8270C LL	105411
LCS 600-105411/2-A	Lab Control Sample	Total/NA	Water	8270C LL	105411
LCSD 600-105411/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	105411
MB 600-105411/1-A	Method Blank	Total/NA	Water	8270C LL	105411

Analysis Batch: 106048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-7	R1-3-03	Total/NA	Water	8270C LL	105411
600-72465-8	R1-3-02	Total/NA	Water	8270C LL	105411

GC Semi VOA

Prep Batch: 105273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8151A	
600-72465-3	MW-35	Total/NA	Water	8151A	
600-72465-4	MW-37	Total/NA	Water	8151A	
600-72465-5	AMP-3	Total/NA	Water	8151A	
600-72465-6	POE-2	Total/NA	Water	8151A	
600-72465-6 MS	POE-2	Total/NA	Water	8151A	
600-72465-6 MSD	POE-2	Total/NA	Water	8151A	
600-72465-7	R1-3-03	Total/NA	Water	8151A	
600-72465-8	R1-3-02	Total/NA	Water	8151A	
600-72465-8 - DL	R1-3-02	Total/NA	Water	8151A	
600-72465-9	R1-1-14	Total/NA	Water	8151A	
600-72465-10	POE-1	Total/NA	Water	8151A	
600-72465-11	AMP-2	Total/NA	Water	8151A	
600-72465-12	AMP-1	Total/NA	Water	8151A	
600-72465-13	R1-1-18	Total/NA	Water	8151A	
LCS 600-105273/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 600-105273/1-A	Method Blank	Total/NA	Water	8151A	

GC Semi VOA (Continued)

Analysis Batch: 105523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-105273/2-A	Lab Control Sample	Total/NA	Water	8151A	105273
MB 600-105273/1-A	Method Blank	Total/NA	Water	8151A	105273

Analysis Batch: 105810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	8151A	105273
600-72465-3	MW-35	Total/NA	Water	8151A	105273
600-72465-4	MW-37	Total/NA	Water	8151A	105273
600-72465-5	AMP-3	Total/NA	Water	8151A	105273
600-72465-6	POE-2	Total/NA	Water	8151A	105273
600-72465-6 MS	POE-2	Total/NA	Water	8151A	105273
600-72465-6 MSD	POE-2	Total/NA	Water	8151A	105273
600-72465-7	R1-3-03	Total/NA	Water	8151A	105273
600-72465-8	R1-3-02	Total/NA	Water	8151A	105273
600-72465-9	R1-1-14	Total/NA	Water	8151A	105273
600-72465-10	POE-1	Total/NA	Water	8151A	105273
600-72465-11	AMP-2	Total/NA	Water	8151A	105273
600-72465-12	AMP-1	Total/NA	Water	8151A	105273
600-72465-13	R1-1-18	Total/NA	Water	8151A	105273

Analysis Batch: 105883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-8 - DL	R1-3-02	Total/NA	Water	8151A	105273

Metals

Prep Batch: 87480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	3010A	
600-72465-3	MW-35	Total/NA	Water	3010A	
600-72465-4	MW-37	Total/NA	Water	3010A	
600-72465-5	AMP-3	Total/NA	Water	3010A	
600-72465-6	POE-2	Total/NA	Water	3010A	
600-72465-7	R1-3-03	Total/NA	Water	3010A	
600-72465-8	R1-3-02	Total/NA	Water	3010A	
600-72465-9	R1-1-14	Total/NA	Water	3010A	
600-72465-10	POE-1	Total/NA	Water	3010A	
600-72465-11	AMP-2	Total/NA	Water	3010A	
600-72465-12	AMP-1	Total/NA	Water	3010A	
600-72465-13	R1-1-18	Total/NA	Water	3010A	
LCS 560-87480/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 560-87480/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 87532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-2	R1-3-01	Total/NA	Water	6020	87480
600-72465-3	MW-35	Total/NA	Water	6020	87480
600-72465-4	MW-37	Total/NA	Water	6020	87480
600-72465-5	AMP-3	Total/NA	Water	6020	87480
600-72465-6	POE-2	Total/NA	Water	6020	87480

Metals (Continued)

Analysis Batch: 87532 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-72465-7	R1-3-03	Total/NA	Water	6020	87480
600-72465-8	R1-3-02	Total/NA	Water	6020	87480
600-72465-9	R1-1-14	Total/NA	Water	6020	87480
600-72465-10	POE-1	Total/NA	Water	6020	87480
600-72465-11	AMP-2	Total/NA	Water	6020	87480
600-72465-12	AMP-1	Total/NA	Water	6020	87480
600-72465-13	R1-1-18	Total/NA	Water	6020	87480
LCS 560-87480/2-A	Lab Control Sample	Total/NA	Water	6020	87480
MB 560-87480/1-A	Method Blank	Total/NA	Water	6020	87480

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: Equipment Blank

Lab Sample ID: 600-72465-1

Date Collected: 04/30/13 11:30

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105345	05/03/13 12:49	DT	TAL HOU

Client Sample ID: R1-3-01

Lab Sample ID: 600-72465-2

Date Collected: 04/30/13 12:00

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 17:09	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 18:59	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 13:40	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 19:18	JEM	TAL CC

Client Sample ID: MW-35

Lab Sample ID: 600-72465-3

Date Collected: 04/30/13 13:00

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	105345	05/03/13 20:34	DT	TAL HOU
Total/NA	Analysis	8260B	DL2	10000	105484	05/04/13 14:47	DT	TAL HOU
Total/NA	Analysis	8260B	DL	500	105530	05/06/13 20:54	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		50	106041	05/13/13 14:41	TTD	TAL HOU
Total/NA	Prep	3510C	DL		105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL	DL	500	106041	05/13/13 23:07	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 14:05	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 19:23	JEM	TAL CC

Client Sample ID: MW-37

Lab Sample ID: 600-72465-4

Date Collected: 04/30/13 14:00

Matrix: Water

Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105345	05/03/13 13:17	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 19:26	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 14:30	JAL	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: MW-37

Lab Sample ID: 600-72465-4

Date Collected: 04/30/13 14:00
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 19:29	JEM	TAL CC

Client Sample ID: AMP-3

Lab Sample ID: 600-72465-5

Date Collected: 04/30/13 15:00
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105345	05/03/13 13:44	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		10	106041	05/13/13 15:08	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 15:58	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 19:34	JEM	TAL CC

Client Sample ID: POE-2

Lab Sample ID: 600-72465-6

Date Collected: 04/30/13 15:30
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 17:37	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 19:54	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 16:23	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 19:40	JEM	TAL CC

Client Sample ID: R1-3-03

Lab Sample ID: 600-72465-7

Date Collected: 05/01/13 08:30
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 19:30	DT	TAL HOU
Total/NA	Prep	3510C	RA		105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL	RA	1	106041	05/13/13 20:22	TTD	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106048	05/10/13 18:58	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 18:34	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 19:45	JEM	TAL CC

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: R1-3-02

Lab Sample ID: 600-72465-8

Date Collected: 05/01/13 09:20
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 18:06	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 20:49	TTD	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106048	05/10/13 19:26	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 18:59	JAL	TAL HOU
Total/NA	Prep	8151A	DL		105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A	DL	1000	105883	05/10/13 12:10	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 20:19	JEM	TAL CC

Client Sample ID: R1-1-14

Lab Sample ID: 600-72465-9

Date Collected: 05/01/13 10:30
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 16:40	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 21:17	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 19:24	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 20:24	JEM	TAL CC

Client Sample ID: POE-1

Lab Sample ID: 600-72465-10

Date Collected: 05/01/13 11:30
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105345	05/03/13 14:12	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 21:44	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 19:50	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 20:30	JEM	TAL CC

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Client Sample ID: AMP-2

Lab Sample ID: 600-72465-11

Date Collected: 05/01/13 12:20
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 18:34	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 22:12	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 20:15	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 20:36	JEM	TAL CC

Client Sample ID: AMP-1

Lab Sample ID: 600-72465-12

Date Collected: 05/01/13 13:30
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105484	05/04/13 19:02	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		10	106041	05/13/13 15:35	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 20:40	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 20:41	JEM	TAL CC

Client Sample ID: R1-1-18

Lab Sample ID: 600-72465-13

Date Collected: 05/01/13 14:20
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105345	05/03/13 14:39	DT	TAL HOU
Total/NA	Prep	3510C			105411	05/03/13 07:53	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	106041	05/13/13 22:40	TTD	TAL HOU
Total/NA	Prep	8151A			105273	05/02/13 14:57	SMB	TAL HOU
Total/NA	Analysis	8151A		1	105810	05/09/13 21:06	JAL	TAL HOU
Total/NA	Prep	3010A			87480	05/06/13 12:20	MG	TAL CC
Total/NA	Analysis	6020		1	87532	05/06/13 20:47	JEM	TAL CC

Client Sample ID: Trip Blank

Lab Sample ID: 600-72465-14

Date Collected: 05/01/13 00:00
Matrix: Water
Date Received: 05/01/13 18:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105345	05/03/13 12:22	DT	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-72465-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12 *
Louisiana	NELAP	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

Laboratory: TestAmerica Corpus Christi

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Kansas	NELAP	7	E-10362	10-31-13
Oklahoma	State Program	6	9968	08-31-13
Texas	NELAP	6	T104704210-12-8	03-31-14
USDA	Federal		P330-11-00060	02-03-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody

600-72465 Chain of Custody

testAmerica

5/16/2013

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	COC No: 600-20365-7630.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6303	E-Mail: dean.joiner@testamericainc.com	Page: Page 1 of 2
Company: URS Corporation			Job #
Address: 10550 Richmond Ave	Due Date Requested:		
City: Houston	TAT Requested (days): 7 WD TRRP		
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Subcontract: 284317.US		
Email: ravi.kommajosyula@urs.com	WO #: Project# 25015231 Vendor# 1427536		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - Lead	8270C_LL - SVOA CP List	8260B_LL - (MOD) VOA CP List	8151A - (MOD) 8151 2,4-D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	A	N		
Equipment Blank	4/30/13	1130	G	Water					X		8	
RI-3-01		1200	G	Water			X	X	X	X	8	
MW-35		1300	G	Water			X	X	X	X	8	
MW-37		1400	G	Water			X	X	X	X	8	
AMP-3		1500	G	Water			X	X	X	X	8	
POE-2		1530	G	Water			X	X	X	X	8	
RI-3-03	5/1/13	0830	G	Water			X	X	X	X	8	
RI-3-02		0920	G	Water			X	X	X	X	8	
RI-1-14		1030	G	Water			X	X	X	X	8	
POE-1		1130	G	Water			X	X	X	X	8	
AMP-2		1220	G	Water			X	X	X	X	8	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Ravi Kommajosyula	Date/Time: 5/1/13 1600	Company	Received by:	Date/Time: 5/1/13 1700	Company: TAH
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time: 5/1/13 1810	Company: TAH	Received by:	Date/Time: 05/01/13 1810	Company: TAHou

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-20365-7630.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914-6303	E-Mail: dean.joiner@testamericainc.com		Page: Page 2 of 2
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract: 284317.US			
Email: ravi.kommajosyula@urs.com	WO #: Project# 25015231 Vendor# 1427536			
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845			
Site	SSOW#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - Lead	8270C_LL - SVOA CP List	8260B_LL - (MOD) VOA CP List	8151A - (MOD) 8151 2,4-D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	A	N		
AMP-1	5/1/13	1330	G	Water			X	X	X	X	8	
R1-1-18	5/1/13	1420	G	Water			X	X	X	X	8	
Trip Blank	LAB		G	Water					X		8	
Temp Blank	LAB		G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	
			G	Water							8	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Ravi Kommajosyula	5/1/13 1600		[signature]	5/1/13 1700	TM
[signature]	5/1/13 1810	TM	[signature]	05/01/13 1810	TAHou

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

5/16/2013

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-72465-1

Login Number: 72465

List Source: TestAmerica Houston

List Number: 1

Creator: Pulumbarit, Josh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2 1.5 1.8 1.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-72465-1

Login Number: 72465
List Number: 1
Creator: Wing, Randi

List Source: TestAmerica Corpus Christi
List Creation: 05/04/13 10:23 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	4.0
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-75497-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
7/16/2013 5:00:04 PM
Cathy Upton, Data Delivery Analyst
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-75497-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		07/13/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 07/12/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-75497
Reviewer Name: JOH	Prep Batch Number(s): 600-109845 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 07/12/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-75497
Reviewer Name: JOH	Prep Batch Number(s): 600-109845 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 07/12/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number 600-75497
Reviewer Name: JOH	Prep Batch Number(s): 600-109845 - SV

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	1/3/2013
Date Prepared:	1/3/2013
Lab Sample ID:	600-96501/6-A
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.573	0.5
N-Nitrosodimethylamine	0.26	0.5	0.224	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.353	0.5
Aniline	0.08	0.25	0.082	0.5
Phenol	0.04	0.25	0.0987	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.389	0.5
2-Chlorophenol	0.13	0.5	0.307	0.5
1,3-Dichlorobenzene	0.17	0.5	0.360	0.5
1,4-Dichlorobenzene	0.13	0.5	0.397	0.5
1,2-Dichlorobenzene	0.17	0.5	0.402	0.5
Benzyl alcohol	0.17	0.5	0.268	0.5
2-Methylphenol (o-cresol)	0.12	0.5	0.291	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.287	1
N-Nitroso-di-n-propylamine	0.1	0.5	0.376	0.5
Hexachloroethane	0.1	0.5	0.384	0.5
Dibenzo(a,h)anthracene	0.08	0.5	0.553	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.559	0.5
Nitrobenzene	0.11	0.25	0.167	0.5
Isophorone	0.11	0.25	0.158	0.5
2-Nitrophenol	0.22	0.5	0.331	0.5
Benzoic acid	2.51	12.5	6.330	2.5
2,4-Dimethylphenol	0.15	0.5	0.285	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.363	0.5
2,4-Dichlorophenol	0.15	0.5	0.285	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.415	0.5
Naphthalene	0.08	0.25	0.190	0.5
Benzo(a)pyrene	0.08	0.25	0.398	0.5
Hexachlorobutadiene	0.18	0.5	0.418	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.177	0.5
1-Methylnaphthalene	0.09	0.25	0.194	0.5
Benzo(k)fluoranthene	0.09	0.25	0.161	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.198	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.283	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.305	0.5
2-Chloronaphthalene	0.08	0.25	0.165	0.5
2-Nitroaniline	0.19	0.5	0.482	0.5
1,4-Dinitrobenzene	0.5	0.5	0.282	0.5
1,3-Dinitrobenzene	0.08	0.25	0.124	0.5
1,2-Dinitrobenzene	0.5	0.5	0.413	0.5

Dimethylphthalate	0.07	0.25	0.185	0.5
Acenaphthylene	0.06	0.25	0.183	0.5
2,6-Dinitrotoluene	0.08	0.5	0.314	0.5
Benzo(b)fluoranthene	0.07	0.5	0.590	0.5
Acenaphthene	0.08	0.5	0.375	0.5
Di-n-octylphthalate	0.16	0.5	0.891	0.5
4-Nitrophenol	0.56	2.5	0.881	1
Dibenzofuran	0.08	0.25	0.164	0.5
2,4-Dinitrotoluene	0.13	0.5	0.201	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.208	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.200	0.5
Diethylphthalate	1.5	0.5	0.307	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.351	0.5
Fluorene	0.07	0.25	0.177	0.5
4-Nitroaniline	0.25	0.5	0.238	0.5
Chrysene	0.08	0.25	0.236	0.5
4,6-Dinitro-2-methylphenol	0.83	2.5	1.220	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.737	0.5
Diphenylamine	0.1	0.5	0.121	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.145	0.5
Azobenzene	0.07	0.25	0.143	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.433	0.5
Hexachlorobenzene	0.11	0.25	0.090	0.5
Pentachlorophenol	0.61	2.5	1.400	0.5
Phenanthrene	0.06	0.25	0.182	0.5
Anthracene	0.05	0.25	0.160	0.5
Carbazole	0.17	0.5	0.530	0.5
Di-n-butylphthalate	0.11	0.25	0.187	0.5
Fluoranthene	0.07	0.25	0.178	0.5
Benzidine	0.61	12.5	9.300	0.5
Pyrene	0.11	0.25	0.168	0.5
Butylbenzylphthalate	0.12	0.5	0.631	0.5
3,3'-Dichlorobenzidine	0.18	0.5	0.100	0.5
Benzo(a)anthracene	0.08	0.25	0.192	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.427	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.137	0.5
4-Chloroaniline	0.21	0.5	0.316	0.5
3-Nitroaniline	0.16	0.5	0.803	0.5

Job ID: 600-75497-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-75497-1

Comments

Please see attached documents for the results from 10X and 1X. The 10X result didn't meet the criteria for evaluating it as a positive hit and the sample matrix didn't look like it would be okay to run at a lower dilution; therefore, this data was reported originally. The sample was run at a 1X for verification to meet the client requested limit and this analysis allowed a positive identification of the requested analyte.

Receipt

The sample was received on 6/28/2013 3:33 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-75497-1	POE-2	Water	06/28/13 14:00	06/28/13 15:33

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Client Sample ID: POE-2
Date Collected: 06/28/13 14:00
Date Received: 06/28/13 15:33

Lab Sample ID: 600-75497-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00218		0.000500	0.000180	mg/L		07/02/13 14:13	07/15/13 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*57*		*18 - 120*	*07/02/13 14:13*	*07/15/13 16:44*	*1*
Nitrobenzene-d5	*87*		*47 - 120*	*07/02/13 14:13*	*07/15/13 16:44*	*1*
2-Fluorobiphenyl	*45*		*43 - 120*	*07/02/13 14:13*	*07/15/13 16:44*	*1*
2,4,6-Tribromophenol	*61*		*44 - 123*	*07/02/13 14:13*	*07/15/13 16:44*	*1*
Terphenyl-d14	*81*		*33 - 141*	*07/02/13 14:13*	*07/15/13 16:44*	*1*
Phenol-d5 (Surr)	*41*		*12 - 128*	*07/02/13 14:13*	*07/15/13 16:44*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-75497-1	POE-2	57	87	45	61	81	41		
LCS 600-109845/2-A	Lab Control Sample	72	96	76	80	81	46		
MB 600-109845/1-A	Method Blank	99	106	94	83	86	100		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-109845/1-A
Matrix: Water
Analysis Batch: 110375

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 109845

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		07/02/13 14:13	07/05/13 17:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*99*		*18 - 120*	*07/02/13 14:13*	*07/05/13 17:41*	*1*
Nitrobenzene-d5	*106*		*47 - 120*	*07/02/13 14:13*	*07/05/13 17:41*	*1*
2-Fluorobiphenyl	*94*		*43 - 120*	*07/02/13 14:13*	*07/05/13 17:41*	*1*
2,4,6-Tribromophenol	*83*		*44 - 123*	*07/02/13 14:13*	*07/05/13 17:41*	*1*
Terphenyl-d14	*86*		*33 - 141*	*07/02/13 14:13*	*07/05/13 17:41*	*1*
Phenol-d5 (Surr)	*100*		*12 - 128*	*07/02/13 14:13*	*07/05/13 17:41*	*1*

Lab Sample ID: LCS 600-109845/2-A
Matrix: Water
Analysis Batch: 110375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 109845

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00800	0.005723		mg/L		72	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*72*		*18 - 120*
Nitrobenzene-d5	*96*		*47 - 120*
2-Fluorobiphenyl	*76*		*43 - 120*
2,4,6-Tribromophenol	*80*		*44 - 123*
Terphenyl-d14	*81*		*33 - 141*
Phenol-d5 (Surr)	*46*		*12 - 128*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

GC/MS Semi VOA

Prep Batch: 109845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-75497-1	POE-2	Total/NA	Water	3510C	
LCS 600-109845/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-109845/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 110375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 600-109845/2-A	Lab Control Sample	Total/NA	Water	8270C LL	109845
MB 600-109845/1-A	Method Blank	Total/NA	Water	8270C LL	109845

Analysis Batch: 110799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-75497-1	POE-2	Total/NA	Water	8270C LL	109845

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Client Sample ID: POE-2
Date Collected: 06/28/13 14:00
Date Received: 06/28/13 15:33

Lab Sample ID: 600-75497-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			109845	07/02/13 14:13	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	110799	07/15/13 16:44	JAH	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-75497-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custo

600-75497 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

7/16/2013

Client Information	Sampler: RAVI KOMMAJOSYULA	Lab PM: Joiner, Dean A	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6303	E-Mail: dean.joiner@testamericainc.com	Page: Page 1 of 1
Company: URS Corporation			Job #:
Address: 10550 Richmond Ave	Due Date Requested:		
City: Houston	TAT Requested (days): 7 WD TRRP		
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required		
Email: ravi.kommajosyula@urs.com	WO #:		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site: Central Plant GW	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-2	6/28/13	1400	G	Water	N	N	X	2	
Temp Blank	LAB								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Ravi	Date/Time: 6/28/13	1530	Company	Received by:	Date/Time: 6/28/13	1538	Company TAHou
Relinquished by:	Date/Time:		Company	Received by:	Date/Time:		Company
Relinquished by:	Date/Time:		Company	Received by:	Date/Time:		Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-75497-1

Login Number: 75497

List Source: TestAmerica Houston

List Number: 1

Creator: Pulumbarit, Josh L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica Houston

Data file : \\housvr4\chem\MSD3260.i\071513C.b\07151306.D
Lab Smp Id: 600-75497-a-1-a Client Smp ID: POE-2
Inj Date : 15-JUL-2013 16:44
Operator : JOH Inst ID: MSD3260.i
Smp Info : 600-75497-a-1-a
Misc Info : 600-75497-A-1-A
Comment :
Method : \\housvr4\chem\MSD3260.i\071513C.b\8270LVI8.m
Meth Date : 16-Jul-2013 10:56 dangt Quant Type: ISTD
Cal Date : 10-SEP-2012 13:39 Cal File: 09101210.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: nap.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/(Vo * Vi) * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1000.000	ng unit correction factor
Vt	1.000	Final Volume (mL)
Vo	250.000	Sample Volume (mL)
Vi	1.000	Injection Volume (uL)
Cpnd Variable		Local Compound Variable

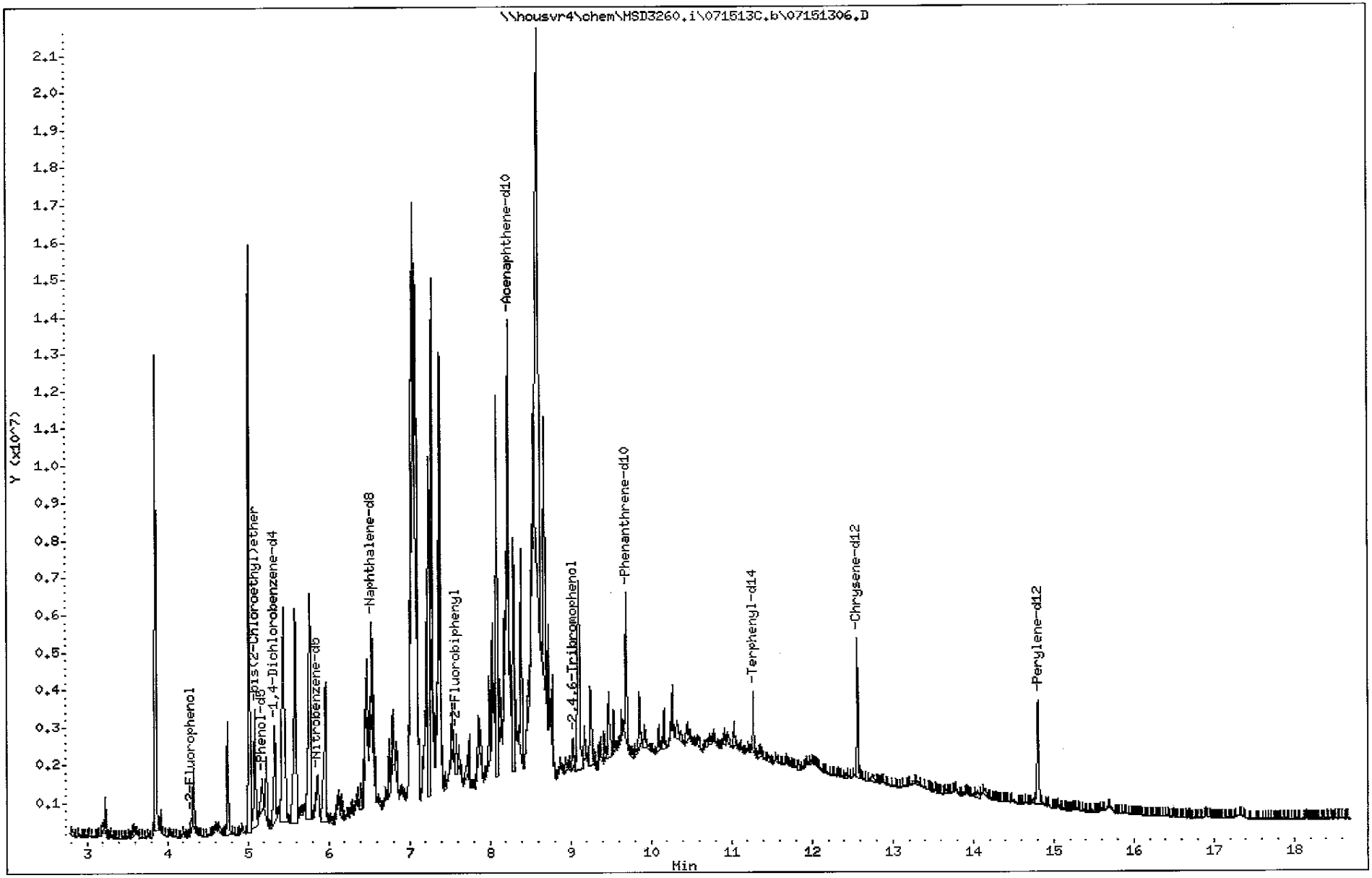
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
* 17 1,4-Dichlorobenzene-d4	152	5.333	5.328	(1.000)	593032	2.00000	
$ 5 2-Fluorophenol	112	4.302	4.275	(0.807)	227501	0.56688	2.27(R)
$ 10 Phenol-d5	99	5.130	5.087	(0.962)	221104	0.41160	1.65(aRM)
13 bis(2-Chloroethyl)ether	93	5.087	5.082	(0.954)	312459	0.54583	2.18
* 44 Naphthalene-d8	136	6.535	6.535	(1.000)	2608009	2.00000	
$ 30 Nitrobenzene-d5	82	5.856	5.851	(0.896)	458923	0.87316	3.49(R)
* 75 Acenaphthene-d10	164	8.239	8.239	(1.000)	2061199	2.00000	
$ 61 2-Fluorobiphenyl	172	7.582	7.582	(0.920)	569180	0.44549	1.78(aRM)
$ 97 2,4,6-Tribromophenol	332	9.035	9.024	(1.097)	64995	0.60741	2.43(M)
* 107 Phenanthrene-d10	188	9.698	9.692	(1.000)	1749423	2.00000	
* 131 Chrysene-d12	240	12.572	12.572	(1.000)	1471530	2.00000	
$ 123 Terphenyl-d14	244	11.279	11.273	(0.897)	506265	0.80718	3.23(R)
* 140 Perylene-d12	264	14.810	14.799	(1.000)	1326086	2.00000	

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

Data File: \\housvr4\chem\MSD3260.i\071513C.b\07151306.D
Date : 15-JUL-2013 16:44
Client ID: POE-2
Sample Info: 600-75497-a-1-a
Volume Injected (uL): 1.0
Column phase: RXI-5MS

Instrument: MSD3260.i
Operator: JOH
Column diameter: 0.25



TestAmerica Houston

Data file : \\housvr4\chem\MSD3260.i\071013C.b\07101316.D
Lab Smp Id: 600-75497-a-1-a Client Smp ID: POE-2
Inj Date : 10-JUL-2013 17:03
Operator : JOH Inst ID: MSD3260.i
Smp Info : 600-75497-a-1-a
Misc Info : 600-75497-A-1-A
Comment :
Method : \\housvr4\chem\MSD3260.i\071013C.b\8270LVI8.m
Meth Date : 16-Jul-2013 10:53 dangt Quant Type: ISTD
Cal Date : 10-SEP-2012 13:39 Cal File: 09101210.D
Als bottle: 16
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: cmbll.sub
Target Version: 4.14
Processing Host: TAIHOUPC27

Concentration Formula: Amt * DF * Uf * Vt/(Vo * Vi) * CpndVariable

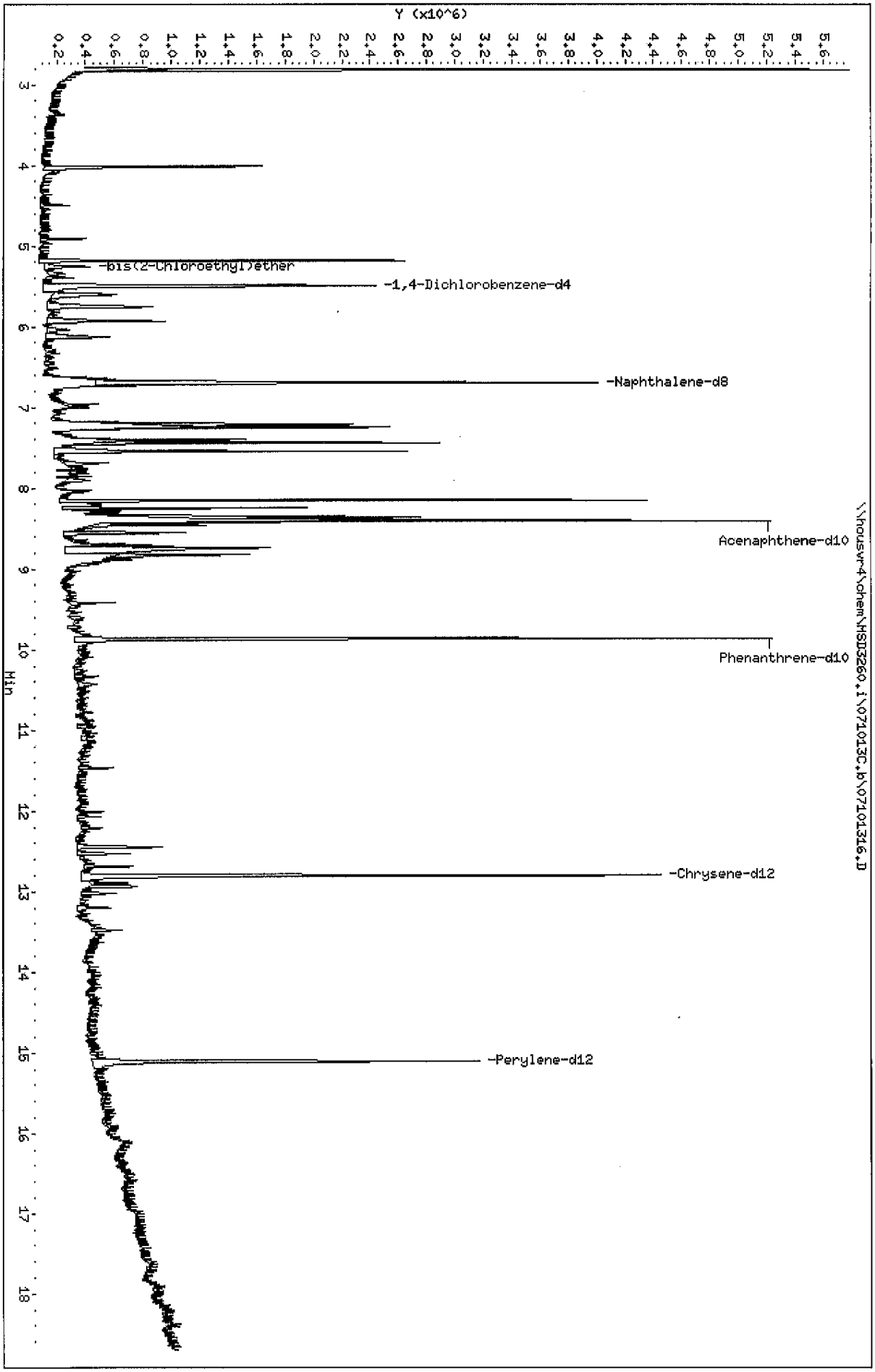
Name	Value	Description
DF	10.000	Dilution Factor
Uf	1000.000	ng unit correction factor
Vt	1.000	Final Volume (mL)
Vo	250.000	Sample Volume (mL)
Vi	1.000	Injection Volume (uL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
* 17 1,4-Dichlorobenzene-d4	152	5.498	5.493	(1.000)	604719	2.00000	
13 bis(2-Chloroethyl)ether	93	5.258	5.247	(0.956)	27641	0.04735	1.89(aH)
* 44 Naphthalene-d8	136	6.700	6.695	(1.000)	2790547	2.00000	
* 75 Acenaphthene-d10	164	8.410	8.405	(1.000)	1405191	2.00000	
* 107 Phenanthrene-d10	188	9.868	9.863	(1.000)	1816392	2.00000	
* 131 Chrysene-d12	240	12.807	12.807	(1.000)	1713241	2.00000	
* 140 Perylene-d12	264	15.109	15.104	(1.000)	1414081	2.00000	

< 0.05 lowest pt on curve, SD originally marked as ND

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
H - Operator selected an alternate compound hit.


Data File: \\housvr4\chem\MSD3260.i\071013C.b\07101316.D
Date : 10-JUL-2013 17:03
Client ID: PQE-2
Sample Info: 600-75497-a-1-a
Volume Injected (uL): 1.0
Column phase: RXI-5MS
Instrument: MSD3260.i
Operator: JOH
Column diameter: 0.25
Y (x10^6)
Min
-bis(2-Chloroethyl)ether
-1,4-Dichlorobenzene-d4
-Naphthalene-d8
Acenaphthene-d10
Phenanthrene-d10
-Chrysene-d12
-Perylene-d12
\\housvr4\chem\MSD3260.i\071013C.b\07101316.D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-77186-1
Client Project/Site: Central Plant GW

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
8/20/2013 6:57:41 PM
Cathy Upton, Data Delivery Analyst
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-77186-1

Project Name/Number: Central Plant GW

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		08/20/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 08/15/13
Project Name: Central Plant GW	Laboratory Job Number: 600-76186
Reviewer Name: TTD	Prep Batch Number(s): 600-112350-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 08/15/13
Project Name: Central Plant GW	Laboratory Job Number: 600-76186
Reviewer Name: TTD	Prep Batch Number(s): 600-112350-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 08/15/13
Project Name: Central Plant GW	Laboratory Job Number: 600-76186
Reviewer Name: TTD	Prep Batch Number(s): 600-112350-SV

ER #[1]	DESCRIPTION
1	Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The laboratory control sample (LCS) was biased high for 2-Fluorophenol (122%). The method blank (MB), the laboratory control sample duplicate (LCSD), and all samples were within acceptable limit. These results have been reported and qualified.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	1/3/2013
Date Prepared:	1/3/2013
Lab Sample ID:	600-96501/6-A
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.573	0.5
N-Nitrosodimethylamine	0.26	0.5	0.224	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.353	0.5
Aniline	0.08	0.25	0.082	0.5
Phenol	0.04	0.25	0.0987	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.389	0.5
2-Chlorophenol	0.13	0.5	0.307	0.5
1,3-Dichlorobenzene	0.17	0.5	0.360	0.5
1,4-Dichlorobenzene	0.13	0.5	0.397	0.5
1,2-Dichlorobenzene	0.17	0.5	0.402	0.5
Benzyl alcohol	0.17	0.5	0.268	0.5
2-Methylphenol (o-cresol)	0.12	0.5	0.291	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.287	1
N-Nitroso-di-n-propylamine	0.1	0.5	0.376	0.5
Hexachloroethane	0.1	0.5	0.384	0.5
Dibenzo(a,h)anthracene	0.08	0.5	0.553	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.559	0.5
Nitrobenzene	0.11	0.25	0.167	0.5
Isophorone	0.11	0.25	0.158	0.5
2-Nitrophenol	0.22	0.5	0.331	0.5
Benzoic acid	2.51	12.5	6.330	2.5
2,4-Dimethylphenol	0.15	0.5	0.285	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.363	0.5
2,4-Dichlorophenol	0.15	0.5	0.285	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.415	0.5
Naphthalene	0.08	0.25	0.190	0.5
Benzo(a)pyrene	0.08	0.25	0.398	0.5
Hexachlorobutadiene	0.18	0.5	0.418	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.177	0.5
1-Methylnaphthalene	0.09	0.25	0.194	0.5
Benzo(k)fluoranthene	0.09	0.25	0.161	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.198	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.283	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.305	0.5
2-Chloronaphthalene	0.08	0.25	0.165	0.5
2-Nitroaniline	0.19	0.5	0.482	0.5
1,4-Dinitrobenzene	0.5	0.5	0.282	0.5
1,3-Dinitrobenzene	0.08	0.25	0.124	0.5
1,2-Dinitrobenzene	0.5	0.5	0.413	0.5

Dimethylphthalate	0.07	0.25	0.185	0.5
Acenaphthylene	0.06	0.25	0.183	0.5
2,6-Dinitrotoluene	0.08	0.5	0.314	0.5
Benzo(b)fluoranthene	0.07	0.5	0.590	0.5
Acenaphthene	0.08	0.5	0.375	0.5
Di-n-octylphthalate	0.16	0.5	0.891	0.5
4-Nitrophenol	0.56	2.5	0.881	1
Dibenzofuran	0.08	0.25	0.164	0.5
2,4-Dinitrotoluene	0.13	0.5	0.201	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.208	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.200	0.5
Diethylphthalate	1.5	0.5	0.307	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.351	0.5
Fluorene	0.07	0.25	0.177	0.5
4-Nitroaniline	0.25	0.5	0.238	0.5
Chrysene	0.08	0.25	0.236	0.5
4,6-Dinitro-2-methylphenol	0.83	2.5	1.220	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.737	0.5
Diphenylamine	0.1	0.5	0.121	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.145	0.5
Azobenzene	0.07	0.25	0.143	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.433	0.5
Hexachlorobenzene	0.11	0.25	0.090	0.5
Pentachlorophenol	0.61	2.5	1.400	0.5
Phenanthrene	0.06	0.25	0.182	0.5
Anthracene	0.05	0.25	0.160	0.5
Carbazole	0.17	0.5	0.530	0.5
Di-n-butylphthalate	0.11	0.25	0.187	0.5
Fluoranthene	0.07	0.25	0.178	0.5
Benzidine	0.61	12.5	9.300	0.5
Pyrene	0.11	0.25	0.168	0.5
Butylbenzylphthalate	0.12	0.5	0.631	0.5
3,3'-Dichlorobenzidine	0.18	0.5	0.100	0.5
Benzo(a)anthracene	0.08	0.25	0.192	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.427	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.137	0.5
4-Chloroaniline	0.21	0.5	0.316	0.5
3-Nitroaniline	0.16	0.5	0.803	0.5

Job ID: 600-77186-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-77186-1

Comments
No additional comments.

Receipt
The sample was received on 8/1/2013 1:30 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9º C.

Method Summary

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-77186-1	POE-02	Water	07/31/13 12:57	08/01/13 13:30

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Client Sample ID: POE-02
Date Collected: 07/31/13 12:57
Date Received: 08/01/13 13:30

Lab Sample ID: 600-77186-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00187		0.000490	0.000176	mg/L		08/05/13 10:15	08/05/13 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*84*		*18 - 120*	*08/05/13 10:15*	*08/05/13 16:10*	*1*
Nitrobenzene-d5	*100*		*47 - 120*	*08/05/13 10:15*	*08/05/13 16:10*	*1*
2-Fluorobiphenyl	*54*		*43 - 120*	*08/05/13 10:15*	*08/05/13 16:10*	*1*
2,4,6-Tribromophenol	*54*		*44 - 123*	*08/05/13 10:15*	*08/05/13 16:10*	*1*
Terphenyl-d14	*79*		*33 - 141*	*08/05/13 10:15*	*08/05/13 16:10*	*1*
Phenol-d5 (Surr)	*50*		*12 - 128*	*08/05/13 10:15*	*08/05/13 16:10*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-77186-1	POE-02	84	100	54	54	79	50		
LCS 600-112350/2-A	Lab Control Sample	122 X	111	107	91	102	89		
LCSD 600-112350/3-A	Lab Control Sample Dup	120	113	107	109	104	91		
MB 600-112350/1-A	Method Blank	103	102	89	71	83	72		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-112350/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 112451 — **Prep Batch: 112350**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		08/05/13 10:15	08/05/13 13:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*103*		*18 - 120*	*08/05/13 10:15*	*08/05/13 13:53*	*1*
Nitrobenzene-d5	*102*		*47 - 120*	*08/05/13 10:15*	*08/05/13 13:53*	*1*
2-Fluorobiphenyl	*89*		*43 - 120*	*08/05/13 10:15*	*08/05/13 13:53*	*1*
2,4,6-Tribromophenol	*71*		*44 - 123*	*08/05/13 10:15*	*08/05/13 13:53*	*1*
Terphenyl-d14	*83*		*33 - 141*	*08/05/13 10:15*	*08/05/13 13:53*	*1*
Phenol-d5 (Surr)	*72*		*12 - 128*	*08/05/13 10:15*	*08/05/13 13:53*	*1*

Lab Sample ID: LCS 600-112350/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 112451 — **Prep Batch: 112350**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00800	0.006541		mg/L		82	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*122*	*X*	*18 - 120*
Nitrobenzene-d5	*111*		*47 - 120*
2-Fluorobiphenyl	*107*		*43 - 120*
2,4,6-Tribromophenol	*91*		*44 - 123*
Terphenyl-d14	*102*		*33 - 141*
Phenol-d5 (Surr)	*89*		*12 - 128*

Lab Sample ID: LCSD 600-112350/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 112451 — **Prep Batch: 112350**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.00800	0.007596		mg/L		95	40 - 112	15	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol	*120*		*18 - 120*
Nitrobenzene-d5	*113*		*47 - 120*
2-Fluorobiphenyl	*107*		*43 - 120*
2,4,6-Tribromophenol	*109*		*44 - 123*
Terphenyl-d14	*104*		*33 - 141*
Phenol-d5 (Surr)	*91*		*12 - 128*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

GC/MS Semi VOA

Prep Batch: 112350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-77186-1	POE-02	Total/NA	Water	3510C	
LCS 600-112350/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-112350/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-112350/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 112451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-77186-1	POE-02	Total/NA	Water	8270C LL	112350
LCS 600-112350/2-A	Lab Control Sample	Total/NA	Water	8270C LL	112350
LCSD 600-112350/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	112350
MB 600-112350/1-A	Method Blank	Total/NA	Water	8270C LL	112350

Lab Chronicle

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Client Sample ID: POE-02
Date Collected: 07/31/13 12:57
Date Received: 08/01/13 13:30

Lab Sample ID: 600-77186-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			112350	08/05/13 10:15	LMB	TAL HOU
Total/NA	Analysis	8270C LL		1	112451	08/05/13 16:10	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Central Plant GW

TestAmerica Job ID: 600-77186-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

8/20/2013

Client Information	Sampler: Clinton Hebert	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: (713) 914 6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Houston	TAT Requested (days): 7 WD TRRP		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required		Other:
Email: ravi.kommajosyula@urs.com	WO #:		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site: Central Plant GW	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE-02	7/31/13	1257	G	Water	N	N	X	2	
Temp Blank	LAB								

600-77186 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological	[ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Ravi Kommajosyula	8/1/13	URS		8-1-13 13:30	T
2		8-1-13 1906	T		8/1/13 1400	TA
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-77186-1

Login Number: 77186

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-78228-1
Client Project/Site: Kinder Morgan Central Plant GW (Monthly)

For:
URS Corporation
10550 Richmond Avenue
Suite 155
Houston, Texas 77042

Attn: Raaj Patel

Authorized for release by:
9/3/2013 3:24:50 PM
Cathy Upton, Data Delivery Analyst
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager I
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-78228-1

Project Name/Number: Kinder Morgan Central Plant GW (Monthly)

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		09/03/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 09/03/13
Project Name: Kinder Morgan Central Plant GW (Monthly)	Laboratory Job Number 600-78228
Reviewer Name: TTD	Prep Batch Number(s): 600-114178 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 09/03/13
Project Name: Kinder Morgan Central Plant GW (Monthly)	Laboratory Job Number 600-78228
Reviewer Name: TTD	Prep Batch Number(s): 600-114178 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 09/03/13
Project Name: Kinder Morgan Central Plant GW (Monthly)	Laboratory Job Number 600-78228
Reviewer Name: TTD	Prep Batch Number(s): 600-114178 - SV

ER #[1]	DESCRIPTION
1	The 2-Fluorobiphenyl surrogate recovery for sample 600-78228-1 was biased low. Evidence of matrix interference is present; therefore, re-extraction was not performed.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	1/3/2013
Date Prepared:	1/3/2013
Lab Sample ID:	600-96501/6-A
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.573	0.5
N-Nitrosodimethylamine	0.26	0.5	0.224	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.353	0.5
Aniline	0.08	0.25	0.082	0.5
Phenol	0.04	0.25	0.0987	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.389	0.5
2-Chlorophenol	0.13	0.5	0.307	0.5
1,3-Dichlorobenzene	0.17	0.5	0.360	0.5
1,4-Dichlorobenzene	0.13	0.5	0.397	0.5
1,2-Dichlorobenzene	0.17	0.5	0.402	0.5
Benzyl alcohol	0.17	0.5	0.268	0.5
2-Methylphenol (o-cresol)	0.12	0.5	0.291	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.287	1
N-Nitroso-di-n-propylamine	0.1	0.5	0.376	0.5
Hexachloroethane	0.1	0.5	0.384	0.5
Dibenzo(a,h)anthracene	0.08	0.5	0.553	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.5	0.559	0.5
Nitrobenzene	0.11	0.25	0.167	0.5
Isophorone	0.11	0.25	0.158	0.5
2-Nitrophenol	0.22	0.5	0.331	0.5
Benzoic acid	2.51	12.5	6.330	2.5
2,4-Dimethylphenol	0.15	0.5	0.285	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.363	0.5
2,4-Dichlorophenol	0.15	0.5	0.285	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.415	0.5
Naphthalene	0.08	0.25	0.190	0.5
Benzo(a)pyrene	0.08	0.25	0.398	0.5
Hexachlorobutadiene	0.18	0.5	0.418	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.177	0.5
1-Methylnaphthalene	0.09	0.25	0.194	0.5
Benzo(k)fluoranthene	0.09	0.25	0.161	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.198	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.283	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.305	0.5
2-Chloronaphthalene	0.08	0.25	0.165	0.5
2-Nitroaniline	0.19	0.5	0.482	0.5
1,4-Dinitrobenzene	0.5	0.5	0.282	0.5
1,3-Dinitrobenzene	0.08	0.25	0.124	0.5
1,2-Dinitrobenzene	0.5	0.5	0.413	0.5

Dimethylphthalate	0.07	0.25	0.185	0.5
Acenaphthylene	0.06	0.25	0.183	0.5
2,6-Dinitrotoluene	0.08	0.5	0.314	0.5
Benzo(b)fluoranthene	0.07	0.5	0.590	0.5
Acenaphthene	0.08	0.5	0.375	0.5
Di-n-octylphthalate	0.16	0.5	0.891	0.5
4-Nitrophenol	0.56	2.5	0.881	1
Dibenzofuran	0.08	0.25	0.164	0.5
2,4-Dinitrotoluene	0.13	0.5	0.201	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.208	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.200	0.5
Diethylphthalate	1.5	0.5	0.307	0.5
4-Chlorophenyl-phenylether	0.1	0.5	0.351	0.5
Fluorene	0.07	0.25	0.177	0.5
4-Nitroaniline	0.25	0.5	0.238	0.5
Chrysene	0.08	0.25	0.236	0.5
4,6-Dinitro-2-methylphenol	0.83	2.5	1.220	0.5
N-Nitrosodiphenylamine	0.1	0.5	0.737	0.5
Diphenylamine	0.1	0.5	0.121	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.145	0.5
Azobenzene	0.07	0.25	0.143	0.5
4-Bromophenyl-phenylether	0.1	0.5	0.433	0.5
Hexachlorobenzene	0.11	0.25	0.090	0.5
Pentachlorophenol	0.61	2.5	1.400	0.5
Phenanthrene	0.06	0.25	0.182	0.5
Anthracene	0.05	0.25	0.160	0.5
Carbazole	0.17	0.5	0.530	0.5
Di-n-butylphthalate	0.11	0.25	0.187	0.5
Fluoranthene	0.07	0.25	0.178	0.5
Benzidine	0.61	12.5	9.300	0.5
Pyrene	0.11	0.25	0.168	0.5
Butylbenzylphthalate	0.12	0.5	0.631	0.5
3,3'-Dichlorobenzidine	0.18	0.5	0.100	0.5
Benzo(a)anthracene	0.08	0.25	0.192	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.427	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.137	0.5
4-Chloroaniline	0.21	0.5	0.316	0.5
3-Nitroaniline	0.16	0.5	0.803	0.5

Job ID: 600-78228-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-78228-1

Comments
No additional comments.

Receipt
The sample was received on 8/22/2013 11:55 AM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 2.7º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW (Monthly)

TestAmerica Job ID: 600-78228-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW (Monthly)

TestAmerica Job ID: 600-78228-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-78228-1	KMLT POE #2	Water	08/21/13 14:22	08/22/13 11:55

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW (Monthly)

TestAmerica Job ID: 600-78228-1

Client Sample ID: KMLT POE #2
Date Collected: 08/21/13 14:22
Date Received: 08/22/13 11:55

Lab Sample ID: 600-78228-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00118		0.000500	0.000180	mg/L		08/28/13 10:56	08/29/13 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*46*		*18 - 120*	*08/28/13 10:56*	*08/29/13 17:59*	*1*
Nitrobenzene-d5	*62*		*47 - 120*	*08/28/13 10:56*	*08/29/13 17:59*	*1*
2-Fluorobiphenyl	*41*	*X*	*43 - 120*	*08/28/13 10:56*	*08/29/13 17:59*	*1*
2,4,6-Tribromophenol	*48*		*44 - 123*	*08/28/13 10:56*	*08/29/13 17:59*	*1*
Terphenyl-d14	*72*		*33 - 141*	*08/28/13 10:56*	*08/29/13 17:59*	*1*
Phenol-d5 (Surr)	*28*		*12 - 128*	*08/28/13 10:56*	*08/29/13 17:59*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW (Monthly)

TestAmerica Job ID: 600-78228-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-78228-1	KMLT POE #2	46	62	41 X	48	72	28		
LCS 600-114178/2-A	Lab Control Sample	81	99	92	82	96	52		
LCSD 600-114178/3-A	Lab Control Sample Dup	82	94	89	77	91	52		
MB 600-114178/1-A	Method Blank	54	73	73	52	77	40		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-114178/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 114415 — **Prep Batch: 114178**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		08/28/13 10:56	08/29/13 16:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*54*		*18 - 120*	*08/28/13 10:56*	*08/29/13 16:38*	*1*
Nitrobenzene-d5	*73*		*47 - 120*	*08/28/13 10:56*	*08/29/13 16:38*	*1*
2-Fluorobiphenyl	*73*		*43 - 120*	*08/28/13 10:56*	*08/29/13 16:38*	*1*
2,4,6-Tribromophenol	*52*		*44 - 123*	*08/28/13 10:56*	*08/29/13 16:38*	*1*
Terphenyl-d14	*77*		*33 - 141*	*08/28/13 10:56*	*08/29/13 16:38*	*1*
Phenol-d5 (Surr)	*40*		*12 - 128*	*08/28/13 10:56*	*08/29/13 16:38*	*1*

Lab Sample ID: LCS 600-114178/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 114415 — **Prep Batch: 114178**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00800	0.007538		mg/L		94	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*81*		*18 - 120*
Nitrobenzene-d5	*99*		*47 - 120*
2-Fluorobiphenyl	*92*		*43 - 120*
2,4,6-Tribromophenol	*82*		*44 - 123*
Terphenyl-d14	*96*		*33 - 141*
Phenol-d5 (Surr)	*52*		*12 - 128*

Lab Sample ID: LCSD 600-114178/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 114415 — **Prep Batch: 114178**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.00800	0.008265		mg/L		103	40 - 112	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol	*82*		*18 - 120*
Nitrobenzene-d5	*94*		*47 - 120*
2-Fluorobiphenyl	*89*		*43 - 120*
2,4,6-Tribromophenol	*77*		*44 - 123*
Terphenyl-d14	*91*		*33 - 141*
Phenol-d5 (Surr)	*52*		*12 - 128*

Unadjusted Detection Limits

Client: URS Corporation
TestAmerica Job ID: 600-78228-1
Project/Site: Kinder Morgan Central Plant GW (Monthly)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW (Monthly)

TestAmerica Job ID: 600-78228-1

GC/MS Semi VOA

Prep Batch: 114178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-78228-1	KMLT POE #2	Total/NA	Water	3510C	
LCS 600-114178/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-114178/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-114178/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 114415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-78228-1	KMLT POE #2	Total/NA	Water	8270C LL	114178
LCS 600-114178/2-A	Lab Control Sample	Total/NA	Water	8270C LL	114178
LCSD 600-114178/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	114178
MB 600-114178/1-A	Method Blank	Total/NA	Water	8270C LL	114178

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant GW (Monthly)

TestAmerica Job ID: 600-78228-1

Client Sample ID: KMLT POE #2
Date Collected: 08/21/13 14:22
Date Received: 08/22/13 11:55

Lab Sample ID: 600-78228-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			114178	08/28/13 10:56	MRA	TAL HOU
Total/NA	Analysis	8270C LL		1	114415	08/29/13 17:59	KP1	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
TestAmerica Job ID: 600-78228-1
Project/Site: Kinder Morgan Central Plant GW (Monthly)

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13 *
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13 *
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: C. H.	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula (Raaj Patel)	Phone: 832-262-3134	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Houston	TAT Requested (days): 7 WD TRRP		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: TX, 77042			
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required		Other:
Email: ravi.kommajosyula@urs.com	WO #:		
Project Name: Kinder Morgan Central Plant GW (Monthly)	Project #: 60002845		
Site: Central Plant GW	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	X	
KMLT POE #2	8/21/13	14:22	G	Water	N	N	X	2	Replace kit upom receipt.
~~KMLT POE #2 CH~~	~~8/21/13~~	~~14:22~~	~~G~~	~~Water~~	~~N~~	~~N~~	~~X~~		

600-78228 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	8-21-13 1445	URS	[signature]	8/22/13 1155	A
2	[signature]	8/22/13 1104	URS	[signature]	Date/Time:	Company
3	[signature]	8/22/13 1255	A	[signature]	8/22/13 1259	TA

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Page 20 of 21

9/3/2013

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-78228-1

Login Number: 78228

List Number: 1

Creator: Capps, Dana R

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-80020-1

Client Project/Site: Kinder Morgan Central Plant (Monthly)

For:

URS Corporation
10550 Richmond Avenue
Houston, Texas 77042

Attn: Ms. Celeste Wieting

Authorized for release by:
10/7/2013 6:34:16 PM
Cathy Upton, Data Delivery Analyst
[redacted]

Designee for

Dean Joiner, Project Manager I
(713)690-4444
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-80020-1

Project Name/Number: Kinder Morgan Central Plant (Monthly)

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		10/07/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/07/13
Project Name: Kinder Morgan Central Plant (Monthly)	Laboratory Job Number: 600-80020
Reviewer Name: TTD	Prep Batch Number(s): 600-116950-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/07/13
Project Name: Kinder Morgan Central Plant (Monthly)	Laboratory Job Number: 600-80020
Reviewer Name: TTD	Prep Batch Number(s): 600-116950-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 10/07/13
Project Name: Kinder Morgan Central Plant (Monthly)	Laboratory Job Number: 600-80020
Reviewer Name: TTD	Prep Batch Number(s): 600-116950-SV

ER #[1]	DESCRIPTION

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	7/22/2013
Date Prepared:	7/19/2013
Lab Sample ID:	600-11162
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.153	0.5
N-Nitrosodimethylamine	0.26	0.5	0.484	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.463	0.5
Aniline	0.08	0.25	0.064	0.5
Phenol	0.04	0.25	0.114	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.393	0.5
2-Chlorophenol	0.13	0.5	0.389	0.5
1,3-Dichlorobenzene	0.17	0.5	0.416	0.5
1,4-Dichlorobenzene	0.13	0.5	0.462	0.5
1,2-Dichlorobenzene	0.17	0.5	0.423	0.5
Benzyl alcohol	0.17	0.5	0.167	0.5
2-Methylphenol (o-cresol)	0.12	0.25	0.130	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.277	1
N-Nitroso-di-n-propylamine	0.1	0.25	0.156	0.5
Hexachloroethane	0.1	0.25	0.168	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.133	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.135	0.5
Nitrobenzene	0.11	0.25	0.144	0.5
Isophorone	0.11	0.25	0.120	0.5
2-Nitrophenol	0.22	0.5	0.230	0.5
Benzoic acid	2.51	2.5	5.980	2.5
2,4-Dimethylphenol	0.15	0.5	0.275	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.116	0.5
2,4-Dichlorophenol	0.15	0.5	0.265	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.135	0.5
Naphthalene	0.08	0.25	0.140	0.5
Benzo(a)pyrene	0.08	0.25	0.101	0.5
Hexachlorobutadiene	0.18	0.5	0.393	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.134	0.5
1-Methylnaphthalene	0.09	0.25	0.133	0.5
Benzo(k)fluoranthene	0.09	0.25	0.119	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.297	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.364	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.354	0.5
2-Chloronaphthalene	0.08	0.25	0.127	0.5
2-Nitroaniline	0.19	0.5	0.333	0.5
1,4-Dinitrobenzene	0.5	0.5	0.487	0.5
1,3-Dinitrobenzene	0.08	0.25	0.172	0.5
1,2-Dinitrobenzene	0.5	0.5	0.525	0.5

Dimethylphthalate	0.07	0.25	0.129	0.5
Acenaphthylene	0.06	0.25	0.121	0.5
2,6-Dinitrotoluene	0.08	0.25	0.104	0.5
Benzo(b)fluoranthene	0.07	0.25	0.094	0.5
Acenaphthene	0.08	0.25	0.139	0.5
Di-n-octylphthalate	0.16	0.5	0.184	0.5
4-Nitrophenol	0.56	1	0.272	1
Dibenzofuran	0.08	0.25	0.133	0.5
2,4-Dinitrotoluene	0.13	0.5	0.277	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.057	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.800	0.5
Diethylphthalate	1.5	0.5	0.449	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.134	0.5
Fluorene	0.07	0.25	0.130	0.5
4-Nitroaniline	0.25	0.5	0.360	0.5
Chrysene	0.08	0.25	0.151	0.5
4,6-Dinitro-2-methylphenol	0.83	1	0.651	0.5
N-Nitrosodiphenylamine	0.1	0.25	0.123	0.5
Diphenylamine	0.1	0.25	0.123	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.115	0.5
Azobenzene	0.07	0.25	0.116	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.128	0.5
Hexachlorobenzene	0.11	0.25	0.147	0.5
Pentachlorophenol	0.61	1	3.720	0.5
Phenanthrene	0.06	0.25	0.133	0.5
Anthracene	0.05	0.25	0.118	0.5
Carbazole	0.17	0.5	0.361	0.5
Di-n-butylphthalate	0.11	0.25	0.104	0.5
Fluoranthene	0.07	0.25	0.119	0.5
Benzidine	0.61	2.5	3.810	0.5
Pyrene	0.11	0.25	0.120	0.5
Butylbenzylphthalate	0.12	0.25	0.089	0.5
3,3'-Dichlorobenzidine	0.18	0.25	0.064	0.5
Benzo(a)anthracene	0.08	0.25	0.133	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.256	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.156	0.5
4-Chloroaniline	0.21	0.5	0.179	0.5
3-Nitroaniline	0.16	0.5	0.177	0.5
2,4-Dinitrophenol	0.39	1	4.910	0.5

Job ID: 600-80020-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-80020-1

Comments
No additional comments.

Receipt
The samples were received on 9/25/2013 2:56 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperatures of the 2 coolers at receipt time were 3.7º C and 4.0º C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-80020-1	POE #2	Water	09/25/13 10:20	09/25/13 14:56

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Client Sample ID: POE #2
Date Collected: 09/25/13 10:20
Date Received: 09/25/13 14:56

Lab Sample ID: 600-80020-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00166		0.000500	0.000180	mg/L		10/02/13 11:13	10/03/13 12:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*49*		*18 - 120*	*10/02/13 11:13*	*10/03/13 12:32*	*1*
Nitrobenzene-d5	*77*		*47 - 120*	*10/02/13 11:13*	*10/03/13 12:32*	*1*
2-Fluorobiphenyl	*55*		*43 - 120*	*10/02/13 11:13*	*10/03/13 12:32*	*1*
2,4,6-Tribromophenol	*47*		*44 - 123*	*10/02/13 11:13*	*10/03/13 12:32*	*1*
Terphenyl-d14	*74*		*33 - 141*	*10/02/13 11:13*	*10/03/13 12:32*	*1*
Phenol-d5 (Surr)	*39*		*12 - 128*	*10/02/13 11:13*	*10/03/13 12:32*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-80020-1	POE #2	49	77	55	47	74	39		
LCS 600-116950/2-A	Lab Control Sample	38	74	71	49	89	39		
LCSD 600-116950/3-A	Lab Control Sample Dup	40	71	73	49	90	38		
MB 600-116950/1-A	Method Blank	44	69	69	45	86	34		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-116950/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 117114 — **Prep Batch: 116950**

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		10/02/13 11:13	10/03/13 10:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*44*		*18 - 120*	*10/02/13 11:13*	*10/03/13 10:12*	*1*
Nitrobenzene-d5	*69*		*47 - 120*	*10/02/13 11:13*	*10/03/13 10:12*	*1*
2-Fluorobiphenyl	*69*		*43 - 120*	*10/02/13 11:13*	*10/03/13 10:12*	*1*
2,4,6-Tribromophenol	*45*		*44 - 123*	*10/02/13 11:13*	*10/03/13 10:12*	*1*
Terphenyl-d14	*86*		*33 - 141*	*10/02/13 11:13*	*10/03/13 10:12*	*1*
Phenol-d5 (Surr)	*34*		*12 - 128*	*10/02/13 11:13*	*10/03/13 10:12*	*1*

Lab Sample ID: LCS 600-116950/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 117114 — **Prep Batch: 116950**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00800	0.005612		mg/L		70	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*38*		*18 - 120*
Nitrobenzene-d5	*74*		*47 - 120*
2-Fluorobiphenyl	*71*		*43 - 120*
2,4,6-Tribromophenol	*49*		*44 - 123*
Terphenyl-d14	*89*		*33 - 141*
Phenol-d5 (Surr)	*39*		*12 - 128*

Lab Sample ID: LCSD 600-116950/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 117114 — **Prep Batch: 116950**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.00800	0.005351		mg/L		67	40 - 112	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol	*40*		*18 - 120*
Nitrobenzene-d5	*71*		*47 - 120*
2-Fluorobiphenyl	*73*		*43 - 120*
2,4,6-Tribromophenol	*49*		*44 - 123*
Terphenyl-d14	*90*		*33 - 141*
Phenol-d5 (Surr)	*38*		*12 - 128*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

GC/MS Semi VOA

Prep Batch: 116950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-80020-1	POE #2	Total/NA	Water	3510C	
LCS 600-116950/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-116950/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-116950/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 117114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-80020-1	POE #2	Total/NA	Water	8270C LL	116950
LCS 600-116950/2-A	Lab Control Sample	Total/NA	Water	8270C LL	116950
LCSD 600-116950/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	116950
MB 600-116950/1-A	Method Blank	Total/NA	Water	8270C LL	116950

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Client Sample ID: POE #2
Date Collected: 09/25/13 10:20
Date Received: 09/25/13 14:56

Lab Sample ID: 600-80020-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	116950	10/02/13 11:13	RLK	TAL HOU
Total/NA	Analysis	8270C LL		1			117114	10/03/13 12:32	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant (Monthly)

TestAmerica Job ID: 600-80020-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13 *
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13 *
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Client Information	Sampler:	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759 1
Client Contact: Ravi Kommajosyula	Phone:	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW (Monthly)	Project #: 60002845			
Site: Central Plant GW	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code				N		
POE #2	9/25/13	1020	G	Water	N	N	X	2	Replace kit upon receipt.

600-80020 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Celeste Wieting	9/25/13 / 1130	URS	[signature]	9-25-13 13:25	[signature]
[signature]	9-25-13 14:56	[signature]	[signature]	9/25/13 1456	[signature]

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-80020-1

Login Number: 80020

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.7/4.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-81767-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Avenue
Houston, Texas 77042

Attn: Ms. Celeste Wieting

Authorized for release by:
11/8/2013 4:03:58 PM
Sophia Shah, Project Management Assistant I
[redacted]

Designee for

Dean Joiner, Project Manager II
(713)690-4444
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
Default Detection Limits 15
QC Association Summary 16
Lab Chronicle 17
Certification Summary 18
Chain of Custody 19
Receipt Checklists 20

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-81767-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Sophia Shah		11/08/2013
Name (printed)	Signature	Date
Project Management Assistant		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 11/07/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-81767
Reviewer Name: JB	Prep Batch Number: 600-119703-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 11/07/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-81767
Reviewer Name: JB	Prep Batch Number: 600-119703-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 11/07/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-81767
Reviewer Name: JB	Prep Batch Number: 600-119703-SV

ER #[1]	DESCRIPTION
1	Surrogate recovery for the following sample(s) was below control limits: (600-81767-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	7/22/2013
Date Prepared:	7/19/2013
Lab Sample ID:	600-11162
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.153	0.5
N-Nitrosodimethylamine	0.26	0.5	0.484	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.463	0.5
Aniline	0.08	0.25	0.064	0.5
Phenol	0.04	0.25	0.114	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.393	0.5
2-Chlorophenol	0.13	0.5	0.389	0.5
1,3-Dichlorobenzene	0.17	0.5	0.416	0.5
1,4-Dichlorobenzene	0.13	0.5	0.462	0.5
1,2-Dichlorobenzene	0.17	0.5	0.423	0.5
Benzyl alcohol	0.17	0.5	0.167	0.5
2-Methylphenol (o-cresol)	0.12	0.25	0.130	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.277	1
N-Nitroso-di-n-propylamine	0.1	0.25	0.156	0.5
Hexachloroethane	0.1	0.25	0.168	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.133	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.135	0.5
Nitrobenzene	0.11	0.25	0.144	0.5
Isophorone	0.11	0.25	0.120	0.5
2-Nitrophenol	0.22	0.5	0.230	0.5
Benzoic acid	2.51	2.5	5.980	2.5
2,4-Dimethylphenol	0.15	0.5	0.275	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.116	0.5
2,4-Dichlorophenol	0.15	0.5	0.265	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.135	0.5
Naphthalene	0.08	0.25	0.140	0.5
Benzo(a)pyrene	0.08	0.25	0.101	0.5
Hexachlorobutadiene	0.18	0.5	0.393	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.134	0.5
1-Methylnaphthalene	0.09	0.25	0.133	0.5
Benzo(k)fluoranthene	0.09	0.25	0.119	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.297	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.364	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.354	0.5
2-Chloronaphthalene	0.08	0.25	0.127	0.5
2-Nitroaniline	0.19	0.5	0.333	0.5
1,4-Dinitrobenzene	0.5	0.5	0.487	0.5
1,3-Dinitrobenzene	0.08	0.25	0.172	0.5
1,2-Dinitrobenzene	0.5	0.5	0.525	0.5

Dimethylphthalate	0.07	0.25	0.129	0.5
Acenaphthylene	0.06	0.25	0.121	0.5
2,6-Dinitrotoluene	0.08	0.25	0.104	0.5
Benzo(b)fluoranthene	0.07	0.25	0.094	0.5
Acenaphthene	0.08	0.25	0.139	0.5
Di-n-octylphthalate	0.16	0.5	0.184	0.5
4-Nitrophenol	0.56	1	0.272	1
Dibenzofuran	0.08	0.25	0.133	0.5
2,4-Dinitrotoluene	0.13	0.5	0.277	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.057	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.800	0.5
Diethylphthalate	1.5	0.5	0.449	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.134	0.5
Fluorene	0.07	0.25	0.130	0.5
4-Nitroaniline	0.25	0.5	0.360	0.5
Chrysene	0.08	0.25	0.151	0.5
4,6-Dinitro-2-methylphenol	0.83	1	0.651	0.5
N-Nitrosodiphenylamine	0.1	0.25	0.123	0.5
Diphenylamine	0.1	0.25	0.123	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.115	0.5
Azobenzene	0.07	0.25	0.116	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.128	0.5
Hexachlorobenzene	0.11	0.25	0.147	0.5
Pentachlorophenol	0.61	1	3.720	0.5
Phenanthrene	0.06	0.25	0.133	0.5
Anthracene	0.05	0.25	0.118	0.5
Carbazole	0.17	0.5	0.361	0.5
Di-n-butylphthalate	0.11	0.25	0.104	0.5
Fluoranthene	0.07	0.25	0.119	0.5
Benzidine	0.61	2.5	3.810	0.5
Pyrene	0.11	0.25	0.120	0.5
Butylbenzylphthalate	0.12	0.25	0.089	0.5
3,3'-Dichlorobenzidine	0.18	0.25	0.064	0.5
Benzo(a)anthracene	0.08	0.25	0.133	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.256	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.156	0.5
4-Chloroaniline	0.21	0.5	0.179	0.5
3-Nitroaniline	0.16	0.5	0.177	0.5
2,4-Dinitrophenol	0.39	1	4.910	0.5

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Job ID: 600-81767-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-81767-1

Comments
No additional comments.

Receipt
The sample was received on 10/29/2013 4:08 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

Organic Prep
Method(s) 3510C: Elevated reporting limits are provided for the following sample due to insufficient sample provided for preparation: POE #2 (600-81767-1).

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-81767-1	POE #2	Water	10/29/13 13:45	10/29/13 16:08

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Client Sample ID: POE #2
Date Collected: 10/29/13 13:45
Date Received: 10/29/13 16:08

Lab Sample ID: 600-81767-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00193		0.000521	0.000188	mg/L		11/05/13 13:40	11/07/13 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*76*		*18 - 120*	*11/05/13 13:40*	*11/07/13 12:45*	*1*
Nitrobenzene-d5	*92*		*47 - 120*	*11/05/13 13:40*	*11/07/13 12:45*	*1*
2-Fluorobiphenyl	*47*		*43 - 120*	*11/05/13 13:40*	*11/07/13 12:45*	*1*
2,4,6-Tribromophenol	*40*	*X*	*44 - 123*	*11/05/13 13:40*	*11/07/13 12:45*	*1*
Terphenyl-d14	*79*		*33 - 141*	*11/05/13 13:40*	*11/07/13 12:45*	*1*
Phenol-d5 (Surr)	*54*		*12 - 128*	*11/05/13 13:40*	*11/07/13 12:45*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-81767-1	POE #2	76	92	47	40 X	79	54		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

GC/MS Semi VOA

Prep Batch: 119703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81767-1	POE #2	Total/NA	Water	3510C	

Analysis Batch: 119887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81767-1	POE #2	Total/NA	Water	8270C LL	119703

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Client Sample ID: POE #2
Date Collected: 10/29/13 13:45
Date Received: 10/29/13 16:08

Lab Sample ID: 600-81767-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			240 mL	1.0 mL	119703	11/05/13 13:40	RLK	TAL HOU
Total/NA	Analysis	8270C LL		1	240 mL	1.0 mL	119887	11/07/13 12:45	KP1	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-81767-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13 *
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13 *
Texas	NELAP	6	T104704223-10-6-TX	10-31-13 *
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13 *

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston
6310 Rothway Street
Houston TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Client Information	Sampler: Celeste Wieting	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: ~~Ravi Kommajosyula~~ Celeste.Wieting	Phone: 7135453532	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #: 2501523
Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested		Preservation Codes:
City: Houston	TAT Requested (days): 7 WD TRRP			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: TX, 77042				Other:
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ~~ravi.kommajosyula@urs.com~~ celeste.wieting@urs.com	WO #:			
Project Name: Kinder Morgan Central Plant GW (Monthly)	Project #: 60002845			
Site: Central Plant GW	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	X	
POE #2	10/29/13	1345	G	Water	N	N	X	2	Replace kit upom receipt. CW
End of Record									

600-81767 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Celeste Wieting	10/29/13 1400	URS		10/29/13 1400	
Relinquished by	Date/Time:	Company	Received by	Date/Time:	Company
Relinquished by:	Date/Time: 10/29/13 1608	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

11/8/2013

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-81767-1

Login Number: 81767

List Source: TestAmerica Houston

List Number: 1

Creator: Allen, Jodi L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-82957-1
Client Project/Site: Kinder Morgan Central Plant

For:
URS Corporation
10550 Richmond Avenue
Houston, Texas 77042

Attn: Ms. Celeste Wieting

Authorized for release by:
12/2/2013 5:10:01 PM
Sophia Shah, Project Management Assistant I
[redacted]

Designee for

Dean Joiner, Project Manager II
(713)690-4444
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-82957-1

Project Name/Number: Kinder Morgan Central Plant

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Sophia Shah		12/02/2013
Name (printed)	Signature	Date
Project Management Assistant		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/02/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-82957
Reviewer Name: MBB	Prep Batch Number(s): 600-1361459-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/02/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-82957
Reviewer Name: MBB	Prep Batch Number(s): 600-1361459-SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?		X			2
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/02/13
Project Name: Kinder Morgan Central Plant	Laboratory Job Number: 600-82957
Reviewer Name: MBB	Prep Batch Number(s): 600-1361459-SV

ER #[1]	DESCRIPTION
1	The laboratory selected a sample from another group to perform as the MS/MSD
2	The continuing calibration verification (CCV) for analytical batch 121563 was biased low for Benzidine (-97.7%) and 4-Chloroaniline (-73.7%). The SOP makes allowance for up to four non-CCC analytes to have a %drift greater than the acceptable limits. The data has been qualified and reported.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

.

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	7/22/2013
Date Prepared:	7/19/2013
Lab Sample ID:	600-11162
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.153	0.5
N-Nitrosodimethylamine	0.26	0.5	0.484	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.463	0.5
Aniline	0.08	0.25	0.064	0.5
Phenol	0.04	0.25	0.114	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.393	0.5
2-Chlorophenol	0.13	0.5	0.389	0.5
1,3-Dichlorobenzene	0.17	0.5	0.416	0.5
1,4-Dichlorobenzene	0.13	0.5	0.462	0.5
1,2-Dichlorobenzene	0.17	0.5	0.423	0.5
Benzyl alcohol	0.17	0.5	0.167	0.5
2-Methylphenol (o-cresol)	0.12	0.25	0.130	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.277	1
N-Nitroso-di-n-propylamine	0.1	0.25	0.156	0.5
Hexachloroethane	0.1	0.25	0.168	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.133	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.135	0.5
Nitrobenzene	0.11	0.25	0.144	0.5
Isophorone	0.11	0.25	0.120	0.5
2-Nitrophenol	0.22	0.5	0.230	0.5
Benzoic acid	2.51	2.5	5.980	2.5
2,4-Dimethylphenol	0.15	0.5	0.275	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.116	0.5
2,4-Dichlorophenol	0.15	0.5	0.265	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.135	0.5
Naphthalene	0.08	0.25	0.140	0.5
Benzo(a)pyrene	0.08	0.25	0.101	0.5
Hexachlorobutadiene	0.18	0.5	0.393	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.134	0.5
1-Methylnaphthalene	0.09	0.25	0.133	0.5
Benzo(k)fluoranthene	0.09	0.25	0.119	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.297	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.364	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.354	0.5
2-Chloronaphthalene	0.08	0.25	0.127	0.5
2-Nitroaniline	0.19	0.5	0.333	0.5
1,4-Dinitrobenzene	0.5	0.5	0.487	0.5
1,3-Dinitrobenzene	0.08	0.25	0.172	0.5
1,2-Dinitrobenzene	0.5	0.5	0.525	0.5

Dimethylphthalate	0.07	0.25	0.129	0.5
Acenaphthylene	0.06	0.25	0.121	0.5
2,6-Dinitrotoluene	0.08	0.25	0.104	0.5
Benzo(b)fluoranthene	0.07	0.25	0.094	0.5
Acenaphthene	0.08	0.25	0.139	0.5
Di-n-octylphthalate	0.16	0.5	0.184	0.5
4-Nitrophenol	0.56	1	0.272	1
Dibenzofuran	0.08	0.25	0.133	0.5
2,4-Dinitrotoluene	0.13	0.5	0.277	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.057	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.800	0.5
Diethylphthalate	1.5	0.5	0.449	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.134	0.5
Fluorene	0.07	0.25	0.130	0.5
4-Nitroaniline	0.25	0.5	0.360	0.5
Chrysene	0.08	0.25	0.151	0.5
4,6-Dinitro-2-methylphenol	0.83	1	0.651	0.5
N-Nitrosodiphenylamine	0.1	0.25	0.123	0.5
Diphenylamine	0.1	0.25	0.123	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.115	0.5
Azobenzene	0.07	0.25	0.116	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.128	0.5
Hexachlorobenzene	0.11	0.25	0.147	0.5
Pentachlorophenol	0.61	1	3.720	0.5
Phenanthrene	0.06	0.25	0.133	0.5
Anthracene	0.05	0.25	0.118	0.5
Carbazole	0.17	0.5	0.361	0.5
Di-n-butylphthalate	0.11	0.25	0.104	0.5
Fluoranthene	0.07	0.25	0.119	0.5
Benzidine	0.61	2.5	3.810	0.5
Pyrene	0.11	0.25	0.120	0.5
Butylbenzylphthalate	0.12	0.25	0.089	0.5
3,3'-Dichlorobenzidine	0.18	0.25	0.064	0.5
Benzo(a)anthracene	0.08	0.25	0.133	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.256	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.156	0.5
4-Chloroaniline	0.21	0.5	0.179	0.5
3-Nitroaniline	0.16	0.5	0.177	0.5
2,4-Dinitrophenol	0.39	1	4.910	0.5

Job ID: 600-82957-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-82957-1

Comments
No additional comments.

Receipt
The sample was received on 11/20/2013 3:11 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4° C.

GC/MS Semi VOA
Method(s) 8270C LL: The continuing calibration verification (CCV) for analytical batch 121563 was biased low for Benzidine (-97.7%) and 4-Chloroaniline (-73.7%). The SOP makes allowance for up to four non-CCC analytes to have a %drift greater than the acceptable limits. The data have been qualified and reported.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-82957-1	KMLT-POE-2	Water	11/20/13 10:53	11/20/13 15:11

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Client Sample ID: KMLT-POE-2
Date Collected: 11/20/13 10:53
Date Received: 11/20/13 15:11

Lab Sample ID: 600-82957-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00119		0.000500	0.000180	mg/L		11/25/13 11:11	11/26/13 10:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*48*		*18 - 120*	*11/25/13 11:11*	*11/26/13 10:44*	*1*
Nitrobenzene-d5	*64*		*47 - 120*	*11/25/13 11:11*	*11/26/13 10:44*	*1*
2-Fluorobiphenyl	*44*		*43 - 120*	*11/25/13 11:11*	*11/26/13 10:44*	*1*
2,4,6-Tribromophenol	*51*		*44 - 123*	*11/25/13 11:11*	*11/26/13 10:44*	*1*
Terphenyl-d14	*65*		*33 - 141*	*11/25/13 11:11*	*11/26/13 10:44*	*1*
Phenol-d5 (Surr)	*35*		*12 - 128*	*11/25/13 11:11*	*11/26/13 10:44*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-82957-1	KMLT-POE-2	48	64	44	51	65	35		
LCS 600-121386/2-A	Lab Control Sample	81	89	85	94	91	65		
MB 600-121386/1-A	Method Blank	76	88	84	64	84	55		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-121386/1-A
Matrix: Water
Analysis Batch: 121563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 121386

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		11/25/13 11:11	11/26/13 09:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*76*		*18 - 120*	*11/25/13 11:11*	*11/26/13 09:24*	*1*
Nitrobenzene-d5	*88*		*47 - 120*	*11/25/13 11:11*	*11/26/13 09:24*	*1*
2-Fluorobiphenyl	*84*		*43 - 120*	*11/25/13 11:11*	*11/26/13 09:24*	*1*
2,4,6-Tribromophenol	*64*		*44 - 123*	*11/25/13 11:11*	*11/26/13 09:24*	*1*
Terphenyl-d14	*84*		*33 - 141*	*11/25/13 11:11*	*11/26/13 09:24*	*1*
Phenol-d5 (Surr)	*55*		*12 - 128*	*11/25/13 11:11*	*11/26/13 09:24*	*1*

Lab Sample ID: LCS 600-121386/2-A
Matrix: Water
Analysis Batch: 121563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 121386

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00800	0.006370		mg/L		80	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*81*		*18 - 120*
Nitrobenzene-d5	*89*		*47 - 120*
2-Fluorobiphenyl	*85*		*43 - 120*
2,4,6-Tribromophenol	*94*		*44 - 123*
Terphenyl-d14	*91*		*33 - 141*
Phenol-d5 (Surr)	*65*		*12 - 128*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

GC/MS Semi VOA

Prep Batch: 121386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-82957-1	KMLT-POE-2	Total/NA	Water	3510C	
LCS 600-121386/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 600-121386/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 121563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-82957-1	KMLT-POE-2	Total/NA	Water	8270C LL	121386
LCS 600-121386/2-A	Lab Control Sample	Total/NA	Water	8270C LL	121386
MB 600-121386/1-A	Method Blank	Total/NA	Water	8270C LL	121386

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Client Sample ID: KMLT-POE-2
Date Collected: 11/20/13 10:53
Date Received: 11/20/13 15:11

Lab Sample ID: 600-82957-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	121386	11/25/13 11:11	LER	TAL HOU
Total/NA	Analysis	8270C LL		1	250 mL	1.0 mL	121563	11/26/13 10:44	MBB	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Central Plant

TestAmerica Job ID: 600-82957-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-14
Louisiana	NELAP	6	30643	06-30-14
Oklahoma	State Program	6	1309	08-31-14
Texas	NELAP	6	T104704223	10-31-14
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	TX00083	10-31-14

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

12/2/2013

Client Information	Sampler: C. Hebert	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14076-5759.1
Client Contact: Ravi Kommajosyula	Phone: 713-914-6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 1
Company: URS Corporation				Job #:

Address: 10550 Richmond Ave	Due Date Requested:
City: Houston	TAT Requested (days): 7 WD TRRP
State, Zip: TX, 77042	
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required
Email: ravi.kommajosyula@urs.com	WO #:
Project Name: Kinder Morgan Central Plant GW (Monthly)	Project #: 60002845
Site: Central Plant GW	SSOW#:

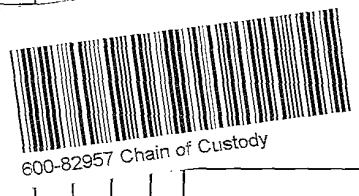
Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis (2-chloroethy) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
KMLT-POE-2	11-20-13	1053	G	Water	N	N	X	4	Replace kit upom receipt.



Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Chris Hebert	11-20-13 1343	URS	Jamie Fuentes	11-20-13 13:43	T
Relinquished by: Jamie Fuentes	Date/Time: 11-20-13 15:11	Company T	Received by:	Date/Time: 11/20/13 1511	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-82957-1

Login Number: 82957

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-84139-1
Client Project/Site: Galena Park Central Plant

For:
URS Corporation
10550 Richmond Avenue
Houston, Texas 77042

Attn: Ms. Celeste Wieting

Authorized for release by:
12/26/2013 5:03:45 PM
Cathy Upton, Project Management Assistant II
(713)690-4444
[redacted]

Designee for

Dean Joiner, Project Manager II
(713)690-4444
[redacted]

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 13
Surrogate Summary 14
QC Sample Results 15
Default Detection Limits 16
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Chain of Custody 20
Receipt Checklists 21

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-84139-1

Project Name/Number: Galena Park Central Plant

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		12/26/2013
Name (printed)	Signature	Date
Project Manager Assistant II		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/20/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84139
Reviewer Name: TTD	Prep Batch Number(s): 600-122929 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/20/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84139
Reviewer Name: TTD	Prep Batch Number(s): 600-122929 - SV

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?		X			1
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	X				
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/20/13
Project Name: Galena Park Central Plant	Laboratory Job Number: 600-84139
Reviewer Name: TTD	Prep Batch Number(s): 600-122929 - SV

ER #[1]	DESCRIPTION
1	The Acenaphthene-d10 Internal Standard response was outside acceptance limits for sample 600-84139-1. Acenaphthene-d10 is not associated with the target analyte requested; therefore, the data have been reported.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Quality Control Report

Detection Check Standard

Matrix:	Water
Method:	8270C LL
Preparation:	3510C
Date Analyzed:	7/22/2013
Date Prepared:	7/19/2013
Lab Sample ID:	600-11162
Units:	ug/L

Analyte	MDL	DCS Spike	DCS Result	MQL
Pyridine	0.04	0.5	0.153	0.5
N-Nitrosodimethylamine	0.26	0.5	0.484	0.5
bis (2-Chloroisopropyl) ether	0.4	0.5	0.463	0.5
Aniline	0.08	0.25	0.064	0.5
Phenol	0.04	0.25	0.114	0.5
bis(2-Chloroethyl)ether	0.15	0.5	0.393	0.5
2-Chlorophenol	0.13	0.5	0.389	0.5
1,3-Dichlorobenzene	0.17	0.5	0.416	0.5
1,4-Dichlorobenzene	0.13	0.5	0.462	0.5
1,2-Dichlorobenzene	0.17	0.5	0.423	0.5
Benzyl alcohol	0.17	0.5	0.167	0.5
2-Methylphenol (o-cresol)	0.12	0.25	0.130	0.5
3&4-Methylphenol (m&p-Cresols)	0.2	0.5	0.277	1
N-Nitroso-di-n-propylamine	0.1	0.25	0.156	0.5
Hexachloroethane	0.1	0.25	0.168	0.5
Dibenzo(a,h)anthracene	0.08	0.25	0.133	0.5
Indeno(1,2,3-cd)pyrene	0.07	0.25	0.135	0.5
Nitrobenzene	0.11	0.25	0.144	0.5
Isophorone	0.11	0.25	0.120	0.5
2-Nitrophenol	0.22	0.5	0.230	0.5
Benzoic acid	2.51	2.5	5.980	2.5
2,4-Dimethylphenol	0.15	0.5	0.275	0.5
bis(2-Chloroethoxy)methane	0.13	0.5	0.116	0.5
2,4-Dichlorophenol	0.15	0.5	0.265	0.5
1,2,4-Trichlorobenzene	0.12	0.5	0.135	0.5
Naphthalene	0.08	0.25	0.140	0.5
Benzo(a)pyrene	0.08	0.25	0.101	0.5
Hexachlorobutadiene	0.18	0.5	0.393	0.5
4-Chloro-3-methylphenol	0.17	0.5	0.310	0.5
2-Methylnaphthalene	0.07	0.25	0.134	0.5
1-Methylnaphthalene	0.09	0.25	0.133	0.5
Benzo(k)fluoranthene	0.09	0.25	0.119	0.5
Hexachlorocyclopentadiene	0.13	0.5	0.297	0.5
2,4,6-Trichlorophenol	0.18	0.5	0.364	0.5
2,4,5-Trichlorophenol	0.25	0.5	0.354	0.5
2-Chloronaphthalene	0.08	0.25	0.127	0.5
2-Nitroaniline	0.19	0.5	0.333	0.5
1,4-Dinitrobenzene	0.5	0.5	0.487	0.5
1,3-Dinitrobenzene	0.08	0.25	0.172	0.5
1,2-Dinitrobenzene	0.5	0.5	0.525	0.5

Dimethylphthalate	0.07	0.25	0.129	0.5
Acenaphthylene	0.06	0.25	0.121	0.5
2,6-Dinitrotoluene	0.08	0.25	0.104	0.5
Benzo(b)fluoranthene	0.07	0.25	0.094	0.5
Acenaphthene	0.08	0.25	0.139	0.5
Di-n-octylphthalate	0.16	0.5	0.184	0.5
4-Nitrophenol	0.56	1	0.272	1
Dibenzofuran	0.08	0.25	0.133	0.5
2,4-Dinitrotoluene	0.13	0.5	0.277	0.5
2,3,4,6-Tetrachlorophenol	0.5	0.5	0.057	0.5
2,3,5,6-Tetrachlorophenol	0.5	0.5	0.800	0.5
Diethylphthalate	1.5	0.5	0.449	0.5
4-Chlorophenyl-phenylether	0.1	0.25	0.134	0.5
Fluorene	0.07	0.25	0.130	0.5
4-Nitroaniline	0.25	0.5	0.360	0.5
Chrysene	0.08	0.25	0.151	0.5
4,6-Dinitro-2-methylphenol	0.83	1	0.651	0.5
N-Nitrosodiphenylamine	0.1	0.25	0.123	0.5
Diphenylamine	0.1	0.25	0.123	0.5
1,2-Diphenylhydrazine	0.11	0.25	0.115	0.5
Azobenzene	0.07	0.25	0.116	0.5
4-Bromophenyl-phenylether	0.1	0.25	0.128	0.5
Hexachlorobenzene	0.11	0.25	0.147	0.5
Pentachlorophenol	0.61	1	3.720	0.5
Phenanthrene	0.06	0.25	0.133	0.5
Anthracene	0.05	0.25	0.118	0.5
Carbazole	0.17	0.5	0.361	0.5
Di-n-butylphthalate	0.11	0.25	0.104	0.5
Fluoranthene	0.07	0.25	0.119	0.5
Benzidine	0.61	2.5	3.810	0.5
Pyrene	0.11	0.25	0.120	0.5
Butylbenzylphthalate	0.12	0.25	0.089	0.5
3,3'-Dichlorobenzidine	0.18	0.25	0.064	0.5
Benzo(a)anthracene	0.08	0.25	0.133	0.5
bis(2-Ethylhexyl)phthalate	0.37	0.5	0.256	0.5
Benzo(g,h,i)perylene	0.08	0.25	0.156	0.5
4-Chloroaniline	0.21	0.5	0.179	0.5
3-Nitroaniline	0.16	0.5	0.177	0.5
2,4-Dinitrophenol	0.39	1	4.910	0.5

Job ID: 600-84139-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-84139-1

Comments
No additional comments.

Receipt
The samples were received on 12/14/2013 7:02 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.6º C, 3.3º C and 4.5º C.

Method Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-84139-1	POE #2	Water	12/09/13 12:30	12/14/13 07:02

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Client Sample ID: POE #2
Date Collected: 12/09/13 12:30
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84139-1
Matrix: Water

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.00142		0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*54*		*18 - 120*	*12/16/13 10:16*	*12/17/13 12:58*	*1*
Nitrobenzene-d5	*76*		*47 - 120*	*12/16/13 10:16*	*12/17/13 12:58*	*1*
2-Fluorobiphenyl	*46*	*	*43 - 120*	*12/16/13 10:16*	*12/17/13 12:58*	*1*
2,4,6-Tribromophenol	*63*	*	*44 - 123*	*12/16/13 10:16*	*12/17/13 12:58*	*1*
Terphenyl-d14	*83*		*33 - 141*	*12/16/13 10:16*	*12/17/13 12:58*	*1*
Phenol-d5 (Surr)	*15*		*12 - 128*	*12/16/13 10:16*	*12/17/13 12:58*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		2FP	NBZ	FBP	TBP	TPH	PHL		
Lab Sample ID	Client Sample ID	(18-120)	(47-120)	(43-120)	(44-123)	(33-141)	(12-128)		
600-84139-1	POE #2	54	76	46 *	63 *	83	15		
LCS 600-122929/2-A	Lab Control Sample	92	94	97	88	103	76		
LCSD 600-122929/3-A	Lab Control Sample Dup	95	90	89	82	93	78		
MB 600-122929/1-A	Method Blank	91	94	96	81	100	78		

Surrogate Legend

2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TBP = 2,4,6-Tribromophenol
TPH = Terphenyl-d14
PHL = Phenol-d5 (Surr)

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-122929/1-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122929

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.000180	U	0.000500	0.000180	mg/L		12/16/13 10:16	12/17/13 10:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*91*		*18 - 120*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
Nitrobenzene-d5	*94*		*47 - 120*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
2-Fluorobiphenyl	*96*		*43 - 120*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
2,4,6-Tribromophenol	*81*		*44 - 123*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
Terphenyl-d14	*100*		*33 - 141*	*12/16/13 10:16*	*12/17/13 10:46*	*1*
Phenol-d5 (Surr)	*78*		*12 - 128*	*12/16/13 10:16*	*12/17/13 10:46*	*1*

Lab Sample ID: LCS 600-122929/2-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122929

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-chloroethyl)ether			0.00800	0.006115		mg/L		76	40 - 112		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*92*		*18 - 120*
Nitrobenzene-d5	*94*		*47 - 120*
2-Fluorobiphenyl	*97*		*43 - 120*
2,4,6-Tribromophenol	*88*		*44 - 123*
Terphenyl-d14	*103*		*33 - 141*
Phenol-d5 (Surr)	*76*		*12 - 128*

Lab Sample ID: LCSD 600-122929/3-A
Matrix: Water
Analysis Batch: 123138

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122929

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether			0.00800	0.006433		mg/L		80	40 - 112	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol	*95*		*18 - 120*
Nitrobenzene-d5	*90*		*47 - 120*
2-Fluorobiphenyl	*89*		*43 - 120*
2,4,6-Tribromophenol	*82*		*44 - 123*
Terphenyl-d14	*93*		*33 - 141*
Phenol-d5 (Surr)	*78*		*12 - 128*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	MQL	MDL	Units	Method
Bis(2-chloroethyl)ether	0.000500	0.000180	mg/L	8270C LL

QC Association Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

GC/MS Semi VOA

Prep Batch: 122929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84139-1	POE #2	Total/NA	Water	3510C	
LCS 600-122929/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-122929/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 600-122929/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 123138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84139-1	POE #2	Total/NA	Water	8270C LL	122929
LCS 600-122929/2-A	Lab Control Sample	Total/NA	Water	8270C LL	122929
LCSD 600-122929/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	122929
MB 600-122929/1-A	Method Blank	Total/NA	Water	8270C LL	122929

Lab Chronicle

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Client Sample ID: POE #2
Date Collected: 12/09/13 12:30
Date Received: 12/14/13 07:02

Lab Sample ID: 600-84139-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	122929	12/16/13 10:16	LMB	TAL HOU
Total/NA	Analysis	8270C LL		1	250 mL	1.0 mL	123138	12/17/13 12:58	MBB	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Galena Park Central Plant

TestAmerica Job ID: 600-84139-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-14
Louisiana	NELAP	6	30643	06-30-14
Oklahoma	State Program	6	1309	08-31-14
Texas	NELAP	6	T104704223	10-31-14
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	TX00083	10-31-14

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

600-84139 Chain of Custody

Client Information	Sampler: Celeste Wieting	Lab PM: Joiner, Dean A	Carrier Tracking No(s):
Client Contact: Celeste Wieting	Phone: 713-914-10519	E-Mail: dean.joiner@testamericainc.com	
Company: URS Corporation			
Address: 10550 Richmond Ave	Due Date Requested:		
City: Houston	TAT Requested (days): 7 WD TRRP		
State, Zip: TX, 77042			
Phone: 713-598-7862(Tel)	PO #: Subcontract: 284317.US		
Email: celeste.wieting@urs.com	WO #: Project# 25015231 Vendor# 1427536		
Project Name: Kinder Morgan Central Plant GW	Project #: 60002845		
Site: Galena Park, Central Plant	SSOW#:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270C_LL - SVOC - Bis(2-chloroethyl) ether	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
POE #2	12-9-13	12:30	G	Water			X	2	
Trip Blank	12-9-13							1	
END OF RECORD									

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Celeste Wieting	12/9/13 1700	URS		12-13-13	
2		12-14-13 702			12/14/13 702	
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

12/9/2013

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-84139-1

Login Number: 84139

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.5/1.6/3.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Appendix 3
Studies and Tests Documentation

- Soil to Ambient Air Inhalation Protective Concentration Level Calculation
- Groundwater to Ambient Air Vapor Inhalation Protective Concentration Level Calculation

Table 3-1
Tier 2 Soil to Air Inhalation PCL Calculation
Central Plant RAP Addendum
Kinder Morgan LiquidsTerminal
Galena Park, Texas

$$^{Air}Soil_{Inh-V} = \frac{^{Air}RBEL_{Inh}}{VF_{SS}}$$

where:

$^{Air}RBEL_{Inh}$ = Benzene PEL

VF_{SS} is the smaller of the two calculated values below:

$$VF_{SS}\left[\frac{mg/m^3 - air}{mg/kg - Soil}\right] = \frac{2\rho_b D_A}{(Q/C)\left[3.14 D_A{}^{\tau}\right]^{\frac{1}{2}}} \cdot \left(\frac{10^4 cm^2}{m^2}\right)$$

$$D_A = \left[\frac{\theta_{as}{}^{3.33} D^{air} H' + \theta_{ws}{}^{3.33} D^{wat}}{\left[\theta_{ws} + K_d \rho_b + \theta_{as} H'\right]\theta_T{}^2}\right]$$

or

$$VF_{SS}\left[\frac{mg/m^3 - air}{mg/kg - soil}\right] = \frac{\rho_b d_s}{(Q/C)\tau} \cdot \left(\frac{10^4 cm^2}{m^2}\right)$$

Symbol	Parameter	Unit	Value	Source
ρ_b	Soil bulk density	g/cm3	1.67	350.75(c) and (d)
d_s	Thickness of affected surficial soil	cm	305	350.75(c) and (d)
Q/C	Inverse of mean concentration in air at center of affected soil area	[(g/m2-s)/(kg/m3)]	40.76	350.75(c) and (d)
τ	Exposure interval	sec	9.50E+08	350.74(j)(2)
VF_{ss} 1	Volatilization Factor 1	[(mg/m3 - air)/(mg/kg - soil)]	1.32E-04	calculated
θ_{as}	Volumetric air content of vadose zone soils	cm3-air/cm3-soil	0.21	350.75(c) and (d)
D^{air}	Diffusion coefficient in air	cm2/s	0.088	TCEQ, TRRP Chemical/Physical Properties
H'	Dimensionless Henry's Law Constant	-	0.227	TCEQ, TRRP Chemical/Physical Properties
θ_{ws}	Volumetric water content of vadose zone soils	cm3-water / cm3-soil	0.16	350.75(c) and (d)
D^{wat}	Diffusion coefficient in water	cm2/s	9.8E-06	TCEQ, TRRP Chemical/Physical Properties
K_d	Soil-partition coefficient	cm3-water/g-soil	0.13213869	350.75(c) and (d)
Koc	Soil organic carbon water partition coefficient	cm3-water/g-carbon	66.07	TCEQ, TRRP Chemical/Physical Properties
foc	Fraction organic carbon	g-carbon/g-soil	0.002	350.75(c) and (d)
θ_T	Total soil porosity	cm3-pore/cm3-soil	0.37	350.75(c) and (d)
D_A	Apparent diffusivity	cm2/s	0.001888209	calculated
VF_{ss} 2	Volitalization Factor 2	[(mg/m3 - air)/(mg/kg - soil)]	6.52E-04	calculated
VF_{ss} Representative	Representative VFss	[(mg/m3 - air)/(mg/kg - soil)]	1.32E-04	calculated
PEL	Permissible Exposure Limit (benzene)	mg/m3	3.19	NIOSH
$^{Air}Soil_{Inh-V}$	Soil to Air inhalation PCL	mg/kg	**24,251**	calculated

Footnotes:

30 TAC 350.71-350.79, 2009 Development of Protective Concentration Levels.

TCEQ, TRRP Chemical & Physical Properties, updated June 29, 2012 - Texas Commission on Environmental Quality

TCEQ, TRRP Toxicity Factors, updated June 29, 2012 - Texas Commission on Environmental Quality

Table 3-2
Human Health Risk-Based Input Parameters for Groundwater to Ambient Air Vapor Inhalation

Symbol	Description	Units	Value	Reference
Specified Risk or Hazard Criteria				
HQ	Hazard Quotient	--	1	30 TAC 350.71-350.79
RL	Risk level	--	1.00E-05	30 TAC 350.71-350.79
Exposure Parameters				
AT.w	Defined averaging time for non-carcinogenic-Adult	yr	25	30 TAC 350.71-350.79
AT_c	Defined carcinogenic averaging time	yr	70	30 TAC 350.71-350.79
BW	Body weight	kg	70	30 TAC 350.71-350.79
ED.w	Exposure duration-Adult	yr	25	30 TAC 350.71-350.79
EF.w	Exposure frequency	days/yr	250	30 TAC 350.71-350.79
Soil Parameters				
--	Soil type	--		
L_{gw}	Depth to groundwater	cm	305	30 TAC 350.71-350.79
h_v	Vadose zone thickness	cm	300	30 TAC 350.71-350.79
h_{cap}	Thickness of capillary fringe	cm	5	30 TAC 350.71-350.79
θ_T	Total soil porosity	cm^3-pore space/cm^3-soil	0.37	30 TAC 350.71-350.79
θ_{as}	Volumetric air content of vadose zone soils	cm^3-water/cm^3-soil	0.21	30 TAC 350.71-350.79
θ_{ws}	Volumetric water content of vadose zone soils	cm^3-water/cm^3-soil	0.16	30 TAC 350.71-350.79
θ_{wcap}	Volumetric water content of capillary fringe soils	cm^3-water/cm^3-soil	0.333	30 TAC 350.71-350.79
θ_{acap}	Volumetric air content of capillary fringe soils	cm^3-air/cm^3-soil	0.037	30 TAC 350.71-350.79
Ambient Parameters				
U_{air}	Windspeed above ground surface in ambient mixing zone	cm/s	240	30 TAC 350.71-350.79
δ_{air}	Ambient air mixing zone height	cm	200	30 TAC 350.71-350.79
W_g	Width of source-zone area	cm	3.48E+04	30 TAC 350.71-350.79
Chemical-Specific, Transport and Thermodynamic Parameters				
MW	Molecular weight	g/mol	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
Pv	Saturated vapor pressure	mmHg	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
S	Pure constituent solubility	mg/L	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
H'	Dimensionless Henry's Law Constant	cm^3-water/cm^3-air	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
D_{air}	Molecular diffusion coefficient in air	cm^2/s	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
D_{water}	Molecular diffusion coefficient in water	cm^2/s	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
Chemical-Specific Toxicity Parameters				
RfC	Reference concentration	mg/m^3	Chemical-specific	TCEQ, TRRP Toxicity Factors
URF	Inhalation unit risk factor	$(ug/m^3)^{-1}$	Chemical-specific	TCEQ, TRRP Toxicity Factors
Derived Parameters				
$^{Air}RBEL_{Inh\text{-}nc}$	Risk-based exposure limit for non-carcinogens	mg/m^3	Chemical-specific	30 TAC 350.74 (a)
$^{Air}RBEL_{Inh\text{-}c}$	Risk-based exposure limit for carcinogens	mg/m^3	Chemical-specific	30 TAC 350.74 (a)
VF_{Wamb}	Volatilization factor, water to ambient air	mg/m^3-air/mg/L-water	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,ws}$	Effective diffusivity – water table to soil surface	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,s}$	Effective diffusivity – vadose zone soils	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,cap}$	Effective diffusivity – capillary fringe zone	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)

Footnotes:
30 TAC 350.71-350.79, 2009 Development of Protective Concentration Levels.
TCEQ, TRRP Chemical & Physical Properties, updated June 29, 2012 - Texas Commission on Environmental Quality
TCEQ, TRRP Toxicity Factors, updated June 29, 2012 - Texas Commission on Environmental Quality

Table 3-3
Human Health Risk-Based Chemical and Physical Properties and Toxicity Criteria for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	MW g/mol	S mg/L	Pv mmHg	H' unitless	D_{air} cm^2/s	D_{water} cm^2/s	RfC mg/m^3	URF $(ug/m^3)^{-1}$
Volatile Organic Compounds									
Benzene	71-43-2	7.81E+01	1.77E+03	9.50E+01	2.27E-01	8.80E-02	9.80E-06	2.80E-01	2.20E-06
Naphthalene	91-20-3	1.28E+02	3.14E+01	8.89E-02	2.00E-02	5.90E-02	7.50E-06	3.00E-03	---
Vinyl Chloride	75-01-4	6.25E+01	2.76E+03	2.80E+03	3.49E+00	1.06E-01	1.23E-05	6.00E-02	8.40E-06

Footnotes:
TCEQ, TRRP Chemical & Physical Properties, updated June 29, 2012 - Texas Commission on Environmental Quality
TCEQ, TRRP Toxicity Factors, updated June 29, 2012 - Texas Commission on Environmental Quality

Table 3-4
Human Health Risk-Based Screening Level Calculation for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	$D_{eff,s}$ cm^2/s	$D_{eff,cap}$ cm^2/s	$D_{eff,ws}$ cm^2/s	VF_{wamb} mg/m^3-air/mg/L-water	$^{Air}RBEL_{Inh}$ Non-Carc. mg/m^3	Carc. mg/m^3
Volatile Organic Compounds							
Benzene	71-43-2	3.56E-03	1.91E-05	8.80E-04	4.75E-04	4.09E-01	1.86E-02
Naphthalene	91-20-3	2.39E-03	7.76E-05	1.61E-03	7.65E-05	4.38E-03	---
Vinyl Chloride	75-01-4	4.28E-03	1.39E-05	7.09E-04	5.88E-03	8.76E-02	4.87E-03

Footnotes:

$$D_s^{eff}\left[\frac{cm2}{s}\right] = D^{air}\,\frac{\theta_{as}^{3.33}}{\theta_T^2} + \left[\frac{D^{wat}}{H'}\right]\left[\frac{\theta_{ws}^{3.33}}{\theta_T^2}\right]$$

$$D_{cap}^{eff}\left[\frac{cm2}{s}\right] = D^{air}\,\frac{\theta_{acap}^{3.33}}{\theta_T^2} + \left[\frac{D^{wat}}{H'}\right]\left[\frac{\theta_{wcap}^{3.33}}{\theta_T^2}\right]$$

$$D_{ws}^{eff}\left[\frac{cm2}{s}\right] = \left(h_{cap} + h_v\right)\left[\frac{h_{cap}}{D_{cap}^{eff}} + \frac{h_v}{D_s^{eff}}\right]^{-1}$$

$$VF_{wamb}\left[\frac{mg/m^3 - air}{mg/L - H_2O}\right] = \frac{H'}{1 + \left[\frac{U_{air}\,\delta_{air}\,L_{gw}}{W_g\,D_{ws}^{eff}}\right]} \bullet \left[10^3\,\frac{L}{m^3}\right]$$

$$^{Air}RBEL_{Inh-c}\left[\frac{mg}{m^3}\right] = \frac{RL \times ATC \times 365 days/yr}{URF \times 1000 \mu g/mg \times EF.w \times ED.w}$$

$$^{Air}RBEL_{Inh-nc}\left[\frac{mg}{m^3}\right] = \frac{RfC \times HQ \times AT.w \times 365 days/yr}{EF.w \times EDw}$$

Table 3-5
Human Health Risk-Based Screening Level Results for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	VF_{Wamb}	$^{Air}RBEL_{Inh}$		$^{Air}GW_{Inh-V}$		$^{Air}GW_{Inh-V}$
			Non-Carc.	Carc.	Non-Carc.	Carc.	Minimum
		mg/m^3-air/mg/L-water	mg/m^3	mg/m^3	mg/L	mg/L	mg/L
Volatile Organic Compounds							
Benzene	71-43-2	4.75E-04	3.19E+00	3.19E+00	6.71E+03	6.71E+03	6.71E+03
Naphthalene	91-20-3	7.65E-05	5.00E+01	---	6.54E+05	---	6.54E+05
Vinyl Chloride	75-01-4	5.88E-03	2.56E+00	2.56E+00	4.35E+02	4.35E+02	4.35E+02

Footnotes:

$$VF_{wamb}\left[\frac{mg/m^3-air}{mg/L-H_2O}\right]=\frac{H'}{1+\left[\frac{U_{air}\delta_{air}L_{gw}}{W_g D_{ws}^{eff}}\right]}\bullet\left[10^3\frac{L}{m^3}\right]$$

$$^{Air}RBEL_{Inh\text{-}c}\left[\frac{mg}{m^3}\right]=\frac{RL\times ATc\times 365 days/yr}{URF\times 1000\mu g/mg\times EF_w\times ED_w}$$

$$^{Air}RBEL_{Inh\text{-}nc}\left[\frac{mg}{m^3}\right]=\frac{RfC\times HQ\times AT_{Ares}\times 365 days/yr}{EF_w\times ED_w}$$

$$^{Air}GW_{Inh-V}=\frac{^{Air}RBEL_{Inh}}{VF_{Wamb}}$$

Appendix 3
Studies and Tests Documentation

- Kinder Morgan West Plant Groundwater Model – Quarter 1, 2013 Update
- Groundwater to Ambient Air Vapor Inhalation Protective Concentration Level Calculation

URS

Memorandum

Date: May 16, 2013

To: Aubrey Waddail, Project Manager

From: Jeremy Andrews, Hydrogeologist

Subject: Kinder Morgan West Plant Groundwater Model – Quarter 1, 2013 Update

Introduction / Background

A groundwater model (WPM) was built in October 2010 to determine spacing and expected recovery rates for the benzene plume at the Kinder Morgan West Plant in Galena Park, Texas. The original recovery system included existing wells RW-25 and MW-23, and newly installed well MW-39. The original model run indicated capture would be sufficient at this spacing, though the screen for RW-25 was too shallow to maximize yield. RW-25R was installed on August 2, 2011 to replace RW-25 to a depth of 30 feet below ground surface (bgs), a depth similar to MW-23 and MW-39. The yield from RW-25R equilibrated at approximately 0.33 gallons per minute (gpm), compared to 0.02 gpm from RW-25. Three wells were installed in March 2011 to serve as observation wells (OB-1, OB-2, and OB-3) for a pumping test to confirm that the recovery well spacing will result in capture between recovery wells. The pumping test was conducted from March 22, 2011 to April 4, 2011. Drawdown was observed in the observation wells during the pumping test, indicating that the radius of influence overlaps between each recovery well.

The new observation wells were included in the April 26, 2011 groundwater sampling event, which revealed that the benzene plume was not delineated to the north. Therefore, two additional wells were installed north of OB-1 (RW-1 and RW-2) on August 1, 2011. Benzene was delineated by RW-2 (the northern most well) from the August 3, 2011 groundwater sampling event. Pneumatic pumps were then installed in RW-1, OB-1, and OB-3 in November 2011. The new wells and results from the pumping test have been included in the Quarter 1, 2013 update of the WPM, presented in this memo.

Geology

Generally, the ground surface in the vicinity of the Site slopes gently from the northwest to the southeast. The subsurface lithology typically consists of a mixture of brown silty clay (typically at the surface, known as the Uppermost Recent Fill). The Uppermost Recent Fill is underlain by a light brown loose sand/silty sand below, with discontinuous layers of silty clay/clayey sand at depth (known as the Sandy Channel Fill). In some locations a clay/silty clay is found approximately 25 feet bgs.

Hydrogeology

The Sandy Channel Fill comprises the uppermost groundwater bearing zone (GBZ). The groundwater gradient follows the topography in a northwest to southeast trend. The hydraulic characteristics of the shallow GBZ were calculated from three slug tests, three single well pumping tests conducted in wells RW-25, MW-23, and MW-38 in September and October of 2010, and one single well pumping test in well MW23 in April 2011. The representative site-wide hydraulic conductivity was calculated to be 1.72×10^{-3} cm/sec. The representative storativity for the site is 0.0028 (indicative of a semi-confined aquifer).

MODFLOW

Visual MODFLOW version 2011.1 (MODFLOW) was utilized as a tool to simulate the Site's groundwater system. MODFLOW was developed by the United States Geological Survey (USGS) to simulate a wide variety of groundwater systems. Due to its extensive publicly available documentation and its rigorous peer review, MODFLOW has become the worldwide standard groundwater flow model. When properly applied, MODFLOW is the recognized standard model used by courts, regulatory agencies, universities, consultants, and industry.

Most mathematical models use one of two general approaches to solve governing differential equations: analytical or numerical. The numerical method was used for the WGM because it is more appropriate for aquifers having irregular boundaries, heterogeneities and spatially variant pumping rates (ASTM, 1995). Layers can be simulated as confined, unconfined, or a combination of both. External stresses such as flow to wells, recharge, evapotranspiration, flow to drains, and flow through riverbeds can be simulated. There are many numerical methods, those in common use are the finite-difference method and finite-element method. The finite-difference method was used for the WPM since it is the most common groundwater flow and transport code, and allows the construction of variably spaced rectangular cells (ASTM, 1995).

Model Grid

The modeling effort focused on the eastern property line boundary. Approximately 433 acres were divided into 101 rows and 145 columns creating 14,645 cells. Site-specific and representative input parameters, including physical parameters (layer elevations), hydraulic parameters (hydraulic conductivity, storativity, porosity, etc.), boundary conditions (constant heads, river packages), and stresses (pumping wells), were assigned to each appropriate cell. Grid spacing density was increased around areas of interest, including recovery areas. The grid discretization produced adequate spatial resolution without making the model too large to run.

Flow Boundary Conditions

MODFLOW requires at least one flow boundary in order to initiate the simulation of a model run. Flow boundaries include constant head cells, river packages and wall packages. A constant head boundary is usually the simplest boundary and represents the western border of the WPM based on groundwater elevations. The head value in a cell assigned as a constant head will not change throughout the simulation. For this reason, constant head boundaries are usually assigned away from areas of interest, usually along the model border to act as a continual source of recharge into the model. The Houston Ship Channel and Panther Creek were simulated using a river package.

Hydraulic Model Parameters

Hydraulic conductivity, storativity, and porosity values are required inputs to conduct a successful groundwater flow simulation in Visual MODFLOW. The hydraulic conductivity and storativity values from the aquifer testing were used as input parameters for the WPM as summarized below. Porosity and specific storativity values representative of silty sand were pulled from literature (Fetter, 2001).

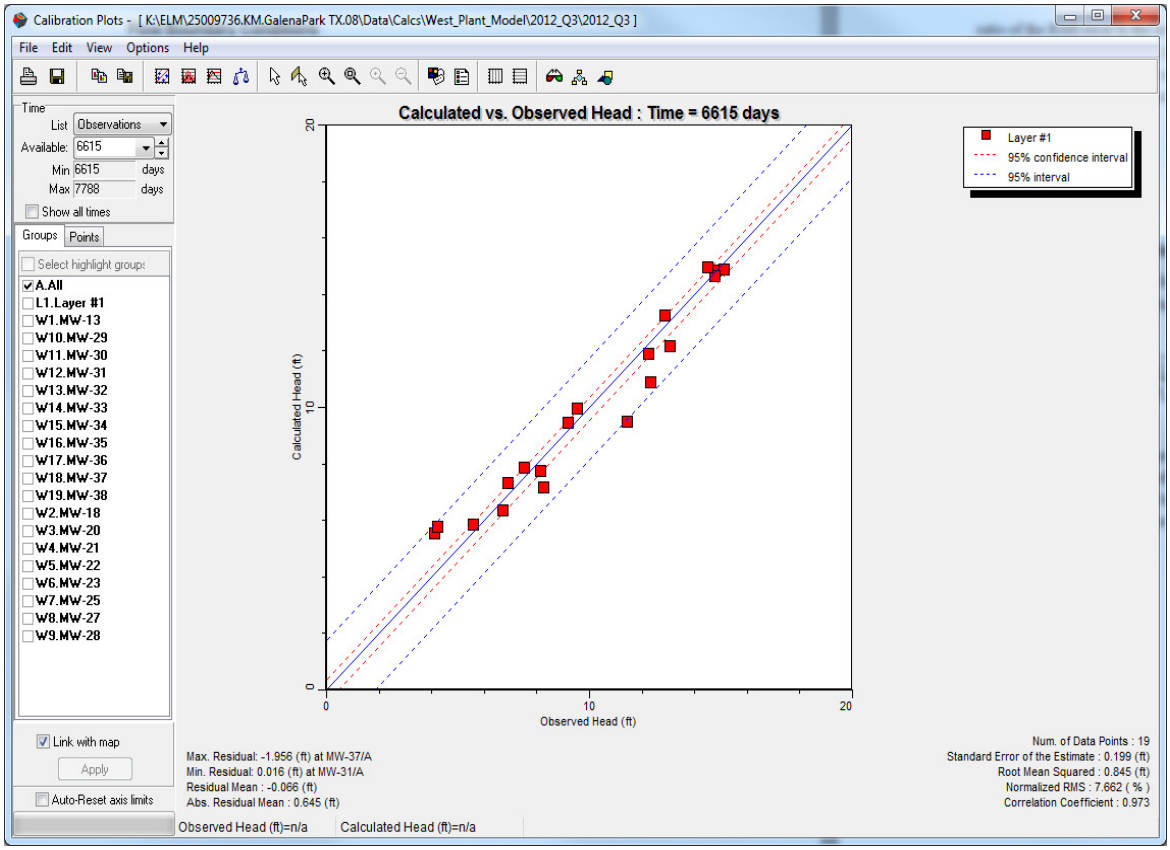
Parameter	Value	Source
K (cm/sec)	1.72E-03	Site Specific Slug and Pumping Tests
Ss (-)	0.0003	Site Specific Slug and Pumping Tests
Sy (%)	0.0028	Site Specific Slug and Pumping Tests
Ne (%)	0.1000	semi confined, not same as Sy, value from Fetter, 2001
N (%)	0.35	average of silt and sand range (Fetter, 2001)
Riverbed Kv	1.72E-04	10% of average horizontal K for GBZ

Where:
K = hydraulic conductivity
Ss = specific storage
Sy = specific yield
Ne = effective porosity
N = total porosity
Kv = vertical hydraulic conductivity

Base Model Calibration

The model start date was set as January 1, 1990, approximately eighteen years before the model was calibrated to the static groundwater level survey on February 11, 2008. The model run was for 6,615 days to the calibration date to allow water levels in the WPM to equilibrate to static conditions.

A scatter plot of field measured vs. model calculated head values is a method of illustrating the calibrated fit (Anderson and Woessner, 1992). The normalized Root Mean Squared (RMS) percentage is the average of the squared differences between observed and simulated heads. If the ratio of the RMS error to the total head loss in the system is small, the errors are only a minor part of the overall model response (Anderson and Woessner, 1992). A normalized RMS error of less than 10% is a typical target in evaluating model calibration (Waterloo Hydrogeologic Inc., 2007). The WPM calibrated with a normalized RMS value of 7.66 (see figure below).

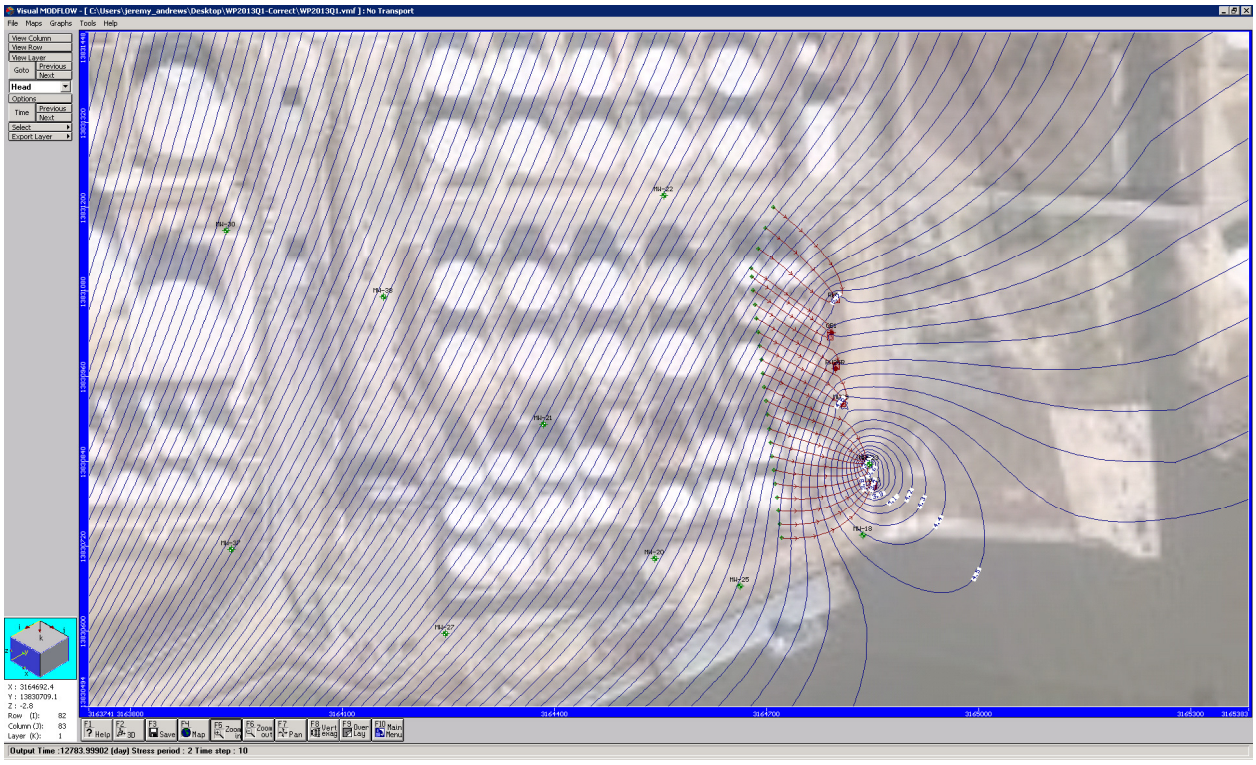


Recovery System Simulation and Conclusion

The average recovery rates from the Fourth Quarter of 2012 were used in the WPM recovery system simulation. A summary of the recovery rates are presented below.

Well ID	RW1	OB1	RW25R	MW39	MW23	OB3
Yield (gpm)	0.33	0.19	0.15	0.35	1.22	0.78

The recovery system was turned on in the WPM for a 2 year simulation (start on day 7,818 and end on day 8,514) to allow the radius of influence to equilibrate. A particle tracking package in Visual MODFLOW was used to illustrate capture of the recovery system. The particle tracking results indicate that full capture is obtained from the current spacing and recovery rates observed in the field (see figure below).



A zone budget was also built to quantitate capture of the system. The calculated recovery for the First Quarter 2013 update was 97.4%.

References

Anderson, M.P. and Woessner, W.W. *Applied Groundwater Modeling, Simulation of Flow and Advective Transport.* San Diego; Academic Press, Inc., 1992.

ASTM, 1995, *Standard Guide for Subsurface Flow and Transport Modeling.* ASTM Publication D5880-95.

Fetter, C. W. *Applied Hydrogeology, 4th ed.* New Jersey; Prentice Hall, 2001

Waterloo Hydrogeologic Inc., 2007, *Applied Groundwater Flow and Contaminant Transport Modeling*. Verbal and script communication with Alge Merry, Course Instructor.

Table E-1
Human Health Risk-Based Input Parameters for Groundwater to Ambient Air Vapor Inhalation

Symbol	Description	Units	Value	Reference
Specified Risk or Hazard Criteria				
HQ	Hazard Quotient	--	1	30 TAC 350.71-350.79
RL	Risk level	--	1.00E-05	30 TAC 350.71-350.79
Exposure Parameters				
AT.w	Defined averaging time for non-carcinogenic-Adult	yr	25	30 TAC 350.71-350.79
AT_c	Defined carcinogenic averaging time	yr	70	30 TAC 350.71-350.79
BW	Body weight	kg	70	30 TAC 350.71-350.79
ED.w	Exposure duration-Adult	yr	25	30 TAC 350.71-350.79
EF.w	Exposure frequency	days/yr	250	30 TAC 350.71-350.79
Soil Parameters				
--	Soil type	--		
L_{gw}	Depth to groundwater	cm	305	30 TAC 350.71-350.79
h_v	Vadose zone thickness	cm	300	30 TAC 350.71-350.79
h_{cap}	Thickness of capillary fringe	cm	5	30 TAC 350.71-350.79
θ_T	Total soil porosity	cm^3-pore space/cm^3-soil	0.37	30 TAC 350.71-350.79
θ_{as}	Volumetric air content of vadose zone soils	cm^3-water/cm^3-soil	0.21	30 TAC 350.71-350.79
θ_{ws}	Volumetric water content of vadose zone soils	cm^3-water/cm^3-soil	0.16	30 TAC 350.71-350.79
θ_{wcap}	Volumetric water content of capillary fringe soils	cm^3-water/cm^3-soil	0.333	30 TAC 350.71-350.79
θ_{acap}	Volumetric air content of capillary fringe soils	cm^3-air/cm^3-soil	0.037	30 TAC 350.71-350.79
Ambient Parameters				
U_{air}	Windspeed above ground surface in ambient mixing zone	cm/s	240	30 TAC 350.71-350.79
δ_{air}	Ambient air mixing zone height	cm	200	30 TAC 350.71-350.79
W_g	Width of source-zone area	cm	3.48E+04	30 TAC 350.71-350.79
Chemical-Specific, Transport and Thermodynamic Parameters				
MW	Molecular weight	g/mol	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
Pv	Saturated vapor pressure	mmHg	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
S	Pure constituent solubility	mg/L	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
H'	Dimensionless Henry's Law Constant	cm^3-water/cm^3-air	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
D_{air}	Molecular diffusion coefficient in air	cm^2/s	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
D_{water}	Molecular diffusion coefficient in water	cm^2/s	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
Chemical-Specific Toxicity Parameters				
RfC	Reference concentration	mg/m^3	Chemical-specific	TCEQ, TRRP Toxicity Factors
URF	Inhalation unit risk factor	$(ug/m^3)^{-1}$	Chemical-specific	TCEQ, TRRP Toxicity Factors
Derived Parameters				
$^{Air}RBEL_{Inh\text{-}nc}$	Risk-based exposure limit for non-carcinogens	mg/m^3	Chemical-specific	30 TAC 350.74 (a)
$^{Air}RBEL_{Inh\text{-}c}$	Risk-based exposure limit for carcinogens	mg/m^3	Chemical-specific	30 TAC 350.74 (a)
VF_{Wamb}	Volatilization factor, water to ambient air	mg/m^3-air/mg/L-water	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,ws}$	Effective diffusivity – water table to soil surface	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,s}$	Effective diffusivity – vadose zone soils	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,cap}$	Effective diffusivity – capillary fringe zone	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)

Footnotes:
30 TAC 350.71-350.79, 2009 Development of Protective Concentration Levels.
TCEQ, TRRP Chemical & Physical Properties, updated June 29, 2012 - Texas Commission on Environmental Quality
TCEQ, TRRP Toxicity Factors, updated June 29, 2012 - Texas Commission on Environmental Quality

Table E-2
Human Health Risk-Based Chemical and Physical Properties and Toxicity Criteria for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	MW g/mol	S mg/L	Pv mmHg	H' unitless	D_{air} cm^2/s	D_{water} cm^2/s	RfC mg/m^3	URF $(ug/m^3)^{-1}$
Volatile Organic Compounds									
Benzene	71-43-2	7.81E+01	1.77E+03	9.50E+01	2.27E-01	8.80E-02	9.80E-06	2.80E-01	2.20E-06
Vinyl Chloride	75-01-4	6.25E+01	2.76E+03	2.80E+03	3.49E+00	1.06E-01	1.23E-05	6.00E-02	8.40E-06

Footnotes:
TCEQ, TRRP Chemical & Physical Properties, updated June 29, 2012 - Texas Commission on Environmental Quality
TCEQ, TRRP Toxicity Factors, updated June 29, 2012 - Texas Commission on Environmental Quality

Table E-3
Human Health Risk-Based Screening Level Calculation for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	$D_{eff,s}$ cm^2/s	$D_{eff,cap}$ cm^2/s	$D_{eff,ws}$ cm^2/s	VF_{wamb} mg/m^3-air/mg/L-water	$^{Air}RBEL_{Inh}$ Non-Carc. mg/m^3	Carc. mg/m^3
Volatile Organic Compounds							
Benzene	71-43-2	3.56E-03	1.91E-05	8.80E-04	4.75E-04	4.09E-01	1.86E-02
Vinyl Chloride	75-01-4	4.28E-03	1.39E-05	7.09E-04	5.88E-03	8.76E-02	4.87E-03

Footnotes:

$$D_s^{eff}\left[\frac{cm2}{s}\right] = D^{air}\,\frac{\theta_{as}^{3.33}}{\theta_T^2} + \left[\frac{D^{wat}}{H'}\right]\left[\frac{\theta_{ws}^{3.33}}{\theta_T^2}\right]$$

$$D_{cap}^{eff}\left[\frac{cm2}{s}\right] = D^{air}\,\frac{\theta_{acap}^{3.33}}{\theta_T^2} + \left[\frac{D^{wat}}{H'}\right]\left[\frac{\theta_{wcap}^{3.33}}{\theta_T^2}\right]$$

$$D_{ws}^{eff}\left[\frac{cm2}{s}\right] = \left(h_{cap} + h_v\right)\left[\frac{h_{cap}}{D_{cap}^{eff}} + \frac{h_v}{D_s^{eff}}\right]^{-1}$$

$$VF_{wamb}\left[\frac{mg/m^3 - air}{mg/L - H_2O}\right] = \frac{H'}{1 + \left[\frac{U_{air}\,\delta_{air}\,L_{gw}}{W_g\,D_{ws}^{eff}}\right]} \bullet \left[10^3\,\frac{L}{m^3}\right]$$

$$^{Air}RBEL_{Inh-c}\left[\frac{mg}{m^3}\right] = \frac{RL \times ATC \times 365 days/yr}{URF \times 1000 \mu g/mg \times EF.w \times ED.w}$$

$$^{Air}RBEL_{Inh-nc}\left[\frac{mg}{m^3}\right] = \frac{RfC \times HQ \times AT.w \times 365 days/yr}{EF.w \times EDw}$$

Table E-4
Human Health Risk-Based Screening Level Results for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	VF_{Wamb}	$^{Air}RBEL_{Inh}$		$^{Air}GW_{Inh-V}$		$^{Air}GW_{Inh-V}$
			Non-Carc.	Carc.	Non-Carc.	Carc.	Minimum
		mg/m^3-air/mg/L-water	mg/m^3	mg/m^3	mg/L	mg/L	mg/L
Volatile Organic Compounds							
Benzene	71-43-2	4.75E-04	3.19E+00	3.19E+00	6.71E+03	6.71E+03	6.71E+03
Vinyl Chloride	75-01-4	5.88E-03	2.56E+00	2.56E+00	4.35E+02	4.35E+02	4.35E+02

Footnotes:

$$VF_{wamb}\left[\frac{mg/m^3-air}{mg/L-H_2O}\right]=\frac{H'}{1+\left[\frac{U_{air}\,\delta_{air}\,L_{gw}}{W_g\,D_{ws}^{eff}}\right]}\bullet\left[10^3\,\frac{L}{m^3}\right]$$

$$^{Air}RBEL_{Inh-c}\left[\frac{mg}{m^3}\right]=\frac{RL\times ATc\times 365\,days/yr}{URF\times 1000\,\mu g/mg\times EF.w\times ED.w}$$

$$^{Air}RBEL_{Inh-nc}\left[\frac{mg}{m^3}\right]=\frac{RfC\times HQ\times AT.A.res\times 365\,days/yr}{EF.w\times ED.w}$$

$$^{Air}GW_{Inh-V}=\frac{^{Air}RBEL_{Inh}}{VF_{Wamb}}$$

Appendix 4
Proposed Institutional Controls

- Proposed Deed Notice Language

APPENDIX 4
PROPOSED DEED NOTICE LANGUAGE

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

> ***[Insert legal description or a reference to an attached Exhibit A with the phrase, "attached hereto and incorporated herein by reference." This legal description needs to include the entire recorded tract of land held by the owner executing this deed notice. The description should consist of the property description used in the last recorded vesting deed covering the Property or, if the Property has since been subdivided, the legal description for the subdivision with reference to the recorded plat map thereof (where the vesting deed covered multiple lots, tracts, or parcels of land, only the lot(s), tract(s), or parcel(s) containing the identified chemicals of concern would need to be included.) This is not a legal description of the Affected Property as set forth below. If the Affected Property (as set forth below) that is being made subject to the deed notice impacts the land of more than one owner, a separate deed notice needs to be filed for each tract.]***

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

> ***[Insert legal description and reference to an attached Exhibit B, with the phrase, "attached hereto and incorporated herein by reference." Exhibit B needs to include a metes and bounds description of the Affected Property and a plat map clearly demarcating the portions of the Property that contain the Affected Property. The map must contain a north arrow, a correlating map scale, and a legend identifying any used symbols or abbreviations. The metes and bounds description and plat map must be accompanied by a certification from a registered professional land surveyor so registered by the Texas Board of Professional Surveying attesting to the accuracy of the descriptions. Also, list each COC by environmental medium that exceeds the critical PCL.]***

This notice is required for the following reasons:

> ***The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC 350.33(f)(4). The***

undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit [] provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.

As of the date of this Notice, the record owner of fee title to the Property is _____ with an address of _____.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.:

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this _____ day of _____, _____.

OWNER OR RESPONDER

By: _____

Name: _____

Title: _____

STATE OF TEXAS
HARRIS COUNTY

BEFORE ME, on this the day of , personally appeared [name] ,[title] , of [company], known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, _____

Notary Public in and for the State of Texas,
County of

My Commission Expires:

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION				REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION	
Site Name:	**KM Liquids Terminals LLC - Galena Park Terminal**			Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No	
Address 1:	**906 Clinton Drive**			Program Area:	**IHW CORRECTIVE ACTION**
Address 2:				Mail Code:	**MC-127**
City:	**Galena Park**	State:	**Texas**	Is This A New Site To This Program Area? ☐ Yes ☑ No	
Zip Code:	**77547**	County:	**Harris**	**TCEQ Facility ID No.:**	**30573**
TCEQ Region:	**Region 12 - Houston**				

DOCUMENT(S) IDENTIFICATION

	PHASE OF REMEDIATION	DOCUMENT NAME
1.	**REMEDIATION**	**RESPONSE ACTION PLAN (RAP) REVISION**
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name:	**Johnny Kennedy**						
Company:	**KM Liquids Terminals LLC**	Phone Number:	**(713) 654-6035**		Fax Number:		
Address 1:	**1500 Clinton Drive**	City:	**Galena Park**	State:	**Texas**	Zip Code:	**77547**
Address 2:		Email Address:	[redacted]				

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name:	**Ryan Carroll**						
Company:	**Tetra Tech, Inc.**	Phone Number:	**(832)-251-5160**		Fax Number:		
Address 1:	**1500 CityWest Blvd.**	City:	**Houston**	State:	**Texas**	Zip Code:	**77042**
Address 2:	**Suite 1000**	Email Address:	[redacted]				

TCEQ INTERNAL USE ONLY

Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**RAP REV**	4.	
2.		5.	
3.			

KINDER MORGAN
KM Liquids Terminals LLC

June 28, 2024

Ms. Maria Sifuentes-Chavez
Project Manager, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality
Building D, MC-127
12100 Park 35 Circle
Austin, Texas 78753

Re: Report Transmittal – Revised Response Action Plan Addendum, Western Plant
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
SWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA I.D. No. TXD026481523

Dear Ms. Sifuentes-Chavez:

Please find enclosed one hard copy and one electronic copy of the Revised Response Action Plan (RAP) Addendum for the KM Liquids Terminals LLC (KMLT) Galena Park Terminal West Plant area in Galena Park, Texas.

The Revised RAP Addendum is being submitted to make adjustments to Plume Management Zone (PMZ) monitoring well network. This 2024 Revised RAP Addendum was prepared to update the 2018 RAP Addendum, with the following information:

- Removal of eight (8) Attenuation Monitoring Point (AMP) wells (*i.e.*, VMW-1, VMW-6, VMW-7, MW-20, MW-29, MW-30, MW-31 and MW-36); and
- Removal of three (3) Corrective Action Observation (CAO) wells (*i.e.*, MW-3, VMW-2 and VMW-4) from the Corrective Action monitoring program.

Point of Exposure (POE) wells have been reported as either "Not Detected" at concentrations greater than reporting limits and/or at concentrations less than the Groundwater Protection Standarads (GWPS) for the last four (4) years (*i.e.*, eight (8) sampling events). Additionally, the selected AMP and CAO wells have also been reported at concentrations less than the GWPS for the last four (4) years.

KMLT is proposing to include the Revised RAP Addendum for Western Plant as part of the renewal of the Hazardous Waste Permit and Compliance Plan.

If you have any questions regarding this submittal or require additional information, please feel free to contact me at (713) 654-6035, or if you wish you can e-mail me at [redacted]

Sincerely,
KM Liquids Terminals LLC



Johnny Kennedy
Remediation Manager

Enclosure

cc: Waste Program Manager – TCEQ Region 12, Houston, Texas

REVISED
RESPONSE ACTION PLAN ADDENDUM

WESTERN PLANT

KM LIQUIDS TERMINALS LLC

GALENA PARK TERMINAL
906 CLINTON DRIVE
GALENA PARK, HARRIS COUNTY, TEXAS

Prepared for:

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, TX 77547

Prepared by:



1500 CITYWEST BLVD., SUITE 1000
HOUSTON, TEXAS 77042

JUNE 28, 2024

A Report Prepared for:

KM Liquids Terminals LLC
Galena Park, TX

Galena Park Terminal
Western Plant

Revised Response Action Plan Addendum

June 28, 2024

Prepared by:

Ryan F. Carroll
Senior Project Manager

Rolando Gómez, P.G.
Senior Project Manager

1500 CityWest Boulevard
Suite 1000
Houston, Texas 77042
p| 832.251.5160

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) *SWR No. 30573*
check one: ___ Initial submittal for this on-site property *X* Subsequent submittal for this on-site property
Report date: *June 28, 2024* TCEQ Region No.: *12*

TCEQ Program (check one)

X	Corrective Action (Mail Code 127)		Superfund PRP Lead (Mail Code 143)
	Voluntary Cleanup Program (Mail Code 221)		Municipal Solid Waste Permits (Mail Code 124)
	RPR Section (Mail Code 137)		

On-Site Property Information

On-Site Property Name: *KM Liquids Terminals LLC - Galena Park Terminal*
Street no. *906* Pre dir: Street name *Clinton* Street type: *Drive* Post dir:
City: *Galena Park* County: *Harris* County Code: *101* Zip: *77547*
Nearest street intersection or location description: *Federal Road*

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29º43'45"
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95º13'31"

Off-Site Affected Property Information

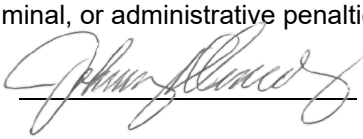
Off-Site Affected Property Name: *Not Applicable*
Physical Address:
Street no. Pre dir: Street name Street type: Post dir:
City: County: County Code: Zip:

X Check if no off-site properties affected

Contact Person Information and Acknowledgement

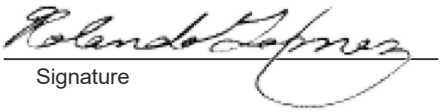
Person (or company) Name: *KM Liquids Terminals LLC*
Contact Person: *Mr. Johnny Kennedy* Title: *Remediation Manager*
Mailing Address: *1500 Clinton Drive*
City: *Galena Park* State: *TX* Zip: *77547* E-mail [redacted]*m*
Phone: *(713) 654-6035* Fax:

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person  Name, print: Johnny Kennedy Date: 6/28/2024

Professional Signatures and Seals

Professional Geoscientist

Rolando Gómez	11184	August 31, 2024
Professional Geoscientist	Geoscientist License Number	Expiration date
	June 28, 2024	
Signature	Date	
832-489-3992	N/A	[redacted]
Telephone number	FAX number	E-mail

Professional Engineer

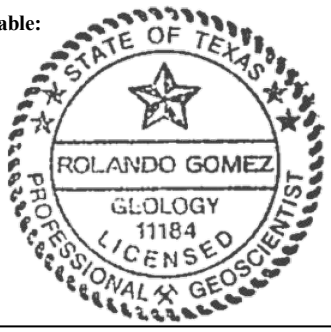
Professional Engineer	P.E. License number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and PCLE zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

Background

This revised Response Action Plan (RAP) Addendum was developed for Solid Waste Management Unit (SWMU) W3 at the West Plant area of the KM Liquids Terminals LLC (KMLT) Galena Park Terminal (West Plant) to present additional data collected following the approved RAP (2007 RAP; URS, 2007). The 2007 RAP discussed response actions for three West Plant SWMU Groups: W1, W2, and W3, that were identified and investigated in the site-wide Affected Property Assessment Report (APAR; Arcadis, 2004) as depicted on Attachment 1A-1.

The purpose of this Revised RAP Addendum, as discussed in more detail below, is to reduce the number of attenuation monitoring point (AMP) and Corrective Action Observation (CAO) wells that comprise the Plume Management Zone (PMZ) for affected groundwater at the West Plant.

The TCEQ approved 2007 Kinder Morgan West Plant RAP (URS, 2007) discussed response actions for three West Plant Solid Waste Management Unit (SWMU) Groups: W1, W2, and W3, that were identified and investigated in the site-wide APAR (Arcadis, 2004). The 2007 RAP proposed a PMZ to manage impacted soil and ground water in the West Plant area and presented calculated ecological and human health ground water to surface water (SWGW) protective concentration levels (PCLs) applicable to the adjacent Houston Ship Channel. The proposed PMZ did not include the upgradient portion of the groundwater PCLE Zone, which was attributed to the offsite source on the former VTGP Terminal. The TCEQ approved the 2007 West Plant RAP by letter dated November 1, 2007.

A RAP Addendum (URS, 2013) for the Galena Park West Plant was submitted to the TCEQ in September 2013 to provide additional surface soil data, revise the remedial strategy of the PMZ for affected groundwater containment and recovery in the southeast corner of the West Plant, and present Tier 2 commercial/industrial PCLs for benzene and vinyl chloride for $^{Air}GW_{Inh\text{-}V}$ pathway. The 2013 West Plant RAP Addendum was approved by the TCEQ by letter dated December 10, 2013.

The former Vopak Terminal Galena Park, Inc. (VTGP) Terminal, which was located immediately adjacent to the Kinder Morgan Galena Park Terminal, was purchased by Kinder Morgan on February 7, 2015 and incorporated into the Kinder Morgan Galena Park Terminal. Kinder Morgan notified the Texas Commission on Environmental Quality (TCEQ) of the acquisition by letter and submitted an application for a Class 1 permit modification to the Galena Park Hazardous Waste Permit (HW-50054) to change the legal description of the facility to include the VTGP property. The permit modification was issued by the TCEQ on May 31, 2016. The former VTGP is now referred to as the Kinder Morgan Galena Park West Chemical Plant (WCP).

A Draft 2017 RAP Addendum (TRC, 2017) for the Galena Park West Plant was submitted to the TCEQ in October 2017 to incorporate soil and groundwater impacts at the former VTGP Terminal (SWR No. 30566) into the TCEQ approved Plume Management Zone (PMZ) located in West Plant on the KM Liquids Terminals LLC (Kinder Morgan) Galena Park Terminal (SWR No. 30573). The TCEQ issued conditional approval with comments of 2017 Draft RAP Addendum for the West Plant on December 29, 2017. The Final RAP Addendum for the West Plant was submitted to TCEQ in September 2018, and incorporated into the 2018 Class 3 Hazardous Waste Permit Modification Application submittal. The Class 3 Permit and Compliance Plan Modification were incorporated into Permit No. HW-50054 and a revised Hazardous Waste Permit was issued by the TCEQ on November 18, 2019.

The purpose of this Revised RAP Addendum, as discussed in more detail below, is to reduce the number of

attenuation monitoring point (AMP) and Corrective Action Observation (CAO) wells that comprise the PMZ for affected groundwater at the West Plant.

Proposed Response Actions for Soil

Multiple response actions were proposed for the surface soil Protective Concentration Level Exceedance (PCLE) zones identified in the West Plant – SWMU W3 in the 2007 RAP (URS, 2007). Based on the PCL exceedance, the nature of the chemical of concern (COC), and site conditions encountered, specific response actions were proposed to protect human health and the environment including excavation, resampling to assess attenuation, and establishment of a PMZ where excavation is impracticable (URS, 2007). Where impractical for removal due to existing facility infrastructure, or where soil COCs were also pervasive in groundwater without exceeding the total soil combined ($^{Tot}Soil_{Comb}$) PCL in soil, surface soils were proposed to be included as part of the West Plant PMZ under Remedy Standard B. This remains the proposed path forward for these PCLE zones. However, prior to conducting the proposed response actions for the remainder of the surface soil PCLE zones resampling was conducted to confirm current concentration levels. The results of the resampling analytical data indicated the concentrations of COCs had attenuated below the critical PCL. Based on these resampling data, the response actions for the West Plant SWMU W3 surface soil meet a Remedy Standard A closure approach and no further action is proposed in these PCLE zones.

The 2017 RAP Addendum (TRC, 2017) proposed response action for soils incorporated the WCP impacted soils into the Kinder Morgan West Plant PMZ. Soil COCs at WCP that exceed the soil leaching to ground water ingestion ($^{GW}Soil_{Ing}$) PCLs are present in the ground water, but the soil concentrations do not exceed the direct exposure pathway ($^{Tot}Soil_{Comb}$). The expansion of the West Plant PMZ to incorporate the WCP impacted soil is an exposure prevention response. It is not intended to demonstrate reduction of COC concentrations to meet PCLs. However, it is intended to demonstrate the plume is stable, and that the soils are not contributing to increased contaminant mass. Based on the nature of the COCs present, the natural attenuation process will reduce concentrations to below the applicable PCL over time. The existing deed recordation will also be modified to incorporate and manage impacted soil at the WCP into the existing Kinder Morgan West Plant PMZ under Remedy Standard B.

No response action for soil is being proposed in this Revised RAP Addendum.

Proposed Response Actions for Groundwater

The 2007 RAP (URS, 2007) provides a more detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater PCLE zones were identified for the groundwater ingestion pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway, and compliance with worker safety air exposure levels (Texas Administrative Code [TAC]§350.74) to address the groundwater to air inhalation pathway for site workers. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance, which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Based on the effective mitigation of the groundwater ingestion exposure pathway through institutional controls (i.e., deed restriction, permitting program, O&M procedures), the only applicable exposure pathway for the PMZ is the groundwater to surface water pathway based on the downgradient extent of the PMZ being the Houston Ship Channel. Approved ecological and human health groundwater to surface water (^{SW}GW) PCLs were calculated in the 2007 RAP.

Since the submittal of the 2007 RAP, No Further Action (NFA) status was obtained for the CenterPoint Right-of-Way (CPROW) alkylate release by TCEQ in correspondence dated July 11, 2008 (TCEQ, 2008). The monitoring and recovery wells associated with the release were subsequently plugged and abandoned and the Dual Phase Extraction (DPE) System was dismantled as described in the Well Abandonment and Plugging

Report CenterPoint Right-of-Way Alkylate Remediation System prepared by The Loper Group, Inc. in September 2008 (Loper Group, 2008). As presented in Attachment 2D of the 2007 RAP (URS, 2007), some of the wells associated with the Alkylate Remediation System were to be incorporated in a proposed PMZ for the West Plant. However, KMLT's request to CenterPoint Energy to allow for the downgradient point of exposure (POE) onto the CenterPoint Energy transmission tower right-of-way was denied because CenterPoint Energy does not want to deed record the property as commercial/industrial. KMLT, therefore, has revised the remedial strategy to onsite containment and recovery in the southeast corner of the West Plant.

To provide onsite containment and recovery, KMLT installed an array of recovery wells at the property line to provide groundwater capture in the southeast corner of the West Plant. Since activation of the recovery system, RW-1, OB-1, RW-25R, MW-39, MW-23, and OB-3 have been actively recovering groundwater and effectively providing capture at the KMLT property line. As of August 30, 2013, these recovery wells were recovering groundwater at an average rate 2.67 gallons per minute (gpm). Since November 2011, approximately 3.6 million gallons of groundwater have been recovered. Appendix 3 includes a copy of the Kinder Morgan West Plant Groundwater Model Update Memorandum for the First Quarter 2013.

The 2017 RAP Addendum (TRC, 2017) proposed incorporation of impacted groundwater at the WCP into the Kinder Morgan West Plant PMZ. The TCEQ approved 2007 West Plant RAP (URS, 2007) and 2013 West Plant RAP Addendum (URS, 2013) provide a more detailed discussion of the response actions related to the groundwater PCLE zones.

In February 2024, KMLT conducted a review of the areas within the KM Galena Park Terminal as part of the 2024 Hazardous Waste Permit renewal to determine if any units could be closed and removed from the permit as well as completing an evaluation of the PMZ for the various units addressed within the permit to identify where improvements could be made based on the performance of the implemented response action.

A review of the Western Plant PMZ analytical data submitted as part of the Facility Corrective Action Reports noted that Point of Exposure (POE) wells have been reported as either "Not Detected" at concentrations greater than reporting limits and/or at concentrations less than the Groundwater Protection Standarads (GWPS) for the last four (4) years (i.e., eight (8) sampling events). Additionally, several AMP and CAO wells have also been reported at concentrations less than the GWPS for the last four (4) years (as shown in Appendix 2).

Based on this information, KMLT is proposing to remove eight (8) AMP wells (i.e., VMW-1, VMW-6 VMW-7, MW-20, MW-29, MW-30, MW-31 and MW-36) and three (3) Corrective Action Observation (CAO) wells (i.e., MW-3, VMW-2 and VMW-4) from the Corrective Action monitoring program.

What is the selected remedy standard for this affected property? ___ A _X_ B

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Surface Soil	*Benzene*				X		
Groundwater	*Benzene* *Chlorobenzene* *cis-1,2-Dichloroethene* *1,2-Dichloroethane* *Ethylbenzene* *Isopropylbenzene* *Xylenes* *Tetrachloroethene* *Trichloroethene* *Vinyl chloride* *Bis(2- chloroethyl)ether*				X		

Is there a media that contains a PCLE zone that is not addressed in this RAP? ____ yes ___ no
If yes, provide justification for not addressing the PCLE zone in this RAP.

On-site land use: [ ] Residential [X] Commercial/Industrial
Off-site land use: [ ] Residential [X] Commercial/Industrial (check all that apply)

Is this a re-submittal or revision of a previous RAP? _X_ Yes ___ No
If yes, explain why the RAP is being revised or resubmitted.

This revised RAP Addendum has been developed to revise the Plume Management Zone (PMZ) well network, reducing the overall number of AMP wells that comprise the PMZ well network. No change is being proposed to surface soil response action.

Were all the appropriate notifications made in accordance with §350.55? _X_ Yes ___ No
If no, explain why notifications were not made:

Not Applicable

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).
[2] If a modified groundwater response objective is proposed, check the type(s) of proposed modifications.

Checklist for Report Completeness

ID No.: SWR# 30573

Report Date: June 28, 2024

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.

				Report Contents
		Required	**Cover Page**	☒
		Required	**Executive Summary**	☒
		Required	**Checklist for Report Completeness**	☒
		Required	**Worksheet 1.0** Response Action Objectives	☒
No ☐	Have new data been collected that was not previously submitted?	☒Yes	**Attachment 1A*** Maps and Cross Sections	☒
			Attachment 1B* Graphs of Concentration versus Time	☐
		Required	**Worksheet 2.0** Response Action Design	☒
		Required	**Attachment 2A*** Response Action Diagrams and Component/Equipment Descriptions	☒
		Required	**Attachment 2B*** Proposed Well Design	☐
No ☐	Is an ecological services analysis or compensatory restoration plan part of the proposed response action?	☐ Yes	**Attachment 2C*** ESA and Compensatory Restoration Plan	☐
No ☐	Is a plume management zone proposed as part of the response action?	☒Yes	**Worksheet 2.1** Plume Management Zone	☒
			Attachment 2D* Plume Management Zone Map	☒
			Attachment 2E* Attenuation Action Levels Determination	☐
No ☐	Is a waste control unit proposed as part of the response action?	☐ Yes	**Worksheet 2.2** Waste Control Unit	☐
			Attachment 2F* Map of Waste Control Unit	☐
No ☐	Is a technical impracticability area proposed as part of the response action?	☐ Yes	**Worksheet 2.3** Technical Impracticability	☐
			Attachment 2G* Map of Technical Impracticability Area	☐

				Report Contents
No ☐	Is the response action a remedy standard B?	☒ Yes →	**Worksheet 2.4** Institutional Controls	☒
		Required	**Worksheet 3.0** Performance Measures and Potential Problems	☒
		Required	**Worksheet 3.1** Monitoring and Sampling	☒
		Required	**Attachment 3A*** Map of Monitoring and Sampling Points	☒
		Required	**Worksheet 3.2** Operation and Maintenance	☒
		Required	**Worksheet 4.0** Confirmation Sampling Plan	☒
		Required	**Attachment 4A*** Map of Confirmation Sampling Points	☒
No ☐	Is the response action a Remedy Standard B?	☐ Yes →	**Worksheet 5.0** Post Response Action Care	☒
		→	**Attachment 5A*** Map of PRAC Monitoring and Sampling Points	☒
		→	**Attachment 5B*** PRAC Costs	☐
No ☐	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes →	**Attachment 5C*** Small Business Affidavit	☐
		Required	**Worksheet 6.0** Implementation Schedule	☒
		Required	**Appendix 1*** References	☒
No ☐	Was any data collected that was not previously reported?	☒ Yes →	**Appendix 2*** Data Tables and Boring Logs	☒
No ☐	Were any studies or tests conducted?	☒ Yes →	**Appendix 3*** Studies and Tests Documentation	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Appendix 4*** Proposed Institutional Controls	☒
No ☐	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes →	**Appendix 5*** Landowner Concurrence	☐
No ☐	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes →	**Appendix 6*** Sampling Procedures	☐
No ☐	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☐	Was approval received from the TCEQ regarding the use of different rules to address a media?	☐ Yes →	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Use this worksheet to describe the objectives for the response action in each media.

Response Action Objectives

List the environmental media to which this applies *Surface and Subsurface Soils*
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Multiple response actions were proposed for the surface soil PCLE zones identified in the West Plant – SWMU W3 in the 2007 RAP (URS, 2007). Based on the PCL exceedance, the nature of the COC, and site conditions encountered, specific response actions were proposed to protect human health and the environment including excavation, resampling to assess attenuation, and establishment of a PMZ where excavation is impracticable (URS, 2007). Where impractical for removal due to existing facility infrastructure, or where soil COCs were also pervasive in groundwater without exceeding the $^{Tot}Soil_{Comb}$ PCL in soil, surface soils were proposed to be included as part of the West Plant PMZ under Remedy Standard B. This remains the proposed path forward for these PCLE zones. However, prior to conducting the proposed response actions for the remainder of the surface soil PCLE zones, resampling was conducted to confirm current concentration levels. The results of the resampling analytical data indicated the concentrations of COCs had attenuated below the critical PCL. Based on these resampling data, the response actions for the West Plant SWMU W3 surface soil meet a Remedy Standard A closure approach and no further action is proposed in these PCLE zones.

No changes were noted to soil response objectives in the in the 2017 RAP Addendum (TRC, 2017) with the exception to expand the boundaries of the existing TCEQ approved West Plant PMZ to include surface and subsurface soils with benzene and chlorobenzene concentrations that exceed the commercial/industrial $^{GW}Soil_{Ing}$ PCLs (as determined in the 2013 VTGP Terminal APAR (ERM 2013)), the soil response will remain the same as that in the approved 2007 RAP and 2013 RAP Addendum.

Surface Soil Response Action Remedy Standard A - Resampling

In the APAR (Arcadis, 2004) four COCs were identified in the surface soil exceeding the critical PCL; however, only one COC, tetrachloroethylene (PCE), exceeded the $^{Tot}Soil_{Comb}$ PCL. This exceedance, which occurred from 0 to 2 feet below ground surface (bgs), was limited to one specific hotspot adjacent to and just west of Tanks 10-12 and 10-11. This location was previously characterized by soil boring WP-3 advanced in 2000. Arcadis conducted a resampling event of select soil locations on February 8, 2005. The analytical data from this resampling event indicated PCE to be below the applicable PCL (STL, 2005). During the APAR investigation, the hotspot was delineated to below the applicable PCL horizontally to the north, southwest, and east, and vertically below the PCLE interval. In April 2008, this sample location was resampled for PCE by URS to confirm existence of the PCLE zone at 0 to 2 feet and 4 to 6 feet bgs. PCE was not detected above the sample detection limit (SDL) of 0.001 mg/kg, which is below the critical PCL for the COC. Therefore, based on these two confirmatory sampling events, a NFA is being requested for the surface soil PCLE zone identified at WP-3.

Trichloroethylene (TCE) was detected in the surface soil above the APAR derived Tier 2 soil to groundwater ingestion ($^{GW}Soil_{ING}$) PCL at two locations, but was not detected in excess of the $^{Tot}Soil_{Comb}$ PCL. However, based on the suspected migration of chlorinated hydrocarbons in groundwater from the offsite, upgradient facility to the west, KMLT originally proposed to excavate the identified soil PCLE zones in order to eliminate onsite sources of chlorinated hydrocarbons. The two PCLE zones were resampled for TCE. At former soil boring WP-3, TCE exceeded the $^{GW}Soil_{Ing}$ PCL at 0 to 2 feet bgs and 4

to 6 feet bgs. Resampling results from soil samples collected by Arcadis in 2005 indicated that TCE had attenuated to below the PCL at 4 to 6 feet bgs. Both soil intervals at this location were resampled by URS on April 3, 2008. Concentrations of TCE were not detected above the SDL of 0.001 mg/kg, which is below the critical PCL for the COC. An additional TCE PCLE zone in surface soil in excess of the $^{GW}Soil_{Ing}$ PCL was identified just north of Tank 12-30 at former soil boring location WP-16. This PCLE zone, which occurred at 2 to 4 feet bgs, was resampled by URS on April 3, 2008, and results indicated an estimated concentration of TCE of 0.002 mg/kg, which is below the critical PCL of 0.005 mg/kg. Therefore, based on the April 2008 resampling event, a NFA is being requested for the surface soil PCLE zones identified at WP-3 and WP-16 for TCE.

The third COC identified in surface soil was 2,4-dinitrotoluene, which exceeded the APAR derived Tier 2 $^{GW}Soil_{Ing}$ PCL at two locations in 2000 (WP-1 and WP-2) (Arcadis, 2004). Sample location WP-1 was located northwest of Tank 10-10, and sample location WP-2 was located northwest of Tank 10-12. Resampling of the PCLE zones indicated that this COC was below the applicable PCL (Arcadis, 2005). A follow-up sampling event was conducted on April 3, 2008 at both locations in accordance with the proposed response action presented in the 2007 RAP (URS, 2007) to both confirm the absence of surface soil PCLE zones and the leaching of 2,4-dinitrotoluene to groundwater via synthetic precipitation leaching procedure (SPLP) analysis. Results indicated that the COC was below the SDL of 0.050 mg/kg at WP-1 and the SDL of 0.054 mg/kg at WP-2. Both locations were additionally analyzed for SPLP analysis on May 19, 2008 and results were below the SDL of 0.002 mg/L. Therefore, based on the April 2008 resampling event, a NFA is being requested for the surface soil PCLE zones identified at WP-1 and WP-2 for 2,4-dinitrotoluene.

Surface Soil Response Action Remedy Standard B - PMZ

In surface soil, benzene exceeded the APAR derived Tier 2 $^{GW}Soil_{Ing}$ PCL at three locations (WP-17, WP-29, and MW-22) from 0 to 6 feet bgs. Because benzene is detected across the SWMU Group W3 in groundwater and is not detected above the $^{Tot}Soil_{Comb}$ PCL, benzene in soil will be managed under the approved SWMU-wide PMZ for multiple COCs.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

As noted in the 2017 RAP Addendum (TRC, 2017), handling, treatment, and disposal of soils within the existing Kinder Morgan West Plant PMZ are discussed in the TCEQ approved Kinder Morgan 2007 RAP and 2013 RAP Addendum. Generation of COC impacted soil during the Response Action is not expected. No soil removal is proposed.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The areas of the $^{Tot}Soil_{Comb}$ PCLE zones in surface soil identified in the APAR (Arcadis, 2004) have attenuated to below the critical PCL based on resampling data collected in 2005 and 2008. Only the $^{GW}Soil_{Ing}$ PCLE zone for benzene remains in place for surface soil. Benzene in excess of the $^{GW}Soil_{Ing}$ PCL as identified in the APAR (Arcadis, 2004) will be managed in a PMZ approved for the groundwater PCLE zone as discussed in the 2007 RAP (URS, 2007). The PMZ will be implemented and the area. Given that there is no change to the PMZ boundary extent, no changed to the deed recorded PMZ will need to be made.

As noted in the 2017 RAP Addendum (TRC, 2017), The $^{GW}Soil_{Ing}$ PCLE zones for benzene and

chlorobenzene for surface and subsurface soil at the WCP identified in the APAR for the former VTGP Terminal (ERM, 2013) will be managed in the proposed expanded West Plant PMZ and groundwater PCLE zone as discussed in the TCEQ approved 2007 Kinder Morgan RAP (URS, 2007) and the approved 2013 RAP Addendum (URS, 2013). The expanded PMZ will be implemented and the institutional control (deed record) will be modified and filed following approval of the RAP Addendum with the revised PMZ boundaries.

Response Action Objectives

List the environmental media to which this applies *Sandy Channel Fill (SCF)/ Upper Naturally Transmissive Unit (UNTU)*

Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Groundwater Response Action Remedy Standard B – PMZ and Compliance with Worker Safety Air Exposure Levels The 2007 RAP (URS, 2007) provides a detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater PCLE zones were identified for the groundwater ingestion exposure pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway and compliance with worker safety air exposure levels to address the groundwater to air inhalation pathway for site workers, as necessary, in accordance with TAC §350.74. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Groundwater sampling data indicate that current concentrations of benzene and vinyl chloride exceed the Tier 1 $^{Air}GW_{Inh\text{-}V}$ PCLs at three locations as depicted on Attachment 3A. Tier 2 PCLs were calculated for benzene and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA permissible exposure levels (PELs) for benzene and vinyl chloride for the TRRP Risk Based Exposure Levels (RBELs) in the Tier 2 calculation in accordance with TAC §350.74(b). Groundwater concentrations onsite are lower than the calculated Tier 2 PCLs; therefore, the groundwater levels are protective of worker safety air exposure levels. The Tier 2 PCL calculation spreadsheet for the groundwater to air inhalation pathway is provided in Appendix 3. As stated in the paragraph above, potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures, in general accordance with TAC§350.74(b)(1).

Based on the mitigation of the groundwater ingestion and inhalation pathways through the use of institutional controls, the applicable groundwater exposure pathway for the PMZ is the groundwater to surface water pathway based on the Houston Ship Channel being the downgradient extent of the PMZ. Approved ecological and human health SWGW PCLs were calculated and included in the 2007 RAP (URS, 2007).

Five monitoring wells (MW-29, MW-31, MW-32, MW-33, and MW-34) located on the western property boundary of the West Plant are not included in the SWMU-wide PMZ due to suspected COCs migrating

onsite from the adjacent upgradient facility to the west (URS, 2007). These wells have been sampled periodically to evaluate the groundwater exposure pathways, and results are generally consistent with historical detections. Because the wells are not included in the PMZ, PCLs applicable to the PMZ do not apply. When compared to the $^{Air}GW_{Inh\text{-}V}$ PCL, the results indicate that vinyl chloride in MW-32 continues to exceed the Tier 1 PCL for the pathway, but not the calculated Tier 2 PCL. KMLT will continue periodic monitoring of the western property line wells to evaluate the offsite and upgradient contribution to the site groundwater PCLE zone and to evaluate worker safety to address the groundwater to air inhalation pathway pending TCEQ's evaluation of the westward upgradient facility.

Four monitoring wells were installed (MW-35 through MW-38) in 2008 by URS, to establish the PMZ. Three groundwater monitoring events (February 2008; April 2011; February 2013) have been conducted on the approved new and existing PMZ monitoring wells indicating the PMZ remains protective of the groundwater to surface water pathway as presented in Table 2-2 and shown on Attachment 1A-3. Appendix 2 provides copies of the boring logs and monitoring well construction diagrams for the monitoring wells installed as part of the approved PMZ and groundwater analytical data.

NFA status was obtained for the CPROW alkylate release by TCEQ in correspondence dated July 11, 2008 (TCEQ, 2008). The monitoring and recovery wells associated with the release were subsequently plugged and abandoned, and the DPE System was dismantled as described in the Well Abandonment and Plugging Report CenterPoint Right-of-Way Alkylate Remediation System prepared by The Loper Group, Inc. in September 2008 (Loper Group, 2008). As presented in Attachment 2D of the 2007 RAP (URS, 2007), some of the wells associated with the Alkylate Remediation System were to be incorporated in a proposed PMZ for the West Plant. However, KMLT's request to CenterPoint Energy to allow for the downgradient POE onto the CenterPoint Energy transmission tower right-of-way was denied because CenterPoint Energy does not want to deed record the property as commercial/industrial. KMLT, therefore, has revised the remedial strategy to onsite containment and recovery in the southeast corner of the West Plant.

KMLT installed an array of recovery wells at the property line to provide groundwater capture and containment in the southeast corner of the West. On November 23, 2010, three recovery wells were activated (RW-25, MW-39, and MW-23). A pumping test was then conducted to determine capture between the three recovery wells. Three wells (OB-1, OB-2, and OB-3) were installed in March 2011 to act as observation wells for the pumping test. Drawdown was observed in OB-2 and OB-3 but not in OB-1. It was determined that recovery from nearby well RW-25 could be optimized if the screened section extended farther into the transmissive zone. Recovery well RW-25 was plugged and abandoned, and recovery well RW-25R was installed as a deeper replacement well in August 2011. Results for the April 2011 sampling event showed that benzene exceeded the PCL in OB-1 and OB-3. OB-1 and OB-3, therefore, were connected to the recovery system on November 30, 2011. Recovery wells RW-1 and RW-2 were also installed north of OB-1 in August 2011 to delineate the plume in this direction. Benzene was not detected in RW-2 (the northernmost well in the recovery system array) during the August 4, 2011 sampling event completing delineation of the plume in this direction. Recovery well RW-1 was connected to the recovery system on November 30, 2011. As of August 30, 2013, RW-1, OB-1, RW-25R, MW-39, MW-23, and OB-3 are actively recovering groundwater at an average rate of 2.67 gallons per minute. Details of the pumping test data and the Visual MODFLOW Version 2011.1 groundwater model for the West Plant recovery system are provided in Appendix 3.

The pumping test in March 2011 demonstrated that the radius of influence for each recovery well overlaps with nearby recovery wells, completing capture in the southeast corner. Groundwater is captured and does not migrate to the CPROW property. The recovery well network is inspected weekly to maintain proper pump operation and record discharge rates. Based on the design of the bottom loading pneumatic pumps, the pump actuation levels are set in each well at depths to maintain an overlapping cone of depression.

As noted in the 2017 RAP Addendum (TRC, 2017), with the exception of expanding the boundaries of the

existing TCEQ-approved West Plant PMZ to include the upgradient, impacted groundwater on West Plant and the former VTGP Terminal and to adjust the ground water monitoring network, the ground water response will remain the same as that in the approved 2007 RAP and 2013 RAP Addendum. The impacted groundwater in the areas to be incorporated into the PMZ contains the same COCs as previously reported in the 2007 RAP and the 2013 RAP Addendum for the impacted ground water currently in the PMZ. In addition, the current concentrations of COCs at the new additional proposed POEs do not exceed the approved action levels defined in the 2007 RAP and 2013 RAP Addendum and therefore the potential for unprotective conditions is not increased by the change in the PMZ configuration.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Details on the management of collected purge water produced during approved PMZ sampling activities are provided in the 2007 RAP (URS, 2007). Groundwater recovered during operation of the recovery system is currently managed through the KMLT wastewater treatment system. Precaution will be taken when performing remediation well O&M activities to measure vapors from open monitoring wells and minimize exposure to groundwater, as necessary. These activities will be managed through the KMLT permitting process using KMLT's O&M Procedures, which are equivalent to the TRRP referenced health and safety plan (HASP).

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The groundwater recovery system has been in operation since November 30, 2011 and providing groundwater capture at the property. This recovery system will terminate when there is no potential for COCs in excess of their respective Tier 1 PCLs to migrate offsite. The recovery system is currently being inspected weekly to confirm the system is operating as intended and that a cone of depression is being maintained at the property line to effectively capture groundwater from migrating offsite. Additional discussion regarding the 'reasonable time frame' for the response actions is provided in the 2007 RAP (URS, 2007).

As note in the 2017 RAP Addendum (TRC, 2017) areas of the $^{Tot}Soil_{Comb}$ PCLE zones in surface soil identified in the APAR (Arcadis, 2004) have attenuated to below the critical PCL based on resampling data collected in 2005 and 2008. Only the $^{GW}Soil_{Ing}$ PCLE zone for benzene remains in place for surface soil. Benzene in excess of the $^{GW}Soil_{Ing}$ PCL as identified in the APAR (Arcadis, 2004) will be managed in a PMZ approved for the groundwater PCLE zone as discussed in the 2007 RAP (URS, 2007). The PMZ will be implemented and the area. Given that there is no change to the PMZ boundary extent, no changed to the deed recorded PMZ will need to be made.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

Physical Controls are not proposed as a soil response action.

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

Resampling of the PCE, TCE, and 2,4-dinitrotoluene surface soil PCLE zones indicated the COCs are below the critical PCL; therefore, a NFA is proposed for locations WP-1, WP-2, WP-3, and WP-16. The benzene PCLE zones in surface soil located at WP-17, WP-19, and WP-29 will be managed in the PMZ in accordance with the 2007 RAP (URS, 2007). Proposed routine groundwater sampling will be used to evaluate benzene concentrations in groundwater and verify containment of the plume.

As noted in the 2017 RAP Addendum (TRC, 2017), the results of proposed routine groundwater sampling will be used to ensure that benzene and chlorobenzene concentrations in groundwater are not increasing due to leaching of COCs from soil and to verify containment of the plume and that groundwater is not migrating beyond the PMZ above applicable PCLs.

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies *Sandy Channel Fill (SCF)/ Upper Naturally Transmissive Unit (UNTU)*

Repeat this section for each groundwater-bearing unit for which a different response action is proposed.
Groundwater classification ____ 1 X 2 ___ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? X Yes ___ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? X Yes ___ No

If yes, complete the appropriate portions of this report.
If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

The recovery system in the southeastern corner of the West Plant is intended to create a groundwater cone of depression to capture COC-containing groundwater prior to migrating offsite, not to remove COCs from groundwater. However, this recovery system may promote conditions that are conducive to monitored natural attenuation of the subject COCs.

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh-V}$) is exceeded.

The 2007 RAP provides a discussion of the response action related to the groundwater to air inhalation pathway for groundwater concentrations in excess of the $^{Air}GW_{Inh-V}$ PCL. Prior to conducting air monitoring for these COCs, Tier 2 PCLs were calculated for benzene and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene and vinyl chloride for the TRRP RBELs in the Tier 2 calculation. The calculated Tier 2 PCLs exceed the groundwater concentrations onsite and therefore the groundwater levels are protective of the worker safety air exposure levels. The Tier 2 PCL calculation spreadsheet (Tables E-1 through 4) for the groundwater to air inhalation pathway is provided in Appendix 3. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

Groundwater Response Action Remedy Standard B - PMZ

The groundwater to surface water pathway is detailed in the 2007 RAP. Approved ecological and human health ^{SW}GW PCLs were calculated and included in Attachment 2E with supporting documentation provided in Appendix 2 in the 2007 RAP (URS, 2007). The recovery system at the southeastern corner of the West Plant is intended to act as a barrier to prevent groundwater from

migrating offsite to the southeast onto the CPROW property and ultimately to surface water located downgradient of the CPROW.

Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

The 2007 RAP provides a discussion of the response action related to the groundwater to air inhalation pathway for groundwater concentrations in excess of the $^{Air}GW_{Inh\text{-}V}$ PCL. Prior to conducting air monitoring for these COCs, Tier 2 PCLs were calculated for benzene and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene and vinyl chloride for the TRRP RBELs in the Tier 2 calculation. The calculated Tier 2 PCLs exceed the groundwater concentrations onsite and therefore the groundwater levels are protective of the worker safety air exposure levels. The Tier 2 PCL calculation spreadsheet (Tables E-1 through 4) for the groundwater to air inhalation pathway is provided in Appendix 3. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: *Surface Soil*
List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

Multiple response actions were proposed for the surface soil PCLE zones identified in the West Plant – SWMU W3 in the 2007 RAP (URS, 2007). Based on the PCL exceedance, the nature of the COC, and site conditions encountered, specific response actions were proposed to protect human health and the environment including excavation, resampling to assess attenuation, and establishment of a PMZ where excavation is impracticable (URS, 2007). Where impractical for removal due to existing facility infrastructure, or where soil COCs were also pervasive in groundwater without exceeding the $^{Tot}Soil_{Comb}$ PCL in soil, surface soils were proposed to be included as part of the West Plant PMZ under Remedy Standard B. This remains the proposed path forward for these PCLE zones. However, prior to conducting the proposed response actions for the remainder of the surface soil PCLE zones resampling was conducted to confirm current concentration levels. The results of the resampling analytical data indicated the concentrations of COCs had attenuated below the critical PCL. Based on these resampling data, the response actions for the West Plant SWMU W3 surface soil meet a Remedy Standard A closure approach and no further action is proposed in these PCLE zones.

As noted in the 2017 RAP Addendum (TRC, 2017), with the exception of expanding the existing West Plant PMZ boundaries and adding additional groundwater monitoring points (AMPs, POEs, and Background Wells), this RAP Addendum does not change the response action as outlined in the TCEQ approved 2007 RAP and 2013 RAP Addendum for West Plant. See the 2007 RAP and 2013 RAP Addendum for a detailed description of the response action design for soil.

Surface Soil Response Action Remedy Standard A - Resampling

In the APAR (Arcadis, 2004) four COCs were identified in the surface soil exceeding the critical PCL; however, only one COC, tetrachloroethylene (PCE), exceeded the $^{Tot}Soil_{Comb}$ PCL. This exceedance, which occurred from 0 to 2 feet below ground surface (bgs), was limited to one specific hotspot adjacent to and just west of Tanks 10-12 and 10-11. This location was previously characterized by soil boring WP-3 advanced in 2000. Arcadis conducted a resampling event of select soil locations on February 8, 2005. The analytical data from this resampling event indicated PCE to be below the applicable PCL (STL, 2005). During the APAR investigation, the hotspot was delineated to below the applicable PCL horizontally to the north, southwest, and east, and vertically below the PCLE interval. In April 2008, this sample location was resampled for PCE by URS to confirm existence of the PCLE zone at 0 to 2 feet and 4 to 6 feet bgs. PCE was not detected above the sample detection limit (SDL) of 0.001 mg/kg, which is below the critical PCL for the COC. Therefore, based on these two confirmatory sampling events, a NFA is being requested for the surface soil PCLE zone identified at WP-3.

Trichloroethylene (TCE) was detected in the surface soil above the APAR derived Tier 2 soil to groundwater ingestion ($^{GW}Soil_{Ing}$) PCL at two locations, but was not detected in excess of the $^{Tot}Soil_{Comb}$ PCL. However, based on the suspected migration of chlorinated hydrocarbons in groundwater from the offsite, upgradient facility to the west, KMLT originally proposed to excavate the identified soil PCLE zones in order to eliminate onsite sources of chlorinated hydrocarbons. The two PCLE zones were

resampled for TCE. At former soil boring WP-3, TCE exceeded the $^{GW}Soil_{Ing}$ PCL at 0 to 2 feet bgs and 4 to 6 feet bgs. Resampling results from soil samples collected by Arcadis in 2005 indicated that TCE had attenuated to below the PCL at 4 to 6 feet bgs. Both soil intervals at this location were resampled by URS on April 3, 2008. Concentrations of TCE were not detected above the SDL of 0.001 mg/kg, which is below the critical PCL for the COC. An additional TCE PCLE zone in surface soil in excess of the $^{GW}Soil_{Ing}$ PCL was identified just north of Tank 12-30 at former soil boring location WP-16. This PCLE zone, which occurred at 2 to 4 feet bgs, was resampled by URS on April 3, 2008, and results indicated an estimated concentration of TCE of 0.002 mg/kg, which is below the critical PCL of 0.017 mg/kg. Therefore, based on the April 2008 resampling event, a NFA is being requested for the surface soil PCLE zones identified at WP-3 and WP-16 for TCE.

The third COC identified in surface soil was 2,4-dinitrotoluene, which exceeded the APAR derived Tier 2 $^{GW}Soil_{Ing}$ PCL at two locations in 2000 (WP-1 and WP-2) (Arcadis, 2004). Sample location WP-1 was located northwest of Tank 10-10, and sample location WP-2 was located northwest of Tank 10-12. Resampling of the PCLE zones indicated that this COC was below the applicable PCL (Arcadis, 2005). A follow-up sampling event was conducted on April 3, 2008 at both locations in accordance with the proposed response action presented in the 2007 RAP (URS, 2007) to both confirm the absence of surface soil PCLE zones and the leaching of 2,4-dinitrotoluene to groundwater via synthetic precipitation leaching procedure (SPLP) analysis. Results indicated that the COC was below the SDL of 0.050 mg/kg at WP-1 and the SDL of 0.054 mg/kg at WP-2. Both locations were additionally analyzed for SPLP analysis on May 19, 2008 and results were below the SDL of 0.002 mg/L. Therefore, based on the April 2008 resampling event, a NFA is being requested for the surface soil PCLE zones identified at WP-1 and WP-2 for 2,4-dinitrotoluene.

Surface Soil Response Action Remedy Standard B - PMZ

In surface soil, benzene exceeded the APAR derived Tier 2 $^{GW}Soil_{Ing}$ PCL at three locations (WP-17, WP-29, and MW-22) from 0 to 6 feet bgs. Because benzene is detected across the SWMU Group W3 in groundwater and is not detected above the $^{Tot}Soil_{Comb}$ PCL, benzene in soil will be managed under the approved SWMU-wide PMZ for multiple COCs.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

Not Applicable

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
Not Applicable			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not Applicable

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: *Groundwater*
List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

The 2007 RAP (URS, 2007) provides a detailed discussion of the response actions related to the groundwater PCLE zones. Groundwater PCLE zones were identified for the groundwater ingestion exposure pathway, the groundwater to air inhalation pathway, and the groundwater to surface water exposure pathway. Approved response actions for the identified groundwater PCLE zones include a SWMU-wide PMZ addressing the groundwater ingestion exposure pathway and compliance with worker safety air exposure levels to address the groundwater to air inhalation pathway for site workers, as necessary, in accordance with TAC §350.74. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

As noted in the 2017 RAP Addendum (TRC, 2017), with the exception of expanding the existing West Plant PMZ boundaries and adding additional groundwater monitoring points (AMPs, POEs, and Background Wells), this RAP Addendum does not change the response action as outlined in the TCEQ approved 2007 RAP and 2013 RAP Addendum for West Plant.

Groundwater sampling data indicate that current concentrations of benzene and vinyl chloride exceed the Tier 1 $^{Air}GW_{Inh\text{-}V}$ PCLs at three locations as depicted on Attachment 3A. Tier 2 PCLs were calculated for benzene and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA permissible exposure levels (PELs) for benzene and vinyl chloride for the TRRP Risk Based Exposure Levels (RBELs) in the Tier 2 calculation in accordance with TAC §350.74(b). Groundwater concentrations onsite are lower than the calculated Tier 2 PCLs; therefore, the groundwater levels are protective of worker safety air exposure levels. The Tier 2 PCL calculation spreadsheet for the groundwater to air inhalation pathway is provided in Appendix
3. As mentioned in the paragraph above, potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures, in general accordance with TAC§350.74(b)(1).

Based on the mitigation of the groundwater ingestion and inhalation pathways through the use of institutional controls, the applicable groundwater exposure pathway for the PMZ is the groundwater to surface water pathway based on the Houston Ship Channel being the downgradient extent of the PMZ. Approved ecological and human health ^{SW}GW PCLs were calculated and included in the 2007 RAP (URS, 2007).

Five monitoring wells (MW-29, MW-31, MW-32, MW-33, and MW-34) located on the western property

boundary of the West Plant are not included in the SWMU-wide PMZ due to suspected COCs migrating onsite from the adjacent upgradient facility to the west (URS, 2007). These wells have been sampled periodically to evaluate the groundwater exposure pathways, and results are generally consistent with historical detections. Because the wells are not included in the PMZ, PCLs applicable to the PMZ do not apply. When compared to the $^{Air}GW_{Inh\text{-}V}$ PCL, the results indicate that vinyl chloride in MW-32 continues to exceed the Tier 1 PCL for the pathway, but not the calculated Tier 2 PCL. KMLT will continue periodic monitoring of the western property line wells to evaluate the offsite and upgradient contribution to the site groundwater PCLE zone and to evaluate worker safety to address the groundwater to air inhalation pathway pending TCEQ's evaluation of the westward upgradient facility.

Four proposed monitoring wells were installed (MW-35 through MW-38) in 2008 by URS, to establish the PMZ. Three groundwater monitoring events (February 2008; April 2011; February 2013) have been conducted on the approved new and existing PMZ monitoring wells indicating the PMZ remains protective of the groundwater to surface water pathway as presented in Table 2-2 and shown on Attachment 1A-3. Appendix 2 provides copies of the boring logs and monitoring well construction diagrams for the monitoring wells installed as part of the approved PMZ and groundwater analytical data.

NFA status was obtained for the CPROW alkylate release by TCEQ in correspondence dated July 11, 2008 (TCEQ, 2008). The monitoring and recovery wells associated with the release were subsequently plugged and abandoned, and the DPE System was dismantled as described in the Well Abandonment and Plugging Report CenterPoint Right-of-Way Alkylate Remediation System prepared by The Loper Group, Inc. in September 2008 (Loper Group, 2008). As presented in Attachment 2D of the 2007 RAP (URS, 2007), some of the wells associated with the Alkylate Remediation System were to be incorporated in a proposed PMZ for the West Plant. However, KMLT's request to CenterPoint Energy to allow for the downgradient POE onto the CenterPoint Energy transmission tower right-of-way was denied because CenterPoint Energy does not want to deed record the property as commercial/industrial. KMLT, therefore, has revised the remedial strategy to onsite containment and recovery in the southeast corner of the West Plant.

KMLT installed an array of recovery wells at the property line to provide groundwater capture and containment in the southeast corner of the West. On November 23, 2010, three recovery wells were activated (RW-25, MW-39, and MW-23). A pumping test was then conducted to determine capture between the three recovery wells. Three wells (OB-1, OB-2, and OB-3) were installed in March 2011 to act as observation wells for the pumping test. Drawdown was observed in OB-2 and OB-3 but not in OB-1. It was determined that recovery from nearby well RW-25 could be optimized if the screened section extended farther into the transmissive zone. Recovery well RW-25 was plugged and abandoned, and recovery well RW-25R was installed as a deeper replacement well in August 2011. Results for the April 2011 sampling event showed that benzene exceeded the PCL in OB-1 and OB-3. OB-1 and OB-3, therefore, were connected to the recovery system on November 30, 2011. Recovery wells RW-1 and RW-2 were also installed north of OB-1 in August 2011 to delineate the plume in this direction. Benzene was not detected in RW-2 (the northernmost well in the recovery system array) during the August 4, 2011 sampling event completing delineation of the plume in this direction. Recovery well RW-1 was connected to the recovery system on November 30, 2011. As of August 30, 2013, RW-1, OB-1, RW-25R, MW-39, MW-23, and OB-3 are actively recovering groundwater at an average rate of 2.67 gallons per minute. Since November 2011, approximately 3.6 million gallons of groundwater have been recovered. Details of the pumping test data and the Visual MODFLOW Version 2011.1 groundwater model for the West Plant recovery system are provided in Appendix 3.

The pumping test in March 2011 demonstrated that the radius of influence for each recovery well overlaps with nearby recovery wells, completing capture in the southeast corner. Groundwater is captured and does not migrate to the CPROW property. The recovery well network is inspected weekly to maintain proper pump operation and record discharge rates. Based on the design of the bottom

loading pneumatic pumps, the pump actuation levels are set in each well at depths to maintain an overlapping cone of depression.

A review of the Western Plant PMZ analytical data submitted as part of the Facility Corrective Action Reports noted that Point of Exposure (POE) wells have been reported as either "Not Detected" at concentrations greater than reporting limits and/or at concentrations less than the Groundwater Protection Standarads (GWPS) for the last four (4) years (i.e., eight (8) sampling events). Additionally, several AMP and CAO wells have also been reported at concentrations less than the GWPS for the last four (4) years.

Based on this information, KMLT is proposing to remove eight (8) AMP wells (i.e., VMW-1, VMW-6, VMW-7, MW-20, MW-29, MW-30, MW-31 and MW-36) and three (3) Corrective Action Observation (CAO) wells (i.e., MW-3, VMW-2 and VMW-4) from the Corrective Action monitoring program.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

The Recovery System Layout and Piping and Details specifications for the recovery system located in the southeast corner of the West Plant are provided in Attachments 2A-1 and Attachments 2A-1a, 2A-1b, and 2A-1c, respectively.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
Not Applicable			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not Applicable

Plume Management Zone	RAP Worksheet 2.1	Page _1_ of _4_
Associated Information: Attachments 2D, 2E	ID No.: SWR# 30573	Report Date: June 28, 2024

Complete this worksheet when a PMZ is proposed as part of the response action. Include in Attachment 2D a map of the proposed PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone. If a PMZ is not proposed, do not submit this worksheet.

Groundwater-bearing unit *SCF/UNTU*
Repeat this worksheet for each groundwater-bearing unit for which a PMZ is proposed.
Groundwater classification X 2 ____ 3

Provide justification as to why the PMZ is appropriate in accordance with §350.33(f)(4)(A). Include supporting documentation in Attachment 2E.

A detailed discussion regarding the adequacy of the PMZ as a response action is detailed in the 2007 RAP (URS, 2007). The list of monitoring wells to be sampled during the monitoring activities has been revised to be consistent with the containment strategy currently being employed. Specifically, MW-23, RW-16, RW-25, ROW-15, and ROW-17 were removed from this list since they are either currently part of the recovery system providing onsite containment or were located offsite on the CPROW and have been plugged and abandoned. Page 2 of Worksheet 2.1 provides the revised list of monitoring wells to be sampled in the PMZ, and Attachment 2D depicts the revised PMZ.

The recovery system at the southeastern corner of the West Plant is intended to act as a barrier to prevent groundwater from migrating offsite to the southeast onto the CPROW property and ultimately to surface water located downgradient of the CPROW. By keeping the groundwater PCLE zone from migrating offsite, human and ecological receptors on the CPROW property will not be exposed to the groundwater PCLE zone.

The 2017 RAP Addendum (TRC, 2017) noted that the list of monitor wells to be sampled during the monitoring activities was revised to incorporate the WCP monitor wells and monitor wells at the Kinder Morgan West Plant that were previously not part of the PMZ into the PMZ and to be consistent with the containment strategy currently being employed. Five monitoring wells (MW-29, MW-31, MW-32, MW-33, and MW-34) located on the western property boundary of the Kinder Morgan West Plant were not included in the SWMU-wide PMZ due to suspected COCs migrating onsite from the former adjacent Vopak (West Chemical Plant) upgradient facility to the west (URS, 2007). The monitor wells included in the proposed expanded PMZ.

Additional assessment of the Western Plant PMZ analytical data–submitted as part of the Facility Corrective Action Reports noted that Point of Exposure (POE) wells have been reported as either "Not Detected" at concentrations greater than reporting limits and/or at concentrations less than the Groundwater Protection Standarads (GWPS) for the last four (4) years (i.e., eight (8) sampling events). Additionally, several AMP and CAO wells have also been reported at concentrations less than the GWPS for the last four (4) years.

Based on this information, KMLT is proposing to remove eight (8) AMP wells (i.e., VMW-1, VMW-6, VMW-7, MW-20, MW-29, MW-30, MW-31 and MW-36) and three (3) Corrective Action Observation (CAO) wells (i.e., MW-3, VMW-2 and VMW-4) from the Corrective Action monitoring program.

Is the alternate POE proposed to be beyond the current limits of the PCLE zone? ____ Yes X No
If yes, how far? *Not Applicable* (§350.37(l) or (m) as applicable)
Is it to be off-site? ____ Yes ____ No
On an off-site property that currently does not contain a residential-based groundwater PCLE zone?
____ Yes ____ No

If yes and this is a Class 2 groundwater, provide the basis for concluding that this groundwater does not have a reasonably anticipated future beneficial use (§350.37(l)(3)).

Not Applicable. Alternate POE wells are not proposed beyond the current limits of the PCLE zone due to the PCLE zone's downgradient extent abutting the Houston Ship Channel. POE wells are along the Houston Ship Channel and groundwater analytical results will be compared to the approved ^{sw}GW PCLs.

Is NAPL present? X Yes _____ No

If so, describe how the response action will achieve the performance criteria in §350.33(f)(4)(E).

The 2017 RAP Addendum (TRC, 2017) noted that during a monitor well gauging event performed on June 3, 2015 for the West Chemical Plant, LNAPL was measured in the following wells: VMW-3 (1.40 ft.) and VMW-10 (5.03 ft.). On March 29, 2016, LNAPL was measured in the following wells: VMW-3 90 (0.02 ft.), VMW-8 (sheen), and VMW-10 (0.44 ft.). On September 22, 2017, LNAPL was measured in the following wells: VMW-3 (0.02 ft.), VMW-8 (0.09 ft.), and VMW-10 (0.16 ft.). Between June 3, 2015 and September 22, 2017, monthly gauging and product removal (if necessary) events have been conducted on these wells with the measured NAPL in VMW-3 decreasing from 1.40 ft. to a sheen, and in VMW-10 from 5.03 ft. to 0.04 ft., and 0.02 feet present in VMW-8. LNAPL has also been detected in well MW-38. Since there is no known source(s), the LNAPL appears to be spatially isolated and in general, the LNAPL has been removed to the extent practicable, the response action will be to continue to monitor these wells on a periodic basis and remove any accumulated LNAPL.

If this is a Class 2 groundwater, explain how the response action will ensure that leachate from the surface soil and subsurface soil PCLE zones will not increase concentration of COCs greater than the current measured concentrations (at time of RAP submittal). (§350.33(a)(2))

Surface Soil Remedy Standard A Response Action - Resampling

As noted in the 2013 RAP Addendum (URS, 2013), resampling was conducted in 2008 to confirm PCLE zone concentrations presented in the APAR (Arcadis, 2004) for PCE, TCE, and 2,4-dinitrotoluene (STL, 2005). Analytical data were below critical PCLs for these COCs; therefore, a NFA is proposed for the surface soil PCLE zones.

Surface Soil Remedy Standard B Response Action – PMZ

Benzene exceeds the soil to groundwater ingestion PCL at three locations as discussed in the APAR (Arcadis, 2004). The PCLE zones for benzene will be managed in the approved SWMU-wide PMZ for benzene and other COCs. As noted in the 2013 RAP Addendum (URS, 2013), Approved semi-annual groundwater monitoring for benzene will be performed to monitor benzene concentrations in groundwater and to evaluate the potential for COC leaching from the surface soil PCLE zones. A depiction of the revised Plume Management Zone Map is provided as Attachment 2D.

As noted in the 2017 RAP Addendum (TRC, 2017), benzene and chlorobenzene also exceed the soil to groundwater ingestion PCLs at four locations at the WCP. These soil PCLE zones will be incorporated into and managed in the TCEQ approved PMZ for the West Plant. Historic groundwater analytical data show groundwater concentrations to be stable as discussed in the VTGP APAR (ERM, 2013). Semi-annual groundwater monitoring is being performed to monitor benzene and chlorobenzene concentrations in groundwater to verify there is no increase in contaminant mass due COCs leaching from the soil PCLE zones. A depiction of the revised Plume Management Zone Map is provided as Attachment 2D. The proposed soil response actions for the WCP are consistent with the soil response actions in the 2013 TCEQ approved RAP Addendum.

Provide the basis that the COCs will not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachment 2E.

The basis for the elimination of a pathway for COCs, at concentrations above the critical PCL, to migrate beyond the downgradient boundary of the PMZ is provided in the 2007 RAP (URS, 2007). The recovery

system in the southeastern corner of the West Plant is intended to prevent COC-containing groundwater from migrating beyond the downgradient boundary of the PMZ and offsite to the southeast onto the CPROW property.

The proposed modified PMZ will continue monitor the COC concentrations within the plume and at the downgradient extent of the plume. Because the groundwater ingestion pathway is proposed to be eliminated with the institutional controls of the PMZ, the groundwater to surface water exposure pathway is considered to be complete and is the basis of the AALs. A more detailed discussion is provided in the TCEQ approved 2007 RAP (URS, 2007). The recovery system in the southeastern corner of the West Plant is intended to prevent COC-containing groundwater from migrating beyond the downgradient boundary of the PMZ and offsite to the southeast onto the CenterPoint Energy right-of-way (CPROW) property. COC concentrations will be monitored in AMP wells on a semi-annual basis to verify COC concentrations are not increasing so that they would exceed the PCLs at the POE.

Describe the methods used to determine that there are no artificial penetrations which can allow COCs to migrate from the groundwater PCLE zone to currently unaffected groundwater-bearing units. Include supporting documentation in Attachment 2E.

There are no known artificial penetrations which can allow COCs to migrate to unaffected groundwater bearing units.

Plume Management Zone	RAP Worksheet 2.1	Page _4_ of _4_
Associated Information: Attachments 2D, 2E	ID No.: SWR# 30573	Report Date: June 28, 2024

List the attenuation action level determined for each attenuation monitoring point. Illustrate the proposed attenuation monitoring points and the groundwater PCLE zone on the map in Attachment 2D. Include all calculations and other methods of determining the attenuation action levels in Attachment 2E.

COC	Attenuation Monitoring Point (well number)	Attenuation Action Level (mg/L)	Attenuation Action Level limited by $^{Air}GW_{Inh\text{-}V}$ or existing COC concentration? Y/N
Benzene	*PMZ wells**	*1,470*	*N***
Ethylbenzene	*PMZ wells**	*5,180*	*N*
Xylenes (total)	*PMZ wells**	*17,700*	*N*
Bis(2-chloroethyl)ether	*PMZ wells**	*110*	*N*
Isopropylbenzene	*PMZ wells**	*4,890*	*N*
Chlorobenzene	*PMZ wells**	*2,190*	*N*
PCE	*PMZ wells**	*4,470*	*N*
TCE	*PMZ wells**	*8,490*	*N*
Cis-1,2-Dichloroethene	*PMZ wells**	*14,200*	*N*
Vinyl Chloride	*PMZ wells**	*5,760*	*Y***
1,2-Dichloroethane	*PMZ wells**	*1,030*	*N*

* Per the 2017 RAP Addendum, the PMZ was revised and expanded to incorporate upgradient monitor wells MW-3, P-1, VMW-4, and VMW-9; AMP monitor wells VMW-1, VMW-3, VMW-6, VMW-7, MW-29, and MW-31. Monitor well MW-20, thought to have been destroyed (URS 2013) was subsequently located and is incorporated into the Revised PMZ as originally proposed (URS 2007). Five monitoring wells (MW-29, MW-31, MW-32, MW-33, and MW-34) located on the western property boundary of the West Plant were included in the 2017 revised PMZ. Monitor well MW-35 has been removed as an upgradient monitor well and is now designated an AMP well. Monitor wells MW-22 and MW-33 have been removed as AMP wells with the revised West Plant PMZ which incorporates the WCP into the PMZ. This RAP Addendum proposes revising/reducing the AMP Monitor wells to the following list: l MW-20, MW-27, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, and VMW-7. Calculations for Attenuation Action Levels were presented in Attachment 2E of the 2007 TCEQ approved RAP (URS 2007) and these AALs will apply to the Revised PMZ well network.

** See Appendix 2, Table 2-2 of the 2013 RAP Addendum for approved Tier 2 commercial/industrial $^{Air}GW_{Inh\text{-}V}$ PCLs for benzene and vinyl chloride.

Waste Control Unit	RAP Worksheet 2.2	Page _1_ of _1_
Associated Information: Attachment 2F	ID No.: SWR# 30573	Report Date: June 28, 2024

NOT APPLICABLE

Use this worksheet to document the use of a waste control unit to modify the groundwater response actions (§350.33(f)(2)). Provide a map in Attachment 2F of the waste control unit overlying the PCLE zone. Include proposed institutional controls in Appendix 4. If this modification does not apply, do not submit this worksheet.

Is the waste control unit an existing unit? ____ Yes ____ No
If yes, provide: the permit number _____
description _____
status ____ active ____ closed

Describe how the existing or proposed WCU meets the definition set forth in §350.4(a)(91).

If the WCU is proposed, identify any applicable permitting process that must be completed prior to operation of the WCU.

Has the applicable permit been pursued yet? ____ Yes ____ No
If not, when will this be initiated?

Technical Impracticability	RAP Worksheet 2.3 Page _1_ of _1_	
Associated Information: Attachment 2G	ID No.: SWR# 30573	Report Date: June 28, 2024

NOT APPLICABLE

Use this worksheet to justify the use of technical impracticability (TI) to modify the groundwater response objectives. Also complete Worksheet 2.2 to propose a plume management zone for the TI area. Include a map of the groundwater PCLE zone and area of technical impracticability in Attachment 2G. Include in the attachment any other documentation needed to make the justification. If technical impracticability is not proposed as part of the response action, do not submit this worksheet.

Describe the groundwater PCLE zone and demonstrate in accordance with *Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration* (EPA OSWER Directive 9234.2-25), unless otherwise approved by TCEQ, why it is technically impractical to reduce the COC concentrations to the critical PCLs, taking into account all currently available remediation technologies, and hydrogeologic and chemical-specific factors. Identify the specific COCs and list the PCLs that cannot be achieved.

Not Applicable

Are there groundwater COCs in excess of the critical PCLs beyond the TI area? ___ Yes ___ No
If yes, make sure removal/decontamination actions are documented in Worksheet 1.0.

Will actions be required or already completed to prevent COC migration outside the area of technical impracticability and/or outside the existing boundary of the groundwater PCLE zone?
_____ Yes _____ No
If yes, make sure removal/decontamination actions are documented in Worksheet 1.0.

Institutional Control	RAP Worksheet 2.4 Page _1_ of _1_	
Associated Information: Appendices 4, 5	ID No.: SWR# 30573	Report Date: June 28, 2024

Complete this worksheet if an institutional control will be used as part of the response action. Include a draft of the proposed institutional controls in Appendix 4. Provide a list of landowners from whom landowner concurrence will be requested, as necessary, in Appendix 5.
Specify the property for which this applies. _____
Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[1]				Property Ownership		Anticipated Filing Date[2]
	Deed Notice	Restrictive Covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))	X				X		*Completed*
Document use of physical or institutional control under Remedy Standard B §350.31(g))	X				X		*Completed*
Document notice of on-going long term response action (§350.31(h))							
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))							
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(I))	X				X		*Completed*
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							

[1] Check the appropriate box(es) to indicate the type of institutional control required for the proposed response action.
[2] Specify date or amount of time after RAP approval.

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that will be used to determine if reasonable progress is being made by the response action in a timely manner. Use these measures to document effectiveness of the response action in the RAER.

Groundwater Remedy Standard B Response Action - PMZ

A more detailed discussion of the PMZ is provided in the 2007 RAP (URS, 2007).

The groundwater recovery system was activated in November 30, 2011 and groundwater capture has been maintained in the southeast corner of the West Plant. In order to continually ensure groundwater capture in the area is occurring, the recovery well network is inspected weekly to maintain proper pump operation and record discharge rates. Based on the design of the bottom loading pneumatic pumps, the pump actuation levels are set in each well at depths to maintain an overlapping cone of depression.

The PCLE zone and recovery system will undergo periodic post-response action care evaluation to verify that the PMZ response action care monitoring program is being conducted as described in Worksheet 5.0 of this RAP.

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: *Plume Management Zone – See 2007 RAP*

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	

Performance Measures and Potential Problems	RAP Worksheet 3.0 Page _2_ of _2_	
	ID No.: SWR# 30573	Report Date: June 28, 2024

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: *Recovery System*

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
Pneumatic pump failure	*Cone of depression not maintained resulting in affected groundwater migrating to CPROW*		*X*	*Weekly inspection of pumps and counter readings to calculate weekly discharge rates would mitigate the potential problem from having a long-term impact to the CPROW.*
Piping/connection failure on recovery system	*Release of potentially affected groundwater to the environment*		*X*	*Weekly inspection, maintenance, and repair/replacement of equipment components related to the recovery system will help ensure proper operation and performance and mitigate a release to the environment.*

Monitoring and Sampling Associated Information: Attachment 3A	RAP Worksheet 3.1 Page _1_ of _3_	
	ID No.: SWR# 30573	Report Date: June 28, 2024

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Surface Soil							
Subsurface Soil							
Groundwater	*benzene, ethylbenzene, xylenes, isopropylbenzene, chlorobenzene, cis- 1,2-dichloroethane, 1,2-dichloroethane, PCE, TCE, vinyl chloride, and bis(2- chloroethyl)ether*		*Low flow sampling techniques*	*PMZ wells from Worksheet 2.1*	*SCF/UNTU*	*Select list by VOC 8260 and SVOC 8270*	*Semi-Annually*
	Recovery System		*Weekly Inspections*	*RW-1, RW-25R, OB-1,OB-3, MW-23, and MW-39*	*SCF/UNTU water bearing unit*	*Inspection and flow measurements*	*Weekly*
Surface water							
Sediment							
Air	*Not applicable unless groundwater concentrations exceed Tier 2 $^{Air}GW_{Inh\text{-}V}$.*						
Other Media (specify)							

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

Explain the reasons for the above-listed monitoring and sampling plan.

Surface Soil Standard A Remedy Action

Resampling was conducted in 2008 to confirm PCLE zone concentrations in surface soil identified in the APAR (Arcadis, 2004) for PCE, TCE, and 2,4-dinitrotoluene. The laboratory report for the resampling is included in Appendix 2. Analytical data were below critical PCLs for the COCs ;therefore, a NFA is proposed for the surface soil PCLE zones.

Groundwater Remedy Standard B Response Action – PMZ and Compliance with Worker Safety Air Exposure Levels

A detailed discussion of the monitoring and sampling plan related to the groundwater PCLE zones is provided in the 2007 RAP (URS, 2007). As approved in this RAP, four new monitoring wells were installed to establish the approved PMZ. Since the approval of the 2007 RAP, four proposed monitoring wells were installed (MW-35 through MW-38) in 2008 by URS, to establish the PMZ. Three groundwater monitoring events (February 2008; April 2011; February 2013) have been conducted on the approved new and existing PMZ monitoring wells indicating the PMZ remains protective of the groundwater to surface water pathway as presented in Table 2-2 and shown on Attachment 1A-3. Five monitor wells (MW-29, MW-31, MW-32, MW-33, and MW- 34), as per the TCEQ approved 2007 RAP (URS, 2007) located on the western property boundary of the West Plant were previously not included in the SWMU-wide PMZ due to suspected COCs migrating onsite from the adjacent upgradient West Chemical Plant facility. These monitor wells were included in the monitoring and sampling plan for the proposed revised PMZ with the incorporation of the WCP as part of the 2017 RAP Addendum. Monitor well MW-20, thought to have been destroyed (URS 2013) was subsequently located and is incorporated into the Revised PMZ as originally proposed (URS 2007). When compared to the $^{Air}GW_{Inh\text{-}V}$ PCL, the results indicate that vinyl chloride in MW-32 continues to exceed the Tier 1 PCL for the pathway but not the calculated Tier 2 PCL. KMLT will continue periodic monitoring of the western property line wells to evaluate the offsite and upgradient contribution to the site groundwater PCLE zone and to evaluate worker safety to address the groundwater to air inhalation pathway concurrent with TCEQ's evaluation of the westward upgradient facility.

NFA status was obtained for the CPROW alkylate release by TCEQ in correspondence dated July 11, 2008 (TCEQ, 2008). The monitoring and recovery wells associated with the release were subsequently plugged and abandoned and the Dual Phase Extraction (DPE) System was dismantled as described in the Well Abandonment and Plugging Report CenterPoint Right-of-Way Alkylate Remediation System prepared by The Loper Group, Inc. in September 2008 (Loper Group, 2008). As presented in Attachment 2D of the 2007 RAP (URS, 2007), some of the wells associated with the Alkylate Remediation System were to be incorporated in a proposed PMZ for the West Plant. However, KMLT's request to CenterPoint Energy to allow for the downgradient POE onto the CenterPoint Energy transmission tower right-of-way was denied because CenterPoint Energy does not want to deed record the property as commercial/industrial. KMLT, therefore, has revised the remedial strategy to onsite containment and recovery in the southeast corner of the West Plant. KMLT installed an array of recovery wells at the property line to provide groundwater capture in the southeast corner of the West Plant to provide onsite containment. As of August 30, 2013, RW-1, OB-1, RW-25R, MW-39, MW-23, and OB-3 are actively recovering groundwater at an average rate of 2.67 gallons per minute. Since November 2011, approximately 3.6 million gallons of groundwater have been recovered. The recovery well network is inspected weekly to confirm adequate groundwater containment.

To address the groundwater to air exposure pathway, Tier 2 PCLs have been calculated to demonstrate compliance with worker safety air exposure levels for site workers in accordance with TAC §350.74. Groundwater sampling data indicate that current concentrations of benzene and vinyl chloride exceed the Tier 1 $^{Air}GW_{Inh\text{-}V}$ PCLs at three locations as depicted on Attachment 3A. Tier 2 PCLs were calculated for benzene and vinyl chloride for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PELs for benzene and vinyl chloride for the TRRP RBELs in the Tier 2 calculation in accordance with TAC §350.74(b). Groundwater concentrations onsite are lower than the calculated Tier 2 PCLs; therefore, the groundwater levels are protective of the worker safety air

exposure levels. The Tier 2 PCL calculation spreadsheet (Tables E-1 through 4) for the groundwater to air inhalation pathway is provided in Appendix 3. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

Operation and Maintenance	RAP Worksheet 3.2	Page _1_ of _2_
	ID No.: SWR# 30573	Report Date: June 28, 2024

Use this worksheet to describe the operation and maintenance (O&M) activities for each response action. In situations where the response action consists of more than one major component, for clarity one worksheet can be completed for each major component.

Response Action Name/Designation: *Plume Management Zone*
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

Refer to the 2007 RAP.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

Not Applicable

List the routine tasks required to operate the response action.

Not Applicable

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Not Applicable

Response Action Name/Designation: *Compliance with Worker Safety Air Exposure Levels*
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

Tier 2 PCLs have been calculated to demonstrate compliance with worker safety air exposure levels for site workers in accordance with TAC §350.74. Groundwater sampling data indicates that current and historical concentrations are below the calculated Tier 2 PCLs; therefore, groundwater levels are protective of the worker safety air exposure levels. Groundwater concentrations will be compared to the Tier 2 PCLs semiannually. Potential human exposure to COCs migrating from groundwater will be monitored through scheduled ground water monitoring events and controlled and managed through the Facility's permitting process and the KMLT Operations and Maintenance (T-O&Ms) procedures (e.g., employee's and contractor's responsibilities, respiratory protection, portable vapor detectors, soil disturbance), which are equivalent to the TRRP referenced health and safety plan, as necessary, in general accordance with TAC§350.74(b)(1).

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

Semi-annual groundwater monitoring activities as described for the PMZ will be used to monitor the exposure pathway.

List the routine tasks required to operate the response action.

Semi-annual groundwater monitoring activities as described for the PMZ will be used to monitor the exposure pathway.

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Not Applicable

Response Action Name/Designation: *Recovery System*
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

The groundwater recovery system in the southeast corner of the West Plant will be continuously operated to maintain affected groundwater capture upgradient of the CPROW property. Proposed weekly inspections will ensure pumps remain operational and that adequate recovery volumes are maintained by the system. Inspection activities would also include confirmation that all system components are operating in accordance with design requirements.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The primary consideration is to ensure that the pneumatic pumps remain operational and the actuation levels of the pump remain set at depths to create adequate drawdown in the wells in order to promote groundwater capture. Obtaining periodic counter readings will confirm adequate groundwater volumes are being recovered by the system. Other key operating parameters include inspecting air supply connections, gauges, and lines for pneumatic pump operation and discharge lines and connections for effluent water.

List the routine tasks required to operate the response action.

Inspect air connections, gauges, and lines; inspect discharge line and connections; and obtain counter readings.

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Routinely replace lines/fittings, as needed. Troubleshoot pumps for fouling if the counter readings show decreasing trends and an increase in line pressure is observed. O&M described in the preceding sections is performed on a weekly basis when the system is operational.

Confirmation Sampling Plan	RAP Worksheet 4.0 Page _1_ of _1_	
Associated Information: Attachment 4A	ID No.: SWR# 30573	Report Date: June 28, 2024

List the COCs and other parameters that will be sampled to confirm completion of the response action. Illustrate the monitoring or sampling locations in Attachment 4A. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided. If needed, describe the sample collection and handling methods, if not previously provided, in Appendix 6.

Media	COC[1]	Other parameter (specify)	Sampling Method	Sampling points[2]	Depth/height (ft.)	Analytical Method	Sampling Frequency
Surface Soil	*Not Applicable*						
Subsurface Soil							
Groundwater							
Surface water							
Sediment							
Air							
Other media (specify)							

Explain the reasons for the above-listed sampling plan. Discuss statistical or geostatistical methodology(ies) which will be applied, if any, in the data collection process. Discuss any assumptions made in the statistical/geostatistical assessment, and how they will be met.

Not Applicable – Excavation not conducted as a response action. Therefore, confirmation sampling is not applicable.

[1] Specify either a specific COC or type of COC (such as VOCs, metals).
[2] Specify the sampling point to the degree it is known, (for example, MW-1, or near former boring #2).

Post-Response Action Care Associated Information: Attachments 5A-5C	RAP Worksheet 5.0 Page _1_ of _2_ ID No.: SWR# 30573	Report date: June 28, 2024

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) *30* years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

Refer to the 2007 RAP.

What is the foreseeable land use during the post-response action care period? _____

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

The facility will continue to operate as an industrial property for the foreseeable future. A deed notice documenting the PMZ and groundwater use restrictions will be filed in the county property records. Ongoing operation of the facility is not anticipated to interfere with the monitoring program or pose a threat to human health or the environment as a result of potential exposures to COCs in the PCLE zone.

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

Post-response action care (PRAC) activities will consist of the following:

1. *Perform groundwater monitoring of the PMZ monitoring wells for COCs specified in Worksheet 2.1.*
2. *Compare concentration results of monitoring events to AALs listed in Worksheet 2.1 and calculated Tier 2 PCLs for the groundwater to air exposure pathway.*
3. *Note any other significant observations from monitoring events that could be indicative of an increase in plume size or concentration or migration that could result in exposure to COCs.*
4. *Assess the effectiveness of the monitoring program, taking into account updated groundwater flow and concentration data obtained from semi-annual sampling events, to determine whether any revisions to the groundwater sampling program (e.g. additional/fewer COCs or wells to be monitored, or increased/decreased sampling frequency) are recommended.*
5. *Operate and maintain recovery system to ensure capture is occurring in southeast corner of the West Plant by inspecting system and measuring groundwater recovery volumes on a weekly basis.*
6. *Verify that institutional controls remain effective (e.g. groundwater use restriction).*
7. *Provide recommendations regarding any additional activities needed to address any issues observed in items 1 to 5, including considerations of additional response actions if necessary.*
8. *Submit Post Response Action Care Reports (PRACR) to TCEQ documenting these activities.*

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? ____ Yes ____ No
If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies

Not Applicable per 30 TAC §350.33(f)(4)(F)(ii)(III)

Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? $ *Not Applicable*

What is the total estimated cost for a third party to perform PRAC activities? $

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

Not Applicable

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___ Yes X No
If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

Implementation Schedule	RAP Worksheet 6.0 Page _1_ of _1_	
	ID No.: SWR# 30573	Report Date: June 28, 2024

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	**Start**	**Finish**	**Duration**
File Institutional Control (Deed Notice) for PMZ	*Upon TCEQ approval of RAP Addendum*	*Within 180 Days of TCEQ approval of RAP Addendum*	*180 Days*
File Institutional Control (Deed Notice) for Industrial Land Use	*Upon TCEQ approval of RACR*	*Within 90 Days of TCEQ approval of RACR*	*90 Days*

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	**Submittal date**
Response Action Effectiveness Report (RAER)	
RAER submittal number 1	*Not Applicable*
RAER submittal number 2	
RAER submittal number 3	
Response Action Completion Report (RACR)	*Within 180 days of Completion of Response Action*
Post-Response Action Care Report (PRACR)	
PRACR submittal number 1	*Annually starting 1st year after RACR approval*
PRACR submittal number 2	
PRACR submittal number 3	

ATTACHMENT 1A

Maps and Cross Sections

- 1A-1 - Site Map
- 1A-2a - Groundwater Elevation Map - February 24, 2023
- 1A-2b - Groundwater Elevation Map – August 15, 2023
- 1A-3a – Contaminant Concentration Exceedances Map - February 24, 2023
- 1A-3b – Contaminant Concentration Exceedances Map - August 15, 2023
- 1A-4a - Extent of LNAPL Map – February 24, 2023
- 1A-4b - Extent of LNAPL Map - August 15, 2023

GULF RD.

WEST CHEMICAL PLANT

KINDER MORGAN WEST PLANT

NORTH HOLDING BASIN

BUFFALO BAYOU

(HOUSTON SHIP CHANNEL)

MW-10 MW-09 MW-19 MW-2 MW-04 MW-15 MW-11 MW-01 MW-12 MW-05 MW-06 MW-07 MW-08 MW-14 MW-13 MW-3 MW-4 MW-34 MW-33 P-1 VMW-2 VMW-1 VMW-3 MW-32 VMW-6 VMW-8 MW-31 VMW-7 MW-30 MW-40 MW-38 MW-22 RW-2 RW-1 OB-1 RW-25R RW-39 OB-2 MW-23 OB-3 MW-18 MW-6 MW-35 VMW-4 VMW-9 MW-36 MW-37 MW-20 MW-25 MW-27 MW-26 MW-28 VMW-10 MW-29 P-2 P-3

100-6 100-5 144-1 187-1 100-2 80-18 80-17 80-15 80-14 80-12 80-10 80-18 80-20 80-19 80-13 80-11 80-9 125-1 80-20 80-19 5-20 25-13 25-11 25-9 25-7 25-5 25-12 25-10 25-8 25-6 25-4 25-28 25-27 100-23 100-24 25-19 25-17 25-15 25-3 10-12 10-9 10-11 10-10 25-26 25-25 25-18 25-16 25-14 25-2 12-10 12-9 25-24 25-23 12-22 12-24 12-26 12-28 12-30 12-17 12-15 12-13 12-11 12-7 12-5 12-3 12-1 25-22 25-21 12-21 12-23 12-25 12-27 12-29 12-18 12-16 12-14 12-12 12-8 12-6 12-4 12-20 12-19

IMAGERY SOURCE: Google Earth (07/31/2015)

LEGEND

APPROXIMATE SITE BOUNDARY

MONITORING WELL LOCATION

N

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

SITE LAYOUT

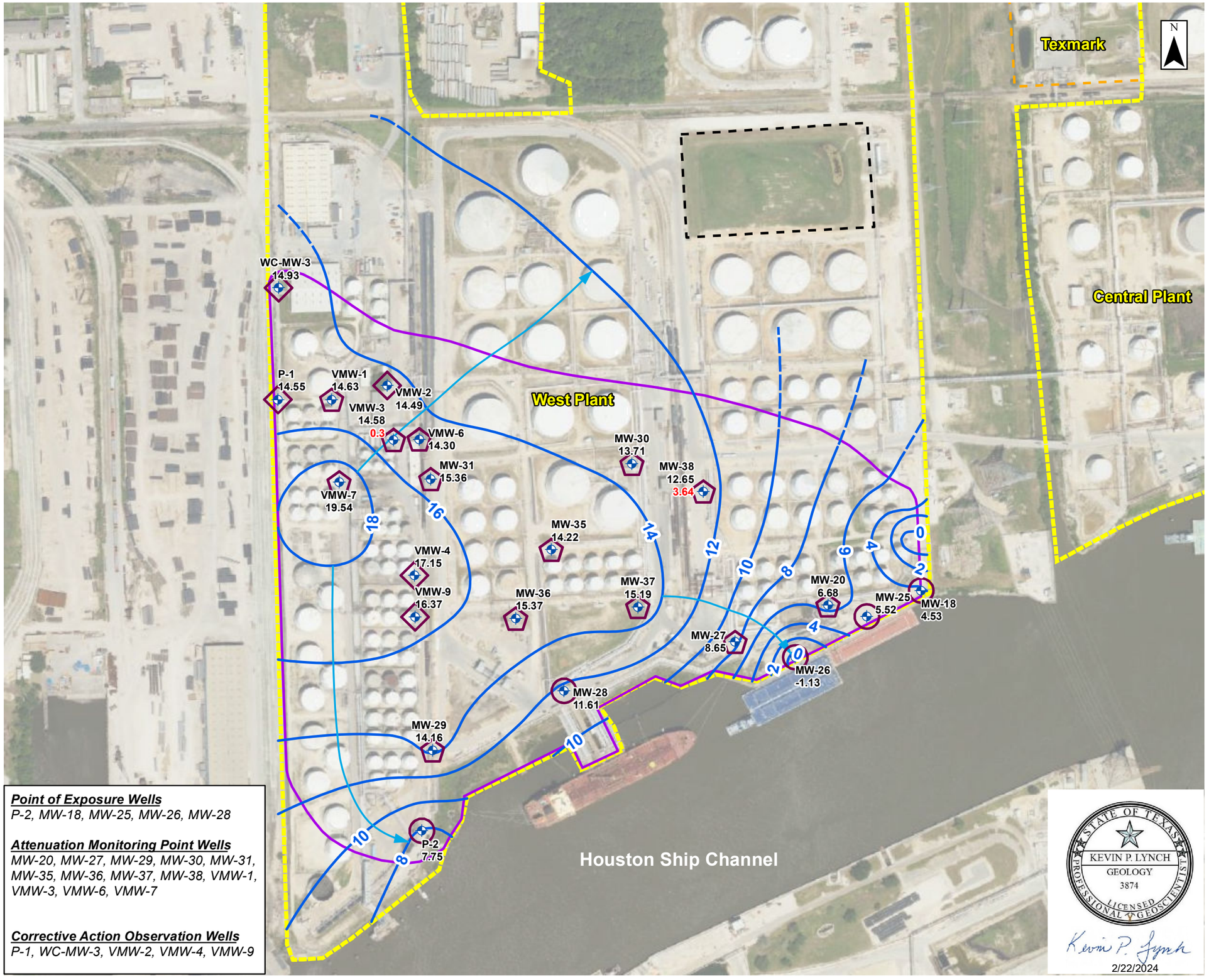
WEST PLANT - RAP ADDENDUM
GALENA PARK, TEXAS 77547

PROJECT NO.: 251331	R-BY: R.G.	DATE: June 2024	D-BY: O.F.

KINDER MORGAN INC. TETRA TECH

ATTACHMENT
1A-1

File No.: Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Groundwater Contour, 2ft. Contour Interval, Dashed where inferred
- 13.71 Groundwater Elevation (MSL)
- 2.26 Product Thickness (ft.)
- Groundwater Flow Direction
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:

1. Does not include compliance (CAMU) wells.

2. NM - Not Measured

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

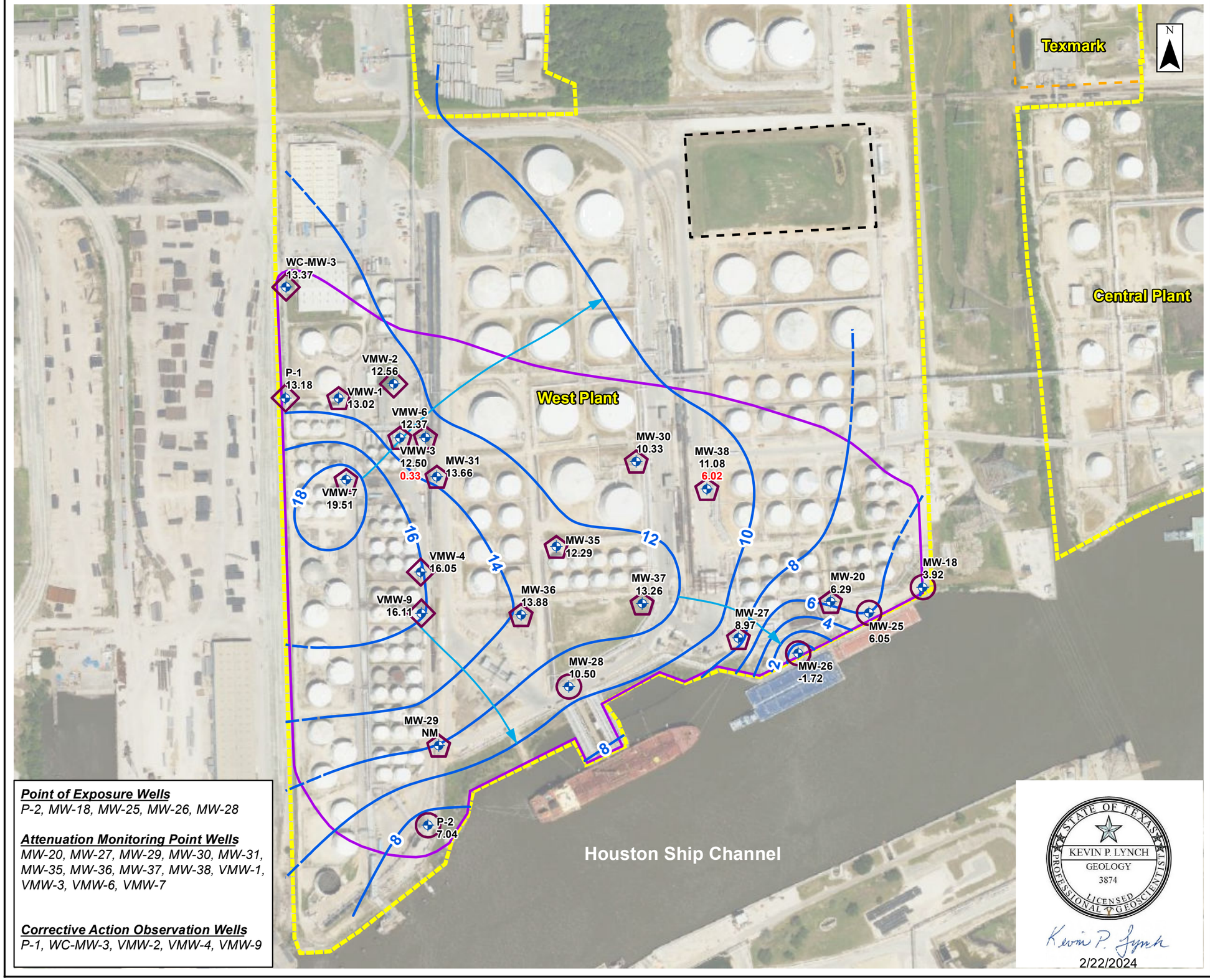
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
February 24, 2023
West Plant/WestChem

Project:
Kinder Morgan Liquids Terminals LLC
West Plant
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	2/27/2024	60699810 / 10a_WP_GW_Feb2023 / 1A-2a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\10a_WP_GW_Feb2023.mxd



Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Groundwater Contour 2ft. Contour Interval Dashed where inferred
- 14.92 Groundwater Elevation (MSL)
- 3.01 Product Thickness (ft.)
- Groundwater Flow Direction
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:
1. Does not include compliance (CAMU) wells.
2. NM - Not Measured
3. 17.83* - Groundwater elevation not contoured.

0 300 600
Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

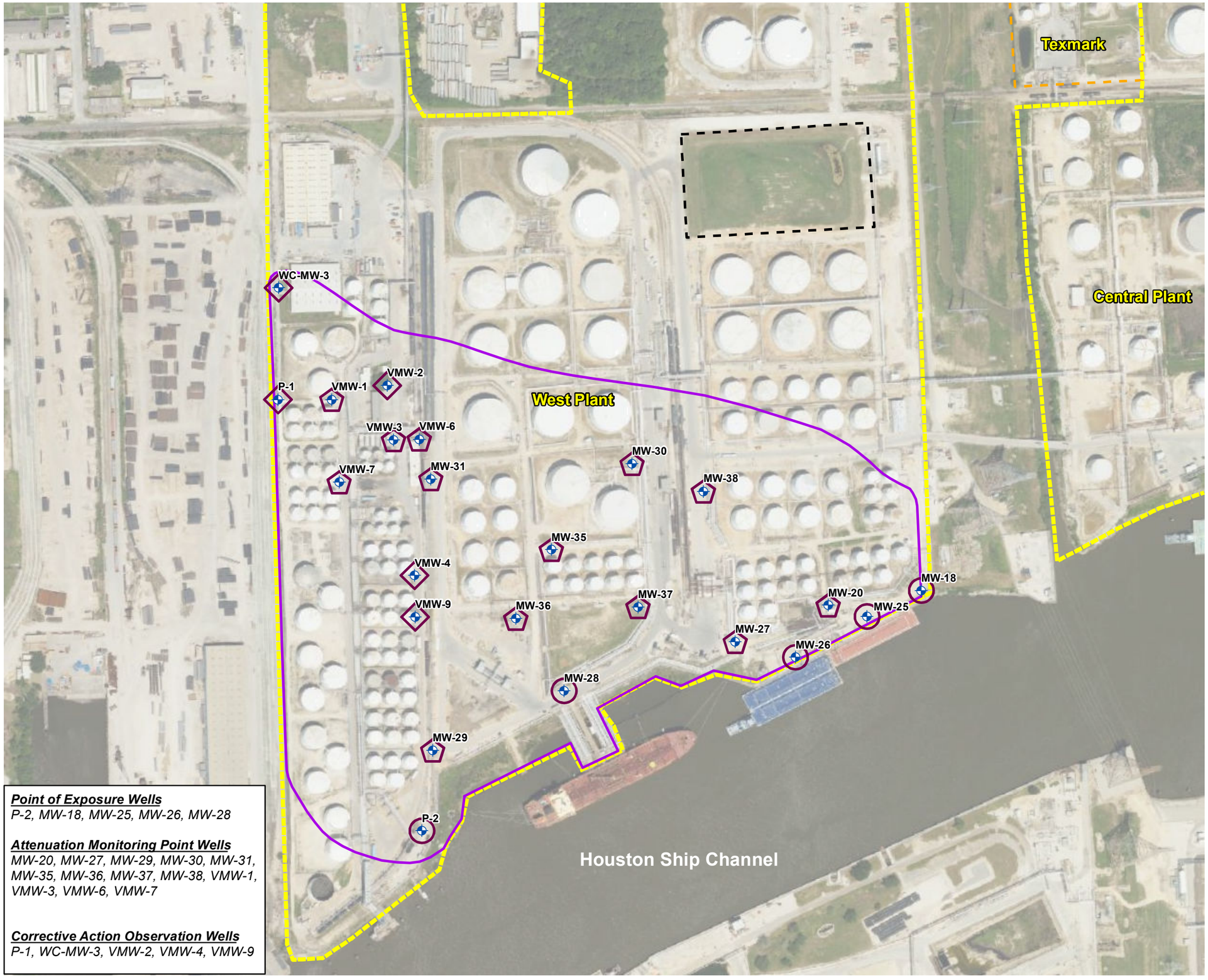
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map August 15, 2023 West Plant/WestChem**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/27/2024	60699810 / 10b_WP_GW_Aug2023 / 1A-2b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\10b_WP_GW_Aug2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:
No COCs exceeded their applicable groundwater protection standards.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

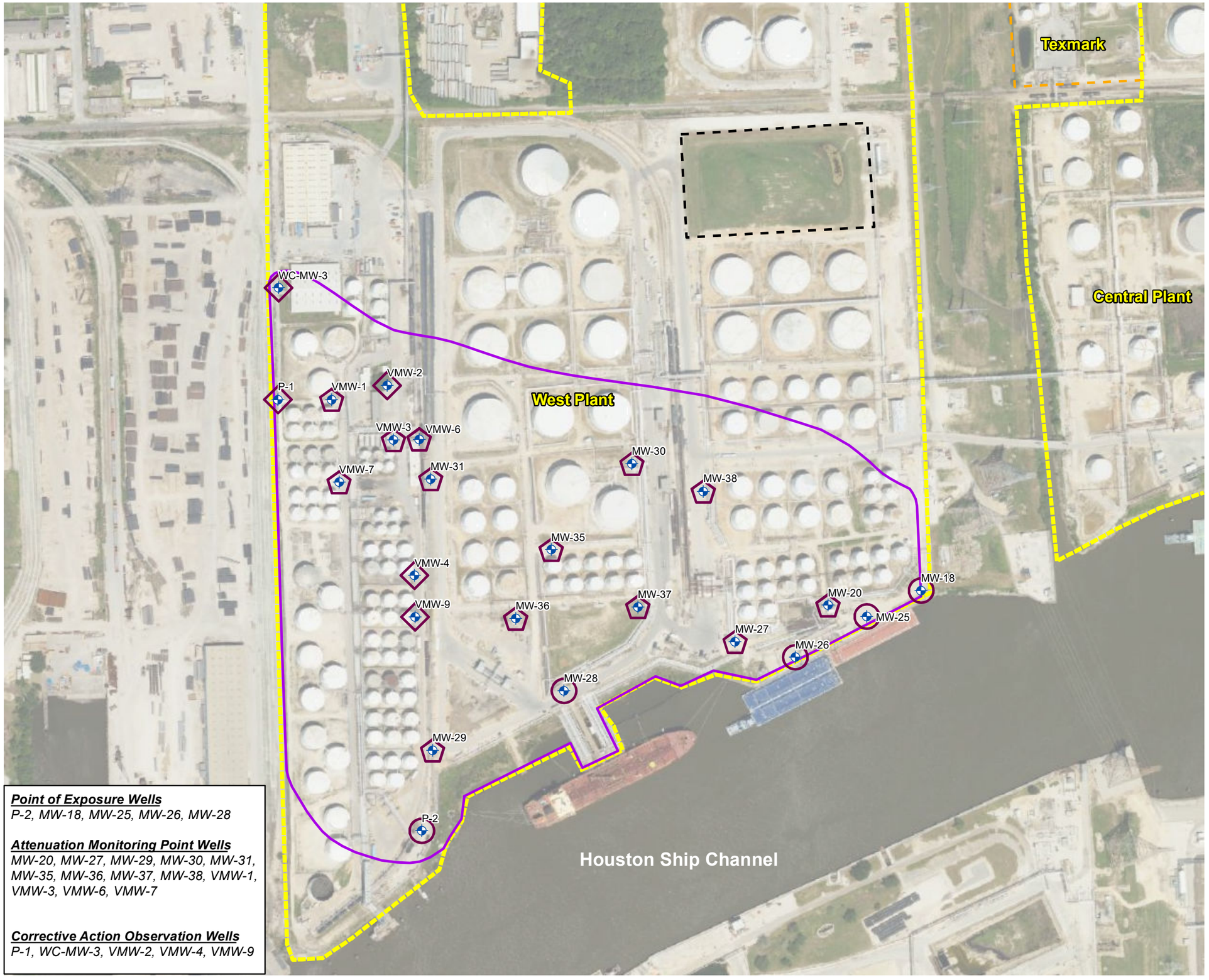
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map February 24, 2023 West Plant/WestChem**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/27/2024	60699810	18a_WP_COC_Feb2023	1A-3a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\18a_WP_COC_Feb2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:
No COCs exceeded their applicable groundwater protection standards.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

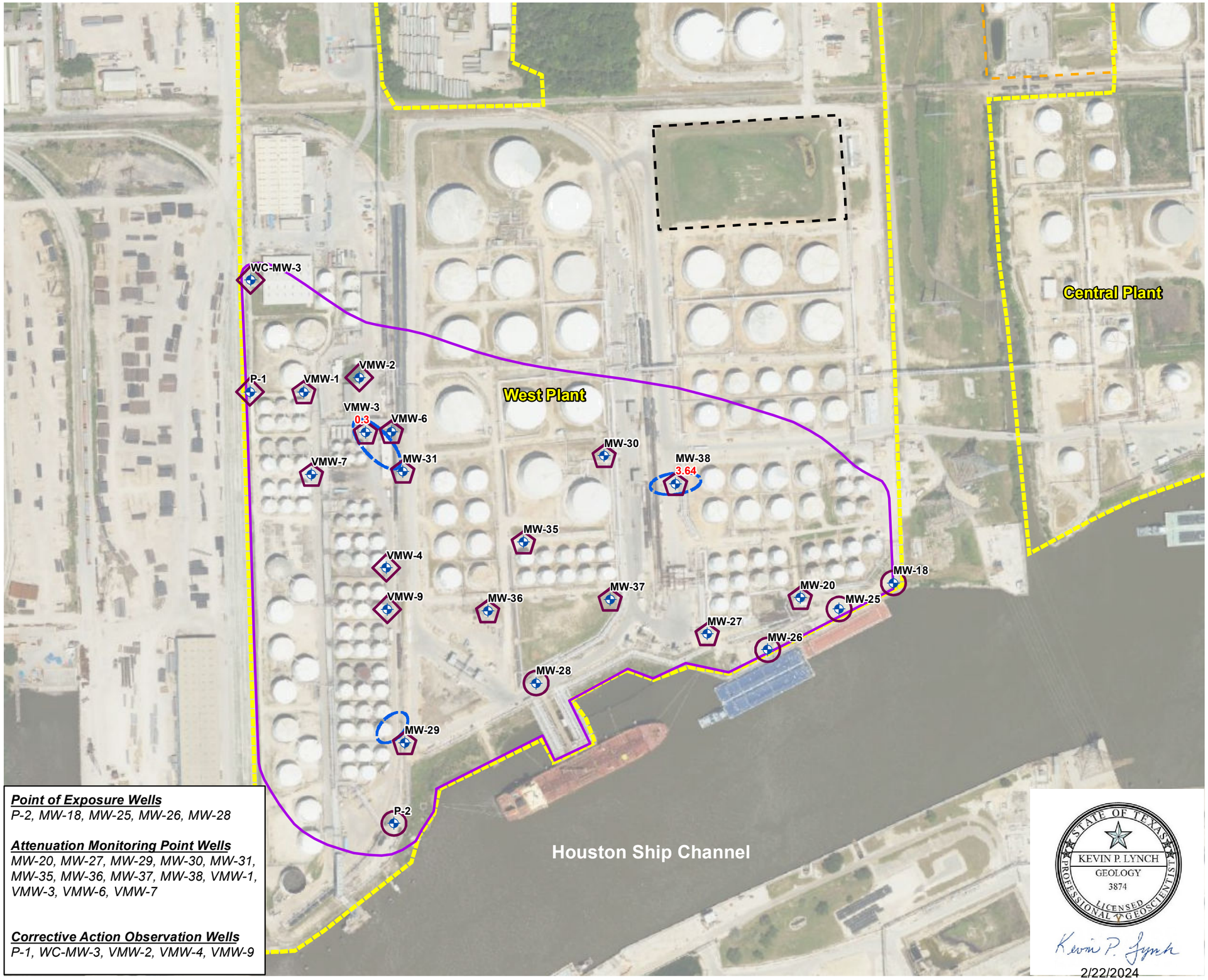
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map August 15, 2023 West Plant/WestChem

Project:
Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/27/2024	60699810	18b_WP_COC_Aug2023	1A-3b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\18b_WP_COC_Aug2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Approximate Extent of LNAPL
- Plume Management Zone
- KM Liquids Terminal LLC Property Boundary
- Texmark Boundary
- 2.26 Product Thickness (ft.)

Notes:

1. Does not include compliance (CAMU) wells.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

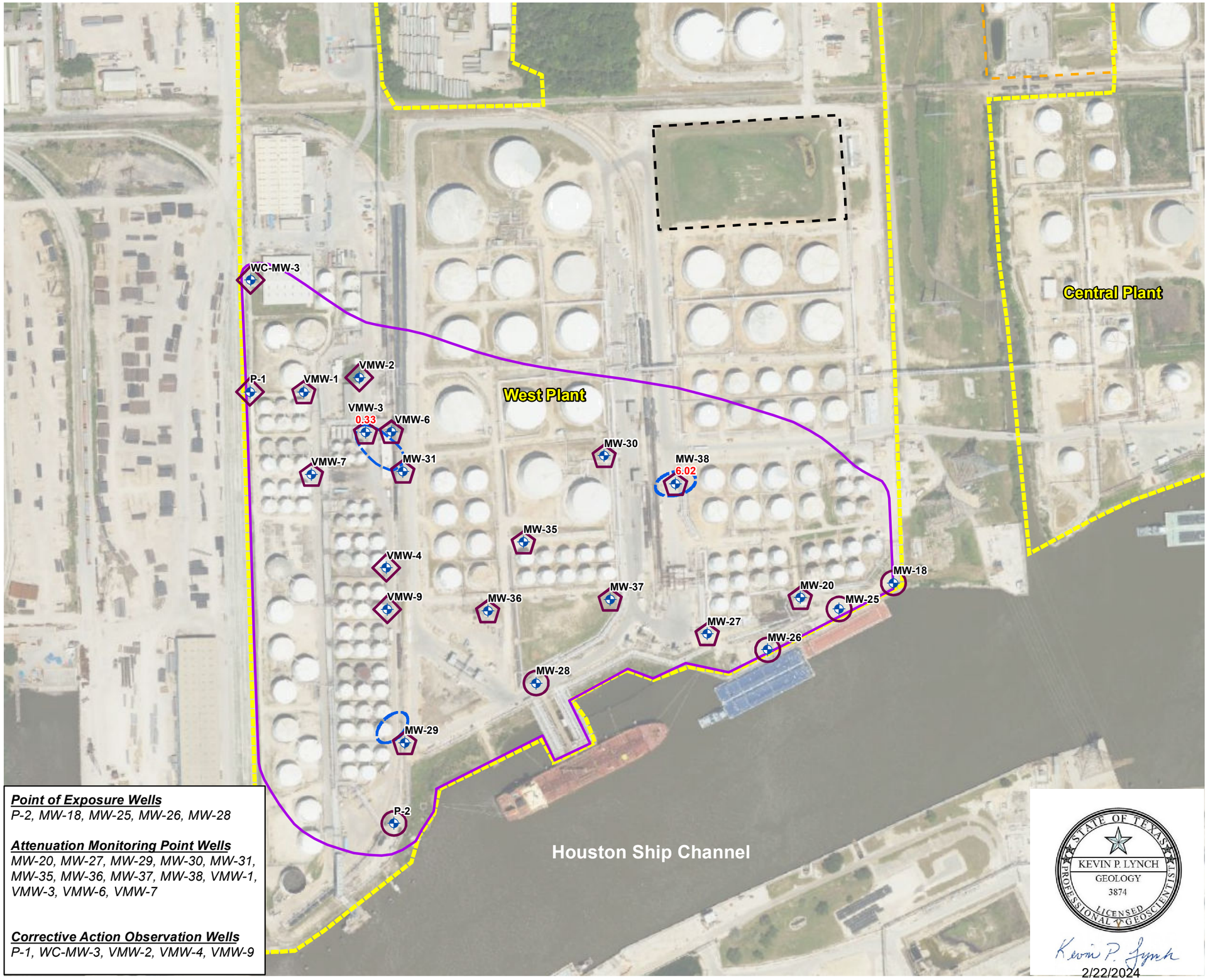
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map February 24, 2023 West Plant/WestChem**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 2/27/2024	Project No: 60699810 / File Name: 23a_WP_LNAPL_Feb2023 / Figure: 1A-4a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\23a_WP_LNAPL_Feb2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Approximate Extent of LNAPL
- Plume Management Zone
- KM Liquids Terminal LLC Property Boundary
- Texmark Boundary

6.02 Product Thickness (ft.)

Notes:

1. Does not include compliance (CAMU) wells.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map August 15, 2023 West Plant/WestChem**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/27/2024	60699810 / 23b_WP_LNAPL_Aug2023 / **1A-4b**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\23b_WP_LNAPL_Aug2023.mxd

ATTACHMENT 2A

Response Action Diagrams & Component/Equipment Descriptions

- 2A-1 – Recovery System Layout – Final Piping
- 2A-1a – Piping and Details – Plan A
- 2A-1b – Piping and Details – Plan B
- 2A-1c – Piping and Details – Plan C



NORTH

0 65 130

APPROXIMATE SCALE IN FEET

LEGEND

- MONITOR WELL PLUGGED AND ABANDONED
- WELL DESTROYED
- MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- OBSERVATION WELL LOCATION
- AIR LINE (0.5-Inch Galvanized Pipe)
- DISCHARGE LINE (1.5-Inch Carbon Steel)
- TRENCH
- DISCHARGE LOCATION
- AIR INTAKE LOCATION
- ELEVATION SECTION CUTS (See Attachments 2A-2a, 2A-2b, and 2A-2c)

Source:

HGAC Digital Imagery 2012
NAD 83 Texas State Plane, South Central Zone, US Feet

KINDER MORGAN INC.
TETRA TECH

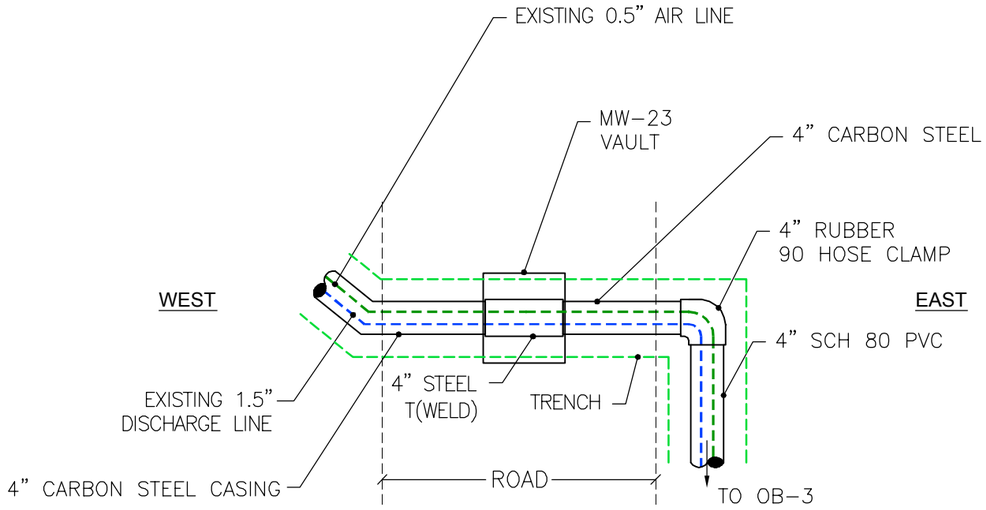
Title: **Recovery System Layout Final Piping**

Project: WEST PLANT - RAP ADDENDUM
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

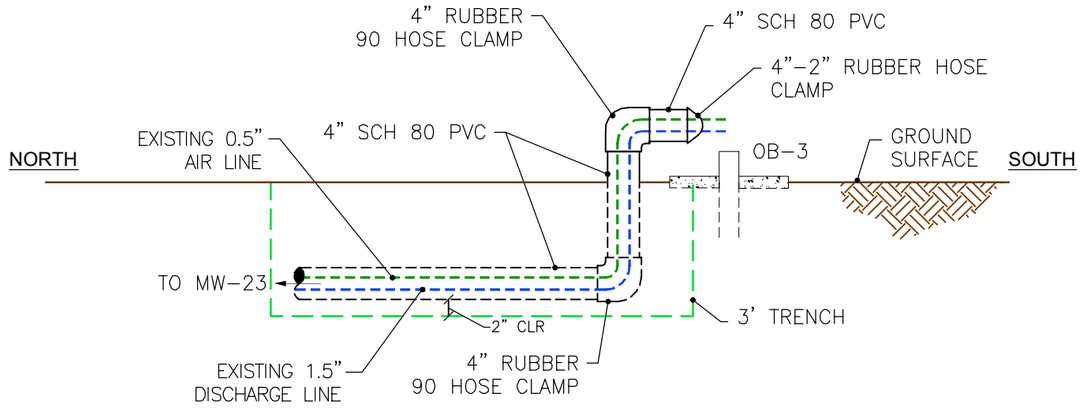
Client: **KMLT**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	JA/CLK	5-14-13	25015232	Recovery System Final Piping.dwg	**2A-1**
	Chk'd by: RP	Date: 5-14-13			

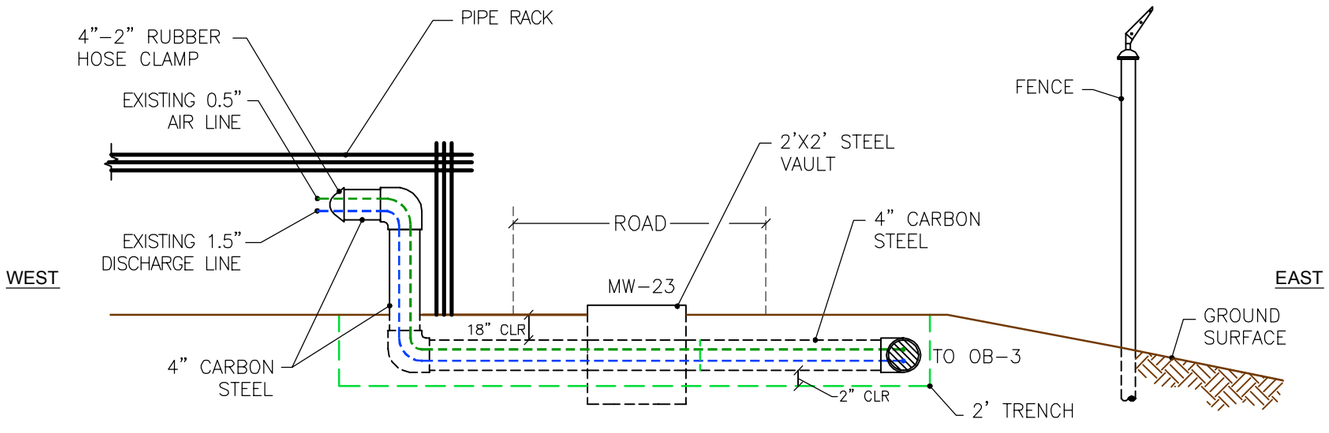
File: K:\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_West Plant Drawings\2012 RAP Addendum – Revised\Attach 2A-2 – Recovery System Layout.dwg Layout: Layout1 User: Susan_Forrest Plotted: May 14, 2013 – 3:01pm



PLAN VIEW A



ELEVATION A-2



ELEVATION A-1

KINDER MORGAN INC.

TETRA TECH

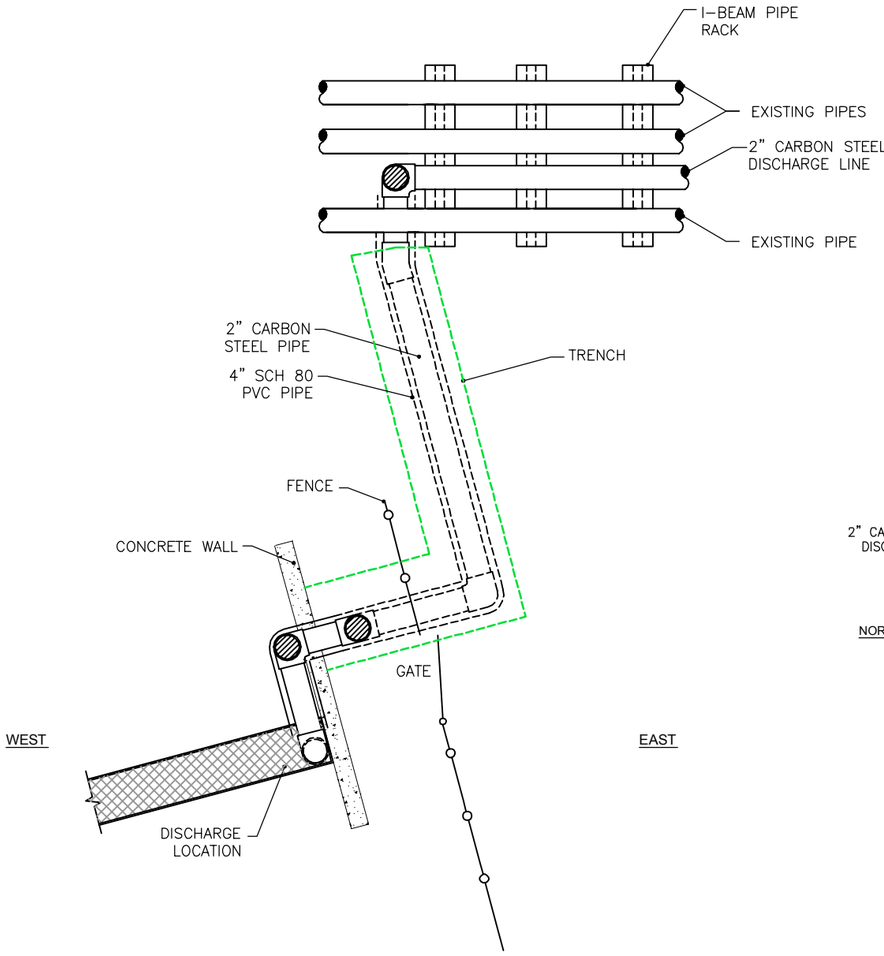
Title: **Piping and Details Plan A**

Project: WEST PLANT - RAP ADDENDUM
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

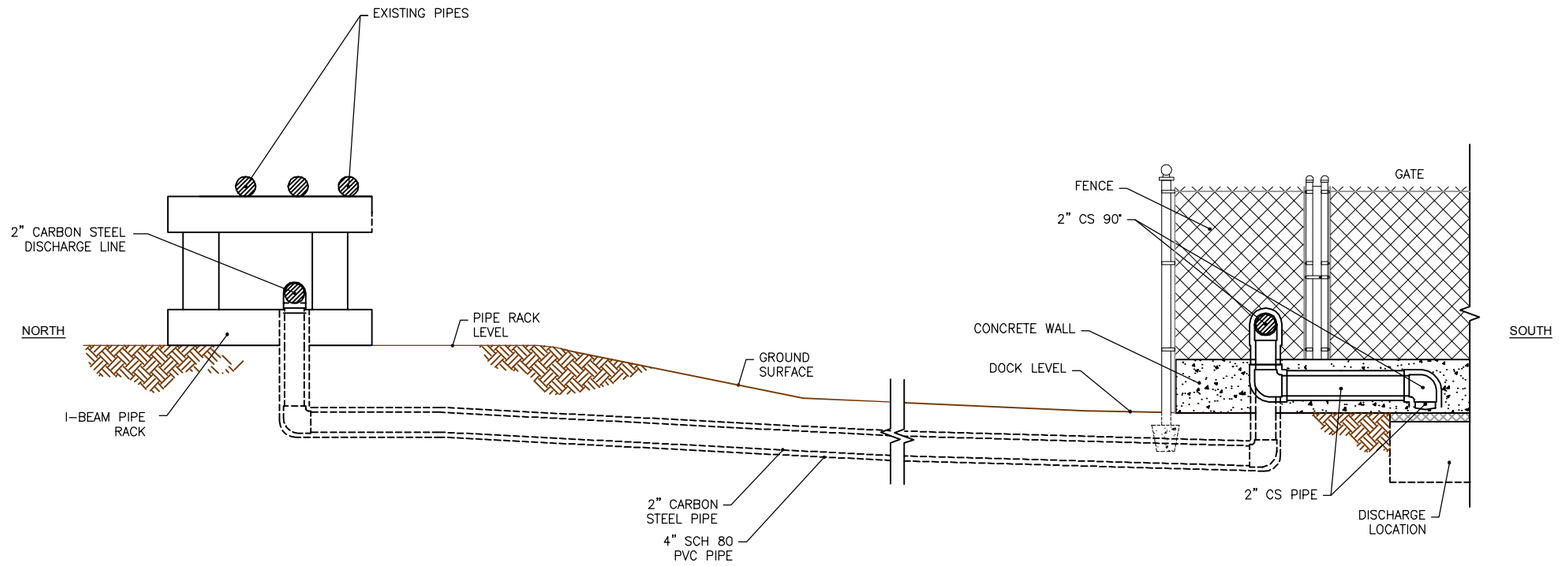
Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
NOT TO SCALE	CLK	01-17-13	25013692	Piping and Details - Plan A.dwg	**2A-1a**
	Chk'd by: JA/JB	Date: 01-17-13			

File: K:\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_West Plant Drawings\2012 RAP Addendum\Attach 2A-2a - Piping and Details - A.dwg Layout: Layout1 User: Norris_Brown Plotted: Jan 17, 2013 - 4:03pm



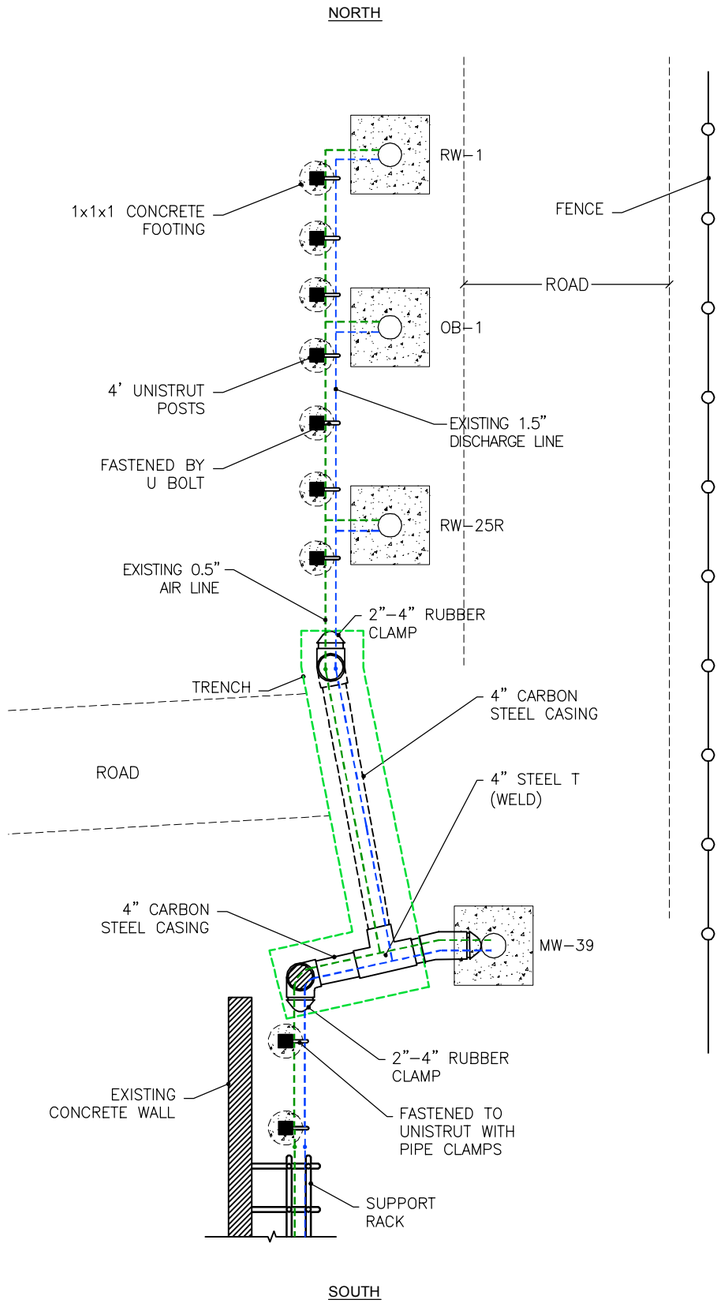
PLAN VIEW B



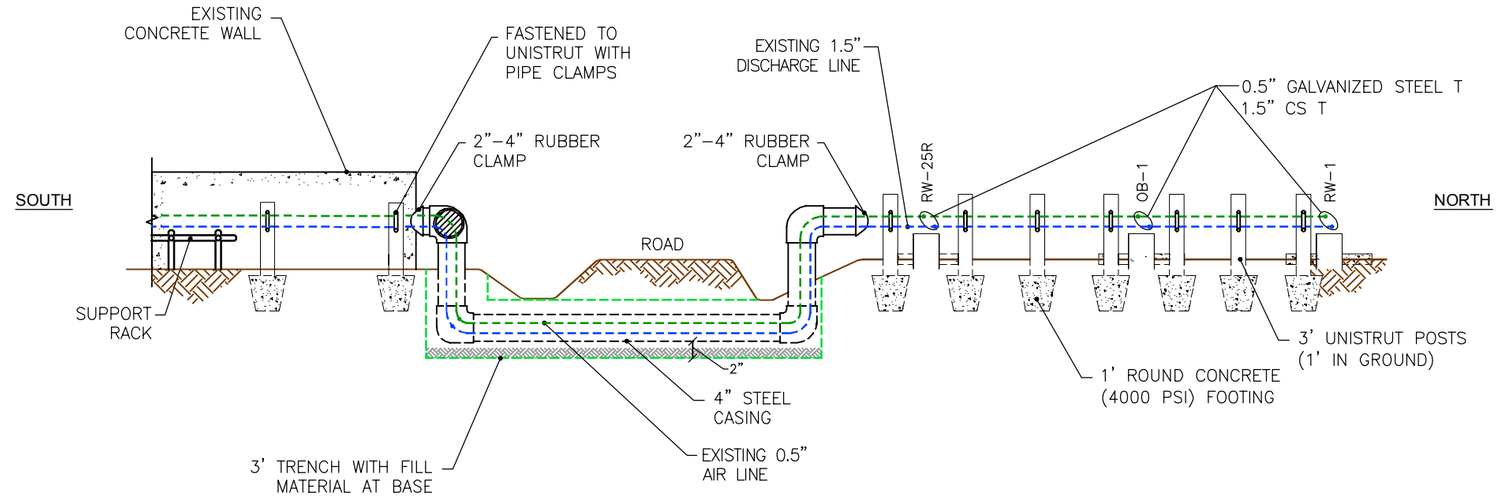
ELEVATION B-1

KINDER MORGAN INC. / TETRA TECH			Title: **Piping and Details Plan B**
			Project: WEST PLANT - RAP ADDENDUM KM LIQUIDS TERMINALS LLC GALENA PARK, TEXAS
			Client: KMLT
Scale: NOT TO SCALE	Drawn by: CLK	Date: 01-17-13	Project No.: 25013692
	Chk'd by: JA/JB	Date: 01-17-13	File Name: Piping and Details - Plan B.dwg
			Attachment: **2A-1b**

File: K:\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_West Plant Drawings\2012 RAP Addendum\Attach 2A-2b - Piping and Details - B.dwg Layout: Layout1 User: Norris_Brown Plotted: Jan 17, 2013 - 4:04pm



PLAN VIEW C



ELEVATION C-1

KINDER MORGAN INC.
TETRA TECH

Title: **Piping and Details Plan C**

Project: WEST PLANT - RAP ADDENDUM
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
NOT TO SCALE	CLK	01-17-13	25013692	Piping and Details - Plan C.dwg	**2A-1c**
	Chk'd by: JA/JB	Date: 01-17-13			

File: K:\ELM\25009736.KM.GalenaPark TX.08\Dwgs\CAD_West Plant Drawings\2012 RAP Addendum\Attach 2A-2c - Piping and Details - C.dwg Layout: Layout1 User: Norris_Brown Plotted: Jan 17, 2013 - 4:05pm

ATTACHMENT 2D

Plume Management Zone Map

11x17 --- ATTACHED XREF'S: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-1; AERIAL -WestPlant- FacilityLayout-2; KinderMorgan-LOGO; KM-WCP - MW Locations; West Plant PMZ (URS);
DRAWING NAME: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Class 3 Modification - 2018\Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg
Version: 2017-03-03

GULF RD.

WEST CHEMICAL PLANT

KINDER MORGAN WEST PLANT

NORTH HOLDING BASIN

BUFFALO BAYOU

(HOUSTON SHIP CHANNEL)

MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-18, MW-19, MW-20, MW-22, MW-23, MW-25, MW-26, MW-27, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34, MW-35, MW-36, MW-37, MW-38, MW-40

VMW-1, VMW-2, VMW-3, VMW-4, VMW-5, VMW-6, VMW-7, VMW-8, VMW-9, VMW-10

P-1, P-2, P-3

OB-1, OB-2, OB-3

RW-1, RW-2, RW-25R, RW-39

100-2, 100-5, 100-6, 100-23, 100-24, 125-1, 144-1, 187-1

80-9, 80-10, 80-11, 80-12, 80-13, 80-14, 80-15, 80-17, 80-18, 80-19, 80-20

5-20, 10-9, 10-10, 10-11, 10-12, 12-1, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 12-9, 12-10, 12-11, 12-12, 12-13, 12-14, 12-15, 12-16, 12-17, 12-18, 12-19, 12-20, 12-21, 12-22, 12-23, 12-24, 12-25, 12-26, 12-27, 12-28, 12-29, 12-30, 25-2, 25-3, 25-4, 25-5, 25-6, 25-7, 25-8, 25-9, 25-10, 25-11, 25-12, 25-13, 25-14, 25-15, 25-16, 25-17, 25-18, 25-19, 25-21, 25-22, 25-23, 25-24, 25-25, 25-26, 25-27, 25-28

IMAGERY SOURCE: Google Earth (07/31/2015)

STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL
- GROUNDWATER PCLE ZONE
- PLUME MANAGEMENT ZONE
- ATTENUATION MONITORING POINT
- OBSERVATION WELL
- POE WELL
- RECOVERY WELL
- UPGRADIENT WELL

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
1500 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
PLUME MANAGEMENT ZONE
(June 2024)

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. Gomez		
APPROVED BY:	R. Gomez		**ATTACHMENT 2D**
DATE:	June 2024		

KINDER MORGAN INC. | TETRA TECH

FILE NO.: Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg

ATTACHMENT 3A

Map of Monitoring and Sampling Points

11x17 --- ATTACHED XREF'S: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-1; AERIAL -WestPlant- FacilityLayout-2; KinderMorgan-LOGO; KM-WCP - MW Locations; West Plant PMZ (URS);
DRAWING NAME: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Class 3 Modification - 2018\Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg
Version: 2017-03-03

GULF RD.

WEST CHEMICAL PLANT

KINDER MORGAN WEST PLANT

NORTH HOLDING BASIN

(HOUSTON SHIP CHANNEL)

BUFFALO BAYOU

MW-01
MW-02
MW-03
MW-04
MW-05
MW-06
MW-07
MW-08
MW-09
MW-10
MW-11
MW-12
MW-13
MW-14
MW-15
MW-19
MW-20
MW-22
MW-23
MW-25
MW-26
MW-27
MW-28
MW-29
MW-30
MW-31
MW-32
MW-33
MW-34
MW-35
MW-36
MW-37
MW-38
MW-40
P-1
P-2
P-3
VMW-1
VMW-2
VMW-3
VMW-4
VMW-6
VMW-7
VMW-8
VMW-9
VMW-10
RW-1
RW-2
RW-25R
RW-39
OB-1
OB-2
OB-3

100-6 100-5 144-1 187-1 100-2 80-18 80-17 80-15 80-20 80-19 125-1 100-23 100-24 80-14 80-12 80-10 80-13 80-11 80-9 5-20 25-13 25-11 25-9 25-7 25-5 25-12 25-10 25-8 25-6 25-4 25-28 25-27 25-26 25-25 25-24 25-23 25-22 25-21 25-19 25-17 25-15 25-3 25-18 25-16 25-14 25-2 10-12 10-9 10-11 10-10 12-10 12-9 12-22 12-24 12-26 12-28 12-30 12-21 12-23 12-25 12-27 12-29 12-17 12-15 12-13 12-11 12-18 12-16 12-14 12-12 12-20 12-19 12-7 12-5 12-3 12-1 12-8 12-6 12-4

IMAGERY SOURCE: Google Earth (07/31/2015)

STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- PMZ MONITORING WELL
- RECOVERY/OBSERVATION WELL

N

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
1500 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
MAP OF MONITORING AND SAMPLING POINTS

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. GOmez		
APPROVED BY:	R. Gomez		**ATTACHMENT 3A**
DATE:	June 2024		

KINDER MORGAN INC. TETRA TECH

FILE NO.: Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg

ATTACHMENT 4A

Map of Confirmation Sampling Points

11x17 --- ATTACHED XREF'S: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-1; AERIAL -WestPlant- FacilityLayout-2; KinderMorgan-LOGO; KM-WCP - MW Locations; West Plant PMZ (URS);
DRAWING NAME: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Class 3 Modification - 2018\Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg
Version: 2017-03-03

GULF RD.

WEST CHEMICAL PLANT

KINDER MORGAN WEST PLANT

NORTH HOLDING BASIN

BUFFALO BAYOU

(HOUSTON SHIP CHANNEL)

MW-10 MW-09 MW-19 MW-2 MW-04 MW-15 MW-11 MW-01 MW-12 MW-05 MW-06 MW-3 MW-08 MW-07 MW-4 MW-14 MW-34 MW-13 P-1 VMW-2 MW-33 VMW-1 VMW-3 MW-32 VMW-6 VMW-8 MW-30 MW-31 MW-40 RW-2 VMW-7 MW-38 RW-1 MW-6 OB-1 MW-35 RW-25R RW-39 OB-2 VMW-4 MW-23 OB-3 VMW-9 MW-18 MW-37 MW-20 MW-36 MW-25 MW-27 MW-26 MW-28 VMW-10 MW-29 P-2 P-3

100-6 100-5 144-1 187-1 100-2 80-18 80-17 80-15 80-14 80-12 80-10 80-18 80-20 80-19 80-13 80-11 80-9 125-1 80-20 80-19 5-20 25-13 25-11 25-9 25-7 25-5 25-12 25-10 25-8 25-6 25-4 25-28 25-27 100-23 100-24 25-19 25-17 25-15 25-3 10-12 10-9 10-11 10-10 25-26 25-25 25-18 25-16 25-14 25-2 12-10 12-9 25-24 25-23 12-22 12-24 12-26 12-28 12-30 12-7 12-5 12-3 12-1 12-17 12-15 12-13 12-11 12-21 12-23 12-25 12-27 12-29 25-22 25-21 12-8 12-6 12-4 12-18 12-16 12-14 12-12 12-20 12-19

IMAGERY SOURCE: Google Earth (07/31/2015)

STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- PMZ MONITORING WELL
- RECOVERY/OBSERVATION WELL

N

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
1500 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
MAP OF CONFIRMATION SAMPLING POINTS

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. Gomez		
APPROVED BY:	R. Gomez		**ATTACHMENT 4A**
DATE:	June 2024		

KINDER MORGAN INC. TETRA TECH

FILE NO.: Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg

ATTACHMENT 5A

Map of PRAC Monitoring and Sampling Points

11x17 --- ATTACHED XREF'S: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-1; AERIAL -WestPlant- FacilityLayout-2; KinderMorgan-LOGO; KM-WCP - MW Locations; West Plant PMZ (URS);
DRAWING NAME: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Class 3 Modification - 2018\Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg

Version: 2017-03-03

GULF RD.

WEST CHEMICAL PLANT

KINDER MORGAN WEST PLANT

NORTH HOLDING BASIN

BUFFALO BAYOU

(HOUSTON SHIP CHANNEL)

MW-10 MW-09 MW-19 MW-2 MW-04 MW-15 MW-11 MW-01 MW-12 MW-05 MW-06 MW-3 MW-08 MW-07 MW-4 MW-14 MW-34 MW-13 P-1 VMW-1 VMW-2 MW-33 VMW-3 MW-32 VMW-6 VMW-8 MW-31 MW-30 VMW-7 MW-40 RW-2 RW-1 OB-1 RW-25R RW-39 OB-2 MW-23 OB-3 MW-6 MW-35 VMW-4 MW-18 VMW-9 MW-37 MW-20 MW-36 MW-25 MW-27 MW-26 MW-28 VMW-10 MW-29 P-2 P-3 MW-22 MW-38

100-6 100-5 144-1 187-1 100-2 80-18 80-17 80-15 80-14 80-12 80-10 80-18 80-20 80-19 80-13 80-11 80-9 125-1 80-20 80-19 25-13 25-11 25-9 25-7 25-5 5-20 25-12 25-10 25-8 25-6 25-4 25-28 25-27 100-23 100-24 25-19 25-17 25-15 25-3 10-12 10-9 10-11 10-10 25-26 25-25 25-18 25-16 25-14 25-2 12-10 12-9 25-24 25-23 12-22 12-24 12-26 12-28 12-30 12-7 12-5 12-3 12-1 12-17 12-15 12-13 12-11 12-21 12-23 12-25 12-27 12-29 25-22 25-21 12-8 12-6 12-4 12-18 12-16 12-14 12-12 12-20 12-19

IMAGERY SOURCE: Google Earth (07/31/2015)

STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- PMZ MONITORING WELL
- RECOVERY/OBSERVATION WELL

N

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
1500 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
MAP OF FRAC MONITORING AND SAMPLING POINTS

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. Gomez		
APPROVED BY:	R. Gomez		**ATTACHMENT 5A**
DATE:	June 2024		

KINDER MORGAN INC.

TETRA TECH

FILE NO.: Figures Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg

Appendix 1

References

APPENDIX 1

REFERENCES

Arcadis. 2004. Affected Property Assessment Report, Kinder Morgan Terminals, LLC, Galena Park, October 2004.

Environmental Protection Agency (EPA). 1996. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. April 1996.

Severn Trent Laboratories (STL). 2005. Analytical data collected by Arcadis on behalf of Kinder Morgan. Laboratory Job Number 290020. March 17, 2005.

The Loper Group, Inc. (Loper Group). 2008. Well Abandonment and Plugging Report, CenterPoint Right-of-Way Alkylate Remediation System. September 2008.

Texas Commission on Environmental Quality (TCEQ). 2008. Letter regarding Request for No Further Action, “Alkylate Remediation System”, dated September 18, 2007, Kinder Morgan Liquids Terminal (KMLT), LLC. July 11, 2008.

Texas Risk Reduction Rules. 30 Texas Administrative Code (TAC), Chapter 335, Subchapter S.

URS. 2007. Response Action Plan, West Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas. July 20, 2007.

URS. 2013. Response Action Plan Addendum, West Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas. September 6, 2013.

TRC. 2017. Response Action Plan Addendum, West Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas. October 27, 2017.

AECOM, 2024. Annual Corrective Action Program Report, North Holding & Southeast Holding Basins, Texmark Chemical Group Waste Management Area (WMA), Group W3 [West Plant WMA Plume Management Zone (PMZ)/West Chemical Area of Concern (AOC)], Old Pump House No. 5 AOC and Gate 6 AOC, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas. February 28, 2024.

APPENDIX 2

Data Tables and Boring Logs

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area			**West Plant**																													
			POE Wells																													
			MW-18																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 10-22-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-03-16		Sampled 08-12-16		Sampled 02-02-17		Sampled 08-23-17		Sampled 02-05-18		Sampled 08-02-18		Sampled 2/12/19		Sampled 8/23/19		Sampled 02-07-20		Sampled 08-03-20	
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0028	U	0.0372	J	0.0058	U	0.00232	U	0.000116	U	0.000116	U	0.0116	U	0.0058	U	0.0058	U	0.0058	U	0.00580	U	0.0058	U	0.00580	U
Benzene	1470	**mg/L**	1.14		1.37		3.50		2.15		2.1		1.84		1.54		0.731		0.758		0.149		0.324		0.0681		0.0991	
Chlorobenzene	2190	**mg/L**	0.0024	U	0.025	U	0.00925	U	0.0037	U	0.000185	U*	0.000185	U	0.0185	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0012	U	0.025	U	0.00785	U	0.00314	U	0.000157	U	0.000157	U	0.0157	U	0.00785	U	0.00785	U	0.00785	U	0.00785	U	0.00785	U	0.00785	U
Ethylbenzene	5180	**mg/L**	0.548		0.259		0.607		0.33		0.396		0.528		0.49		0.391		0.58		0.115		0.507		0.105		0.0823	
Isopropylbenzene	4890	**mg/L**	0.0557		0.0356J		0.0640		0.0412		0.0413	*	0.0537		0.0496	J	0.0865		0.0494	J	0.0342	J	0.0827		0.0264	J	0.0496	J
Tetrachloroethylene	4470	**mg/L**	0.0026	U	0.029	U	0.0167	U	0.00666	U	0.000333	U*	0.000333	U	0.0333	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U
Trichloroethylene	8490	**mg/L**	0.0036	U	0.025	U	0.0069	U	0.00276	U	0.000138	U	0.000138	U	0.0138	U	0.0069	U	0.0069	U	0.0069	U	0.00690	U	0.0069	U	0.0069	U
Vinyl chloride	5760	**mg/L**	0.0022	U	0.025	U	0.0124	U	0.00496	U	0.000248	U	0.000248	U	0.0248	U	0.0124	U	0.0124	U	0.0124	U	0.0124	U	0.0124	U	0.0124	U
Xylene (Total)	17700	**mg/L**	10.3		6.16		12.0		7.51		10.6		9.97		13.1		9.01		14.1		5.54		15.5		6.15		6.22	
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00064		0.00180	U	0.000188	UH	0.00180	U	0.0036	U	0.000447	J	0.0036	UH	0.00018	U *	0.000595	J	0.00180	U	0.00180	U	0.0036		0.000180	U

Notes:
Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{ow}GW_{Ing}$)
GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits
- - Not reported
NS - Not sampled
F - RPD exceeded lab control limits.
U - Indicates the analyte was analyzed for but not detected.
Bold Italic - Exceeds GWPS
NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a
Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL
POE = Point of Exposure
AMP = Attenuation Monitoring Point
CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																											
			MW-18																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-22-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-03-16		Sampled 08-12-16		Sampled 08-12-16		Sampled 02-02-17			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.0285	U	0.01430	U	0.000285	U	0.00295	U	0.00118	U	0.0118	U	0.0028	U	0.05	U	0.0116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U		
Benzene	1470	**mg/L**	0.0214	U	0.0626		0.0176		0.0367		0.00402		0.0107	J	0.358		0.304		0.0838	J	0.037		0.105		0.107		0.122			
Chlorobenzene	2190	**mg/L**	0.0159	U	0.00795	U	0.000159	U	0.00265	U	0.00106	U	0.0106	U	0.0024	U	0.05	U	0.0185	U	0.000479	J	0.000457	J	0.0002	J *	0.000221	J		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0174	U	0.0087	U	0.000174	U	0.00357	U	0.00143	U	0.0143	U	0.0012	U	0.05	U	0.0157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U		
Ethylbenzene	5180	**mg/L**	2.85		0.0257	U	0.00447		0.00725		0.000822	U	0.00822	U	0.0854		0.0643J		0.0433		0.0781		0.0387		0.0424		0.0205			
Isopropylbenzene	4890	**mg/L**	0.0161	U	0.0321	J	0.0179		0.0159		0.00992		0.0123	U	14.6		12.7		14.3		14.3		11		11.2		6.24			
Tetrachloroethylene	4470	**mg/L**	0.05	U	0.025	U	0.000500	U	0.00401	U	0.001600	U	0.016	U	0.0026	U	0.058	U	0.0333	U	0.000333	U	0.000333	U	0.000333	U *	0.000333	U		
Trichloroethylene	8490	**mg/L**	0.0424	U	0.0212	U	0.000424	U	0.00396	U	0.00158	U	0.0158	U	0.0036	U	0.05	U	0.0138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	0.0234	U	0.0117	U	0.000234	U	0.00319	U	0.00128	U	0.0128	U	0.0022	U	0.05	U	0.0248	U	0.00399		0.00313		0.00272		0.0023			
Xylene (Total)	17700	**mg/L**	3.89		5.32		2.09		2.79		0.227		1.81		0.0052	U	0.06	U	0.0366	U	0.0451		0.00618		0.00912	*	0.0147			
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U	0.000278	U	0.000278	UJL	0.000278	U	0.000278	U	0.000278	U	0.00182		0.00157		0.00180	U	0.00218		0.00080	J	0.00178		0.00127	J		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																													
			MW-25																													
GWPS Achieved?			Yes		Yes		DUP-1		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-23-17		Sampled 02-07-18		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.00058	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.0143	U	0.000285	U	0.000285	U	0.0118	U	0.0148	U
Benzene	1470	**mg/L**	0.134		0.0437		0.0372		0.0361		0.00657	J	0.0595		0.0878		0.0201		0.0325	J	0.0466		0.0464		0.0174	J	0.0133	U
Chlorobenzene	2190	**mg/L**	0.000925	U	0.00536	J	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.00370	U	0.00795	U	0.00016	U	0.000159	U	0.0106	U	0.0133	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000785	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.0087	U	0.000174	U	0.000174	U	0.0143	U	0.0179	U
Ethylbenzene	5180	**mg/L**	0.00166	J	0.0105	J	0.00717	J	0.00896	J	0.00424	U	0.00424	U	0.0165	J	0.00424	U	0.00728	U	0.00645		0.00400		0.00822	U	0.0103	U
Isopropylbenzene	4890	**mg/L**	0.233		1.7		1.67		4.72		2.54		6.96		11.1		2.89		3.16	X	6.26		4.83	b	6.24		4.07	
Tetrachloroethylene	4470	**mg/L**	0.00167	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.025	U	0.0005	U	0.000500	U	0.016	U	0.0200	U
Trichloroethylene	8490	**mg/L**	0.00069	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.0212	U	0.000424	U	0.000424	U	0.0158	U	0.0198	U
Vinyl chloride	5760	**mg/L**	0.00124	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.0117	U	0.000234	U	0.000234	U	0.0128	U	0.0160	U
Xylene (Total)	17700	**mg/L**	0.00183	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00958	U	0.000554	J	0.00116	J	0.0248	U	0.031	U
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00139	J H	0.000196	U	0.000205	U	0.00224		0.000961	J	0.000759	J	0.00196	J	0.000549	J	0.00088	F	0.00115		0.000278	UJJ	0.00117	J	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tvw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																											
			MW-25	MW-28																										
GWPS Achieved?			Yes	Yes		Yes		Yes		Yes		DUP-1		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		
Analytes	GWPS	**Units**	Sampled 08-15-23	Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-04-16		Sampled 02-04-16		Sampled 08-12-16		Sampled 02-02-17		Sampled 08-22-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019	
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.0118 U	0.000227	J	0.001	U	0.000508	J	0.00232	U	0.00232	U	0.000116	U	0.00109		0.0029	U	0.000664	J	0.000621	J	0.000116	U	0.00232	U
Benzene	1470	**mg/L**	0.014 J	**0.104**		**0.199**		**0.0346**		0.026		0.0257		0.0108		0.0103		0.0453		0.00633		0.0336		1.49		0.247	
Chlorobenzene	2190	**mg/L**	0.0106 U	0.00012	U	0.001	U	0.000185	U	0.0037	U	0.0037	U	0.000185	U	0.000185	U	0.00463	U	0.000185	U	0.000185	U	0.000185	U	0.00370	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0143 U	0.000428	J	0.001	U	0.000392	J	0.00314	U	0.00314	U	0.000157	U	0.000407	J	0.00393	U	0.000255	J	0.000497	J	0.000157	U	0.00314	U
Ethylbenzene	5180	**mg/L**	0.00822 U	0.004		0.002	J	0.00135		0.0132	J	0.0131	J	0.00232		0.00265		0.00634	J	0.00122		0.000503	J	0.000299	J	0.08520	
Isopropylbenzene	4890	**mg/L**	3.23	0.119		0.106		0.107		0.137		0.119		0.063		0.081		0.101		0.107		0.0801		0.068300		0.06150	
Tetrachloroethylene	4470	**mg/L**	0.016 U	0.00013	U	0.00116	U	0.000333	U	0.00666	U	0.00666	U	0.000333	U	0.000333	U	0.00833	U	0.000333	U	0.000333	U	0.000333	U	0.00666	U
Trichloroethylene	8490	**mg/L**	0.0158 U	0.00018	U	0.001	U	0.000138	U	0.00276	U	0.00276	U	0.000138	U	0.000138	U	0.00345	U	0.000138	U	0.000138	U	0.000138	U	0.00276	U
Vinyl chloride	5760	**mg/L**	0.0128 U	0.000338	J	0.001	U	0.000248	U	0.00496	U	0.00496	U	0.000248	U	0.000248	U	0.0062	U	0.000248	U	0.000248	U*	0.000248	U	0.00496	U
Xylene (Total)	17700	**mg/L**	0.0248 U	0.0472		0.397		0.368		0.815		0.821		0.399		0.39		2.87		0.213		0.0486		0.003490		1.26000	
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00278 U	0.000146	U	0.00018	U	0.00018	U	0.00018	U	0.00180	U	0.000173	U	0.00018	U	0.00018	UH	0.000205	U	0.000208	J	0.00018	U	0.00180	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE wells																											
			MW-28																		MW-26									
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-04-16		Sampled 08-12-16			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.000653	J	0.000395	J	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059 U		0.000145	J	0.0005	U	0.000116	U	0.000116	U	0.000116	U		
Benzene	1470	**mg/L**	0.288		0.000410	J	0.00167		0.000392	J	0.118		0.0857		0.0032		0.00066 J		**0.0142**		**0.0160**		**0.00983**		0.00558		0.00313			
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053 U		0.00012	U	0.0005	U	0.000185	U	0.000185	U	0.000185	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000611	J	0.000227	J	0.000174	U	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714 U		0.000532	J	0.000975	J	0.000888	J	0.000939	J	0.000157	U		
Ethylbenzene	5180	**mg/L**	0.002600		0.000212	U	0.0391		0.000515	U	0.0616		0.000913	J	0.00041	U	0.000411 U		0.000438	J	0.0005	U	0.000212	U	0.000212	U	0.000212	U		
Isopropylbenzene	4890	**mg/L**	0.073500		0.0344		0.0829		0.0312		0.0686		0.0541		0.0395		0.0257		0.00274		0.00327		0.00259		0.00706		0.00265			
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U	0.000801	U	0.000801 U		0.00013	U	0.00058	U	0.000333	U	0.000333	U	0.000333	U		
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791 U		0.00018	U	0.0005	U	0.000138	U	0.000138	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638 U		0.00011	U	0.0005	U	0.000248	U	0.000248	U	0.000248	U		
Xylene (Total)	17700	**mg/L**	0.275000		0.00385		0.0489		0.00372	J	0.648		0.0254		0.0102		0.00874 J		0.00112	J	0.0016	U	0.000366	U	0.000366	U	0.000366	U		
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00180	U	0.000180	U	0.0004	J	0.000267	U	0.000278	UJL	0.000278	UJL	0.00028	U	0.000278 U		**0.00305**		**0.00302**		**0.00253**		0.00258		0.00191			

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{c\text{-}w}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																											
			MW-26																											
GWPS Achieved?			Yes		Yes		Yes		Yes		DUP		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-02-17		Sampled 08-24-17		Sampled 02-08-18		Sampled 08-02-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019		Sampled 02-07-2020		Sampled 08-03-20		Sampled 02-07-2020		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22	
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.000189	J	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U
Benzene	1470	**mg/L**	0.00373		0.00203		0.0238		0.0431		0.0408		0.0502		0.00952		0.0155		0.00594		0.00665		0.00737		0.0175		0.0221	
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.00031	J	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000582	J	0.000274	J	0.000239	J	0.000196	J	0.000187	J	0.000157	U	0.000157	U	0.000157	U	0.000189	J	0.000174	U	0.000174	U	0.000181	J	0.000714	U
Ethylbenzene	5180	**mg/L**	0.000266	J	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.0003	J	0.000515	U	0.000515	U	0.000411	U
!sopropylbenzene	4890	**mg/L**	0.00526		0.00531		0.014		0.00413		0.00436		0.00793		0.000972	J	0.00918		0.00342		0.0112		0.00944		0.0132		0.00652	
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801	U
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U
Xylene (Total)	17700	**mg/L**	0.000605	J	0.000366	U	0.000738	J	0.000366	U	0.000366	U	0.00051	J	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.00033	U	0.00152	J	0.00124	U
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00271		0.00221		0.000196	U	0.00270		0.00143	J	0.00196		0.00238		0.00190		0.000173	U	0.0027		0.00162		0.00186	JL	0.00135	JL

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells				AMP Wells																											
			MW-26				MW-36																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-18-15		Sampled 08-11-15		Sampled 02-04-16		Sampled 08-09-16		Sampled 02-02-17		Sampled 08-22-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019							
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.00059	U	0.00059	U	0.00344		0.0005	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U				
Benzene	1470	**mg/L**	0.0417		0.0301		0.000181	J	0.00038	U	0.0113		0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U				
Chlorobenzene	2190	**mg/L**	0.00053	U	0.00053	U	0.00012	U	0.0005	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000714	U	0.000714	U	0.00103		0.0005	U	0.000188	J	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000193	J	0.000157	U	0.000157	U	0.000157	U				
Ethylbenzene	5180	**mg/L**	0.000411	U	0.000411	U	0.00011	U	0.00050	U	0.00815		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U				
Isopropylbenzene	4890	**mg/L**	0.0151		0.00558		0.00018	U	0.00053	U	0.0699		0.000241	U	0.000241	U	0.000344	J	0.000241	U *	0.000241	U	0.000241	U	0.000241	U	0.000241	U				
Tetrachloroethylene	4470	**mg/L**	0.000801	U	0.000801	U	0.00013	U	0.00058	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U				
Trichloroethylene	8490	**mg/L**	0.000791	U	0.000791	U	0.00018	U	0.00050	U	0.00014	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U				
Vinyl chloride	5760	**mg/L**	0.000638	U	0.000638	U	0.00011	U	0.0005	U	0.000248	U	0.000248	U	0.000539	J *	0.000248	U	0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U				
Xylene (Total)	17700	**mg/L**	0.00124	U	0.00124	U	0.00026	U	0.0006	U	0.0512		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U				
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00171	J	0.00257		0.000144	U	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000188	U	0.000173	UH	0.000180	U *	0.000180	U	0.000188	U	0.000188	U				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-36																						MW-30							
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-05-16							
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.000657	J	0.000741	J	0.000779	J	0.000116	U						
Benzene	1470	**mg/L**	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000533	U	0.000533	U	0.00046	U	0.00008	U	0.000706	J	0.000176	U	0.000176	U						
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.00012	U	0.0005	U	0.000185	U	0.000185	U						
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U	0.000714	U	0.000714	U	0.000714	U	0.00006	U	0.0005	U	0.000157	U	0.000157	U						
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.000411	U	0.000411	U	0.00011	U	0.0005	U	0.000212	U	0.000212	U						
Isopropylbenzene	4890	**mg/L**	0.000256	J	0.000547	J	0.000161	U	0.000161	U	0.000161	U	0.000613	U	0.000613	U	0.000613	U	0.00018	U	0.00053	U	0.000241	U	0.000241	U						
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.00013	U	0.00058	U	0.000333	U	0.000333	U						
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.000791	U	0.000791	U	0.00018	U	0.0005	U	0.000138	U	0.000138	U						
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.000638	U	0.000638	U	0.00011	U	0.0005	U	0.000248	U	0.000248	U						
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.000192	U	0.000330	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.00026	U	0.0006	U	0.000366	U	0.000366	U						
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000173	U	0.00029	U	0.000267	U	0.000278	UJL	0.000278	UJL	0.00111	U	0.000278	UJL	0.000146	U	0.000180	U	0.000188	UH	0.000180	U						

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{>w}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-30																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-09-16		Sampled 02-02-17		Sampled 08-22-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22	
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.000516	J	0.000886	J	0.000116	U	0.000636	J	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U
Benzene	1470	**mg/L**	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000533	U
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000252	J	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U	0.000714	U
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411	U
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000358	J	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613	U
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U
Vinyl chloride	5760	**mg/L**	0.000651	J *	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.00194		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.000330	U	0.000330	U	0.00124	U
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000188	U	0.000173	UH	0.000196	U	0.000180	U	0.000188	U	0.000180	U	0.000180	U	0.000180	U	0.000278	U	0.000278	U	0.000278	UJL	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																									
			MW-30		MW-37																							
GWPS Achieved?			Yes	Yes	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-24-23	Sampled 08-15-23	Sampled 10-23-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-04-16		Sampled 08-09-16		Sampled 02-02-17		Sampled 08-24-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 02-12-19	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.00059 U	0.00059 U	0.007	U	0.025	U	0.000535	J	0.00232	U	0.00058	J	0.00244		0.029	U	0.0058	U	0.0058	U	0.0058	U	0.0058	U
Benzene	1470	**mg/L**	0.00053 U	0.00046 U	0.0538		0.0192	J	0.0258		0.0094	J	0.157		0.174		0.044	U	0.0897		0.0586		0.0239	J	0.124	
Chlorobenzene	2190	**mg/L**	0.00053 U	0.00053 U	0.006	U	0.025	U	0.000185	U	0.0037	U	0.000185	U	0.000185	U	0.0463	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.00071 U	0.00071 U	17.8		4.56		13.90		1.89		19.7		27.4		5.95		6.4		5.36		1.21		10.4	
Ethylbenzene	5180	**mg/L**	0.00041 U	0.00041 U	0.021	J	0.025	U	0.000212	U	0.00424	U	0.000212	U	0.000212	U	0.053	U	0.0106	U	0.0106	U	0.0106	U	0.0106	U
Isopropylbenzene	4890	**mg/L**	0.00061 U	0.00061 U	0.033	J	0.027	U	0.000288	J	0.0102	J	0.00408		0.000992	J	0.0603	U	0.0217	J	0.0121	U	0.0121	U	0.0121	U
Tetrachloroethylene	4470	**mg/L**	0.000801 U	0.0008 U	0.0065	U	0.029	U	0.000333	U	0.00666	U	0.000333	U	0.000511	J	0.0833	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U
Trichloroethylene	8490	**mg/L**	0.00079 U	0.00079 U	0.009	U	0.025	U	0.000664	J	0.00276	U	0.00076	J	0.00268		0.0345	U	0.0069	U	0.0069	U	0.0069	U	0.0069	U
Vinyl chloride	5760	**mg/L**	0.00064 U	0.00064 U	11.9		5.52		10.5		2.86		19.5		10.9	*	5.13		7.41		5.67		4.03		12.7	
Xylene (Total)	17700	**mg/L**	0.001240 U	0.00124 U	0.0246	J	0.03	U	0.000366	U	0.00732	U	0.00307		0.00134		0.0915	U	0.0183	U	0.0183	U	0.0183	U	0.0183	U
SVOCs by 8270C LL:		**Units**																								
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00028 U	0.00028 U	0.000146	U	0.000180	U	0.000188	UH	0.000180	U	0.000173	U	0.000205	U	0.000180	U	0.000225	U	0.000180	U	0.000180	U	0.000188	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{Ing}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																											
			MW-37																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-04-16		Sampled 08-10-16			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.0058	U	0.00580	U	0.00285	U	0.00029	U	0.000285	U	0.059	U	0.00059	U	0.00059	U	0.007	U	0.1	U	0.0058	U	0.00232	U	0.000116	U		
Benzene	1470	**mg/L**	0.015	J	0.00880	U	0.0087	J	0.00690		0.0627		0.0841	J	0.00203		0.0497		19.8		26.0		19.7		20.8		26.3			
Chlorobenzene	2190	**mg/L**	0.00925	U	0.00925	U	0.00159	U	0.000159	U	0.000159	U	0.053	U	0.00053	U	0.00053	U	0.006	U	0.1	U	0.00925	U	0.0037	U	0.000185	U	*	
Dichloroethene, cis-1,2-	14200	**mg/L**	1.11		0.333		0.405		0.0866		6.86		5.99		0.116		3.84		0.003	U	0.1	U	0.0086	J	0.00314	U	0.000157	U		
Ethylbenzene	5180	**mg/L**	0.0106	U	0.0106	U	0.00146	U	0.000515	U	0.000515	U	0.0411	U	0.000411	U	0.0217		1.41		1.55		0.733		0.772		0.346			
Isopropylbenzene	4890	**mg/L**	0.0121	U	0.0121	U	0.00161	U	0.000161	U	0.000876	J	0.0613	U	0.000613	U	0.00249		0.027	J	0.106	U	0.019	J	0.0443		0.0113			
Tetrachloroethylene	4470	**mg/L**	0.0167	U	0.0167	U	0.005	U	0.0005	U	0.000507	J	0.0801	U	0.000801	U	0.000801	U	0.0065	U	0.116	U	0.0167	U	0.00666	U	0.000333	U	*	
Trichloroethylene	8490	**mg/L**	0.0069	U	0.00690	U	0.00424	U	0.00042	U	0.00115	J	0.0791	U	0.000791	U	0.000791	U	0.009	U	0.1	U	0.0069	U	0.00276	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	2.3		1.10		1.26		1.10		11.1		12.0		0.0913		5.9		0.0227	J	0.1	U	0.0254	J	0.0319	J	0.0274			
Xylene (Total)	17700	**mg/L**	0.0183	U	0.0183	U	0.00192	U	0.00033	U	0.00116	J	0.124	U	0.00124	U	0.0456		1.47		1.33		0.524		0.777		0.314			
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000173	U	0.00029	U	0.000278	U	0.000278	UJL	0.000278	UJL	0.000278	U	0.000278	U	0.000144	U	0.000180	U	0.000180	U	0.000180	U	0.000173	U		

Notes:
Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{Ing}$)
GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits
- - Not reported
NS - Not sampled
F - RPD exceeded lab control limits.
U - Indicates the analyte was analyzed for but not detected.
Bold Italic - Exceeds GWPS
NA - Not applicable
D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL
POE = Point of Exposure
AMP = Attenuation Monitoring Point
CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																															
			MW-37				MW-27																													
GWPS Achieved?			Yes		Yes		Yes		8/2/2018	Yes		DUP-2		Yes		DUP-1		Yes		DUP		Yes		DUP-1		Yes									
Analytes	GWPS	**Units**	Sampled 02-03-17		Sampled 08-23-17		Sampled 02-06-18		Well not found	Sampled 02-12-19		Sampled 02-12-19		Sampled 8-23-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 02-07-2020		Sampled 08-03-20		Sampled 08-03-20		Sampled 02-01-21									
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.0116	U	0.116	U	0.0116	U	NA	0.0116	U	0.00232	U	0.0116	U	0.0058	U	0.0116	U	0.00232	U	0.0116	U	0.0116	U	0.0285	U								
Benzene	1470	**mg/L**	35.8		34.1		34.1		NA	41.7		41		55.9		53.2		61.6		57.4		50.8		51.2		45.1	D							
Chlorobenzene	2190	**mg/L**	0.0185	U	0.185	U	0.0253	J	NA	0.0185	U	0.0037	U	0.0185	U	0.00925	U	0.0185	U	0.0037	U	0.0185	U	0.0185	U	0.0159	U								
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0257	J	0.157	U	0.0157	U	NA	0.0157	U	0.00314	U	0.0157	U	0.0179	J	0.0157	U	0.00314	U	0.0157	U	0.0157	U	0.0174	U								
Ethylbenzene	5180	**mg/L**	1.45		0.379	J	0.295		NA	0.583		0.709		1.49		1.47		1.58		1.51		1.93		1.43		1.24									
Isopropylbenzene	4890	**mg/L**	0.0409	J	0.241	U	0.0362	J	NA	0.0476	J	0.0182	J	0.0266	J	0.0241	J	0.0818	J	0.0333		0.0655	J	0.0241	U	0.027	J								
Tetrachloroethylene	4470	**mg/L**	0.0333	U	0.333	U	0.0333	U	NA	0.0333	U	0.00666	U	0.0333	U	0.0167	U	0.0333	U	0.00666	U	0.0333	U	0.0333	U	0.05	U								
Trichloroethylene	8490	**mg/L**	0.0138	U	0.138	U	0.0138	U	NA	0.0138	U	0.00276	U	0.0138	U	0.0069	U	0.0138	U	0.00276	U	0.0138	U	0.0138	U	0.0424	U								
Vinyl chloride	5760	**mg/L**	0.0635	J	0.248	U	0.0248	U	NA	0.0269	J	0.0236	J	0.0248	U	0.0124	U	0.0248	U	0.0229	J	0.0248	U	0.0248	U	0.0234	U								
Xylene (Total)	17700	**mg/L**	1.33		0.366	U	0.257		NA	0.519		0.628		1.38		1.36		1.49		1.38		1.75		1.51		1.04									
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000188	U	0.000180	UH	0.000180	U *	NA	0.000180	U	0.000173	U	0.000188	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.000316	U								

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{ing}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-27																										MW-38					
GWPS Achieved?			Yes		DUP-1		Yes		Yes		DUP-1		DUP-1		Yes		DUP-1		Yes		DUP-1		Yes		Yes		Yes					
Analytes	GWPS	**Units**	Sampled 08-13-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-15-23		Sampled 10-22-14		Duplicate 02-17-15		Sampled 02-17-15					
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0143	U	0.0285	U	0.000285	U	0.0295	U	0.000285	U	0.118	U	0.118	U	0.118	U	0.148	U	0.148	U	0.07	U	0.5	U	0.5	U				
Benzene	1470	**mg/L**	47.3		37.7		23.2		40.3		25.9		40.0		28.9		29.1		32.9		33.1		203		196		189					
Chlorobenzene	2190	**mg/L**	0.00795	U	0.0159	U	0.000159	U	0.0265	U	0.000159	U	0.106	U	0.106	U	0.106	U	0.133	U	0.133	U	0.06	U	0.5	U	0.5	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0087	U	0.0174	U	0.000410	J	0.0357	U	0.000432	J	0.143	U	0.143	U	0.143	U	0.179	U	0.179	U	0.0734	J	0.5	U	0.5	U				
Ethylbenzene	5180	**mg/L**	0.37		0.374		0.506		0.736		0.517		0.721		1.69		1.67		2.71		2.7		15.0		8.72		8.13					
Isopropylbenzene	4890	**mg/L**	0.0116	J	0.0173	J	0.0152		0.0307	U	0.0156	b	0.123	U	0.123	U	0.123	U	0.153	U	0.153	U	0.428	J	0.53	U	0.53	U				
Tetrachloroethylene	4470	**mg/L**	0.025	U	0.05	U	0.000500	U	0.0401	U	0.000500	U	0.16	U	0.160	U	0.160	U	0.2	U	0.2	U	0.065	U	0.58	U	0.58	U				
Trichloroethylene	8490	**mg/L**	0.0212	U	0.0424	U	0.000424	U	0.0396	U	0.000424	U	0.158	U	0.158	U	0.158	U	0.198	U	0.198	U	0.09	U	0.5	U	0.5	U				
Vinyl chloride	5760	**mg/L**	0.0117	U	0.0234	U	0.000234	U	0.0319	U	0.000234	U	0.128	U	0.128	U	0.128	U	0.16	U	0.16	U	0.055	U	0.5	U	0.5	U				
Xylene (Total)	17700	**mg/L**	0.308	J	0.306	J	0.360		0.518		0.373		0.332	J	1.410	J	1.44	J	2.07	J	1.97	J	12.1		8.05		7.55					
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000267	U	0.000278	U *	0.000278	UJL	0.00278	UJL	0.000278	UJL	0.000278	U	0.00028	U	0.00028	U	0.00278	U	0.00278	U	0.000144	U	0.00900	U	0.00900	U				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{>vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																					
			MW-38																					
GWPS Achieved?			Yes		Yes		Yes		Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well		Product in Well		Product in Well			
Analytes	GWPS	**Units**	Sampled 02-05-16		Sampled 08-10-16		Sampled 08-24-17		Not sampled 02-06-18	Not sampled 08-02-18	Not sampled 02-12-19	Not sampled 8-23-19	Not sampled 02-07-20	Not sampled 08-03-20	Not Sampled 02-01-21	Not Sampled 01-12-22	Not sampled 08-02-22		Not Sampled 02-24-23					
VOCs by 8260B:		**mg/L**																						
Dichloroethane, 1,2-	1030	**mg/L**	0.0232	U	0.0232	U	0.58	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Benzene	1470	**mg/L**	187		151		125		NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Chlorobenzene	2190	**mg/L**	0.037	U	0.037	U	0.925	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0389	J	0.0314	U	0.785	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Ethylbenzene	5180	**mg/L**	8.52		6.35		2.81	J	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Isopropylbenzene	4890	**mg/L**	0.34		0.171	J	1.21	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Tetrachloroethylene	4470	**mg/L**	0.0666	U	0.0666	U	1.67	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Trichloroethylene	8490	**mg/L**	0.0276	U	0.0276	U	0.69	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Vinyl chloride	5760	**mg/L**	0.0496	U	0.0496	U	1.24	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Xylene (Total)	17700	**mg/L**	7.83		6.19		4.49	J	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
SVOCs by 8270C LL:		**Units**																						
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00564		0.00173	U	0.00360	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells	Upgradient/AMP well																					
			MW-38	**MW-35**																					
GWPS Achieved?			Product in Well	Yes		Yes		Yes		Yes		Yes		Yes		DUP-1		DUP-1		Yes		Yes		DUP-2		Yes	
Analytes	GWPS	**Units**	Not sampled 08-15-23	Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-05-16		Sampled 08-09-16		Sampled 02-03-17		Sampled 02-03-17		Sampled 08-22-17		Sampled 08-22-17		Sampled 02-07-18		Sampled 02-07-18		Sampled 08-02-18	
VOCs by 8260B:		**mg/L**																									
Dichloroethane, 1,2-	1030	**mg/L**	NS	0.00014	U	0.0005	U	0.00420		0.00119		0.000116	U	0.000978	J	0.0016		0.000116	U	0.000116	U	0.000623	J	0.000664	J	0.000116	U
Benzene	1470	**mg/L**	NS	0.000444	J	0.00038	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U
Chlorobenzene	2190	**mg/L**	NS	0.00012	U	0.0005	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000187	J	0.000185	U	0.000185	U
Dichloroethene, cis-1,2-	14200	**mg/L**	NS	0.00133	J	0.000563	J	0.000614	J	0.00034	J	0.000828	J	0.000588	J	0.000535	J	0.000984	J	0.000962	J	0.000447	J	0.000471	J	0.000713	J
Ethylbenzene	5180	**mg/L**	NS	0.000197	J	0.0005	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U
Isopropylbenzene	4890	**mg/L**	NS	0.00018	U	0.00053	U	0.000241	U	0.000241	U	0.000241	U	0.000598	J	0.000408	J	0.000241	U	0.000241	U	0.000241	U *	0.000241	U	0.000241	U
Tetrachloroethylene	4470	**mg/L**	NS	0.00013	U	0.00058	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U
Trichloroethylene	8490	**mg/L**	NS	0.00018	U	0.0005	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U
Vinyl chloride	5760	**mg/L**	NS	0.00011	U	0.0005	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U *
Xylene (Total)	17700	**mg/L**	NS	0.00026	U	0.0006	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U
SVOCs by 8270C LL:		**Units**																									
Bis(2-Chloroethyl)ether	110	**mg/L**	NS	0.000147	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.000188	U	0.000188	U	0.000180	UH	0.000173	UH	0.000180	U	0.000180	U	0.000180	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Upgradient/AMP well																										Amp wells					
			MW-35																										MW-20					
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-22-14		Sampled 02-17-15		Sampled 08-11-15							
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.007	U	0.025	U	0.0029	U						
Benzene	1470	**mg/L**	0.000176	U	0.000176	U	0.000176	U	0.000280	J	0.000214	U	0.000214	U	0.000214	U	0.000533	U	0.00053	U	0.00046	U	10.1		7.10		5.75							
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.006	U	0.025	U	0.00463	U						
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000443	J	0.000949	J	0.000257	J	0.000628	J	0.000174	U	0.000394	J	0.000174	U	0.000714	U	0.00071	U	0.00071	U	0.003	U	0.025	U	0.00393	U						
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000255	J	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.00041	U	1.37		0.904		0.985							
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000241	U	0.000347	J	0.000241	U	0.00057	J	0.000161	U	0.000161	U	0.000613	U	0.00061	U	0.00061	U	2.0		2.88		2.25							
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U	0.000801	U	0.0008	U	0.0065	U	0.029	U	0.00833	U						
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.00079	U	0.009	U	0.025	U	0.00345	U						
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.00064	U	0.0055	U	0.025	U	0.0062	U						
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.000330	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.33		0.469	J	0.467							
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000267	U	0.000267	U	0.000278	UJL	0.000278	U	0.00111	U	0.00028	U	0.000144	U	0.00360	U	0.00180	U						

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{-vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Amp wells																															
			MW-20																															
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-03-16		Sampled 08-12-16		Sampled 02-03-17		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22							
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.00232	U	0.000116	U	0.0116	U	0.0058	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.000116	U	0.00143	U	0.00143	U	0.000285	U						
Benzene	1470	**mg/L**	5.32		4.83		6.96		1.54		2.06		1.71		1.3		1.86		1.84		0.853	b	0.0697		0.016		0.110							
Chlorobenzene	2190	**mg/L**	0.0037	U	0.000185	U *	0.0185	U	0.00925	U	0.0186	J	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.000185	U	0.000795	U	0.000795	U	0.000159	U						
Dichloroethene, cis-1,2-	14200	**mg/L**	0.00314	U	0.000157	U	0.0663	J	0.00785	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.000157	U	0.00087	U	0.00087	U	0.000174	U						
Ethylbenzene	5180	**mg/L**	0.682		0.685		0.923		0.0303	J	0.185		0.169		0.0602		0.209		0.345		0.184		0.00785		0.00257	U	0.00319							
Isopropylbenzene	4890	**mg/L**	4.41		2.73		4.57		0.0896		1.81		3.49		2.52		3.44		5.29		1.88		0.254		0.265		0.348							
Tetrachloroethylene	4470	**mg/L**	0.00666	U	0.000333	U *	0.0333	U	0.0167	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.000333	U	0.0025	U	0.0025	U	0.000500	U						
Trichloroethylene	8490	**mg/L**	0.00276	U	0.000138	U	0.0138	U	0.0069	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.000138	U	0.00212	U	0.00212	U	0.000424	U						
Vinyl chloride	5760	**mg/L**	0.00496	U	0.000248	U	0.0248	U	0.0124	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.000248	U	0.00117	U	0.00117	U	0.000234	U						
Xylene (Total)	17700	**mg/L**	0.145		0.116		0.344		0.0193	J	0.0278		0.05		0.0216		0.106		0.117		0.0578		0.0156		0.00165	U	0.00165	J						
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000173	U	0.000188	U	0.000180	UH	0.000214	U	0.000188	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.00029	U	0.000267	U	0.000278	UJL						

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{ow}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Amp wells																											
			MW-20																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21					
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.0059	U	0.00295	U	0.00118	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U				
Benzene	1470	**mg/L**	0.285		0.077		0.0437		0.001190		0.003550		0.00157		0.0017		0.001030		0.000709	J	0.000176	U	0.00065	J	0.000543	J				
Chlorobenzene	2190	**mg/L**	0.0053	U	0.00265	U	0.00106	U	0.262		0.234		0.229		0.156		0.17		0.139		0.04320		0.053		0.237					
Dichloroethene, cis-1,2-	14200	**mg/L**	0.00714	U	0.00357	U	0.00143	U	0.001620		0.001570		0.00141		0.000781	J	0.000825	J	0.000679	J	0.000226	J	0.00054	J	0.000798	J				
Ethylbenzene	5180	**mg/L**	0.0121		0.0138		0.00301		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U				
Isopropylbenzene	4890	**mg/L**	1.94		0.505		0.277		0.000241	U *	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000283	J	0.000241	U	0.000161	U	0.000161	U				
Tetrachloroethylene	4470	**mg/L**	0.00801	U	0.004010	U	0.0016	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U				
Trichloroethylene	8490	**mg/L**	0.00791	U	0.00396	U	0.00158	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U				
Vinyl chloride	5760	**mg/L**	0.00638	U	0.00319	U	0.00128	U	0.000269	J	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U				
Xylene (Total)	17700	**mg/L**	0.0124	U	0.0062	U	0.00913	J	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000504	J	0.000366	U	0.000192	U	0.00033	U				
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	UJL	0.000278	U	0.00278	U	0.000173	UH	0.000180	U *	0.000180	U	0.000180	U	0.000173	U	0.000180	U	0.000180	U	0.000278	U	0.000267	U				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tx}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Amp wells																									
			MW-29								MW-31																	
GWPS Achieved?			Yes		Yes		Yes	Yes	Yes		Yes		Yes		DUP		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	Sampled 08-15-23	Sampled 08-22-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20	
VOCs by 8260B:		**mg/L**																						
Dichloroethane, 1,2-	1030	**mg/L**	0.000285	U	0.00059	U	0.00118 U	0.00118 U	0.00464	U	0.00742	J	0.00292	J	0.00556	J	0.00232	U	0.00312	J	0.00593	J	0.00452	J
Benzene	1470	**mg/L**	0.0108		0.000533	U	0.00107 U	0.000919 U	0.00704	U	0.00352	U	0.00352	U	0.00352	U	0.0102	J	0.00352	U	0.0186	J	0.00384	J
Chlorobenzene	2190	**mg/L**	0.181		0.200		0.191	0.159	0.0551		0.071		0.0428		0.0421		0.0428		0.0404		0.0379		0.0393	
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000829	J	0.000874	J	0.00143 U	0.00143 U	2.82		2.99		2.63		2.67		2.83		3.86		3.31		2.89	
Ethylbenzene	5180	**mg/L**	0.000515	U	0.000411	U	0.00082 U	0.000822 U	0.00848	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U
Isopropylbenzene	4890	**mg/L**	0.000161	U	0.000613	U	0.00123 U	0.00123 U	0.00964	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U
Tetrachloroethylene	4470	**mg/L**	0.000500	U	0.000801	U	0.001600 U	0.0016 U	0.0133	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U
Trichloroethylene	8490	**mg/L**	0.000424	U	0.000791	U	0.00158 U	0.00158 U	0.00879	J	0.0097	J	0.00698	J	0.0077	J	0.00674	J	0.0093	J	0.0086	J	0.00713	J
Vinyl chloride	5760	**mg/L**	0.000234	U	0.000638	U	0.00128 U	0.00128 U	0.114		0.161		0.158		0.14	*	0.168		0.0889		0.155		0.175	
Xylene (Total)	17700	**mg/L**	0.000330	U	0.00124	U	0.002480 U	0.00248 U	0.0146	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U
SVOCs by 8270C LL:		**Units**																						
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	UJL	0.000278	UJL	0.00028 U	0.000278 UJL	0.000180	UH	0.000180	U *	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000180	U	0.000180	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-31																													
GWPS Achieved?			Yes		DUP-1		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-01-21		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21							
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.057	U	0.0143	U	0.0046		0.00437		0.0118	U	0.0118 U		0.0148 U		0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U						
Benzene	1470	**mg/L**	0.0429	U	0.0107	U	0.00287		0.00507		0.0107	U	0.0107 U		0.0115 U		0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U						
Chlorobenzene	2190	**mg/L**	0.0318	U	0.039	J	0.0463		0.0412		0.0471		0.0338		0.041		0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U						
Dichloroethene, cis-1,2-	14200	**mg/L**	2.58		2.71		2.51		2.78		2.25		2.32		2.23		0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U						
Ethylbenzene	5180	**mg/L**	0.0291	U	0.00728	U	0.000515	U	0.000515	U	0.00822	U	0.00822 U		0.0103 U		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U						
Isopropylbenzene	4890	**mg/L**	0.0321	U	0.00803	U	0.000161	U	0.000161	U	0.0123	U	0.0123 U		0.0153 U		0.000371	J	0.000241	U	0.000241	U	0.000241	U	0.000161	U						
Tetrachloroethylene	4470	**mg/L**	0.1	U	0.025	U	0.0005	U	0.000500	U	0.016	U	0.016 U		0.02 U		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U						
Trichloroethylene	8490	**mg/L**	0.0848	U	0.0212	U	0.00804		0.00762		0.0158	U	0.0158 U		0.0198 U		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U						
Vinyl chloride	5760	**mg/L**	0.102	J	0.101		0.102		0.120		0.0739		0.053		0.0774		0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U						
Xylene (Total)	17700	**mg/L**	0.0383	U	0.00958	U	0.00033	U	0.000695	J	0.0248	U	0.0248 U		0.031 U		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U						
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000267	U	0.000278	UF	0.000278	U	0.000278	UJL	0.000278	UJL	0.00111 U		0.000278 U		0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000278	U						

West Chem Wells

	CAO wells
	MW-3

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tvw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area			**West Chem Wells**																											
			CAO wells																											
			MW-3																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U		
Benzene	1470	**mg/L**	0.000214	U	0.000214	U	0.000533	U	0.000533	U	0.00046	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U		
Chlorobenzene	2190	**mg/L**	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.000185	U	0.00102		0.00129		0.001430		0.00089	J	0.00114		0.000159	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000174	U	0.000174	U	0.000714	U	0.000714	U	0.000714	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U		
Ethylbenzene	5180	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.000411	U	0.000411	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U		
Isopropylbenzene	4890	**mg/L**	0.000161	U	0.000161	U	0.000613	U	0.000613	U	0.000613	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U		
Tetrachloroethylene	4470	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U		
Trichloroethylene	8490	**mg/L**	0.000424	U	0.000424	U	0.000791	U	0.000791	U	0.000791	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U		
Vinyl chloride	5760	**mg/L**	0.000234	U	0.000234	U	0.000638	U	0.000638	U	0.000638	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U		
Xylene (Total)	17700	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.00033	U	0.000330	U		
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U	0.000278	UJL	0.000278	UJL	0.000278	U	0.000278	U	0.000188	U	0.000180	U	0.000180	U	0.000188	U	0.00029	U	0.000278	U	0.000278	UJL		

Notes:
Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{Tw}GW_{Ing}$)
GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits
- - Not reported
NS - Not sampled
F - RPD exceeded lab control limits.
U - Indicates the analyte was analyzed for but not detected.
Bold Italic - Exceeds GWPS
NA - Not applicable
D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL
POE = Point of Exposure
AMP = Attenuation Monitoring Point
CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

| | | | CAO wells | | |

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP wells																						CAO wells			
			VMW-1																						VMW-2			
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		DUP-1	
Analytes	GWPS	**Units**	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 02-12-19			
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059 U		0.00059 U		0.00059 U		0.000116	U	0.000116	U		
Benzene	1470	**mg/L**	0.000176	U	0.000186	J	0.000176	U	0.000253	J	0.000214	U	0.000214	U	0.000214	U	0.000533 U		0.000533 U		0.00046 U		0.000186	J	0.000278	J		
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000255	J	0.000202	J	0.000159	U	0.000159	U	0.000159	U	0.00053 U		0.00053 U		0.00053 U		0.000185	U	0.000185	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0139		0.0309		0.00832		0.00501		0.00467		0.00608		0.00553		0.00682		0.0031		0.00684		0.000157	U	0.000157	U		
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411 U		0.000411 U		0.000411 U		0.000212	U	0.000212	U		
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613 U		0.000613 U		0.000613 U		0.0115		0.0128			
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801 U		0.000801 U		0.000801 U		0.000333	U	0.000333	U		
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000171	J	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791 U		0.000791 U		0.000791 U		0.000138	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	0.00227		0.00416		0.00156	J	0.00204		0.00105	J	0.00185	J	0.00156	J	0.00225		0.000638 U		0.00151 J		0.000248	U	0.000248	U		
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.00033	U	0.000330	U	0.00124 U		0.001240 U		0.00124 U		0.000366	U	0.000521	J		
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00018	U	0.000173	U	0.00360	U	0.000180	U	0.000278	U	0.000278	U *	0.000278	U	0.000278 UJL		0.000278 U		0.000278 U		0.000184	U	0.000173	U		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{Ing}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			CAO wells																									
			VMW-2																									
GWPS Achieved?			Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2	
Analytes	GWPS	**Units**	Sampled 8-23-19		Sampled 02-12-19		Sampled 02-07-20		Sampled 02-07-20		Sampled 08-03-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 02-01-21		Sampled 08-13-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 01-12-22					
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.000285	U	0.000285	U	0.000285	U		
Benzene	1470	**mg/L**	0.000179	J	0.000377	J	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000214	U	0.000214	U	0.000214	U		
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U	0.000174	U	0.000174	U	0.000174	U		
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000146	U	0.000515	U	0.000515	U	0.000515	U	0.000515	U		
Isopropylbenzene	4890	**mg/L**	0.0183		0.0176		0.00749		0.00848		0.0183		0.0190		0.00955		0.00972		0.00852		0.0075		0.0203		0.0197			
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.000500	U	0.000500	U		
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000424	U	0.000424	U	0.000424	U		
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000234	U	0.000234	U	0.000234	U		
Xylene (Total)	17700	**mg/L**	0.000792	J	0.000366	U	0.000366	U	0.000366	U	0.000498	J	0.000366	U	0.000192	U	0.000192	U	0.00033	U	0.00033	U	0.000330	U	0.000669	J		
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000188	U	0.00018	U	0.00018	U	0.00018	U	0.000180	U	0.000180	U	0.000278	U	0.000278	UF	0.000278	U *	0.000278	U *	0.000278	UJL	0.000278	UJL		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			CAO wells										AMP wells															
			VMW-2										VMW-3															
GWPS Achieved?			Yes		DUP-2		Yes		DUP-2		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-02-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.00059	U	0.00059	U	0.00059	U	0.00059	U	0.00059	U	0.0195	J	0.025		0.0231		0.0256		0.0285	U	0.0143	U	0.000285	U	0.0118	U
Benzene	1470	**mg/L**	0.000533	U	0.000533	U	0.00053	U	0.00053	U	0.00046	U	3.37		7.3		4.93		4.96		4.21		4.42		3.90		4.43	
Chlorobenzene	2190	**mg/L**	0.00053	U	0.00053	U	0.00053	U	0.00053	U	0.00053	U	0.0168	J	0.012	J	0.0134	J	0.00927	J	0.0159	U	0.0257	J	0.00952		0.0146	J
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000714	U	0.000714	U	0.00071	U	0.00071	U	0.000714	UJ	0.183		0.144		0.152		0.125		0.134		0.153		0.0882		0.108	
Ethylbenzene	5180	**mg/L**	0.000411	U	0.000411	U	0.00041	U	0.00041	U	0.000411	U	0.172		0.357		0.294		0.214		0.269		0.286		0.186		0.109	
Isopropylbenzene	4890	**mg/L**	0.0299		0.0312		0.0164		0.0128		0.011		0.0242		0.0328		0.03		0.0320		0.035	J	0.0435	J	0.0399		0.0276	
Tetrachloroethylene	4470	**mg/L**	0.000801	U	0.000801	U	0.000801	U	0.000801	U	0.000801	U	0.00666	U	0.00666	U	0.00666	U	0.00333	U	0.05	U	0.025	U	0.000500	U	0.016	U
Trichloroethylene	8490	**mg/L**	0.000791	U	0.000791	U	0.00079	U	0.00079	U	0.000791	U	0.00276	U	0.00276	U	0.00276	U	0.00138	U	0.0424	U	0.0212	U	0.000424	U	0.0158	U
Vinyl chloride	5760	**mg/L**	0.000638	U	0.000638	U	0.00064	U	0.00064	U	0.000638	U	0.0207	J	0.0116	J	0.0169	J	0.0153	J	0.0234	U	0.0117	U	0.000234	U	0.0128	J
Xylene (Total)	17700	**mg/L**	0.00124	U	0.00124	U	0.001240	U	0.00124	U	0.00124	U	0.0168	J	0.0379		0.0167	J	0.0185		0.0192	U	0.0165	U	0.0131		0.0248	U
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U	0.000278	U	0.00028	U	0.00028	U	0.000278	U	0.00180	U	0.000180	U	0.00180	U	0.00360	U	0.000278	U	0.00028	U *	0.00278	UJL	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells		CAO wells																	
			VMW-3		VMW-4																	
GWPS Achieved?			Product in Well	Product in Well	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes
Analytes	GWPS	**Units**	Not Sampled 02-24-23	Sampled 08-15-23	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:		**mg/L**																				
Dichloroethane, 1,2-	1030	**mg/L**	NS	NS	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059 U	0.00059 U
Benzene	1470	**mg/L**	NS	NS	0.00147		0.000797	J	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000533	U	0.000533 U	0.00046 U
Chlorobenzene	2190	**mg/L**	NS	NS	0.0113		0.012		0.00286		0.00515		0.00282		0.00318		0.00228		0.00401		0.0022	0.00317
Dichloroethene, cis-1,2-	14200	**mg/L**	NS	NS	0.0079		0.00864		0.00257		0.00381		0.00232		0.0024		0.00219		0.00189		0.00153	0.00398
Ethylbenzene	5180	**mg/L**	NS	NS	0.000802	J	0.000722	J	0.000212	U	0.000248	J	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.000411 U	0.000411 U
Isopropylbenzene	4890	**mg/L**	NS	NS	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613	U	0.000613 U	0.000613 U
Tetrachloroethylene	4470	**mg/L**	NS	NS	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801	U	0.000801 U	0.000801 U
Trichloroethylene	8490	**mg/L**	NS	NS	0.000138	U	0.000179	J	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.000791 U	0.000791 U
Vinyl chloride	5760	**mg/L**	NS	NS	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.000638 U	0.000638 U
Xylene (Total)	17700	**mg/L**	NS	NS	0.00198		0.00215		0.000366	U	0.000610	J	0.000192	U	0.000330	U	0.000330	U	0.00124	U	0.001240 U	0.00124 U
SVOCs by 8270C LL:		**Units**																				
Bis(2-Chloroethyl)ether	110	**mg/L**	NS	NS	0.00018	U	0.00018	U	0.00018	U	0.000180	U	0.000278	U	0.000278	U *	0.000278	UJL	0.000278	UJL	0.000278 U	0.000278 UJL

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP wells																													
			VMW-6																						VMW-7								
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20			
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0116	U	0.0116	U	0.0211	J	0.0199	J	0.0285	U	0.0143	U	0.000285	U	0.0118	U	0.0295 U		0.0295 U		0.00232	U	0.000116	U	0.001230	J		
Benzene	1470	**mg/L**	3.95		5.72		5.81		4.87		5.08		4.87		4.67		5.34		4.81		3.67		0.204		0.212		0.17			
Chlorobenzene	2190	**mg/L**	1.41		0.945		1.08		0.772		0.845		1.09		0.877		0.817		1.58		0.825		0.00458	J	0.000185	U	0.000925	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	2.7		2.55		2.21		1.71		1.76		1.92		1.81		1.77		2.17		0.746		0.0613		0.000157	U	0.0352			
Ethylbenzene	5180	**mg/L**	0.458		0.453		0.527		0.333		0.539		0.446		0.600		0.578		0.496		0.538		0.00424	U	0.000212	U	0.00106	U		
Isopropylbenzene	4890	**mg/L**	0.0241	U	0.0241	U	0.0241	U	0.0121	U	0.023	J	0.018	J	0.0246		0.0167	J	0.0307 U		0.0307 U *		0.00482	U	0.000241	U *	0.00121	U		
Tetrachloroethylene	4470	**mg/L**	0.0333	U	0.0333	U	0.0333	U	0.0167	U	0.05	U	0.025	U	0.000500	U	0.016	U	0.0401 U		0.0401 U		0.00666	U	0.000333	U	0.00167	U		
Trichloroethylene	8490	**mg/L**	0.0138	U	0.0138	U	0.0138	U	0.00690	U	0.0424	U	0.02120	U	0.000424	U	0.0158	U	0.0396 U		0.0396 U		0.00276	U	0.000138	U	0.00069	U		
Vinyl chloride	5760	**mg/L**	0.444		0.468		0.405		0.331		0.293		0.358		0.288		0.302		0.281		0.14		0.0594		0.000674	J	0.0365			
Xylene (Total)	17700	**mg/L**	0.0366	U	0.0366	U	0.0366	U	0.0235	J	0.021	J	0.0165	U	0.0274		0.0248	U	0.062 U		0.062 U		0.00732	U	0.000366	U	0.00183	U		
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00018	U	0.00018	U	0.00180	U	0.00360	U	0.000278	U	0.000278	U *	0.000278	U	0.000278	U	0.00278 U		0.062 U		0.000180	U	0.001800	U	0.001800	U		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP wells																CAO wells									
			VMW-7																VMW-9									
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		DUP-2		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.00147		0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.00097	J	0.000116	U	0.000116	U	0.000369	J	0.00101		0.000285	U
Benzene	1470	**mg/L**	0.125		0.103		0.119		0.0608		0.118		0.0964		0.0743		0.0882		0.000323	J	0.00128		0.0797		0.0852		0.0549	
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.00053	U	0.000872	J	0.00143		0.00367		0.00237		0.00204	
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0261		0.0178		0.0153		0.00787		0.0156		0.0137		0.0111		0.0111		0.00897		0.0183		0.0299		0.0346		0.0217	
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.00041	U	0.000411	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613	U	0.00061	U	0.00061	U	0.000613	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.0008	U	0.000801	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.00079	U	0.000791	U	0.000355	J	0.000526	J	0.0015		0.00153		0.00094	J
Vinyl chloride	5760	**mg/L**	0.0462		0.0162		0.0166		0.00718		0.0180		0.0109		0.0105		0.0109		0.00109	J	0.000248	U	0.00541		0.00859		0.00358	
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000192	U	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.00124	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00360	U	0.000278	U	0.00028	U *	0.000278	U	0.000278	UJL	0.00028	U	0.00028	U	0.000278	U	0.000173	U	0.000180	U	0.000180	U	0.000196	U	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tx}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			CAO wells																											
			VMW-9																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes			Yes		Yes		Yes		Yes		No		Yes	
Analytes	GWPS	**Units**	Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23	TRRP GW PCL	Units	Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																							
Dichloroethane, 1,2-	1030	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059 U	0.005	mg/L	0.000261	J	0.000116	U	0.000116	U	0.000116	U	0.000133	J	0.000285	U
Benzene	1470	**mg/L**	0.0536		0.0429		0.0189		0.0568		0.0111	0.005	mg/L	0.00249		0.00227		0.000176	U	0.00382		***0.00688***		0.00348	
Chlorobenzene	2190	**mg/L**	0.00228		0.00251		0.00408		0.00311		0.00268	0.1	mg/L	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0205		0.0208		0.0247		0.0269		0.0173	0.07	mg/L	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U
Ethylbenzene	5180	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411 U	0.7	mg/L	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	4890	**mg/L**	0.000161	U	0.000161	U	0.000613	U	0.00061	U	0.000613 U	7.3	mg/L	0.000899	J	0.0011		0.00152		0.000629	J	0.000241	U	0.00031	J
Tetrachloroethylene	4470	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801 U	0.005	mg/L	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.0011	J	0.00117	J	0.000975	J	0.00153	J	0.000791 U	0.005	mg/L	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	5760	**mg/L**	0.00406		0.00392		0.00451		0.00366		0.00251	0.002	mg/L	0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	17700	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124 U	10	mg/L	0.000366	U	0.000541	J	0.00128		0.000528	J	0.000465	J	0.000192	U
SVOCs by 8270C LL:		**Units**																							
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	U	0.00028	U	0.000278 U	0.0019	mg/L	0.000578	J H	0.000342	J	0.000180	U	0.000605	J	0.000265	J	0.000538	JF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{-vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Recovery wells																					
			MW-39																		OB-1			
GWPS Achieved?			Yes		No		No		No		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	**TRRP GW PCL**	**Units**	Sampled 02-01-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 01-14-22		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:																								
Dichloroethane, 1,2-	**0.005**	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.00058	U	0.000129	J	0.000116	U	0.000116	U	0.000116	U	0.000285	U
Benzene	**0.005**	**mg/L**	0.00409		***0.00869***		***0.0116***		***0.0067***		0.00462		0.00088	U	0.000257	J	0.000205	J	0.000276	J	0.000582	J	0.000214	U
Chlorobenzene	**0.1**	**mg/L**	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.000925	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U
Dichloroethene, cis-1,2-	**0.07**	**mg/L**	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714		0.000785	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U
Ethylbenzene	**0.7**	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411		0.00106	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	**7.3**	**mg/L**	0.000276	J	0.000161	U	0.000613	U	0.00061	U	0.000613		0.154		0.0586		0.0876		0.0221		0.01550		0.018	
Tetrachloroethylene	**0.005**	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801		0.000801		0.00167	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	**0.005**	**mg/L**	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791		0.00069	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	**0.002**	**mg/L**	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638		0.00124	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	**10**	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.00124		0.00124	U	0.00183	U	0.000748	J	0.000366	U	0.000419	J	0.000366	U	0.000192	U
SVOCs by 8270C LL:																								
Bis(2-Chloroethyl)ether	**0.0019**	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	UJL	0.0004	J	0.00278	U	0.000180	UH	0.000196	U	0.000180	U	0.000180	U	0.000173	U	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds PCL

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Recovery Wells																									
			OB-1														OB-3											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		No		No		No		No		No					
Analytes	**TRRP GW PCL**	**Units**	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21					
VOCs by 8260B:																												
Dichloroethane, 1,2-	**0.005**	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U				
Benzene	**0.005**	**mg/L**	0.00022	J	0.000214	U	0.000533	U	0.000533	U	0.00046	U	0.00116		***0.113***		***0.0746***		***0.00786***		***0.01030***		***0.0159***					
Chlorobenzene	**0.1**	**mg/L**	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U				
Dichloroethene, cis-1,2-	**0.07**	**mg/L**	0.000174	U	0.000174	U	0.000714	U	0.000714	U	0.000714	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U				
Ethylbenzene	**0.7**	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.000411	U	0.000411	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U				
Isopropylbenzene	**7.3**	**mg/L**	0.0263		0.0101		0.0207		0.0196		0.00706		0.000263	J	0.000605	J *	0.000395	J	0.000423	J	0.000241	U	0.00051	J				
Tetrachloroethylene	**0.005**	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U				
Trichloroethylene	**0.005**	**mg/L**	0.000424	U	0.000424	U	0.000791	U	0.000791	U	0.000791	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U				
Vinyl chloride	**0.002**	**mg/L**	0.000234	U	0.000234	U	0.000638	U	0.000638	U	0.000638	U	0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U				
Xylene (Total)	**10**	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.000366	U	0.000766	J	0.000399	J	0.000567	J	0.000570	J	0.00063	J				
SVOCs by 8270C LL:																												
Bis(2-Chloroethyl)ether	**0.0019**	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	UJL	0.000278	U	0.000278	U	0.000173	UH	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000267	UF				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds PCL

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Recovery wells																					
			OB-3											RW-01										
GWPS Achieved?			No		No		No		No		No		Yes		Yes		Yes		Yes		Yes		No	
Analytes	**TRRP GW PCL**	**Units**	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:																								
Dichloroethane, 1,2-	**0.005**	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059 U		0.00059 U		0.00058	U	0.000116	U	0.000618	J	0.000116	U	0.000116	U	0.000285	U
Benzene	**0.005**	**mg/L**	***0.0147***		***0.0182***		***0.0294***		***0.0104***		***0.00925***		0.00088	U	0.000879	J	0.000176	U	0.000269	J	0.000292	J	***0.00603***	
Chlorobenzene	**0.1**	**mg/L**	0.000159	U	0.000159	U	0.00053	U	0.00053 U		0.00053 U		0.000925	U	0.000207	J	0.000232	J	0.000348	J	0.000457	J	0.00063	J
Dichloroethene, cis-1,2-	**0.07**	**mg/L**	0.000174	U	0.000174	U	0.000714	U	0.00071 U		0.000714 U		0.000785	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.00075	J
Ethylbenzene	**0.7**	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.00041 U		0.000411 U		0.00106	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00148	
Isopropylbenzene	**7.3**	**mg/L**	0.000451	J	0.000477	J	0.000613	U	0.00061 U		0.000613 U		0.145		0.163		0.172		0.218		0.174		0.139	
Tetrachloroethylene	**0.005**	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801 U		0.000801 U		0.00167	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	**0.005**	**mg/L**	0.000424	U	0.000424	U	0.000791	U	0.00079 U		0.000791 U		0.00069	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	**0.002**	**mg/L**	0.000234	U	0.000234	U	0.000638	U	0.00064 U		0.000638 U		0.00124	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	**10**	**mg/L**	0.000330	U	0.000330	U	0.00124	U	0.001240 U		0.00124 U		0.00183	U	0.000513	J	0.000366	U	0.000419	J	0.000390	J	0.00045	J
SVOCs by 8270C LL:																								
Bis(2-Chloroethyl)ether	**0.0019**	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	UJL	0.00028 U		***0.00278*** U		0.000180	UH	0.000196	U	0.000180	U	0.000180	U	0.000173	U	0.000278	UF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{ing}$)

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds PCL

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Recovery wells																			
			RW-01										RW-25R									
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	**TRRP GW PCL**	**Units**	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:																						
Dichloroethane, 1,2-	**0.005**	**mg/L**	0.002850	U	0.000285	U	0.00059	U	0.00059	U	0.00059 U		0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U
Benzene	**0.005**	**mg/L**	0.00214	U	0.000214	U	0.000533	U	0.00053	U	0.00046 U		0.000743	J	0.00108		0.000893	J	0.00124		0.000769	J	0.0005	J
Chlorobenzene	**0.1**	**mg/L**	0.00159	U	0.000159	U	0.000866	J	0.00104		0.00127		0.000212	J	0.000279	J	0.000185	U	0.000185	U	0.000185	U	0.000159	U
Dichloroethene, cis-1,2-	**0.07**	**mg/L**	0.00174	U	0.000174	U	0.000714	U	0.00071	U	0.000714 U		0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U
Ethylbenzene	**0.7**	**mg/L**	0.00515	U	0.000515	U	0.000411	U	0.00041	U	0.000411 U		0.000212	U	0.000252	J	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	**7.3**	**mg/L**	0.19		0.128		0.089		0.0524		0.0342		0.0203		0.018		0.0209		0.00936		0.008570		0.0108	
Tetrachloroethylene	**0.005**	**mg/L**	0.005	U	0.000500	U	0.000801	U	0.000801	U	0.000801 U		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	**0.005**	**mg/L**	0.00424	U	0.000424	U	0.000791	U	0.00079	U	0.000791 U		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	**0.002**	**mg/L**	***0.00234***	U	0.000234	U	0.000638	U	0.00064	U	0.000638 U		0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	**10**	**mg/L**	0.003300	U	0.000330	U	0.00124	U	0.001240	U	0.00124 U		0.000366	U	0.000828	J	0.000366	U	0.000366	U	0.000366	U	0.000192	U
SVOCs by 8270C LL:																						
Bis(2-Chloroethyl)ether	**0.0019**	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	UJL	0.00028	U	0.000278 U		0.000512	J H	0.000322	J	0.000180	U	0.000579	J	***0.00346***	U	0.000278	UF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{ing}$)

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds the PCL

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix 2

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Recovery Wells									
			RW-25R									
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes	
Analytes	**TRRP GW PCL**	**Units**	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23	
VOCs by 8260B:												
Dichloroethane, 1,2-	**0.005**	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U
Benzene	**0.005**	**mg/L**	0.000491	J	0.000477	J	0.000533	U	0.00053	U	0.00046	U
Chlorobenzene	**0.1**	**mg/L**	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U
Dichloroethene, cis-1,2-	**0.07**	**mg/L**	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714	UJ
Ethylbenzene	**0.7**	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411	U
Isopropylbenzene	**7.3**	**mg/L**	0.0115		0.0102		0.0106		0.0076		0.00712	
Tetrachloroethylene	**0.005**	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U
Trichloroethylene	**0.005**	**mg/L**	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791	U
Vinyl chloride	**0.002**	**mg/L**	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638	U
Xylene (Total)	**10**	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U
SVOCs by 8270C LL:												
Bis(2-Chloroethyl)ether	**0.0019**	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	UJL	0.00028	U	0.00278	U

Notes:

(mg/L) - Milligrams per liter

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time.

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits.

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds PCL

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL.

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

APPENDIX 4

Institutional Controls

KINDER MORGAN
KM Liquids Terminals LLC

May 15, 2018

Ms. Maureen Hatfield, P.G., Project Manager
Team 1, VCP/CA Section
Remediation Division, Mail Code-127
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Re: ***Institutional Control Filing – West Plant Galena Park Terminal***
KM Liquids Terminals LLC Galena Park Terminal
TCEQ SWR No. 30573
TCEQ Hazardous Waste Permit/Compliance Plan No. 50054
EPA I.D. No. TXD026481523
Customer No. CN603254707; Regulated Entity No. RN100237452

Dear Ms. Hatfield:

As per your Response Action Plan (RAP) conditional approval letter dated December 29th, 2017, KM Liquids Terminals LLC (KMLT) is submitting this proof of filing of the Institutional Control (IC) document for the modified plume management zone (PMZ) at the KMLT Galena Park West Plant area in Galena Park, Texas. The modified PMZ was surveyed by a Texas licensed surveyor, who provided a Metes and Bounds description and plat map of the affected area. A Deed Notice was filed with the Harris County Clerk on May 7th, 2018. The IC proof of filing is attached.

If you have any questions or require any additional information at this time, please do not hesitate to contact me at (713) 654-6035.

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Manager

cc: Mr. Tony Dworaczyk, P.G., TRC, Houston, Texas

FILED FOR RECORD

3:16:09 PM

Monday, May 7, 2018

Stan Stanart

COUNTY CLERK, HARRIS COUNTY, TEXAS

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.

THE STATE OF TEXAS
COUNTY OF HARRIS

I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED; in the Official Public Records of Real Property of Harris County Texas

Monday, May 7, 2018

Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

Notice
$87
A

RP-2018-198626
05/07/2018 RP2 $84.00

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows: EE

A legal property description used in the last recorded vesting deed, covering the Property that includes the entire recorded tract of land held by the owner executing this deed notice, is attached hereto and incorporated herein by reference as Exhibit A.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

METES AND BOUNDS DESCRIPTION of a 51.726 acre tract of land, extending over, through, along and across, a called 69.31248 acre tract of land (Second Tract) as recorded in File No. C288395, Film Code 051-2411421, Official Public Records of Real Property of Harris County, Texas, and called 37 acre tract of land (Exhibit "A") as recorded in File No. 20070466722, Official Public Records of Harris County, Texas, said tracts being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows: D

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 U.S. survey feet.

COMMENCING at a 5/8" iron rod found for the Northeast corner of a called 17.66626 acre tract of land (First Tract) as recorded in File No. C288395, Film Code 051-24-1421, Official Public Records of Real Property of Harris County, Texas, said corner having coordinates N=13,833,097.40, E=3,164,701.32;

THENCE, South 03°27'57" East, along the East boundary line of said 17.66626 acre tract, at 693.02 feet passing the southeast corner of said, 17.66626 acre tract, crossing an eighty feet (80') wide rightof-way, as recorded in Volume 371, Page 245, of the Deed Records of Harris County, Texas, at 773.04 feet to a point on the south line of said eighty feet (80') wide right-of-way, same said point being in the northeast corner of the above mention 69.31248 acre tract, continuing along and with the east boundary line of said 69.31248 acre tract, a total distance of 1993.38 feet to a point;

THENCE, South 86°36'30" West, a distance of 23.57 feet to the POINT OF BEGINNING having coordinates N=13,831,105.66, E=3,164,798.53;

THENCE, South 13°46'21" East, a distance of 76.03 feet to a point;

THENCE, South 03°15'52" East, a distance of 121.42 feet to a point;

THENCE, South 00°42'57" West, a distance of 127.83 feet to a point;

THENCE, South 56°47'37" West, a distance of 17.86 feet to a point;

THENCE, South 63°15'20" West, a distance of 583.65 feet to a point;

THENCE, North 70°55'46" West, a distance of 124.24 feet to a point;

THENCE, South 63°58'35" West, a distance of 113.54 feet to a point;

THENCE, North 69°04'27" West, a distance of 80.58 feet to a point;

THENCE, South 64°03'36" West, a distance of 203.63 feet to a point;

THENCE, South 28°18'19" East, a distance of 148.51 feet to a point;

THENCE, South 63°19'30" West, a distance of 144.80 feet to a point;

THENCE, North 26°43'13" West, a distance of 155.06 feet to a point;

THENCE, South 49°47'25" West, a distance of 122.60 feet to a point;

THENCE, South 01°23'13" West, a distance of 49.15 feet to a point;

THENCE, South 62°46'36" West, a distance of 70.90 feet to a point;

THENCE, North 60°48'41" West, a distance of 35.36 feet to a point;

THENCE, South 64°54'55" West, a distance of 118.01 feet to a point;

THENCE, South 11°19'37" West, a distance of 171.28 feet to a point;

THENCE, South 57°42'08" West, a distance of 94.03 feet to a point;

THENCE, In a Southwesterly direction along the arc of a curve to the right having a radius of 137.51 feet, a central angle 33°43'04", arc distance of 80.92 feet and a chord bearing of South 77°42'53" West for a distance of 79. 76 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 399.28 feet, a central angle of 43°57'45", arc distance of 306.37 feet and a chord bearing of North 66°03'24" West for a distance of 298.91 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 478.75 feet, a central angle of 21°27'26", arc distance of 176.29 feet and a chord bearing of North 29°48'40" West for a distance of 178.24 feet to a point;

THENCE, North 10°00'30" West, a distance of 64.65 feet a point;

THENCE, North 01°33'22" West, a distance of 1,418.86 feet to a point;

THENCE, North 01°09'54" East, a distance of 40.52 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 72.78 feet, a central angle 18°14'43", arc distance of 23.18 feet and a chord bearing of North 10°41 '28" East for a distance of 23.08 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 50.79 feet, a central angle 77°00'56", arc distance of 68.27 feet and a chord bearing of North 59°33'57" East for a distance of 63.25 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 226.75 feet, a central angle 28°36'39", arc distance of 113.23 feet and a chord bearing of South 69°12'21" East for a distance of 112.05 feet to a point;

THENCE, South 55°54'50" East, a distance of 59.24 feet to a point;

THENCE, South 54°21 '05" East, a distance of 103.63 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 334.54 feet, a central angle 29°08'33", arc distance of 170.16 feet and a chord bearing of South 66°39'19" East for a distance of 168.33 feet to a point;

THENCE, South 79°57'40" East, a distance of 54.81 feet to a point;

THENCE, South 77°34'39" East, a distance of 40.21 feet to a point;

THENCE, South 73°53'04" East, a distance of 43.54 feet to a point;

THENCE, South 71°05'42" East, a distance of 68. 75 feet to a point;

THENCE, South 70°59' 16" East, a distance of 109.67 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 1,350.04 feet, a central angle 05°10'55", arc distance of 122.10 feet and a chord distance of South 75°23'02" East for a distance of 122.06 feet to a point;

THENCE, South 79°17'36" East, a distance of 132.02 feet to a point;

THENCE, South 81°15'47" East, a distance of 245.02 feet to a point;

THENCE, South 79°37'02" East, a distance of 102.48 feet to a point;

THENCE, South 76°46'01" East, a distance of 97.48 feet to a point;

THENCE, South 74°21 '27" East, a distance of 61.65 feet to a point;

THENCE, South 72°56'07" East, a distance of 57.79 feet to a point;

THENCE, South 71 °55'26" East, a distance of 130.00 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 595.80 feet, a central angle 19°45'05", arc distance of 205.39 feet and a chord distance of South 61 °02 '22" East for a distance of 204.37 feet to a point;

THENCE, South 47°54'26" East, a distance of 94.31 feet to a point;

THENCE, South 63°17'49" East, a distance of 99.36 feet to the POINT OF BEGINNING containing 51 . 726 acres of land.

The certified meets and bounds description and corresponding plat maps of the Affected Property for groundwater (referred to as the Plume Management Zone) are attached hereto and incorporated herein by reference as Exhibit B.

The constituents of concern in groundwater at the Affected Property (the Plume Management Zone), defined here as exceeding TRRP Protective Concentration Levels (PCLs) for residential and commercial/industrial land use, are benzene, ethylbenzene, xylenes, isopropylbenzene, chlorobenzene, cis-1,2-dichloroethene, 1,2-dichloroethane, tetrachloroethene, trichloroethene, vinyl chloride, and bis(2-chloroethyl)ether.

This notice is required for the following reasons:

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC 350.33(f)(4). The undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit B provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.

As of the date of this Notice, the record owner of fee title to the Property is KM Liquids Terminals, LLC with an address of 1001 Louisiana St., Suite 1000, Houston, Texas 77002.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 2nd day of May, 2018.

KM Liquids Terminals LLC

By: _____

Name: Jeffesy A. Hersperger

Title: General Manager

STATE OF TEXAS
HARRIS COUNTY

BEFORE ME, on this the 2nd day of May, 2018 personally appeared [name] Jeffrey A. Hersperger [title] General Manager, of [company] KM Liquids Terminals LLC, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 2nd day of May, 2018.

Notary Public in and for the State of Texas,
County of

My Commission Expires:
August 10, 2019

PATRICIA RAE MONROE
Notary Public
STATE OF TEXAS
My Comm. Exp. August 10, 2019

Ret:
Ryan Koch
10550 Richmond Ave Ste 210
Houston, TX 77042

EXHIBIT A

Exhibit A

West Chemical Plant Property Description
Galena Park, Texas

THAT CERTAIN TRACT OR PARCEL OF LAND CONTAINING THIRTY SEVEN (37) ACRES MORE OR LESS OUT OF THE EAST HALF OF THE EZEKIEL THOMAS LEAGUE A-73 IN HARRIS COUNTY, TEXAS, AS CONVEYED TO C. D. KEEN AND W. C. WOOLF BY OSCEOLA E. TOD, AS INDEPENDENT EXECUTRIX OF THE ESTATE OF JOHN G. TOD, DECEASED, BY DEED DATED AUGUST 16TH, 1919, AND RECORDED IN VOLUME 431, PAGE 44 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS; INCLUDING ANY LAND ALONG THE WESTERN BOUNDARIES OF SAID TRACT CONVEYED TO KEEN & WOOLF OIL COMPANY BY CLARION OIL COMPANY BY DEED DATED FEBRUARY 6, 1928, AND RECORDED IN VOLUME 730, PAGE 710 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS, AND EXCEPTING HEREFROM ANY LANDS RELEASED TO SAID CLARION OIL COMPANY BY KEEN & WOOLF OIL COMPANY ALONG THE WESTERN BOUNDARY LINE BY SAID DEED DATED FEBRUARY 6TH, 1923, THE TRACT OF LAND HEREBY CONVEYED BEING FURTHER DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT AN 8 INCH IRON PIPE MARKING THE EXISTING NORTHWEST CORNER OF THE AFORESAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND AT THE NORTHEAST CORNER OF THE CLARION OIL COMPANY TRACT OF LAND ON THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE;

THENCE SOUTH 0° 01' 52" WEST, ALONG THE WEST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND, ON THE EAST LINE OF THE AFORESAID CLARION OIL COMPANY TRACT OF LAND, A DISTANCE OF 3698.06 FEET TO A POINT MARKING THE SOUTHWESTERLY CORNER OF THE SAID KEEN AND WOOLF 37 ACRE TRACT OF LAND ON THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL;

THENCE NORTH 55° 23' 04" EAST, ALONG THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL, A DISTANCE OF 563.37 FEET TO THE SOUTHEASTERLY CORNER OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND;

THENCE NORTH 0° 02' 12" EAST, ALONG THE EAST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND ON THE WEST LINE OF THE A. M. BAKER, W. G. PRIESTER, IKE EDWARDS, M. TOD, AND J. EDWARDS TRACTS OF LAND, A DISTANCE OF 3381.39 FEET TO A 6 INCH IRON PIPE FOR CORNER ON THE SOUTH LINE OF CLINTON DRIVE;

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 231.30 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 0° 25' EAST, A DISTANCE OF 150.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 89° 35' WEST ALONG A LINE PARALLEL TO AND 150 FEET SOUTH OF THE SOUTH LINE OF CLINTON DRIVE, A DISTANCE OF 200.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

CONTINUED ON ATTACHMENT

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 32.50 FEET TO THE PLACE OF BEGINNING; SAVE AND EXCEPT AN 80 FOOT STRIP CONVEYED BY JOHN G. TOD TO THE TEXAS AND NEW ORLEANS RAILROAD COMPANY BY DEED DATED SEPTEMBER 28, 1916, RECORDED IN VOLUME 371, PAGE 245 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS.

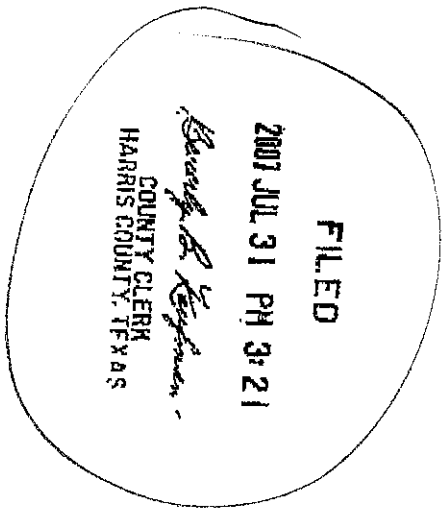


EXHIBIT B

April 26, 2018

STATE OF TEXAS

COUNTY OF HARRIS

EXHIBIT "A"

METES AND BOUNDS DESCRIPTION FOR A
51.726 ACRE AREA
PLUME MANAGEMENT ZONE

METES AND BOUNDS DESCRIPTION of a 51.726 acre tract of land, extending over, through, along and across, a called 69.31248 acre tract of land (Second Tract) as recorded in File No. C288395, Film Code 051-24-1421, Official Public Records of Real Property of Harris County, Texas, and called 37 acre tract of land (Exhibit "A") as recorded in File No. 20070466722, Official Public Records of Harris County, Texas, said tracts being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 U.S. survey feet.

COMMENCING at a 5/8" iron rod found for the Northeast corner of a called 17.66626 acre tract of land (First Tract) as recorded in File No. C288395, Film Code 051-24-1421, Official Public Records of Real Property of Harris County, Texas, said corner having coordinates N=13,833,097.40, E=3,164,701.32;

THENCE, South 03°27'57" East, along the East boundary line of said 17.66626 acre tract, at 693.02 feet passing the southeast corner of said, 17.66626 acre tract, crossing an eighty feet (80') wide right-of-way, as recorded in Volume 371, Page 245, of the Deed Records of Harris County, Texas, at 773.04 feet to a point on the south line of said eighty feet (80') wide right-of-way, same said point being in the northeast corner of the above mention 69.31248 acre tract, continuing along and with the east boundary line of said 69.31248 acre tract, a total distance of 1993.38 feet to a point;

THENCE, South 86°36'30" West, a distance of 23.57 feet to the **POINT OF BEGINNING** having coordinates N=13,831,105.66, E=3,164,798.53;

THENCE, South 13°46'21" East, a distance of 76.03 feet to a point;

THENCE, South 03°15'52" East, a distance of 121.42 feet to a point;

THENCE, South 00°42'57" West, a distance of 127.83 feet to a point;

THENCE, South 56°47'37" West, a distance of 17.86 feet to a point;

THENCE, South 63°15'20" West, a distance of 583.65 feet to a point;

THENCE, North 70°55'46" West, a distance of 124.24 feet to a point;

THENCE, South 63°58'35" West, a distance of 113.54 feet to a point;

THENCE, North 69°04'27" West, a distance of 80.58 feet to a point;

THENCE, South 64°03'36" West, a distance of 203.63 feet to a point;

THENCE, South 28°18'19" East, a distance of 148.51 feet to a point;

THENCE, South 63°19'30" West, a distance of 144.80 feet to a point;

THENCE, North 26°43'13" West, a distance of 155.06 feet to a point;

THENCE, South 49°47'25" West, a distance of 122.60 feet to a point;

THENCE, South 01°23'13" West, a distance of 49.15 feet to a point;

THENCE, South 62°46'36" West, a distance of 70.90 feet to a point;

THENCE, North 60°48'41" West, a distance of 35.36 feet to a point;

THENCE, South 64°54'55" West, a distance of 118.01 feet to a point;

THENCE, South 11°19'37" West, a distance of 171.28 feet to a point;

THENCE, South 57°42'08" West, a distance of 94.03 feet to a point;

THENCE, In a Southwesterly direction along the arc of a curve to the right having a radius of 137.51 feet, a central angle 33°43'04", arc distance of 80.92 feet and a chord bearing of South 77°42'53" West for a distance of 79.76 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 399.28 feet, a central angle of 43°57'45", arc distance of 306.37 feet and a chord bearing of North 66°03'24" West for a distance of 298.91 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 478.75 feet, a central angle of 21°27'26", arc distance of 176.29 feet and a chord bearing of North 29°48'40" West for a distance of 178.24 feet to a point;

THENCE, North 10°00'30" West, a distance of 64.65 feet a point;

THENCE, North 01°33'22" West, a distance of 1,418.86 feet to a point;

THENCE, North 01°09'54" East, a distance of 40.52 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 72.78 feet, a central angle 18°14'43", arc distance of 23.18 feet and a chord bearing of North 10°41'28" East for a distance of 23.08 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 50.79 feet, a central angle 77°00'56", arc distance of 68.27 feet and a chord bearing of North 59°33'57" East for a distance of 63.25 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 226.75 feet, a central angle 28°36'39", arc distance of 113.23 feet and a chord bearing of South 69°12'21" East for a distance of 112.05 feet to a point;

THENCE, South 55°54'50" East, a distance of 59.24 feet to a point;

THENCE, South 54°21'05" East, a distance of 103.63 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 334.54 feet, a central angle 29°08'33", arc distance of 170.16 feet and a chord bearing of South 66°39'19" East for a distance of 168.33 feet to a point;

THENCE, South 79°57'40" East, a distance of 54.81 feet to a point;

THENCE, South 77°34'39" East, a distance of 40.21 feet to a point;

THENCE, South 73°53'04" East, a distance of 43.54 feet to a point;

THENCE, South 71°05'42" East, a distance of 68.75 feet to a point;

THENCE, South 70°59'16" East, a distance of 109.67 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 1,350.04 feet, a central angle 05°10'55", arc distance of 122.10 feet and a chord distance of South 75°23'02" East for a distance of 122.06 feet to a point;

THENCE, South 79°17'36" East, a distance of 132.02 feet to a point;

THENCE, South 81°15'47" East, a distance of 245.02 feet to a point;

THENCE, South 79°37'02" East, a distance of 102.48 feet to a point;

THENCE, South 76°46'01" East, a distance of 97.48 feet to a point;

THENCE, South 74°21'27" East, a distance of 61.65 feet to a point;

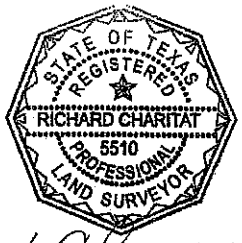
THENCE, South 72°56'07" East, a distance of 57.79 feet to a point;

THENCE, South 71°55'26" East, a distance of 130.00 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 595.80 feet, a central angle 19°45'05", arc distance of 205.39 feet and a chord distance of South 61°02'22" East for a distance of 204.37 feet to a point;

THENCE, South 47°54'26" East, a distance of 94.31 feet to a point;

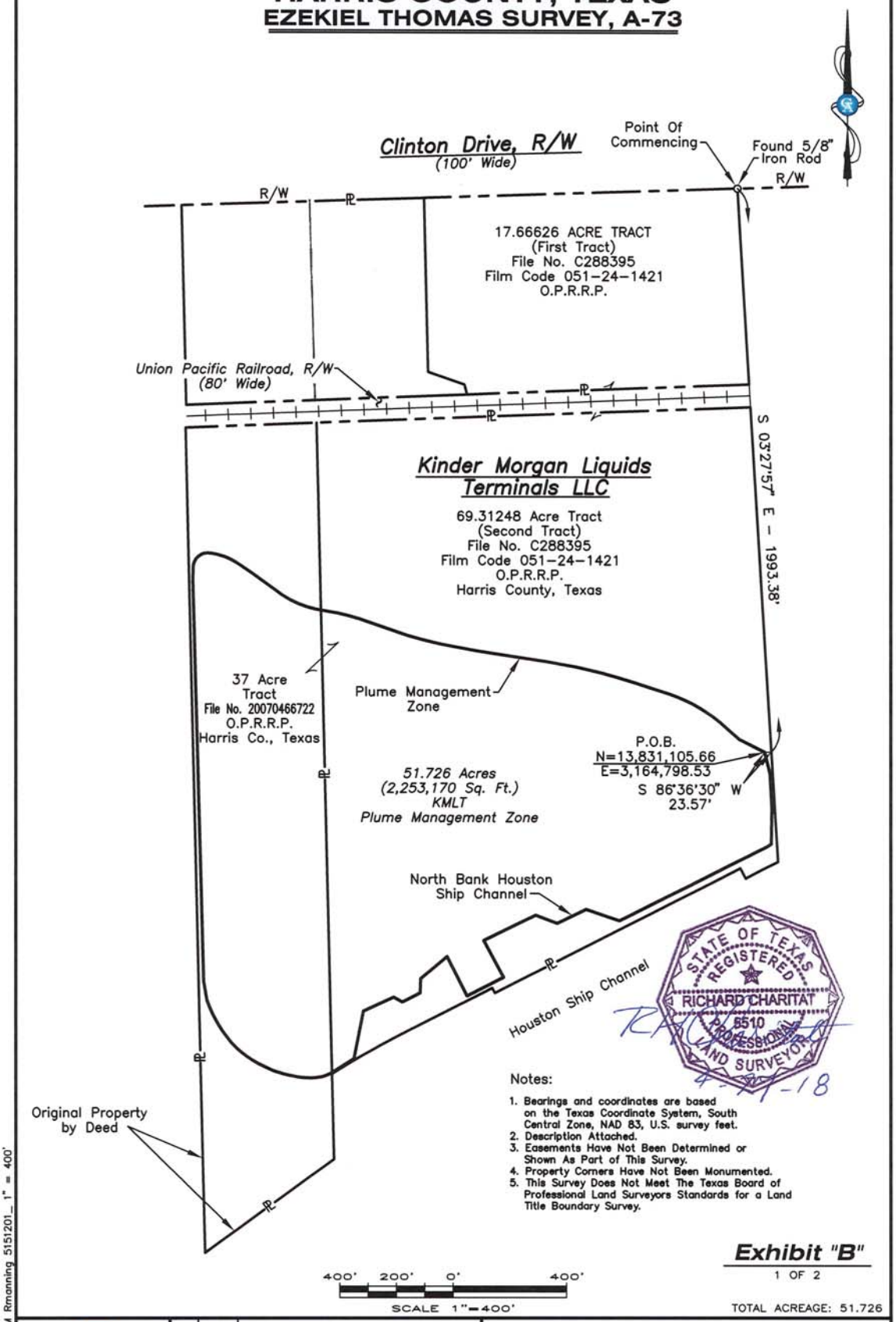
THENCE, South 63°17'49" East, a distance of 99.36 feet to the **POINT OF BEGINNING** containing 51.726 acres of land.



RH Charitat 4-26-18

Richard Charitat R.P.L.S. No. 5510

HARRIS COUNTY, TEXAS
EZEKIEL THOMAS SURVEY, A-73



Notes:

1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

Exhibit "B"

1 OF 2

TOTAL ACREAGE: 51.726

GULLETT & ASSOCIATES, INC.
7135 OFFICE CITY DRIVE
HOUSTON, TEXAS 77087
(713) 644-3219
Firm No. TX 100884-00
www.gulonline.com

NO.	DATE	REVISION

DRAWN BY:	RM	DATE:	04/18
CHECKED BY:	RC	DATE:	04/18
PLOT SCALE:	1"=400'	CAD FILE:	5151201_

TRC
16350 Park Ten Place Suite 101
Ph: 281-616-0100 Houston, Texas 77084 Fax: 281-616-0125

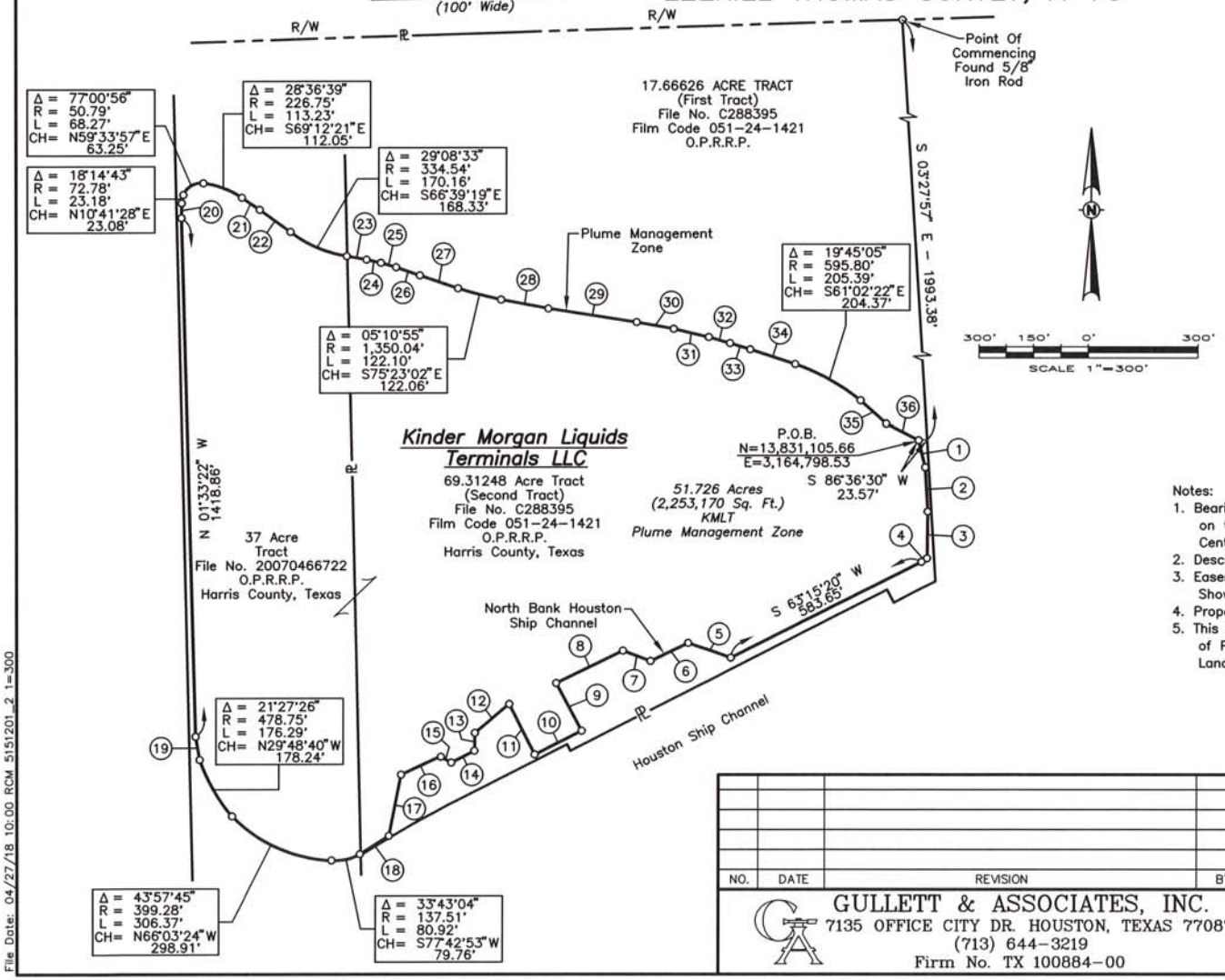
PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUIDS TERMINALS LLC
HARRIS COUNTY, TEXAS

CA-5151-201 REV. 0

FILE DATE: 5/3/2018 7:31 AM Rmanning 5151201_ 1" = 400'

HARRIS COUNTY, TEXAS

EZEKIEL THOMAS SURVEY, A-73



BEARING CHART		
NO.	BEARING	DISTANCE
1	S 13°46'21" E	76.03'
2	S 03°15'52" E	121.42'
3	S 00°42'57" W	127.83'
4	S 56°47'37" E	17.86'
5	N 50°55'46" W	124.24'
6	S 63°58'35" W	113.54'
7	N 69°04'27" W	80.58'
8	S 64°03'36" W	203.63'
9	S 28°18'19" E	148.51'
10	S 63°19'30" W	144.08'
11	N 269°43'13" E	155.06'
12	S 49°47'25" W	122.60'
13	S 01°23'13" W	49.151'
14	S 62°46'36" W	70.90'
15	N 60°48'41" W	35.36'
16	S 64°54'55" W	118.01'
17	S 11°19'37" W	171.28'
18	S 57°42'08" W	94.03'

BEARING CHART		
NO.	BEARING	DISTANCE
19	N 10°00'30" W	64.65'
20	N 01°09'54" E	40.52'
21	S 55°54'50" E	59.24'
22	S 54°21'05" E	103.63'
23	S 79°57'40" E	54.81'
24	S 77°34'39" E	40.21'
25	S 73°53'04" E	43.54'
26	S 71°05'42" E	68.75'
27	S 70°59'16" E	109.67'
28	S 79°17'36" E	132.02'
29	S 81°15'47" E	245.02'
30	S 79°37'02" E	102.48'
31	S 76°46'01" E	97.48'
32	S 74°21'27" E	61.65'
33	S 72°56'07" E	57.79'
34	S 71°55'26" E	130.00'
35	S 47°54'26" E	94.31'
36	S 63°17'49" E	99.36'

Notes:
1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

STATE OF TEXAS REGISTERED RICHARD CHARITAT 5510 PROFESSIONAL LAND SURVEYOR

4-27-18

EXHIBIT "B"

2 OF 2

NO.	DATE	REVISION	BY

GULLETT & ASSOCIATES, INC.
7135 OFFICE CITY DR. HOUSTON, TEXAS 77087
(713) 644-3219
Firm No. TX 100884-00

TRC
16350 Park Ten Place Suite 101
Ph: 281-616-0100 Houston, Texas 77084 Fax: 281-616-0125

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUIDS TERMINALS LLC
HARRIS COUNTY, TEXAS

DRAWN BY: RM	DATE: 04/18	CA-5151-201
CHECKED BY: G&A	DATE: 04/18	
SCALE: 1"=300'	W.O.	CAD FILE: 5151201_1 REV. 0

File Date: 04/27/18 10:00 RCM 5151201_2 1=300

Exhibit B

Plume Management Zone Maintenance and Monitoring Requirements

Facility monitoring will consist of semi-annual groundwater monitoring of the approved plume management zone well network with annual reporting to the Texas Commission on Environmental Quality (TCEQ). More detail regarding monitoring and maintenance can be found in the TCEQ-approved Response Action Plan Addendum for the West Plant of the Galena Park Terminal (October 2017)

RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 29, 2017

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval of Response Action Plan
Draft Addendum Response Action Plan, West Plant, dated October 27, 2017
Kinder Morgan Liquids Terminals, LLC - Galena Park;
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054;
EPA ID No. TXD026481523;
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced Response Action Plan (RAP) received by the Remediation Division on October 30, 2017. The Draft Addendum Response Action Plan was prepared to incorporate soil and groundwater impacts at the former Vopak Terminal Galena Park, Inc. (VTGP) into the TCEQ approved plume management zone (PMZ) for the West Plant on the Kinder Morgan Liquids Terminals, LLC (Kinder Morgan) Galena Park Terminal. Kinder Morgan purchased the VTGP property on February 7, 2015. Since the impacted soil and groundwater from the VTGP shall be incorporated into the existing West Plant PMZ, the existing deed notice shall be modified to incorporate the affected soils and groundwater from the VTGP, and expand the West Plant PMZ boundary. The response action shall include continued semiannual groundwater monitoring within the expanded PMZ, continued groundwater recovery in the southeast corner of the West Plant PMZ, and annual reporting.

Based on the TCEQ review, the Draft Addendum RAP fulfills the requirements of 30 Texas Administrative Code (TAC) §350.94. The TCEQ hereby approves Draft Addendum RAP with the following conditions:

1. If the proposed response action for the revised West Plant PMZ is determined to be longer than 3 years to achieve cleanup goals, then the West Plant PMZ shall need to be incorporated into the Permit/Compliance Plan corrective action program as part of the Class 3 Modification application. As specified in the TCEQ November 9, 2016 letter the due date for submittal of the above reference Class 3 Permit Modification application is deferred until assessment at Gate 6 is completed. At that time, a new deadline will be re-established for submittal of the application to include changes to the corrective action program.
2. Please proceed with implementation of the Draft Addendum RAP, and submittal of required reports in accordance with the schedule proposed in the approved Addendum RAP. Upon attainment of the response objectives, a Response Action Completion Report (RACR) must be submitted, in accordance with 30 TAC §350.95.
3. The approved Draft Addendum RAP contains proposed institutional control language sufficient to fulfill the requirements of 30 TAC §350.111. Proof of filing of the

institutional controls must be submitted within 120 days of the date of this letter in accordance with §350.33(f)(4)(C)(i) regarding Remedy Standard B groundwater response action PMZ.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the plan.

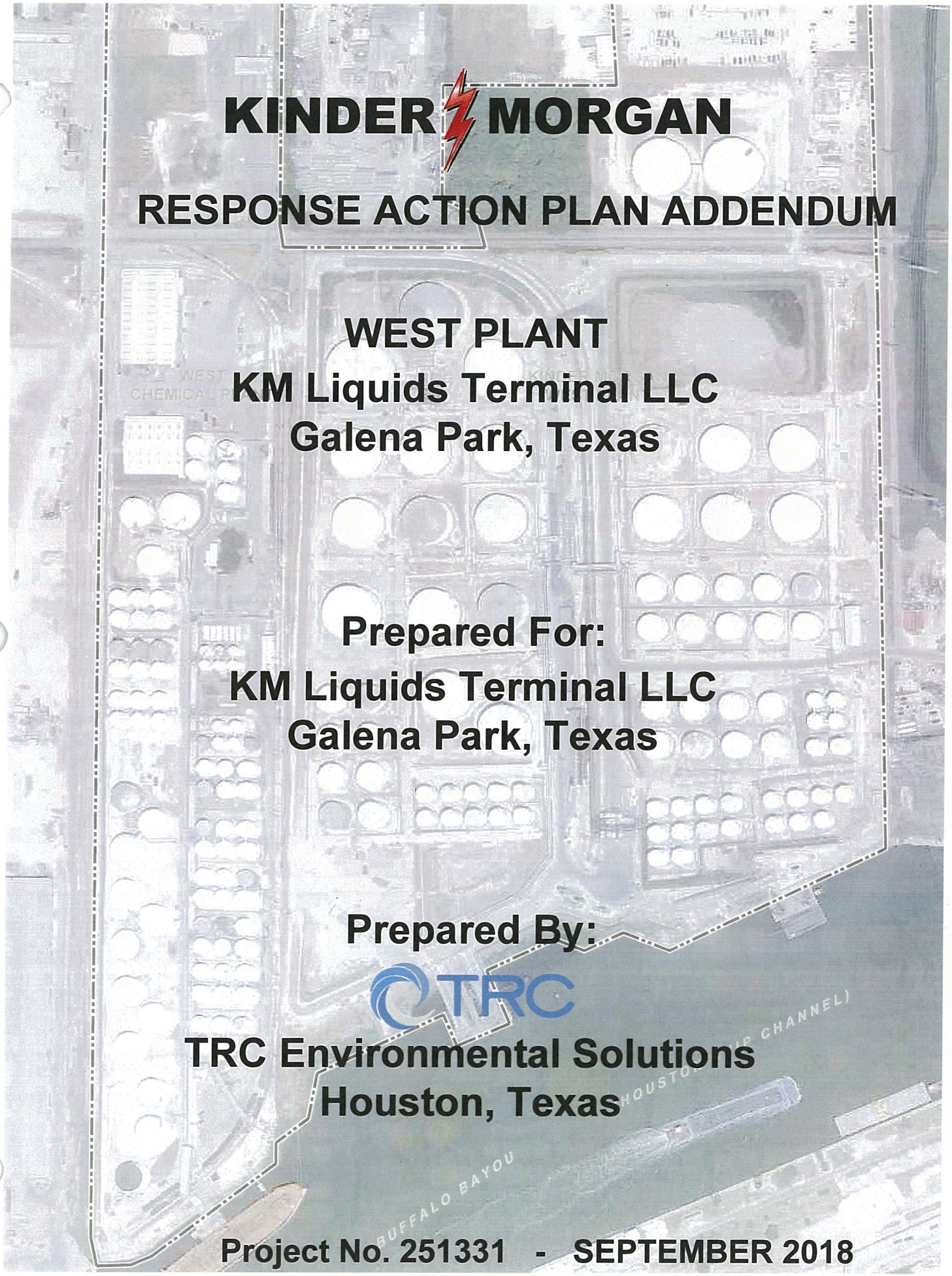
Questions concerning this letter should be directed to me at (512) 239-2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MH/bk

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston



KINDER MORGAN

RESPONSE ACTION PLAN ADDENDUM

WEST PLANT
KM Liquids Terminal LLC
Galena Park, Texas

Prepared For:

KM Liquids Terminal LLC
Galena Park, Texas

Prepared By:

TRC

TRC Environmental Solutions
Houston, Texas

Project No. 251331 - SEPTEMBER 2018

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Revised Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) 30573
check one: ___Initial submittal for this on-site property X Subsequent submittal for this on-site property
Report date: May 1, 2016 TCEQ Region No.: 12

TCEQ Program (check one)

- [X] Corrective Action (Mail Code 127)
- [ ] Voluntary Cleanup Program (Mail Code 221)
- [ ] RPR Section (Mail Code 137)
- [ ] Superfund PRP Lead (Mail Code 143)
- [ ] Municipal Solid Waste Permits (Mail Code 124)

On-Site Property Information

On-Site Property Name: KM Liquids Terminals LLC
Street no. 906 Pre dir: ___ Street name Clinton Street type: Drive Post dir: ___
City: Galena Park County: Harris County Code: 101 Zip: 77547
Nearest street intersection or location description: Holland Avenue

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29°43'45"
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95°13'31"

Off-Site Affected Property Information

Off-Site Affected Property Name:
Physical Address:
Street no. ___ Pre dir: ___ Street name ___ Street type: ___ Post dir: ___
City: ___ County: ___ County Code: ___ Zip: ___

[X] Check if no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: KM Liquids Terminals LLC
Contact Person: Mr. Johnny Kennedy, PG Title: Remediation Manager
Mailing Address: 1500 Clinton Drive
City: Galena Park State: TX Zip: 77547 E-mail address Johnny_kennedy@kindermorgan.com
Phone: (713) 654-6035 Fax: (713) 654-6020

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person [signature] Name, print: JOHNNY KENNEDY Date: 9/4/2018

Professional Signatures and Seals

Professional Geoscientist

Tony Dworaczyk, PG	Texas License No.: 2658	January31, 2018
Professional Geoscientist	Geoscientist License number	Expiration date
Tony Dworaczyk	9-5-18	
Signature	Date	
(713) 244-1073	(713) 789-5920	adworaczyk@trcsolutions.com
Telephone number	FAX number	E-mail

Professional Engineer

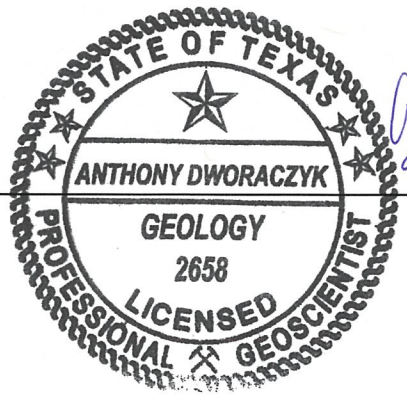
Professional Engineer	P.E. License number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



GUD 9-5-18

RAP Executive Summary	ID No.: SWR# 30573
	Report Date: 05/15/2017

Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and PCLE zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

Background

This Response Action Plan (RAP) Addendum has been developed to incorporate soil and groundwater impacts at the former Vopak Terminal Galena Park, Inc. (VTGP) Terminal (SWR No. 30566) into the TCEQ approved Plume Management Zone (PMZ) located in West Plant on the KM Liquids Terminals LLC (Kinder Morgan) Galena Park Terminal' (SWR No. 30573). The former VTGP Terminal, which was located immediately adjacent to the Kinder Morgan Galena Park Terminal, was purchased by Kinder Morgan on February 7, 2015 and incorporated into of the Kinder Morgan Galena Park Terminal. Kinder Morgan notified the Texas Commission on Environmental Quality (TCEQ) of the acquisition by letter, and submitted an application for a Class I[1] permit modification to the Galena Park Hazardous Waste Permit (HW-50054) to change the legal description of the facility to include the VTGP property. The permit modification was issued by the TCEQ on May 31, 2016. The former VTGP is now referred to as the Kinder Morgan Galena Park West Chemical Plant (WCP).

As required by the Galena Park Terminal Hazardous Waste Permit (HW-50054) various Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) on the Galena Park Terminals have been assessed and the findings detailed in a site-wide Affected Property Assessment Report (APAR). The 2004 Kinder Morgan Site-Wide APAR for the Galena Park Terminal (Arcadis, 2004) identified a dissolved-phased chlorinated hydrocarbon water plume in the western part of the Kinder Morgan West Plant. Based on the chemicals of concern (COCs), concentration gradient and groundwater flow direction, the source of the impacted groundwater was attributed to an up-gradient, off-site source (the former VTGP Terminal to the west). Subsequently, Kinder Morgan and VTGP conducted groundwater sampling events at their respective terminals, coordinated joint gauging events, and participated in meetings and communications with the TCEQ that are well documented. The TCEQ eventually requested that VTGP complete an assessment and submit an APAR for their terminal. The TCEQ Central Registry database indicates that this report was received by the Agency on July 16, 2013, but subsequent communication with Agency staff suggests the report has never been reviewed. Kinder Morgan in general agrees with the data in the APAR defining the soil and groundwater protective concentration level exceedance (PCLE) zones and the conclusion that the groundwater plume is stable. Kinder Morgan disagrees with the interpretations presented in the APAR regarding groundwater flow directions and the concentration gradients, a position the TCEQ expressed in a February 7, 2007 letter to VTGP. An electronic copy of the 2013 VTGP APAR is included on a compact disk in Appendix 2 of this RAP Addendum as verbally requested.

The TCEQ approved 2007 Kinder Morgan West Plant RAP (URS, 2007) discussed response actions for three West Plant Solid Waste Management Unit (SWMU) Groups: W1, W2, and W3, that were identified and investigated in the site-wide APAR (Arcadis, 2004). The 2007 RAP proposed a PMZ to manage impacted soil and ground water in the West Plant area, and presented calculated ecological and human health ground water to surface water (^{SW}GW) protective concentration levels (PCLs) applicable to the adjacent Houston Ship Channel. The proposed PMZ did not include the upgradient portion of the groundwater PCLE Zone, which was attributed to the offsite source on the former VTGP Terminal. The TCEQ approved the 2007 West Plant RAP by letter dated November 1, 2007. A RAP Addendum (URS, 2013) for the Galena Park West Plant was submitted to the TCEQ in September 2013 to provide additional surface soil data, revise the remedial strategy of the PMZ for affected groundwater containment and recovery in the southeast corner of the West Plant, and present Tier 2 commercial/industrial PCLs for benzene and vinyl chloride for $^{Air}GW_{Inh\text{-}V}$ pathway. The 2013 West Plant RAP Addendum was approved by the TCEQ by letter dated December 10, 2013.

This RAP Addendum proposes to incorporate, into the existing TCEQ approved PMZ in West Plant, impacted soil and ground water at the WCP (former VTGP Terminal) and the remaining area of the West Plant ground water

PCLE zone identified in the 2007 RAP. The response action is appropriate since 1) COCs exceeding the critical PCL in the area to be incorporated are the same as those in the existing PMZ COCs, 2) the concentrations of COCs are well below the risk-based criteria already established for the existing PMZ, and 3) a monitoring network is already in-place, and the proposed response action only includes an expansion of the existing monitoring program and reporting, and modification of the existing institutional controls.

Proposed Response Actions for Soil

The proposed response action for soils is to incorporate the WCP impacted soils into the Kinder Morgan West Plant PMZ. Soil COCs at WCP that exceed the soil leaching to ground water ingestion ($^{GW}Soil_{Ing}$) PCLs are present in the ground water, but the soil concentrations do not exceed the direct exposure pathway ($^{Tot}Soil_{Comb}$). The expansion of the West Plant PMZ to incorporate the WCP impacted soil is an exposure prevention response. It is not intended to demonstrate reduction of COC concentrations to meet PCLs. However, it is intended to demonstrate the plume is stable, and that the soils are not contributing to increased contaminant mass. Based on the nature of the COCs present, the natural attenuation process will reduce concentrations to below the applicable PCL over time. The existing deed recordation will also be modified to incorporate and manage impacted soil at the WCP into the existing Kinder Morgan West Plant PMZ under Remedy Standard B.

Response Actions for Groundwater

The proposed response action for groundwater is to incorporate the impacted groundwater at the WCP into the Kinder Morgan West Plant PMZ. The TCEQ approved 2007 West Plant RAP (URS, 2007) and 2013 West Plant RAP Addendum (URS 2013) provides a more detailed discussion of the response actions related to the groundwater PCLE zones. Changes to the West Plant PMZ and the monitoring network resulting from the inclusion of the impacted groundwater in WCP are outlined in Worksheet 2.1

What is the selected remedy standard for this affected property? ___ A X B

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Surface and Subsurface Soil	Benzene Chlorobenzene				X		
Groundwater	Benzene Chlorobenzene cis-1,2-Dichloroethene 1,2-Dichloroethane Ethylbenzene Isopropylbenzene Xylenes Tetrachloroethene Trichloroethene Vinyl chloride Bis(2-chloroethyl)ether				X		

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).
[2] If a modified groundwater response objective is proposed, check the type(s) of proposed modifications.

RAP Executive Summary	ID No.: SWR# 30573
	Report Date: 05/15/2017

Note: COCs listed above are those identified in the soil and ground water at the WCP in the 2013 APAR and are consistent with those currently managed in the approved West Plant PMZ.

Is there a media that contains a PCLE zone that is not addressed in this RAP? ____ yes __X__ no
If yes, provide justification for not addressing the PCLE zone in this RAP.

On-site land use: [ ] Residential [X] Commercial/Industrial
Off-site land use: [ ] Residential [X] Commercial/Industrial (check all that apply)

Is this a re-submittal or revision of a previous RAP? __X__ Yes ____ No

If yes, explain why the RAP is being revised or resubmitted.

This RAP Addendum has been developed to incorporate soil and groundwater impacts at the former VTGP Terminal (SWR No. 30566) into the TCEQ approved PMZ for the Kinder Morgan Galena Park Terminal's West Plant (SWR No. 30573). The former VTGP Terminal was purchased by Kinder Morgan on February 7, 2015 and is located immediately adjacent to and formerly shared a fence line with the Galena Park West Plant. The former VTGP is now referred to as the Kinder Morgan Galena Park WCP.

Were all the appropriate notifications made in accordance with §350.55? ___ Yes __X__ No

If no, explain why notifications were not made:

Not applicable as affected groundwater is being captured only in the southeast corner of the Kinder Morgan West Plant as detailed in the 2013 West Plant RAP and no additional response actions are proposed for the off-site property. The VTGP Terminal is now owned by Kinder Morgan and is up gradient of the existing PMZ.

CHRONOLOGY
Former Vopak Terminal, Galena Park, Texas

February 2017	Groundwater Sampling event conducted at Kinder Morgan West Chemical Plant (WCP), the former Vopak Terminal Galena Park (VTGP).
Jan 2016- May 2017:	Monthly Gauging and LNAPL removal event for monitor wells VMW-3, VMW-8, VMW-10 at WCP.
May 31, 2016:	Class 1 Permit modification for the Kinder Morgan Terminal hazardous waste permit issued by the TCEQ, incorporating the WCP
Jan - Dec 28, 2016:	Monthly gauging and LNAPL removal event for monitor wells VMW-3, VMW-8, VMW-10 at WCP.
March 13, 2016:	A Class 1[1] permit modification application for the KINDER MORGAN West Plant was submitted to the TCEQ to incorporate the former VTGP Terminal as part of KM Liquids Terminals Galena Park Terminal. The VTPG Terminal is now identified as the Kinder Morgan West Chemical Plant (WCP).
November 23, 2015:	Gauging and LNAPL removal event for monitor wells VMW-3, VMW-8, VMW-10 at WCP.
August 13, 2015:	Gauging and LNAPL removal event for monitor wells VMW-3, VMW-8, VMW-10 at WCP.
July 13, 2015:	Gauging and LNAPL removal event for monitor wells VMW-3, VMW-8, VMW-10 at WCP.
July 2, 2015:	Groundwater sampling event conducted at WCP.
June 22, 2015:	Gauging of all monitoring wells at WCP. LNAPL detected in three monitoring wells VMW-3, VMW-8, and VMW-10 and manually abated.
February 7, 2015:	Kinder Morgan purchases the VTGP. The VTGP Terminal is now identified as the Kinder Morgan West Chemical Plant (WCP).
July 2013:	APAR prepared by ERM for VTGP.
August 2011:	Groundwater sampling event conducted at VTGP.
September 2010:	Groundwater sampling event conducted at VTGP.
April, 2009:	VTGP submits a work plan to Kinder Morgan to conduct joint gauging and sampling events.

Sept 3, 2008:	Kinder Morgan provides access to VTGP to conduct joint groundwater gauging events.
July 3, 2007:	VTGP and Kinder Morgan agree in a meeting to share assessment data and groundwater level gauging data.
June 2007:	Groundwater sampling event conducted at VTGP.
May 2007:	Groundwater sampling event conducted at VTGP.
April 2007:	Groundwater sampling event conducted at VTGP.
October 2006:	Groundwater sampling event conducted at VTGP.
June 6, 2006:	TCEQ sends a letter to VTGP regarding groundwater flow direction issues and to conduct a shared sampling event with Kinder Morgan wells.
May 24, 2006:	VTGP was informed of the results of two groundwater grab samples collected within the VTGP Terminal in February 2006 by an environmental consultancy representing Kinder Morgan. Subsequently, Kinder Morgan maintained that affected ground water identified near the VTGP/Kinder Morgan joint property boundary is sourced within the VTGP property.
March 2, 2006:	Kinder Morgan Sends response letter to the TCEQ regarding the migration of COCs from VTGP to Kinder Morgan that was presented in the Kinder Morgan 2004 APAR.
July and August 1997:	Groundwater Flow Investigation was conduct at the former Paktank site prior to VTGP owning the site.

Checklist for Report Completeness	ID No.: SWR # 30573
	Report Date: 05/15/2017

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.

				Report Contents
		Required	**Cover Page**	☒
		Required	**Executive Summary**	☒
		Required	**Checklist for Report Completeness**	☒
		Required	**Worksheet 1.0** Response Action Objectives	☒
No ☐	Have new data been collected that was not previously submitted?	☒ **Yes**	**Attachment 1A*** Maps and Cross Sections	☒
			Attachment 1B* Graphs of Concentration versus Time	☐
		Required	**Worksheet 2.0** Response Action Design	☒
		Required	**Attachment 2A*** Response Action Diagrams and Component/Equipment Descriptions	☐
		Required	**Attachment 2B*** Proposed Well Design	☐
No ☒	Is an ecological services analysis or compensatory restoration plan part of the proposed response action?	☐ Yes	**Attachment 2C*** ESA and Compensatory Restoration Plan	☐
No ☐	Is a plume management zone proposed as part of the response action?	☒ Yes	**Worksheet 2.1** Plume Management Zone	☒
			Attachment 2D* Plume Management Zone Map	☒
			Attachment 2E* Attenuation Action Levels Determination	☐
No ☒	Is a waste control unit proposed as part of the response action?	☐ Yes	**Worksheet 2.2** Waste Control Unit	☐
			Attachment 2F* Map of Waste Control Unit	☐
No ☒	Is a technical impracticability area proposed as part of the response action?	☐ Yes	**Worksheet 2.3** Technical Impracticability	☐
			Attachment 2G* Map of Technical Impracticability Area	☐

Checklist for Report Completeness	ID No.: SWR # 30573
	Report Date: 05/15/2017

				Report Contents
No ☐	Is the response action a remedy standard B?	☒ Yes →	**Worksheet 2.4** Institutional Controls	☒
	Required **No changes from approved 2007 RAP and 2013 RAP Addendum**		**Worksheet 3.0** Performance Measures and Potential Problems	☐
	Required		**Worksheet 3.1** Monitoring and Sampling	☒
	Required		**Attachment 3A*** Map of Monitoring and Sampling Points	☒
	Required **No changes from approved 2007 RAP and 2013 RAP Addendum**		**Worksheet 3.2** Operation and Maintenance	☐
	Required **Not applicable to this addendum**		**Worksheet 4.0** Confirmation Sampling Plan	☐
	Required **Not applicable to this addendum**		**Attachment 4A*** Map of Confirmation Sampling Points	☐
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Worksheet 5.0** Post Response Action Care	☒
		→	**Attachment 5A*** Map of PRAC Monitoring and Sampling Points	☒
		→	**Attachment 5B*** PRAC Costs	☐
No ☒	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes →	**Attachment 5C*** Small Business Affidavit	☐
	Required		**Worksheet 6.0** Implementation Schedule	☒
	Required		**Appendix 1*** References	☒
No ☐	Was any data collected that was not previously reported?	☒ Yes	**Appendix 2*** Data Tables and Boring Logs	☒
No ☒	Were any studies or tests conducted?	☐ Yes →	**Appendix 3*** Studies and Tests Documentation	☐
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Appendix 4*** Proposed Institutional Controls	☒
No ☒	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes →	**Appendix 5*** Landowner Concurrence	☐
No ☒	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes →	**Appendix 6*** Sampling Procedures	☐
No ☒	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☒	Was approval received from the TCEQ regarding the use of different rules to address a media?	☐ Yes →	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Use this worksheet to describe the objectives for the response action in each media.

Response Action Objectives

List the environmental media to which this applies Surface and Subsurface Soils
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Except to expand the boundaries of the existing TCEQ approved West Plant PMZ to include surface and subsurface soils with benzene and chlorobenzene concentrations that exceed the commercial/industrial $^{GW}Soil_{Ing}$ PCLs (as determined in the 2013 VTGP Terminal APAR (ERM 2013)), the soil response will remain the same as that in the approved 2007 RAP and 2013 RAP Addendum.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Handling, treatment, and disposal of soils within the existing Kinder Morgan West Plant PMZ are discussed in the TCEQ approved Kinder Morgan 2007 RAP and 2013 RAP Addendum. Generation of COC impacted soil during the Response Action is not expected. No soil removal is proposed.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The $^{GW}Soil_{Ing}$ PCLE zones for benzene and chlorobenzene for surface and subsurface soil at the WCP identified in the APAR for the former VTGP Terminal (ERM, 2013) will be managed in the proposed expanded West Plant PMZ and groundwater PCLE zone as discussed in the TCEQ approved 2007 Kinder Morgan RAP (URS, 2007) and the approved 2013 RAP Addendum (URS, 2013). The expanded PMZ will be implemented and the institutional control (deed record) will be modified and filed following approval of the RAP Addendum with the revised PMZ boundaries.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

Physical Controls are not proposed as a soil response action.

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

The results of proposed routine groundwater sampling will be used to ensure that benzene and chlorobenzene concentrations in groundwater are not increasing due to leaching of COCs from soil and to verify containment of the plume and that groundwater is not migrating beyond the PMZ above applicable PCLs.

Response Action Objectives

List the environmental media to which this applies Groundwater
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Except to expand the boundaries of the existing TCEQ approved West Plant PMZ to include the upgradient, impacted ground water on West Plant and the former VTGP Terminal and to adjust the ground water monitoring network, the ground water response will remain the same as that in the approved 2007 RAP and 2013 RAP Addendum. The impacted groundwater in the areas to be incorporated into the PMZ contains the same COCs as previously reported in the 2007 RAP and the 2013 RAP Addendum for the impacted ground water currently in the PMZ. In addition, the current concentrations of COCs at the new additional proposed POEs do not exceed the approved action levels defined in the 2007 RAP and 2013 RAP Addendum and therefore the potential for un-protective conditions is not increased by the change in the PMZ configuration.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

The management of COC impacted ground water is not changed by the proposed RAP addendum. Details on the management of impacted ground water during the Response Action are provided in the TCEQ approved Kinder Morgan 2007 RAP and 2013 RAP Addendum.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The proposed changes to the PMZ in this RAP Addendum do not alter the "reasonable time frame" as proposed in the approved 2007 RAP and 2013 RAP Addendum.

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies: Sandy Channel Fill (SCF)/ Upper Naturally Transmissive Unit (UNTU)

Repeat this section for each groundwater-bearing unit for which a different response action is proposed.

Groundwater classification ____ 1 _X_ 2 ___ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? _X_ Yes ___ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? _X_ Yes ___ No

If yes, complete the appropriate portions of this report.
If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

See the approved 2007 RAP and 2013 RAP Addendum for how the COCs concentration in ground water will be reduced and prevented from migrating beyond the groundwater PCLE Zone. The proposed changes to the ground water response action in this RAP Addendum are not anticipated to affect what was proposed previously.

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh-V}$) is exceeded.

See the approved 2007 RAP and 2013 RAP Addendum for details related to the air inhalation pathway. The proposed changes to the ground water response action in this RAP Addendum are not anticipated to affect what was proposed previously for this pathway.

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

See the approved 2007 RAP and 2013 RAP Addendum for details related to the ground water to surface water pathway. The proposed changes to the ground water response action in this RAP Addendum are not anticipated to affect what was proposed previously for this pathway.

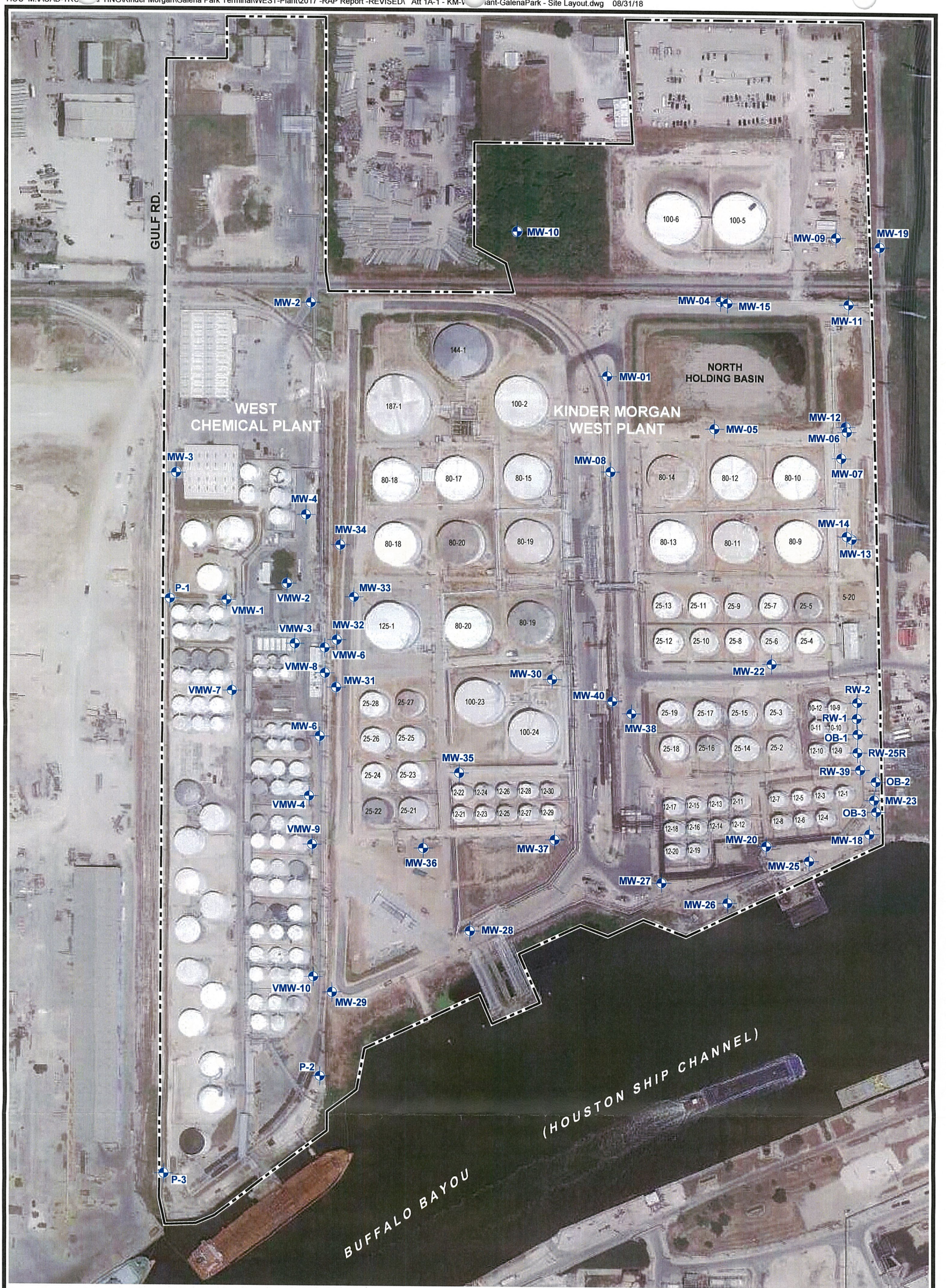
Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

See the approved 2007 RAP and 2013 RAP Addendum for details related to the prevention of human and ecological receptor exposure to ground water COCs. The proposed changes to the ground water response action in this RAP Addendum are not anticipated to affect what was proposed previously relative to human and ecological receptor exposure.

ATTACHMENT 1A
Maps and Cross Sections

- 1A-1 – Site Map
- 1A-2 – Potentiometric Surface Map (February 2017)
- 1A-3 – COC Concentration Map
- 1A-4 – Soil PCLE Map

HOU M:\ACAD-TRC...FTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 1A-1 - KM-W...ant-GalenaPark - Site Layout.dwg 08/31/18



IMAGERY SOURCE: Google Earth (07/31/2015)

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION

N

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

SITE LAYOUT

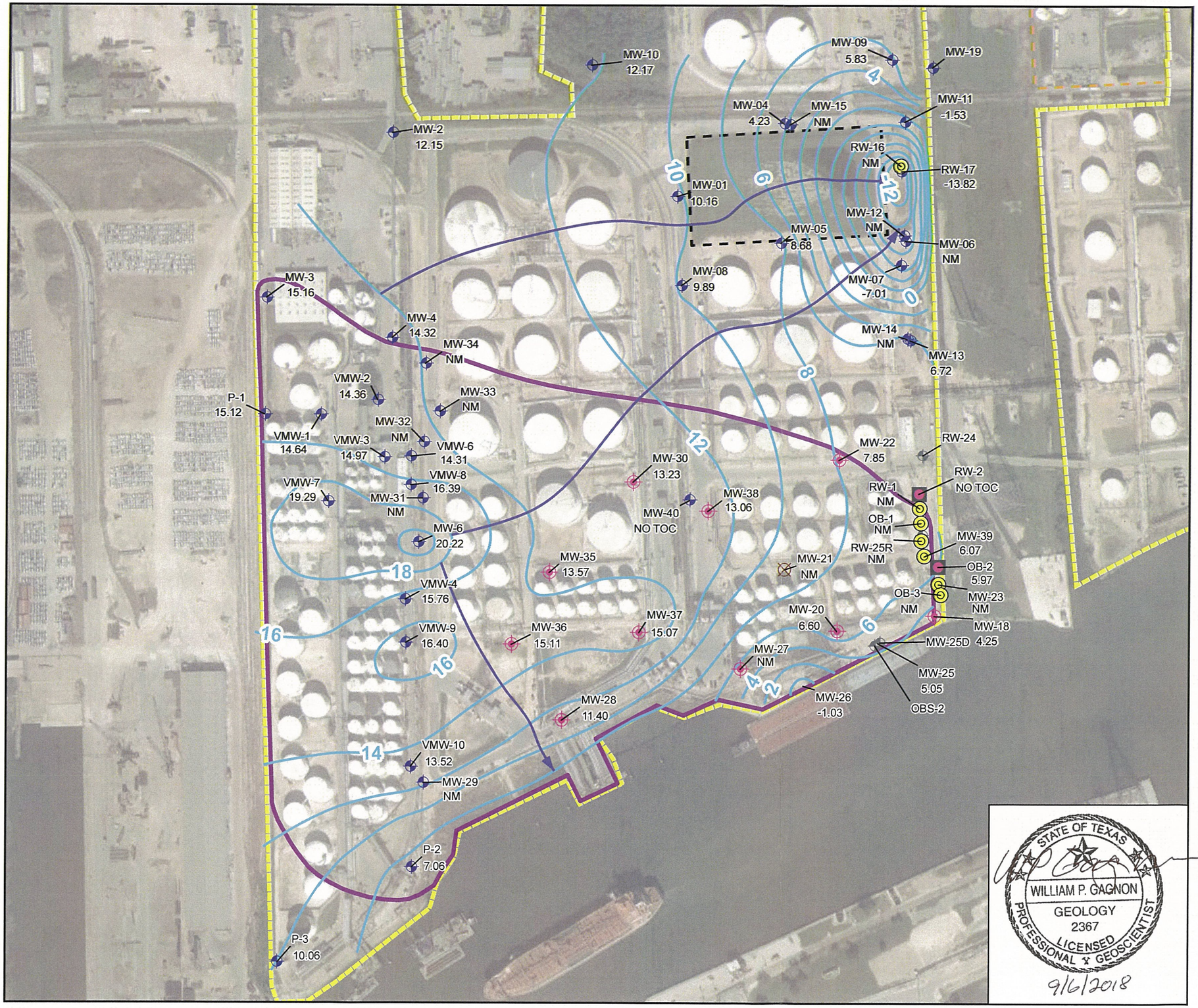
KINDER MORGAN

906 CLINTON DRIVE
GALENA PARK, TEXAS 77547
WEST PLANT - RAP ADDENDUM

PROJECT NO.: 251331	R-BY: T.D.	DATE: 08/31/2018	D-BY: O.F.

TRC
10550 RICHMOND AVENUE
SUITE 210
HOUSTON, TEXAS 77042
713-244-1000

ATTACHMENT
1A-1



Legend

- Well Location
- Well Destroyed
- Well Plugged and Abandoned
- PMZ Monitoring Well
- Recovery Well
- Observation Well
- Approximate Groundwater Elevation Contour
  Contour Interval = 2 feet
- Groundwater Flow Direction
- Plume Management Zone
- Plant Areas

Notes:

1. Image Source: Texas Google Imagery October 28, 2017

N

0 150 300 600

Feet

STATE OF TEXAS
WILLIAM P. GAGNON
GEOLOGY
2367
LICENSED
PROFESSIONAL GEOSCIENTIST
9/6/2018

AECOM
19219 KATY FREEWAY, SUITE 100
HOUSTON, TX 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Title: **GROUNDWATER POTENTIOMETRIC SURFACE MAP July and August 2018**

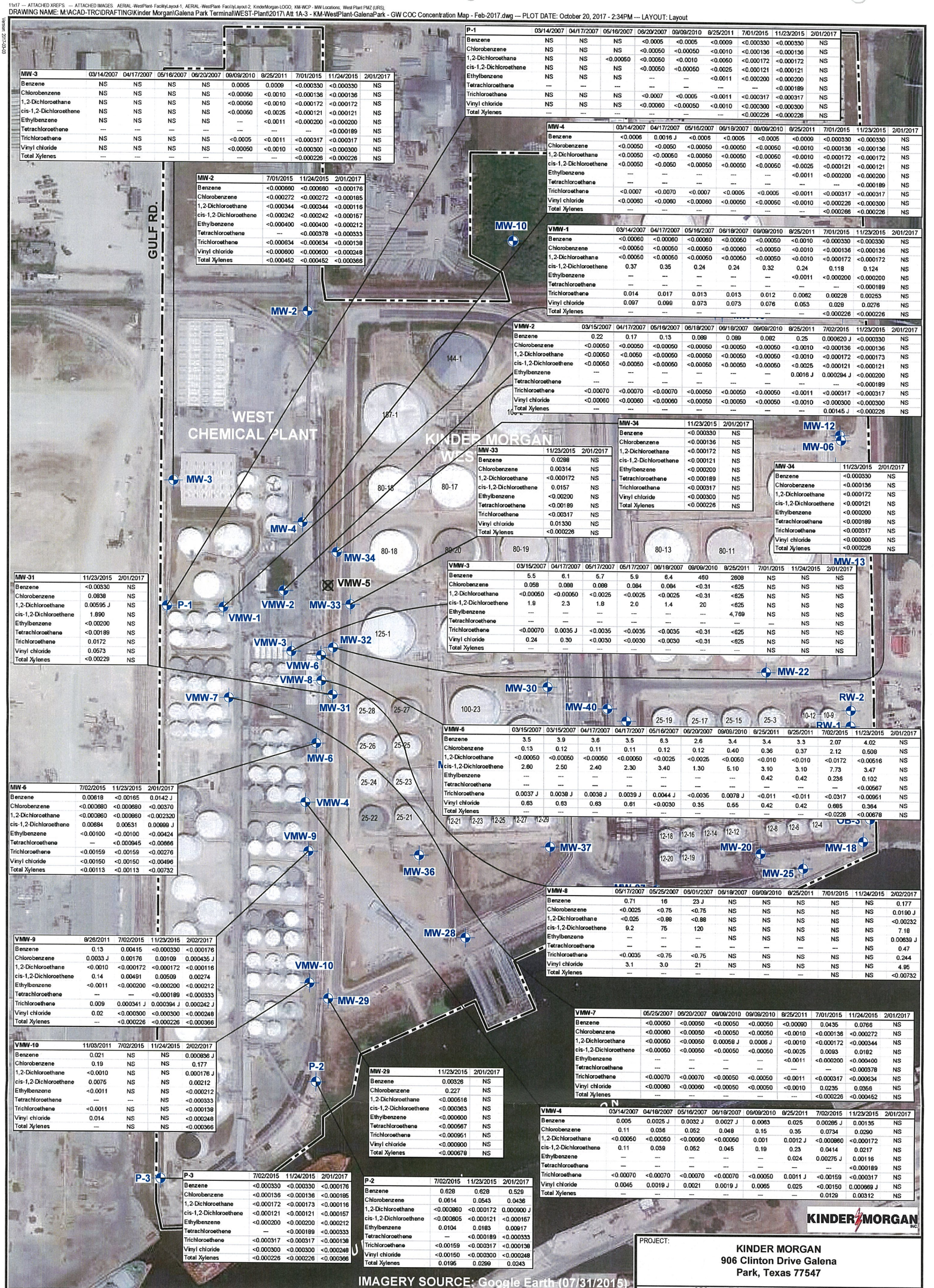
Project: WEST PLANT REPORTING

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	
As Shown	NEF/KPL	9/6/2018	60562036	**Attachment 1A-2**
	Chk'd by: WG	Date: 9/6/2018		

Path: P:_ENVP2\2\Kinder Morgan\60562036 KM Galena Park FY18\900-Work\920-939-GIS or Graphics\Wes...\WP_GWE_8_2018_Rev.mxd

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-1, AERIAL -WestPlant- FacilityLayout-2, KinderMorgan-LOGO, KM-WCP - MW Locations, West Plant PMZ (URS).
DRAWING NAME: M:\ACAD-TRC\DRAFTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017\ Att 1A-3 - KM-WestPlant-GalenaPark - GW COC Concentration Map - Feb-2017.dwg --- PLOT DATE: October 20, 2017 - 2:34PM --- LAYOUT: Layout



MW-3	03/14/2007	04/17/2007	05/16/2007	06/20/2007	09/09/2010	8/25/2011	7/01/2015	11/24/2015	2/01/2017
Benzene	NS	NS	NS	NS	0.0005	0.0009	<0.000330	<0.000330	NS
Chlorobenzene	NS	NS	NS	NS	<0.00050	<0.0010	<0.000136	<0.000136	NS
1,2-Dichloroethane	NS	NS	NS	NS	<0.00050	<0.0010	<0.000172	<0.000172	NS
cis-1,2-Dichloroethene	NS	NS	NS	NS	<0.00050	<0.0025	<0.000121	<0.000121	NS
Ethylbenzene	NS	NS	NS	NS	---	<0.0011	<0.000200	<0.000200	NS
Tetrachloroethene	---	---	---	---	---	---	---	<0.000189	NS
Trichloroethene	NS	NS	NS	NS	<0.0005	<0.0011	<0.000317	<0.000317	NS
Vinyl chloride	NS	NS	NS	NS	<0.00050	<0.0010	<0.000300	<0.000300	NS
Total Xylenes	---	---	---	---	---	---	<0.000226	<0.000226	NS

MW-2	7/01/2015	11/24/2015	2/01/2017
Benzene	<0.000660	<0.000680	<0.000176
Chlorobenzene	<0.000272	<0.000272	<0.000185
1,2-Dichloroethane	<0.000344	<0.000344	<0.000116
cis-1,2-Dichloroethene	<0.000242	<0.000242	<0.000167
Ethylbenzene	<0.000400	<0.000400	<0.000212
Tetrachloroethene	---	<0.000378	<0.000333
Trichloroethene	<0.000634	<0.000634	<0.000138
Vinyl chloride	<0.000600	<0.000600	<0.000248
Total Xylenes	<0.000452	<0.000452	<0.000366

P-1	03/14/2007	04/17/2007	05/16/2007	06/20/2007	09/09/2010	8/25/2011	7/01/2015	11/23/2015	2/01/2017
Benzene	NS	NS	NS	<0.0005	<0.0005	<0.0009	<0.000330	<0.000330	NS
Chlorobenzene	NS	NS	NS	<0.00050	<0.00050	<0.0010	<0.000136	<0.000136	NS
1,2-Dichloroethane	NS	NS	<0.00050	<0.00050	<0.0010	<0.0050	<0.000172	<0.000172	NS
cis-1,2-Dichloroethene	NS	NS	NS	<0.00050	<0.00050	<0.0025	<0.000121	<0.000121	NS
Ethylbenzene	NS	NS	NS	---	---	<0.0011	<0.000200	<0.000200	NS
Tetrachloroethene	---	---	---	---	---	---	---	<0.000189	NS
Trichloroethene	NS	NS	NS	<0.0007	<0.0005	<0.0011	<0.000317	<0.000317	NS
Vinyl chloride	NS	NS	NS	<0.00060	<0.00050	<0.0010	<0.000300	<0.000300	NS
Total Xylenes	---	---	---	---	---	---	<0.000226	<0.000226	NS

MW-4	03/14/2007	04/17/2007	05/16/2007	06/18/2007	09/09/2010	8/25/2011	7/01/2015	11/23/2015	2/01/2017
Benzene	<0.0006	0.0016 J	<0.0005	<0.0005	<0.0005	<0.0009	<0.000330	<0.000330	NS
Chlorobenzene	<0.00050	<0.0050	<0.00050	<0.00050	<0.00050	<0.0010	<0.000136	<0.000136	NS
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.000172	<0.000172	NS
cis-1,2-Dichloroethene	<0.00050	<0.0050	<0.00050	<0.00050	<0.00050	<0.0025	<0.000121	<0.000121	NS
Ethylbenzene	---	---	---	---	---	<0.0011	<0.000200	<0.000200	NS
Tetrachloroethene	---	---	---	---	---	---	---	<0.000189	NS
Trichloroethene	<0.0007	<0.0070	<0.0007	<0.0005	<0.0005	<0.0011	<0.000317	<0.000317	NS
Vinyl chloride	<0.00060	<0.0060	<0.00060	<0.00050	<0.00050	<0.0010	<0.000226	<0.000300	NS
Total Xylenes	---	---	---	---	---	---	<0.000266	<0.000226	NS

MW-1	03/14/2007	04/17/2007	05/16/2007	06/18/2007	09/09/2010	8/25/2011	7/01/2015	11/23/2015	2/01/2017
Benzene	<0.00060	<0.00060	<0.00060	<0.00060	<0.00050	<0.0010	<0.000330	<0.000330	NS
Chlorobenzene	<0.00050	<0.00050	<0.00050	<0.00060	<0.00050	<0.0010	<0.000136	<0.000136	NS
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.000172	<0.000172	NS
cis-1,2-Dichloroethene	0.37	0.35	0.24	0.24	0.32	0.24	0.118	0.124	NS
Ethylbenzene	---	---	---	---	---	<0.0011	<0.000200	<0.000200	NS
Tetrachloroethene	---	---	---	---	---	---	---	<0.000189	NS
Trichloroethene	0.014	0.017	0.013	0.013	0.012	0.0062	0.00228	0.00253	NS
Vinyl chloride	0.097	0.099	0.073	0.073	0.076	0.053	0.028	0.0276	NS
Total Xylenes	---	---	---	---	---	---	<0.000226	<0.000226	NS

MW-2	03/15/2007	04/17/2007	05/16/2007	06/18/2007	09/09/2010	8/25/2011	7/02/2015	11/23/2015	2/01/2017
Benzene	0.22	0.17	0.13	0.089	0.089	0.082	0.25	0.000620 J	<0.000330	NS
Chlorobenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.000136	<0.000136	NS
1,2-Dichloroethane	<0.00050	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.000172	<0.000173	NS
cis-1,2-Dichloroethene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0025	<0.000121	<0.000121	NS
Ethylbenzene	---	---	---	---	---	---	0.0016 J	0.000294 J	<0.000200	NS
Tetrachloroethene	---	---	---	---	---	---	---	---	<0.000189	NS
Trichloroethene	<0.00070	<0.00070	<0.00070	<0.00050	<0.00050	<0.00050	<0.0011	<0.000317	<0.000317	NS
Vinyl chloride	<0.00060	<0.00060	<0.00060	<0.00050	<0.00050	<0.00050	<0.0010	<0.000300	<0.000300	NS
Total Xylenes	---	---	---	---	---	---	---	0.00145 J	<0.000226	NS

MW-34	11/23/2015	2/01/2017
Benzene	<0.000330	NS
Chlorobenzene	<0.000136	NS
1,2-Dichloroethane	<0.000172	NS
cis-1,2-Dichloroethene	<0.000121	NS
Ethylbenzene	<0.000200	NS
Tetrachloroethene	<0.000189	NS
Trichloroethene	<0.000317	NS
Vinyl chloride	<0.000300	NS
Total Xylenes	<0.000226	NS

MW-33	11/23/2015	2/01/2017
Benzene	0.0298	NS
Chlorobenzene	0.00314	NS
1,2-Dichloroethane	<0.000172	NS
cis-1,2-Dichloroethene	0.0157	NS
Ethylbenzene	<0.00200	NS
Tetrachloroethene	<0.00189	NS
Trichloroethene	<0.00317	NS
Vinyl chloride	0.01330	NS
Total Xylenes	<0.000226	NS

MW-34	11/23/2015	2/01/2017
Benzene	<0.000330	NS
Chlorobenzene	<0.000136	NS
1,2-Dichloroethane	<0.000172	NS
cis-1,2-Dichloroethene	<0.000121	NS
Ethylbenzene	<0.000200	NS
Tetrachloroethene	<0.000189	NS
Trichloroethene	<0.000317	NS
Vinyl chloride	<0.000300	NS
Total Xylenes	<0.000226	NS

MW-31	11/23/2015	2/01/2017
Benzene	<0.00330	NS
Chlorobenzene	0.0838	NS
1,2-Dichloroethane	0.00595 J	NS
cis-1,2-Dichloroethene	1.890	NS
Ethylbenzene	<0.00200	NS
Tetrachloroethene	<0.00189	NS
Trichloroethene	0.0172	NS
Vinyl chloride	0.0573	NS
Total Xylenes	<0.00229	NS

VMW-3	03/15/2007	04/17/2007	05/17/2007	05/17/2007	06/18/2007	09/09/2010	8/25/2011	7/01/2015	11/24/2015	2/01/2017
Benzene	5.5	6.1	5.7	5.9	6.4	460	2808	NS	NS	NS
Chlorobenzene	0.058	0.088	0.088	0.084	0.084	<0.31	<625	NS	NS	NS
1,2-Dichloroethane	<0.00050	<0.00050	<0.0025	<0.0025	<0.0025	<0.31	<625	NS	NS	NS
cis-1,2-Dichloroethene	1.9	2.3	1.8	2.0	1.4	20	<625	NS	NS	NS
Ethylbenzene	---	---	---	---	---	---	4,769	NS	NS	NS
Tetrachloroethene	---	---	---	---	---	---	---	NS	NS	NS
Trichloroethene	<0.00070	0.0035 J	<0.0035	<0.0035	<0.0035	<0.31	<625	NS	NS	NS
Vinyl chloride	0.24	0.30	<0.0030	<0.0030	<0.0030	<0.31	<625	NS	NS	NS
Total Xylenes	---	---	---	---	---	---	---	NS	NS	NS

VMW-6	03/15/2007	03/15/2007	04/17/2007	04/17/2007	05/16/2007	06/20/2007	09/09/2010	8/25/2011	8/25/2011	7/02/2015	11/23/2015	2/01/2017
Benzene	3.5	3.9	3.6	3.5	6.3	2.6	3.4	3.4	3.3	2.07	4.02	NS
Chlorobenzene	0.13	0.12	0.11	0.11	0.12	0.12	0.40	0.36	0.37	2.12	0.508	NS
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.00050	<0.0025	<0.0025	<0.0050	<0.010	<0.010	<0.0172	<0.00516	NS
cis-1,2-Dichloroethene	2.60	2.50	2.40	2.30	3.40	1.30	5.10	3.10	3.10	7.73	3.47	NS
Ethylbenzene	---	---	---	---	---	---	---	0.42	0.42	0.236	0.102	NS
Tetrachloroethene	---	---	---	---	---	---	---	---	---	---	<0.00567	NS
Trichloroethene	0.0037 J	0.0038 J	0.0038 J	0.0039 J	0.0044 J	<0.0035	0.0078 J	<0.011	<0.011	<0.0317	<0.00951	NS
Vinyl chloride	0.63	0.63	0.63	0.61	<0.0030	0.35	0.55	0.42	0.42	0.685	0.364	NS
Total Xylenes	---	---	---	---	---	---	---	---	---	<0.0226	<0.00678	NS

MW-6	7/02/2015	11/23/2015	2/01/2017
Benzene	0.00618	<0.00165	0.0142 J
Chlorobenzene	<0.000680	<0.000680	<0.00370
1,2-Dichloroethane	<0.000860	<0.000860	<0.002320
cis-1,2-Dichloroethene	0.00684	0.00531	0.00999 J
Ethylbenzene	<0.00100	<0.00100	<0.00424
Tetrachloroethene	---	<0.000945	<0.00666
Trichloroethene	<0.00159	<0.00159	<0.00276
Vinyl chloride	<0.00150	<0.00150	<0.00496
Total Xylenes	<0.00113	<0.00113	<0.00732

VMW-8	05/17/2007	05/25/2007	06/01/2007	06/18/2007	09/09/2010	8/25/2011	7/01/2015	11/24/2015	2/02/2017
Benzene	0.71	16	23 J	NS	NS	NS	NS	NS	0.177
Chlorobenzene	<0.0025	<0.75	<0.75	NS	NS	NS	NS	NS	0.0190 J
1,2-Dichloroethane	<0.025	<0.88	<0.88	NS	NS	NS	NS	NS	<0.00232
cis-1,2-Dichloroethene	9.2	75	120	NS	NS	NS	NS	NS	7.18
Ethylbenzene	---	---	---	NS	NS	NS	NS	NS	0.00639 J
Tetrachloroethene	---	---	---	---	---	---	---	NS	0.47
Trichloroethene	<0.0035	<0.75	<0.75	NS	NS	NS	NS	NS	0.244
Vinyl chloride	3.1	3.0	21	NS	NS	NS	NS	NS	4.95
Total Xylenes	---	---	---	---	---	---	---	NS	<0.00732

VMW-9	8/26/2011	7/02/2015	11/23/2015	2/02/2017
Benzene	0.13	0.00415	<0.000330	<0.000176
Chlorobenzene	0.0033 J	0.00176	0.00109	0.000435 J
1,2-Dichloroethane	<0.0010	<0.000172	<0.000172	<0.000116
cis-1,2-Dichloroethene	0.14	0.00491	0.00509	0.00274
Ethylbenzene	<0.0011	<0.000200	<0.000200	<0.000212
Tetrachloroethene	---	---	<0.000189	<0.000333
Trichloroethene	0.009	0.000341 J	0.000394 J	0.000242 J
Vinyl chloride	0.02	<0.000300	<0.000300	<0.000248
Total Xylenes	---	<0.000226	<0.000226	<0.000366

VMW-10	11/03/2011	7/02/2015	11/24/2015	2/02/2017
Benzene	0.021	NS	NS	0.000836 J
Chlorobenzene	0.19	NS	NS	0.177
1,2-Dichloroethane	<0.0010	NS	NS	0.000176 J
cis-1,2-Dichloroethene	0.0075	NS	NS	0.00212
Ethylbenzene	<0.0011	NS	NS	<0.000212
Tetrachloroethene	---	NS	NS	<0.000333
Trichloroethene	<0.0011	NS	NS	<0.000138
Vinyl chloride	0.014	NS	NS	<0.000248
Total Xylenes	---	NS	NS	<0.000366

MW-29	11/23/2015	2/01/2017
Benzene	0.00328	NS
Chlorobenzene	0.227	NS
1,2-Dichloroethane	<0.000516	NS
cis-1,2-Dichloroethene	<0.000363	NS
Ethylbenzene	<0.000600	NS
Tetrachloroethene	<0.000567	NS
Trichloroethene	<0.000951	NS
Vinyl chloride	<0.000900	NS
Total Xylenes	<0.000678	NS

VMW-7	05/25/2007	06/20/2007	09/09/2010	09/09/2010	8/25/2011	7/01/2015	11/24/2015	2/01/2017
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00090	0.0435	0.0768	NS
Chlorobenzene	<0.00060	<0.00050	<0.00050	<0.00050	<0.0010	<0.000136	<0.000272	NS
1,2-Dichloroethane	<0.00050	<0.00050	0.00058 J	0.0006 J	<0.0010	<0.000172	<0.000344	NS
cis-1,2-Dichloroethene	<0.00050	<0.00050	<0.00050	<0.00050	<0.0025	0.0093	0.0182	NS
Ethylbenzene	---	---	---	---	<0.0011	<0.000200	<0.000400	NS
Tetrachloroethene	---	---	---	---	---	---	<0.000378	NS
Trichloroethene	<0.00070	<0.00070	<0.00050	<0.00050	<0.0011	<0.000317	<0.000634	NS
Vinyl chloride	<0.00060	<0.00060	<0.00050	<0.00050	<0.0010	0.0235	0.0358	NS
Total Xylenes	---	---	---	---	---	<0.000226	<0.000452	NS

VMW-4	03/14/2007	04/18/2007	05/16/2007	06/18/2007	09/09/2010	8/25/2011	7/02/2015	11/23/2015	2/01/2017
Benzene	0.005	0.0025 J	0.0032 J	0.0027 J	0.0063	0.025	0.00285 J	0.00135	NS
Chlorobenzene	0.11	0.036	0.052	0.048	0.15	0.35	0.0734	0.0290	NS
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.00050	0.001	0.0012 J	<0.000860	<0.000172	NS
cis-1,2-Dichloroethene	0.11	0.039	0.052	0.045	0.19	0.23	0.0414	0.0217	NS
Ethylbenzene	---	---	---	---	---	0.024	0.00276 J	0.00116	NS
Tetrachloroethene	---	---	---	---	---	---	---	<0.000189	NS
Trichloroethene	<0.00070	<0.00070	<0.00070	<0.00070	<0.00050	0.0011 J	<0.00159	<0.000317	NS
Vinyl chloride	0.0045	0.0019 J	0.0021	0.0019 J	0.0065	0.025	<0.00150	0.000669 J	NS
Total Xylenes	---	---	---	---	---	---	0.0129	0.00312	NS

P-3	7/02/2015	11/24/2015	2/01/2017
Benzene	<0.000330	<0.000330	<0.000176
Chlorobenzene	<0.000136	<0.000136	<0.000185
1,2-Dichloroethane	<0.000172	<0.000173	<0.000116
cis-1,2-Dichloroethene	<0.000121	<0.000121	<0.000167
Ethylbenzene	<0.000200	<0.000200	<0.000212
Tetrachloroethene	---	<0.000189	<0.000333
Trichloroethene	<0.000317	<0.000317	<0.000138
Vinyl chloride	<0.000300	<0.000300	<0.000248
Total Xylenes	<0.000226	<0.000226	<0.000366

P-2	7/02/2015	11/23/2015	2/01/2017
Benzene	0.628	0.628	0.529
Chlorobenzene	0.0614	0.0543	0.0436
1,2-Dichloroethane	<0.000860	<0.000172	0.000900 J
cis-1,2-Dichloroethene	<0.000605	<0.000121	<0.000167
Ethylbenzene	0.0104	0.0183	0.00917
Tetrachloroethene	---	<0.000189	<0.000333
Trichloroethene	<0.00159	<0.000317	<0.000138
Vinyl chloride	<0.00150	<0.000300	<0.000248
Total Xylenes	0.0195	0.0299	0.0243

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL

NOTES:

1. All concentrations are reported in milligrams per liter (mg/L).
2. "J" indicates reported concentration is estimated.
3. "L" indicates bias sample result likely to be low.
4. "NS" indicates not sampled.

N

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

KINDER MORGAN

PROJECT:
KINDER MORGAN
906 Clinton Drive Galena Park, Texas 77547

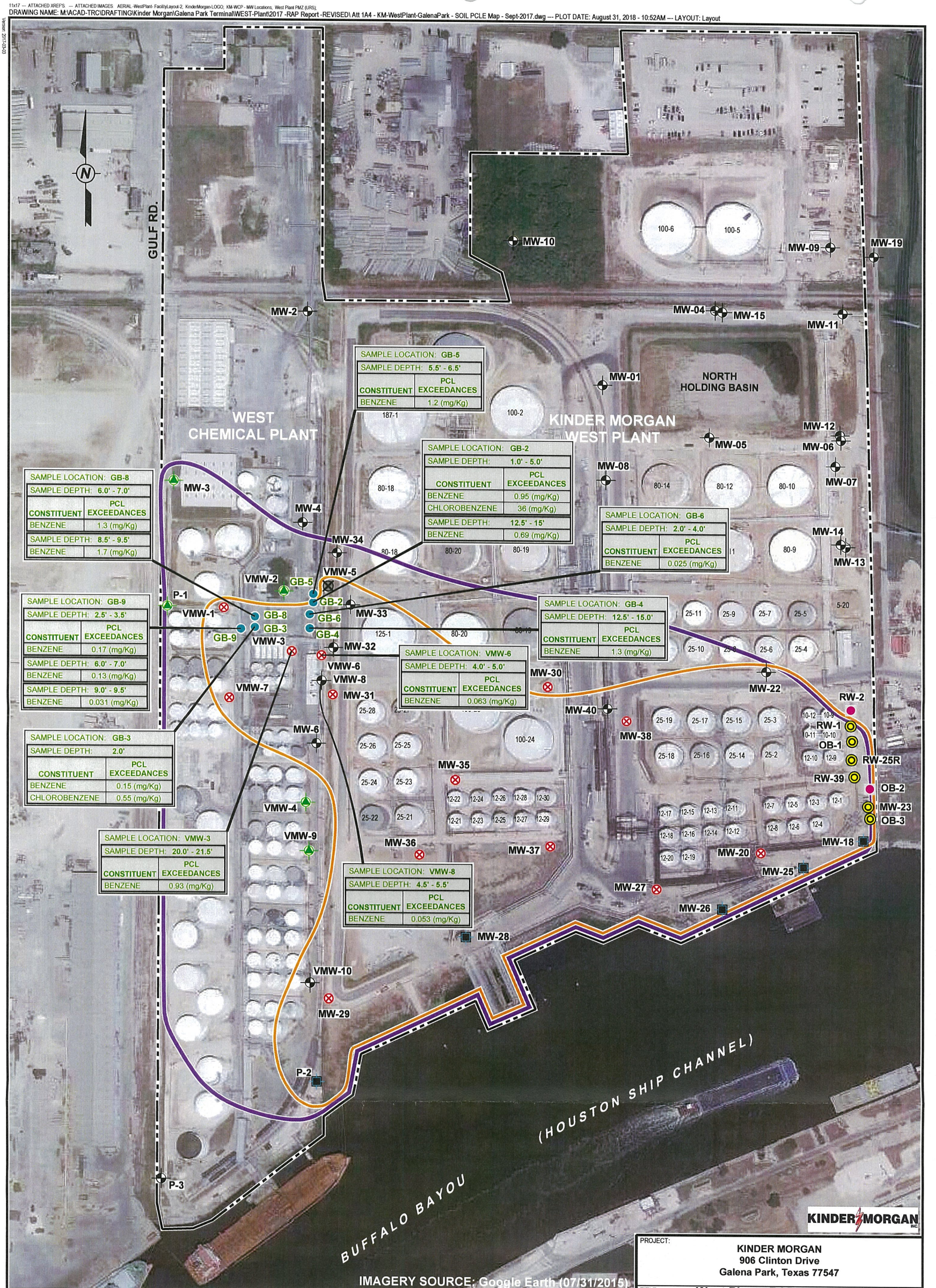
TITLE:
West Plant - RAP Addendum
GROUNDWATER COC CONCENTRATION MAP (February 2017)

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. Koch		
APPROVED BY:	R. Koch		**ATTACHMENT 1A-3**
DATE:	October 2017		

TRC
10550 Richmond Ave.
Suite 210
Houston, TX 77042
Phone: 713.244.1000

Att 1A-3 - KM-WestPlant-GalenaPark - GW COC Concentration Map - Feb-2017.dwg

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-2, KinderMorgan-LOGO, KM-WCP - MW Locations, West Plant PMZ (URS),
DRAWING NAME: M:\ACAD-TRC\DRAFTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 1A4 - KM-WestPlant-GalenaPark - SOIL PCLE Map - Sept-2017.dwg --- PLOT DATE: August 31, 2018 - 10:52AM --- LAYOUT: Layout



LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL
- SOIL BORING LOCATION
- GROUNDWATER PCLE ZONE
- PLUME MANAGEMENT ZONE

mg/Kg MILLIGRAMS PER KILOGRAM

- MONITORING WELL (ATTENUATION MONITORING POINT)
- OBSERVATION WELL
- MONITORING WELL (POE WELL)
- RECOVERY WELL
- MONITORING WELL (UPGRADIENT WELL)

0 125' 250' 500'
SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
906 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
SOIL PCLE MAP
(September 2017)

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. Koch		
APPROVED BY:	R. Koch		ATTACHMENT 1A-4
DATE:	August 2018		

TRC
10550 Richmond Ave.
Suite 210
Houston, TX 77042
Phone: 713.244.1000

FILE NO.: Att 1A4 - KM-WestPlant-GalenaPark - SOIL PCLE Map - Sept-2017.dwg

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Soils

List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

With the exception of expanding the existing West Plant PMZ boundaries and adding additional groundwater monitoring points (AMPs, POEs, and Background Wells), this RAP Addendum does not change the response action as outlined in the TCEQ approved 2007 RAP and 2013 RAP Addendum for West Plant. See the 2007 RAP and 2013 RAP Addendum for a detailed description of the response action design for soil. Changes to the PMZ as a result of this addendum are detailed in Worksheet 2.1

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

Not applicable.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
Not Applicable			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not Applicable

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Groundwater

List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

With the exception of expanding the existing West Plant PMZ boundaries and adding additional groundwater monitoring points (AMPs, POEs, and Background Wells), this RAP Addendum does not change the response action as outlined in the TCEQ approved 2007 RAP and 2013 RAP Addendum for West Plant. See the 2007 RAP and 2013 RAP Addendum for a detailed description of the response action design for groundwater. Changes to the PMZ as a result of this addendum are detailed in Worksheet 2.1

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

The Recovery System Layout and Piping and Details specifications for the recovery system located in the southeast corner of the Kinder Morgan West Plant are provided in Attachments 2A-2 and Attachments 2A-2a, 2A-2b, and2A-2c, respectively of the TCEQ approved 2013 Kinder Morgan RAP Addendum.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
Not Applicable			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

No pilot feasibility studies, technical impracticability studies or other studies were conducted to develop this RAP Addendum

Plume Management Zone	RAP Worksheet 2.1	Page 1 of 3
Associated Information: Attachments 2D, 2E	ID No.: SWR# 30573	Report Date: 05/15/2017

Complete this worksheet when a PMZ is proposed as part of the response action. Include in Attachment 2D a map of the proposed PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone. If a PMZ is not proposed, do not submit this worksheet.

Groundwater-bearing unit SCF/UNTU
Repeat this worksheet for each groundwater-bearing unit for which a PMZ is proposed.
Groundwater classification X 2 ____ 3

Provide justification as to why the PMZ is appropriate in accordance with §350.33(f)(4)(A). Include supporting documentation in Attachment 2E.

A detailed discussion regarding the adequacy of the PMZ as a response action is detailed in the TCEQ approved 2007 RAP (URS, 2007) and will apply to incorporating groundwater impacts at the WCP into the Kinder Morgan West Plant PMZ. The list of monitor wells to be sampled during the monitoring activities has been revised to incorporate the WCP monitor wells and monitor wells at the Kinder Morgan West Plant that were previously not part of the PMZ into the PMZ and to be consistent with the containment strategy currently being employed. Five monitoring wells (MW-29, MW-31, MW-32, MW-33, and MW-34) located on the western property boundary of the Kinder Morgan West Plant were not included in the SWMU-wide PMZ due to suspected COCs migrating onsite from the former adjacent Vopak (West Chemical Plant) upgradient facility to the west (URS, 2007). The monitor wells are now proposed to be included in the proposed expanded PMZ.

Page 3 of Worksheet 2.1 provides the list of COCs, approved attenuation action levels and revised list of monitor wells to be sampled as part the PMZ. Attachment 2D depicts the revised expanded PMZ.

Is the alternate POE proposed to be beyond the current limits of the PCLE zone? ___ Yes X No
If yes, how far? _____ (§350.37(l) or (m) as applicable)
Is it to be off-site? ____ Yes ____ No

On an off-site property that currently does not contain a residential-based groundwater PCLE zone?

____Yes ___No

If yes and this is a Class 2 groundwater, provide the basis for concluding that this groundwater does not have a reasonably anticipated future beneficial use (§350.37(l)(3)).

Not Applicable. Alternate POE wells are not proposed beyond the current limits of the PCLE zone due to the PCLE zone's downgradient extent abutting the Houston Ship Channel. POE wells are along the Houston Ship Channel and groundwater analytical results will be compared to the approved ^{SW}GW PCLs.

Is NAPL present? X Yes ____ No

If so, describe how the response action will achieve the performance criteria in §350.33(f)(4)(E).

During a monitor well gauging event performed on June 3, 2015 for the West Chemical Plant, LNAPL was measured in the following wells: VMW-3 (1.40 ft.) and VMW-10 (5.03 ft.). On March 29, 2016 LNAPL was measured in the following wells: VMW-3 90 (0.02 ft.), VMW-8 (sheen), and VMW-10 (0.44 ft.). On September 22, 2107, 2017, LNAPL was measured in the following wells: VMW-3 (0.02 ft.), VMW-8 (0.09 ft.), and VMW-10 (0.16 ft.). Between June 3, 2015 and September 22, 2017, monthly gauging and product removal (if necessary) events have been conducted on these wells with the measured NAPL in VMW-3 decreasing from 1.40 ft. to a sheen, and in VMW-10 from 5.03 ft. to 0.04 ft., and 0.02 feet present in VMW-8. Since there is no known source(s), the LNAPL appears to be spatially isolated and in general, the LNAPL has been removed to the extent practicable, the response action will be to continue to monitor these wells on a periodic basis and remove any accumulated LNAPL. Gauging data can be found in Appendix 2, Table 2-2.

If this is a Class 2 groundwater, explain how the response action will ensure that leachate from the surface soil and subsurface soil PCLE zones will not increase concentration of COCs greater than the current measured concentrations (at time of RAP submittal). (§350.33(a)(2))

Benzene and chlorobenzene exceeds the soil to groundwater ingestion PCLs at four locations at the WCP. These soil PCLE zones will be incorporated into and managed in the TCEQ approved PMZ for the West Plant. Groundwater analytical data (Appendix 2, Table 2-1) shows groundwater concentrations to be stable as discussed in the VTGP APAR (ERM, 2013). Semi-annual groundwater monitoring will be performed to monitor benzene and chlorobenzene concentrations in groundwater and to verify there is no increase in contaminant mass due COCs leaching from the soil PCLE zones. A depiction of the revised Plume Management Zone Map is provided as Attachment 2D. The proposed soil response actions for the WCP are consistent with the soil response actions in the 2013 TCEQ approved RAP Addendum.

Provide the basis that the COCs will not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachment 2E.

The proposed modified PMZ will monitor the COC concentrations within the plume and at the downgradient extent of the plume. Because the groundwater ingestion pathway is proposed to be eliminated with the institutional controls of the PMZ, the groundwater to surface water exposure pathway is considered to be complete and is the basis of the AALs. A more detailed discussion is provided in the TCEQ approved 2007 RAP (URS, 2007). The recovery system in the southeastern corner of the West Plant is intended to prevent COC-containing groundwater from migrating beyond the downgradient boundary of the PMZ and offsite to the southeast onto the CenterPoint Energy right-of-way (CPROW) property. COC concentrations will be monitored in AMP wells on a semi-annual basis to verify COC concentrations are not increasing so that they would exceed the PCLs at the POE.

Describe the methods used to determine that there are no artificial penetrations which can allow COCs to migrate from the groundwater PCLE zone to currently unaffected groundwater-bearing units. Include supporting documentation in Attachment 2E.

There are no known artificial penetrations which can allow COCs to migrate to unaffected groundwater bearing units.

List the attenuation action level determined for each attenuation monitoring point. Illustrate the proposed attenuation monitoring points and the groundwater PCLE zone on the map in Attachment 2D. Include all calculations and other methods of determining the attenuation action levels in Attachment 2E.

COC	Attenuation Monitoring Point (well number)	Attenuation Action Level (mg/L)	Attenuation Action Level limited by $^{Air}GW_{Inh-V}$ or existing COC concentration? Y/N
Benzene	PMZ wells*	1,470	N**
Ethylbenzene	PMZ wells*	5,180	N
Xylenes (total)	PMZ wells*	17,700	N
Bis(2-chloroethyl)ether	PMZ wells*	110	N
Isopropylbenzene	PMZ wells*	4,890	N
Chlorobenzene	PMZ wells*	2,190	N
PCE	PMZ wells*	4,470	N
TCE	PMZ wells*	8,490	N
Cis-1,2-Dichloroethene	PMZ wells*	14,200	N
Vinyl Chloride	PMZ wells*	5,760	Y**
1,2-Dichloroethane	PMZ wells*	1,030	N

* The PMZ has been revised and expanded to incorporate upgradient monitor wells MW-3, P-1, VMW-4, and VMW-9; AMP monitor wells VMW-1, VMW-3, VMW-6, VMW-7, MW-29, and MW-31. Monitor well MW-20, thought to have been destroyed (URS 2013) was subsequently located and is incorporated into the Revised PMZ as originally proposed (URS 2007). Five monitoring wells (MW-29, MW-31, MW-32, MW-33, and MW-34) located on the western property boundary of the West Plant are included in the revised PMZ. Monitor well MW-35 has been removed as an upgradient monitor well and is now designated an AMP well. Monitor wells MW-22 and MW-33 have been removed as AMP wells with the revised West Plant PMZ which incorporates the WCP into the PMZ. Calculations for Attenuation Action Levels are presented in Attachment 2E of the 2007 TCEQ approved RAP (URS 2007) and these AALs will apply to the Revised PMZ with the incorporation of the WCP into the PMZ.

** See Appendix 2, Table 2-2 of the 2013 RAP Addendum for approved Tier 2 commercial/industrial $^{Air}GW_{Inh-V}$ PCLs for benzene and vinyl chloride.

Institutional Control	RAP Worksheet 2.4 Page 1 of 1	
Associated Information: Appendices 4, 5	ID No.: SWR# 30573	Report Date: 05/15/2017

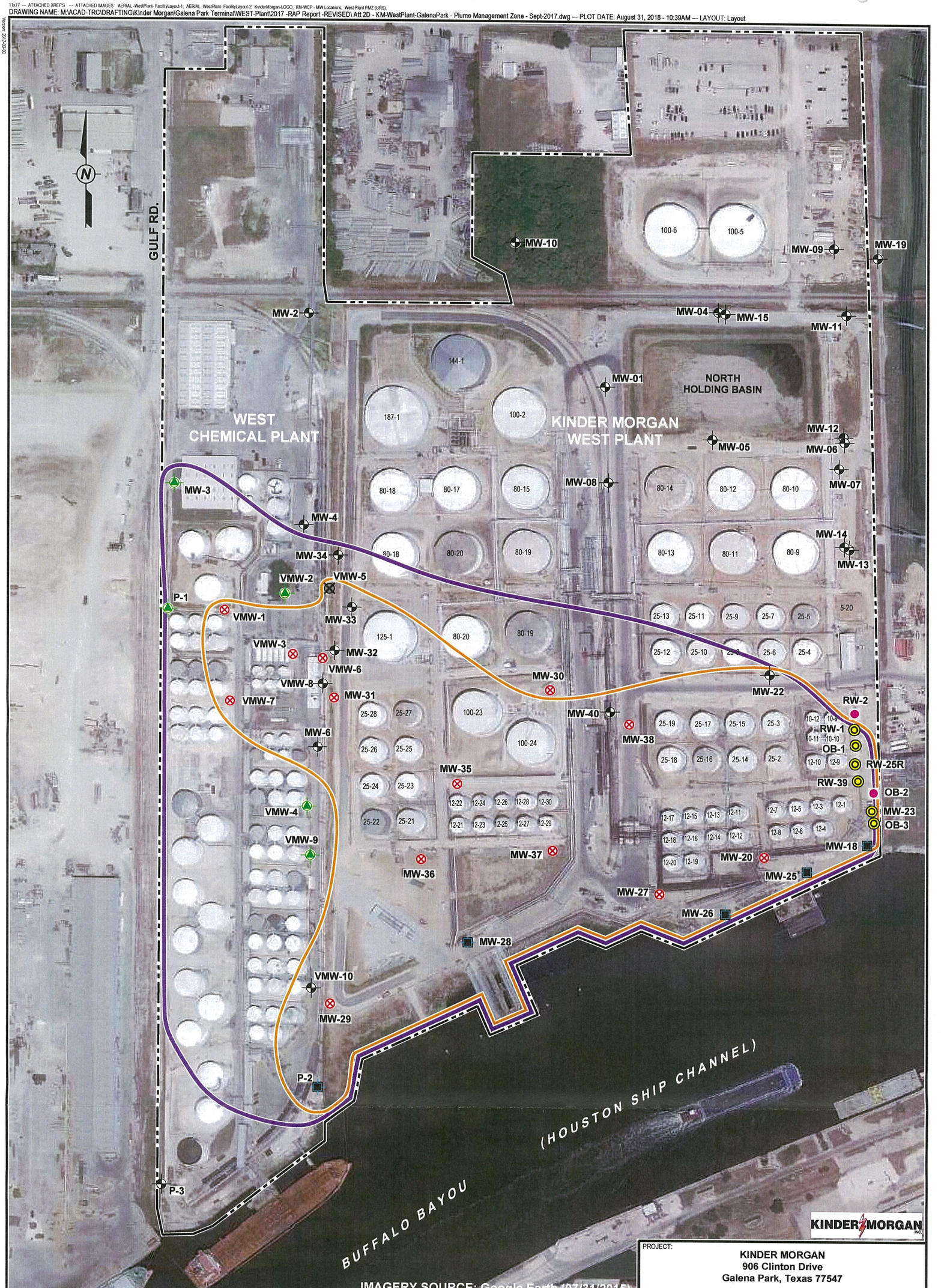
Complete this worksheet if an institutional control will be used as part of the response action. Include a draft of the proposed institutional controls in Appendix 4. Provide a list of landowners from whom landowner concurrence will be requested, as necessary, in Appendix 5.
Specify the property for which this applies. Kinder Morgan West Plant and WCP (Note: Only proposed changes related to this addendum are included)
Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[1]				Property Ownership		Anticipated Filing Date[2]
	Deed Notice	Restrictive Covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))	X				X		Within 90 days of RACR approval
Document use of physical or institutional control under Remedy Standard B §350.31(g))							
Document notice of on-going long term response action (§350.31(h))							
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))							
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(I))	X				X		Within 120 days of RAP Addendum approval
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							

[1] Check the appropriate box(es) to indicate the type of institutional control required for the proposed response action.
[2] Specify date or amount of time after RAP approval.

ATTACHMENT 2D
Plume Management Zone Map

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-1, AERIAL -WestPlant- FacilityLayout-2, KinderMorgan-LOGO, KM-WCP - MW Locations, West Plant PMZ (URS).
DRAWING NAME: M:\ACAD-TRC\DRAFTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg --- PLOT DATE: August 31, 2018 - 10:39AM --- LAYOUT: Layout



LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL
- GROUNDWATER PCLE ZONE
- PLUME MANAGEMENT ZONE
- MONITORING WELL (ATTENUATION MONITORING POINT)
- OBSERVATION WELL
- MONITORING WELL (POE WELL)
- RECOVERY WELL
- MONITORING WELL (UPGRADIENT WELL)

0 125' 250' 500'
SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
906 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
PLUME MANAGEMENT ZONE
(September 2017)

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	R. Koch	ATTACHMENT 2D	
APPROVED BY:	R. Koch		
DATE:	August 2018		

TRC
10550 Richmond Ave.
Suite 210
Houston, TX 77042
Phone: 713.244.1000

FILE: Att2D - KM-WestPlant-GalenaPark - Plume Management Zone - Sept-2017.dwg

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Surface Soil							
Subsurface Soil							
Groundwater	Benzene, Ethylbenzene, Xylenes, Isopropylbenzene, Chlorobenzene, cis-1,2-Dichloroethane, 1,2-Dichloroethane, PCE, TCE, Vinyl chloride, and bis(2-Chloroethyl)Ether		Low flow sampling techniques	PMZ wells from Worksheet 2.1	SCF/UNTU water bearing unit	Select list by VOC 8260 and SVOC 8270	Semi-Annually
	Recovery System		Weekly Inspections	RW-1, RW-25R, OB-1,OB-3, MW-23, and MW-39	SCF/UNTU water bearing unit	Inspection and flow measurements	Weekly
Surface water							
Sediment							
Air	Not applicable unless groundwater concentrations exceed Tier 2 $^{Air}GW_{Inh-V}$.						
Other Media (specify)							

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

Explain the reasons for the above-listed monitoring and sampling plan.

A detailed discussion of the monitoring and sampling plan related to the groundwater PCLE zones is provided in the TCEQ approved 2007 RAP (URS, 2007) and the 2013 RAP Addendum (URS, 2013) for the Kinder Morgan West Plant and will apply to the WCP. The above listed monitoring and sampling plan incorporates the WCP into the monitor and sampling plan for the Kinder Morgan West Plant. Five monitor wells (MW-29, MW-31, MW-32, MW-33, and MW-34), as per the TCEQ approved 2007 RAP (URS, 2007) located on the western property boundary of the West Plant were previously not included in the SWMU-wide PMZ due to suspected COCs migrating onsite from the adjacent upgradient West Chemical Plant facility. These monitor wells are now included in the monitoring and sampling plan for the proposed revised PMZ with the incorporation of the WCP. Monitor well MW-20, thought to have been destroyed (URS 2013) was subsequently located and is incorporated into the Revised PMZ as originally proposed (URS 2007).

ATTACHMENT 3A
Map of Monitoring and Sampling Points

HOU M:\ACAD-TRC\...FTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 3A-n-5A - KM-WestPlant-GalenaPark - Monitoring-n-Sampling Points.dwg 08/31/18
11x17 --- ATTACHED XREFS --- ATTACHED IMAGES AERIAL WestPlant- FacilityLayout-2 KinderMorgan-LOGO KM-WCP - MW Locations West Plant PMZ (URS)
DRAWING NAME: M:\ACAD-TRC\DRAFTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 3A-n-5A - KM-WestPlant-GalenaPark - Monitoring-n-Sampling Points.dwg --- PLOT DATE: August 31, 2018 - 10:40AM --- LAYOUT: Fig-3A
Version 2012-03

GULF RD.

WEST CHEMICAL PLANT

KINDER MORGAN WEST PLANT

NORTH HOLDING BASIN

(HOUSTON SHIP CHANNEL)

BUFFALO BAYOU

MW-10 MW-09 MW-19 MW-2 MW-04 MW-15 MW-11 MW-01 MW-12 MW-06 MW-05 MW-07 MW-08 MW-3 MW-4 MW-34 MW-14 MW-13 P-1 VMW-1 VMW-2 MW-33 VMW-3 MW-32 VMW-6 VMW-8 MW-31 MW-30 MW-22 VMW-7 MW-40 RW-2 RW-1 OB-1 MW-38 MW-6 RW-25R RW-39 OB-2 MW-35 MW-23 VMW-4 OB-3 VMW-9 MW-37 MW-18 MW-20 MW-36 MW-25 MW-27 MW-26 MW-28 VMW-10 MW-29 P-2 P-3

100-6 100-5 144-1 187-1 100-2 80-18 80-17 80-15 80-14 80-12 80-10 80-20 80-19 80-13 80-11 80-9 125-1 25-13 25-11 25-9 25-7 25-5 5-20 25-12 25-10 25-8 25-6 25-4 100-23 100-24 25-28 25-27 25-26 25-25 25-24 25-23 25-22 25-21 25-19 25-17 25-15 25-3 25-18 25-16 25-14 25-2 10-12 10-9 10-11 10-10 12-10 12-9 12-22 12-24 12-26 12-28 12-30 12-21 12-23 12-25 12-27 12-29 12-17 12-15 12-13 12-11 12-7 12-5 12-3 12-1 12-18 12-16 12-14 12-12 12-8 12-6 12-4 12-20 12-19

IMAGERY SOURCE: Google Earth (07/31/2015)

KINDER MORGAN INC.

LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- PMZ MONITORING WELL
- RECOVERY/OBSERVATION WELL

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

PROJECT:
KINDER MORGAN
906 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
MAP OF MONITORING AND SAMPLING POINTS

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	T. Dworaczyk		
APPROVED BY:	T. Dworaczyk		**ATTACHMENT 3A**
DATE:	August 2018		

TRC
10550 Richmond Ave.
Suite 210
Houston, TX 77042
Phone: 713.244.1000

FILE NO. Att 3A-n-5A - KM-WestPlant-GalenaPark - Monitoring-n-Sampling Points.dwg

With the exception of the additional groundwater monitoring points this RAP Addendum does not change the Post-Response Actin Care activities outline in the approved 2007 RAP and 2013 RAP Addendum

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) _____ years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

See approved 2007 RAP and 2013 RAP Addendum

What is the foreseeable land use during the post-response action care period? Industrial

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

See approved 2007 RAP and 2013 RAP Addendum.

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

See approved 2007 RAP and 2013 RAP Addendum

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? X _____ Yes ___ No

If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies: See approved 2007 RAP and 2013 RAP Addendum

Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? See approved 2007 RAP and 2013 RAP Addendum

What is the total estimated cost for a third party to perform PRAC activities? See approved 2007 RAP and 2013 RAP Addendum

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

See approved 2007 RAP and 2013 RAP Addendum

Does the person meet the criteria and definition of a small business? (see §350.33(n)) Yes X No

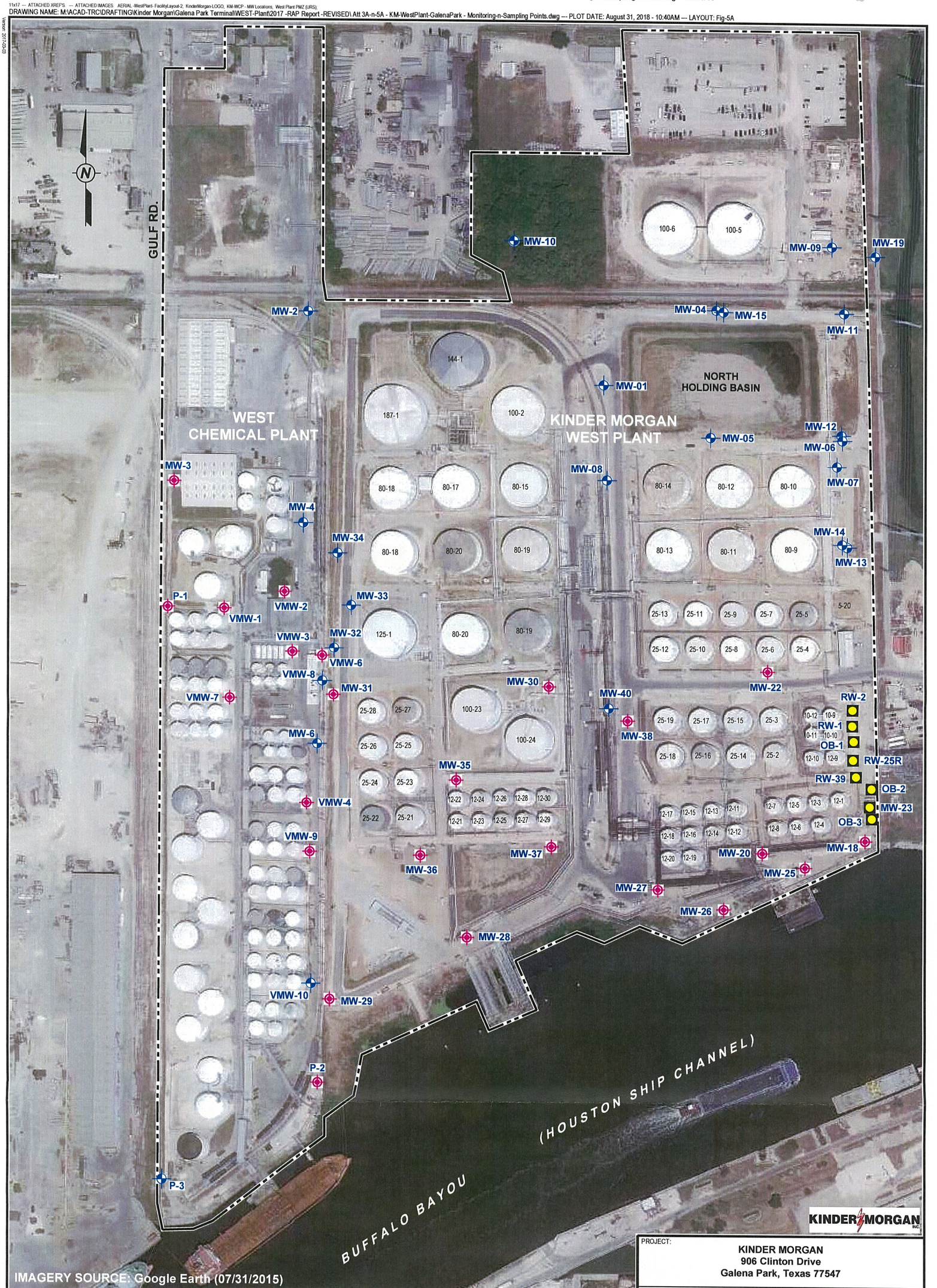
If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

ATTACHMENT 5A
Map of PRAC Monitoring and Sampling Points

HOU M:\ACAD-TRC\...FTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 3A-n-5A - K...estPlant-GalenaPark - Monitoring-n-Sampling Points.dwg 08/31/18

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES: AERIAL -WestPlant- FacilityLayout-2, KinderMorgan-LOGO, KM-WCP - MW Locations, West Plant PMZ (URS),

DRAWING NAME: M:\ACAD-TRC\DRAFTING\Kinder Morgan\Galena Park Terminal\WEST-Plant\2017 -RAP Report -REVISED\ Att 3A-n-5A - KM-WestPlant-GalenaPark - Monitoring-n-Sampling Points.dwg --- PLOT DATE: August 31, 2018 - 10:40AM --- LAYOUT: Fig-5A



LEGEND

- APPROXIMATE SITE BOUNDARY
- MONITORING WELL LOCATION
- PMZ MONITORING WELL
- RECOVERY/OBSERVATION WELL

0 125' 250' 500'

SCALE IN FEET
1" = 250'-0"

KINDER MORGAN

PROJECT:
KINDER MORGAN
906 Clinton Drive
Galena Park, Texas 77547

TITLE:
West Plant - RAP Addendum
MAP OF FRAC MONITORING AND SAMPLING POINTS

DRAWN BY:	O. Fonseka	PROJ NO.:	251331
CHECKED BY:	T. Dworaczyk		
APPROVED BY:	T. Dworaczyk		ATTACHMENT 5A
DATE:	August 2018		

TRC
10550 Richmond Ave.
Suite 210
Houston, TX 77042
Phone: 713.244.1000

FILE NOAtt 3A-n-5A - KM-WestPlant-GalenaPark - Monitoring-n-Sampling Points.dwg

Implementation Schedule	RAP Worksheet 6.0 Page 1 of 1	
	ID No.: SWR# 30573	Report Date: 05/15/2017

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	Start	Finish	Duration
File Institutional Control (Deed Notice) for PMZ	Upon TCEQ approval of RAP Addendum	Within 120 Days of TCEQ approval of RAP Addendum	120 Days
File Institutional Control (Deed Notice) for Industrial Land Use	Upon TCEQ approval of RACR	Within 90 Days of TCEQ approval of RACR	90 Days

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	Submittal date
Response Action Effectiveness Report (RAER)	
RAER submittal number 1	Not Applicable
RAER submittal number 2	
RAER submittal number 3	
Response Action Completion Report (RACR)	Within 180 days of Completion of Response Action
Post-Response Action Care Report (PRACR)	
PRACR submittal number 1	Annually starting 1st year after RACR approval
PRACR submittal number 2	
PRACR submittal number 3	

APPENDIX 1
References

URS. 2013. Response Action Plan Addendum, West Plant, Kinder Morgan Liquids Terminal, L.P.,Galena Park, Texas. September 5, 2013.

ERM. 2013. Affected Property Assessment Report Vopak-Galena Park Terminal, Galena Park, Texas. July 8, 2013

URS. 2007. Response Action Plan, West Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas. July 20, 2007.

Texas Risk Reduction Rules. 30 Texas Administrative Code (TAC), Chapter 335, Subchapter S

APPENDIX 2
Data Table, Analytical Data, VTGP Terminal APAR

- **Table 2-1** Analytical Summary Table, Groundwater, West Chemical Plant
- **Table 2-2** Gauging Data
- 2015 Groundwater Sampling Analytical Data (Test America)
- July 2013 VTGP Terminal APAR-On CD

Analytical Summary Table 2-1
KMLT West Chemical Plant

Well ID	Date	Sampled By	Notes	Analytical Resuls: VOCs (mg/L) Acetone	Benzene	Chlorobenzene	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	MTBE	Tetrachloroethene	Trans-1,2-Dichloroethene	Trichloroethene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	m- & p-Xylenes	o-Xylenes	Total Xylenes
TCEQ Tier I Commercial/Industrial $^{GW}GW_{ING}$ PCL				**66**	**0.005**	**0.1**	**0.005**	**0.07**	**0.7**	**7.3**	**0.73**	**0.005**	**0.1**	**0.005**	**1**	**3.7**	**3.7**	**0.002**	**10**	**10**	**10**
TCEQ Tier I Commercial/Industrial $^{AIR}GW_{INH-V}$ PCL				**1,000,000**	**39**	**210**	**7.2**	**220**	**5,400**	**800**	**880**	**110**	**140**	**4.3**	**12,000**	**34**	**23**	**0.83**	**1,700**	**140,000**	**1,900**
Calculated TCEQ Tier II Commercial/Industrial $^{AIR}GW_{INH-V}$ PCL				--	**6,710**	--	--	--	--	--	--	--	--	--	--	--	--	**435**	--	--	--
West Chemical Plant Monitoring Wells																					
VMW-1	10/13/2006	VOPAK		---	<0.00060	<0.00050	<0.00050	**0.2**	---	---	---	<0.00050	---	**0.0075**	---	---	---	**0.051**	---	---	---
	10/13/2006	VOPAK		---	<0.00060	<0.00050	<0.00050	**0.2**	---	---	---	<0.00050	---	**0.0074**	---	---	---	**0.052**	---	---	---
	03/14/2007	VOPAK		---	<0.00060	<0.00050	<0.00050	**0.37**	---	---	---	<0.00050	---	**0.014**	---	---	---	**0.097**	---	---	---
	04/17/2007	VOPAK		---	<0.00060	<0.00050	<0.00050	**0.35**	---	---	---	<0.00050	---	**0.017**	---	---	---	**0.099**	---	---	---
	05/16/2007	VOPAK		---	<0.00060	<0.00050	<0.00050	**0.24**	---	---	---	<0.00050	---	**0.013**	---	---	---	**0.073**	---	---	---
	06/18/2007	VOPAK		---	<0.00050	<0.00060	<0.00050	**0.24**	---	---	---	<0.00050	---	**0.013**	---	---	---	**0.073**	---	---	---
	09/09/2010	VOPAK		---	<0.00050	<0.00050	<0.00050	**0.32**	---	---	---	<0.00060	---	**0.012**	---	---	---	**0.076**	---	---	---
	8/25/2011	VOPAK		---	<0.0010	<0.0010	<0.0010	**0.24**	<0.0011	---	---	<0.0017	---	**0.0062**	---	<0.00080	<0.00090	**0.053**	<0.0021	<0.0010	---
	7/01/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	**0.118**	<0.000200	NA	<0.000200	<0.000189	0.00209	0.00228	<0.000495	<0.000200	<0.000200	**0.0280**	NA	NA	<0.000226
	11/23/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	**0.124**	<0.000200	NA	<0.000200	<0.000189	0.00239	0.00253	<0.000495	<0.000200	<0.000200	**0.0276**	NA	NA	<0.000226
VMW-2	10/13/2006	VOPAK		---	**0.52**	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	03/15/2007	VOPAK		---	**0.22**	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	04/17/2007	VOPAK		---	**0.17**	<0.00050	<0.0050	<0.00050	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	05/16/2007	VOPAK		---	**0.13**	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	06/18/2007	VOPAK		---	**0.089**	<0.00050	<0.00050	<0.00050	---	---	---	<0.00060	---	<0.00050	---	---	---	<0.00050	---	---	---
	06/18/2007	VOPAK		---	**0.089**	<0.00050	<0.00050	<0.00050	---	---	---	<0.00060	---	<0.00050	---	---	---	<0.00050	---	---	---
	09/09/2010	VOPAK		---	**0.082**	<0.00050	<0.00050	<0.00050	---	---	---	<0.00060	---	<0.00050	---	---	---	<0.00050	---	---	---
	8/25/2011	VOPAK		---	**0.25**	<0.0010	<0.0010	<0.0025	0.0016 J	---	---	<0.0017	---	<0.0011	---	0.0024 J	0.0028 J	<0.0010	0.018	0.0019 J	---
	7/02/2015	TRC		<0.00500	0.000620 J	<0.000136	<0.000172	<0.000121	0.000294 J	NA	0.00233	<0.000189	<0.000200	<0.000317	0.0127	0.000613 J	0.000626 J	<0.000300	NA	NA	0.00145 J
	11/23/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000173	<0.000121	<0.000200	NA	0.00144	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
VMW-3	10/13/2006	VOPAK		---	**4.8**	0.057	<0.00050	**1.8**	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	03/15/2007	VOPAK		---	**5.5**	0.058	<0.00050	**1.9**	---	---	---	<0.00050	---	<0.00070	---	---	---	**0.24**	---	---	---
	04/17/2007	VOPAK		---	**6.1**	0.088	<0.00050	**2.3**	---	---	---	<0.00050	---	0.0035 J	---	---	---	**0.30**	---	---	---
	05/17/2007	VOPAK		---	**5.7**	0.088	<0.0025	**1.8**	---	---	---	<0.0025	---	<0.0035	---	---	---	<0.0030	---	---	---
	05/17/2007	VOPAK		---	**5.9**	0.084	<0.0025	**2.0**	---	---	---	<0.0025	---	<0.0035	---	---	---	<0.0030	---	---	---
	06/18/2007	VOPAK		---	**6.4**	0.084	<0.0025	**1.4**	---	---	---	<0.0025	---	<0.0035	---	---	---	<0.0030	---	---	---
	09/09/2010	VOPAK	Product	---	**460**	<0.31	<0.31	**20**	---	---	---	<0.38	---	<0.31	---	---	---	<0.31	---	---	---
	8/25/2011	VOPAK	Product[1]	---	**2608**	<625	<625	<625	**4,769**	---	---	<625	---	<625	---	**13,768**	**3,723**	<625	**17,057**	**1,725**	---
	7/01/2015	TRC	Product	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/24/2015	TRC	Product	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Analytical Summary Table 2-1
KMLT West Chemical Plant

Well ID	Date	Sampled By	Notes	Analytical Resuls																	
				VOCs (mg/L)																	
				Acetone	Benzene	Chlorobenzene	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	MTBE	Tetrachloroethene	Trans-1,2-Dichloroethene	Trichloroethene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	m- & p-Xylenes	o-Xylenes	Total Xylenes
TCEQ Tier I Commercial/Industrial $^{GW}GW_{ING}$ PCL				**66**	**0.005**	**0.1**	**0.005**	**0.07**	**0.7**	**7.3**	**0.73**	**0.005**	**0.1**	**0.005**	**1**	**3.7**	**3.7**	**0.002**	**10**	**10**	**10**
VMW-4	10/13/2006	VOPAK		---	**0.0074**	0.034	<0.00050	**0.08**	---	---	---	<0.00050	---	<0.00070	---	---	---	**0.0043**	---	---	---
	03/14/2007	VOPAK		---	**0.005**	**0.11**	<0.00050	**0.11**	---	---	---	<0.00050	---	<0.00070	---	---	---	**0.0045**	---	---	---
	04/18/2007	VOPAK		---	0.0025 J	0.036	<0.00050	0.039	---	---	---	<0.00050	---	<0.00070	---	---	---	0.0019 J	---	---	---
	05/16/2007	VOPAK		---	0.0032 J	0.052	<0.00050	0.052	---	---	---	<0.00050	---	<0.00070	---	---	---	**0.0021**	---	---	---
	06/18/2007	VOPAK		---	0.0027 J	0.048	<0.00050	0.045	---	---	---	<0.00050	---	<0.00070	---	---	---	0.0019 J	---	---	---
	09/09/2010	VOPAK		---	**0.0063**	**0.15**	0.001	**0.19**	---	---	---	<0.00060	---	<0.00050	---	---	---	**0.0065**	---	---	---
	8/25/2011	VOPAK		---	**0.025**	**0.35**	0.0012 J	**0.23**	0.024	---	---	<0.0017	---	0.0011 J	---	0.0014 J	<0.0009	**0.025**	0.076	0.044	---
	7/02/2015	TRC		0.6890	0.00285 J	0.0734	<0.000860	0.0414	0.00275 J	NA	<0.00100	<0.000945	<0.00100	<0.00159	0.0149	<0.00100	<0.00100	<0.00150	NA	NA	0.0129
	11/23/2015	TRC		<0.00500	0.00135	0.0290	<0.000172	0.0217	0.00116	NA	<0.000200	<0.000189	<0.000200	<0.000317	0.00391	<0.000200	<0.000200	0.000669 J	NA	NA	0.00312
VMW-5	10/13/2006	VOPAK		---	**0.29**	**0.44**	<0.00050	**0.29**	---	---	---	**0.0058**	---	**0.031**	---	---	---	<0.00060	---	---	---
	03/15/2007	VOPAK		---	**0.12**	**0.26**	<0.00050	**0.11**	---	---	---	0.0018 J	---	**0.0073**	---	---	---	<0.00060	---	---	---
	04/17/2007	VOPAK		---	**0.14**	**0.30**	<0.00050	**0.091**	---	---	---	0.0015 J	---	**0.0054**	---	---	---	<0.00060	---	---	---
	05/16/2007	VOPAK		---	**0.12**	**0.33**	<0.00050	**0.068**	---	---	---	0.0018 J	---	<0.00070	---	---	---	<0.00060	---	---	---
	06/20/2007	VOPAK		---	**0.12**	**0.41**	<0.00050	**0.029**	---	---	---	<0.00050	---	0.002 J	---	---	---	<0.00060	---	---	---
	09/09/2010	VOPAK		---	**0.49**	**0.61**	<0.00050	**0.39**	---	---	---	<0.00060	---	0.0024 J	---	---	---	**0.17**	---	---	---
	8/25/2011	VOPAK		---	**0.39**	**0.48**	**0.024**	**1.0**	0.0079	NA	---	<0.0017	---	<0.0011	---	0.0014 J	<0.0009	**0.34**	0.0027 J	0.0052	---
	7/01/2015	TRC	Well Damaged																		
VMW-6	10/13/2006	VOPAK		---	**4.1**	**0.10**	<0.00050	**2.30**	---	---	---	<0.00050	---	0.0042 J	---	---	---	**0.18**	---	---	---
	03/15/2007	VOPAK		---	**3.5**	**0.13**	<0.00050	**2.60**	---	---	---	<0.00050	---	0.0037 J	---	---	---	**0.63**	---	---	---
	03/15/2007	VOPAK		---	**3.9**	**0.12**	<0.00050	**2.50**	---	---	---	<0.00050	---	0.0038 J	---	---	---	**0.63**	---	---	---
	04/17/2007	VOPAK		---	**3.6**	**0.11**	<0.00050	**2.40**	---	---	---	<0.00050	---	0.0038 J	---	---	---	**0.63**	---	---	---
	04/17/2007	VOPAK	Duplicate	---	**3.5**	**0.11**	<0.00050	**2.30**	---	---	---	<0.00050	---	0.0039 J	---	---	---	**0.61**	---	---	---
	05/16/2007	VOPAK		---	**6.3**	**0.12**	<0.0025	**3.40**	---	---	---	<0.0025	---	0.0044 J	---	---	---	<0.0030	---	---	---
	06/20/2007	VOPAK		---	**2.6**	**0.12**	<0.0025	**1.30**	---	---	---	<0.0025	---	<0.0035	---	---	---	**0.35**	---	---	---
	09/09/2010	VOPAK		---	**3.4**	**0.40**	<0.0050	**5.10**	---	---	---	<0.0060	---	**0.0078 J**	---	---	---	**0.55**	---	---	---
	8/25/2011	VOPAK		---	**3.4**	**0.36**	<0.010	**3.10**	0.42	---	---	<0.017	---	<0.011	---	<0.008	<0.0090	**0.42**	<0.021	0.011 J	---
	8/25/2011	VOPAK	Duplicate	---	**3.3**	**0.37**	<0.010	**3.10**	0.42	---	---	<0.017	---	<0.011	---	<0.008	<0.0090	**0.42**	<0.021	<0.010	---
	7/02/2015	TRC		<0.500	**2.07**	**2.12**	<0.0172	**7.73**	0.236	NA	<0.0200	<0.0189	<0.0200	<0.0317	0.0779 J	<0.0200	<0.0200	**0.685**	NA	NA	<0.0226
	11/23/2015	TRC		<0.150	**4.02**	**0.508**	<0.00516	**3.47**	0.102	NA	0.0120 J	<0.00567	<0.00600	<0.00951	0.0309	<0.00600	<0.00600	**0.364**	NA	NA	<0.00678
VMW-7	05/25/2007	VOPAK		---	<0.00050	<0.00060	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	06/20/2007	VOPAK		---	<0.00050	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.00070	---	---	---	<0.00060	---	---	---
	09/09/2010	VOPAK		---	<0.00050	<0.00050	0.00058 J	<0.00050	---	---	---	<0.00060	---	<0.00050	---	---	---	<0.00050	---	---	---
	09/09/2010	VOPAK	Duplicate	---	<0.00050	<0.00050	0.0006 J	<0.00050	---	---	---	<0.00060	---	<0.00050	---	---	---	<0.00050	---	---	---
	8/25/2011	VOPAK		---	<0.00090	<0.0010	<0.0010	<0.0025	<0.0011	---	---	<0.0017	---	<0.0011	---	0.0008	0.0009	<0.0010	<0.0021	<0.0010	---
	7/01/2015	TRC		<0.00500	**0.0435**	<0.000136	<0.000172	0.0093	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	0.000806 J	<0.000200	<0.000200	**0.0235**	NA	NA	<0.000226
	11/24/2015	TRC		<0.0100	**0.0766**	<0.000272	<0.000344	0.0182	<0.000400	NA	<0.000400	<0.000378	<0.000400	<0.000634	0.00141 J	<0.000400	<0.000400	**0.0356**	NA	NA	<0.000452

Analytical Summary Table 2-1
KMLT West Chemical Plant

Well ID	Date	Sampled By	Notes	Analytical Resuls																	
				VOCs (mg/L)																	
				Acetone	Benzene	Chlorobenzene	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	MTBE	Tetrachloroethene	Trans-1,2-Dichloroethene	Trichloroethene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	m- & p-Xylenes	o-Xylenes	Total Xylenes
TCEQ Tier I Commercial/Industrial $^{GW}GW_{ING}$ PCL				**66**	**0.005**	**0.1**	**0.005**	**0.07**	**0.7**	**7.3**	**0.73**	**0.005**	**0.1**	**0.005**	**1**	**3.7**	**3.7**	**0.002**	**10**	**10**	**10**
VMW-8	05/17/2007	VOPAK	GW	---	**0.71**	<0.0025	<0.025	**9.2**	---	---	---	<0.0025	---	<0.0035	---	---	---	**3.1**	---	---	---
	05/25/2007	VOPAK	Product[1]	---	**16**	<0.75	<0.88	**75**	---	---	---	<0.75	---	<0.75	---	---	---	**3.0**	---	---	---
	06/01/2007	VOPAK	Product[1]	---	**23 J**	<0.75	<0.88	**120**	---	---	---	<0.75	---	<0.75	---	---	---	**21**	---	---	---
	06/18/2007	VOPAK	Product	---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	09/09/2010	VOPAK	Product	---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	8/25/2011	VOPAK	Product	---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	7/01/2015	TRC	Product	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/24/2015	TRC	Product	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/02/2017	TRC	Product bailed prior to sampling	<0.00894	**0.177**	0.0190 J	<0.00232	**7.18**	0.00639 J	<0.00482	<0.00210	**0.47**	<0.0960	**0.244**	0.0060 J	NA	NA	**4.95**	<0.00410	0.00415 J	<0.00732
VMW-9	8/26/2011	VOPAK		---	**0.13**	0.0033 J	<0.0010	**0.14**	<0.0011	---	---	<0.0017	---	**0.009**	---	<0.00080	<0.0009	**0.02**	<0.0021	<0.0010	---
	7/02/2015	TRC		<0.00500	0.00415	0.00176	<0.000172	0.00491	<0.000200	NA	0.00118	<0.000189	<0.000200	0.000341 J	<0.000495	<0.000200	<0.000200	<0.000300	NS	NS	<0.000226
	11/23/2015	TRC		<0.00500	<0.000330	0.00109	<0.000172	0.00509	<0.000200	NA	0.000803 J	<0.000189	<0.000200	0.000394 J	<0.000495	<0.000200	<0.000200	<0.000300	NS	NS	<0.000226
	2/02/2017	TRC		<0.000447	<0.000176	0.000435 J	<0.000116	0.00274	<0.000212	<0.000241	0.000761 J	<0.000333	<0.000192	0.000242 J	<0.000198	NA	NA	<0.000248	<0.000205	<0.000192	<0.000366
VMW-10	11/03/2011	VOPAK		---	**0.021**	**0.19**	<0.0010	0.0075	<0.0011	---	---	<0.0017	---	<0.0011	---	<0.00080	0.0009	**0.014**	<0.0021	0.0013 J	---
	7/02/2015	TRC	Product	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/24/2015	TRC	Product	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/02/2017	TRC	Product bailed prior to sampling	0.00609	0.000836 J	**0.177**	0.000176 J	0.00212	<0.000212	0.00784	0.000319 J	<0.000333	<0.000192	<0.000138	0.000234 J	NA	NA	<0.000248	<0.000205	<0.000192	<0.000366
MW-2	7/01/2015	TRC		0.0469	<0.000660	<0.000272	<0.000344	<0.000242	<0.000400	NA	<0.000400	<0.00378	<0.000400	<0.000634	0.00896	<0.000400	<0.000400	<0.000600	NA	NA	<0.000452
	11/24/2015	TRC		<0.0100	<0.000660	<0.000272	<0.000344	<0.000242	<0.000400	NA	<0.000400	<0.000378	<0.000400	<0.000634	<0.000990	<0.000400	<0.000400	<0.000600	NA	NA	<0.000452
	2/01/2017	TRC		<0.000447	<0.000176	<0.000185	<0.000116	<0.000157	<0.000212	<0.000241	<0.000105	<0.000333	<0.000192	<0.000138	<0.000198	NA	NA	<0.000248	<0.000205	<0.000192	<0.000366
MW-3	10/13/2006	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	03/14/2007	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	04/17/2007	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	05/16/2007	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	06/20/2007	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	09/09/2010	VOPAK		---	0.0005	<0.00050	<0.00050	<0.00050	---	---	---	0.00062 J	---	<0.0005	---	---	---	<0.00050	---	---	---
	8/25/2011	VOPAK		---	0.0009	<0.0010	<0.0010	<0.0025	<0.0011	---	---	0.0019 J	---	<0.0011	---	<0.00080	<0.0009	<0.0010	<0.0021	<0.0010	---
	7/01/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
	11/24/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
MW-4	10/13/2006	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	03/14/2007	VOPAK		---	<0.0006	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.0007	---	---	---	<0.00060	---	---	---
	04/17/2007	VOPAK		---	0.0016 J	<0.0050	<0.00050	<0.0050	---	---	---	<0.0050	---	<0.0070	---	---	---	<0.0060	---	---	---
	05/16/2007	VOPAK		---	<0.0006	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.0007	---	---	---	<0.00060	---	---	---
	06/18/2007	VOPAK		---	<0.0005	<0.00050	<0.00050	<0.00050	---	---	---	<0.00060	---	<0.0005	---	---	---	<0.00050	---	---	---
	09/09/2010	VOPAK		---	<0.0005	<0.00050	<0.00050	<0.00050	---	---	---	<0.00060	---	<0.0005	---	---	---	<0.00050	---	---	---
	8/25/2011	VOPAK		---	<0.0009	<0.0010	<0.0010	<0.0025	<0.0011	---	---	<0.0017	---	<0.0011	---	<0.00080	0.0009	<0.0010	<0.0021	<0.0010	---
	7/01/2015	TRC		0.0848	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000226	NA	NA	<0.000266
	11/23/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226

Analytical Summary Table 2-1
KMLT West Chemical Plant

Well ID	Date	Sampled By	Notes	Analytical Resuls VOCs (mg/L) Acetone	Benzene	Chlorobenzene	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	MTBE	Tetrachloroethene	Trans-1,2-Dichloroethene	Trichloroethene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	m- & p-Xylenes	o-Xylenes	Total Xylenes
TCEQ Tier I Commercial/Industrial $^{GW}GW_{ING}$ PCL				66	0.005	0.1	0.005	0.07	0.7	7.3	0.73	0.005	0.1	0.005	1	3.7	3.7	0.002	10	10	10
MW-6	7/02/2015	TRC		0.3260	**0.00618**	<0.000680	<0.000860	0.00684	<0.00100	NA	<0.00100	<0.000945	<0.00100	<0.00159	<0.00248	<0.00100	<0.00100	<0.00150	NA	NA	<0.00113
	11/23/2015	TRC		<0.0250	<0.00165	<0.000680	<0.000860	0.00531	<0.00100	NA	<0.00100	<0.000945	<0.00100	<0.00159	<0.00248	<0.00100	<0.00100	<0.00150	NA	NA	<0.00113
	2/01/2017	TRC		<0.00894	**0.0142 J**	<0.00370	<0.002320	0.00999 J	<0.00424	<0.00482	<0.00210	<0.00666	<0.00384	<0.00276	<0.00396	NA	NA	<0.00496	<0.00410	<0.00384	<0.00732
P-1	10/13/2006	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	03/14/2007	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	04/17/2007	VOPAK		---	NS	NS	NS	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	05/16/2007	VOPAK		---	NS	NS	<0.00050	NS	NS	---	---	NS	---	NS	---	NS	NS	NS	NS	NS	---
	06/20/2007	VOPAK		---	<0.0005	<0.00050	<0.00050	<0.00050	---	---	---	<0.00050	---	<0.0007	---	---	---	<0.00060	---	---	---
	09/09/2010	VOPAK		---	<0.0005	<0.00050	<0.0010	<0.00050	---	---	---	<0.00060	---	<0.0005	---	---	---	<0.00050	---	---	---
	8/25/2011	VOPAK		---	<0.0009	<0.0010	<0.0050	<0.0025	<0.0011	---	---	<0.0017	---	<0.0011	---	<0.00080	<0.0009	<0.0010	<0.0021	<0.0010	---
	7/01/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
	11/23/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
P-2	7/02/2015	TRC		<0.0250	**0.628**	0.0614	<0.000860	<0.000605	0.0104	NA	<0.00100	<0.000945	<0.00100	<0.00159	0.0282	<0.00100	<0.00100	<0.00150	NA	NA	0.0195
	11/23/2015	TRC		<0.00500	**0.628**	0.0543	<0.000172	<0.000121	0.0183	NA	<0.00200	<0.000189	<0.000200	<0.000317	0.0288	0.00125 J	0.00360	<0.000300	NA	NA	0.0299
	2/01/2017	TRC		<.000447	**0.529**	0.0436	0.000900 J	<0.000157	0.00917	0.0189	<0.000105	<0.000333	<0.000192	<0.000138	0.0313	NA	NA	<0.000248	0.0146	0.00968	0.0243
P-3	7/02/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
	11/24/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000173	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
	2/01/2017	TRC		<0.000447	<0.000176	<0.000185	<0.000116	<0.000157	<0.000212	<0.000241	0.000629 J	<0.000333	<0.000192	<0.000138	<0.000198	NA	NA	<0.000248	<0.000205	<0.000192	<0.000366
GB-2	10/13/2006	VOPAK		---	**0.95**	0.061	<0.0050	**4.2**	---	---	---	<0.0050	---	<0.0070	---	---	---	**0.99**	---	---	---
GB-4	10/13/2006	VOPAK		---	**1.7**	0.0025 J	<0.0005	**0.13**	---	---	---	<0.00050	---	<0.0007	---	---	---	<0.00060	---	---	---
West Plant Monitoring Wells																					
MW-29	8/6/2002	VOPAK		---	**0.0116**	**0.195**	<0.00204	<0.00290	<0.00136	<0.000360	---	<0.00150	---	<0.00182	---	---	---	<0.00199	<0.00236	<0.00117	<0.00342
	2/4/2003	VOPAK		---	**0.0209**	**0.328**	<0.00101	0.00182 J	<0.000770	<0.000760	---	<0.00109	---	<0.00100	---	---	---	<0.00230	<0.00176	<0.000770	<0.00229
	2/4/2008	VOPAK	Duplicate	---	**0.008**	**0.15**	<1	0.002 J	---	---	---	<1	---	<1	---	---	---	<0.4	---	---	---
	2/4/2008	VOPAK		---	**0.008**	**0.143**	<1	<1	---	---	---	<1	---	<1	---	---	---	<0.4	---	---	---
	4/19/2013	VOPAK		---	**0.0187**	**0.485**	<0.000140	0.00743	0.000136 J	<0.000180	---	<0.000130	---	<0.000180	---	---	---	**0.00949**	<0.000170	<0.000120	<0.000260
	7/1/2015	TRC		<0.0100	0.00455	**0.19**	<0.000344	0.00151 J	<0.000400	NA	<0.000400	<0.000378	<0.000400	<0.000634	0.00795	<0.000400	<0.000400	<0.000600	NA	NA	<0.000452
	11/23/2015	TRC		<0.0150	0.00326	**0.227**	<0.000516	<0.000363	<0.000600	NA	<0.000600	<0.000567	<0.000600	<0.000951	<0.00149	<0.000600	<0.000600	<0.000900	NA	NA	<0.000678
MW-31	8/7/2002	VOPAK		---	<0.00169	0.0394	**0.0111**	0.0251	<0.00136	<0.00566	---	**0.00625**	---	**0.402**	---	---	---	**0.00337**	<0.00236	<0.00117	<0.00342
	2/5/2003	VOPAK		---	**0.0489**	0.0176	**0.00614**	0.0201	0.00106 J	<0.000760	---	0.00233 J	---	**0.156**	---	---	---	<0.00230	0.00708 J	0.00237 J	0.00945 J
	2/4/2008	VOPAK		---	0.001 J	**0.27**	0.005 J	**1.41**	---	---	---	<1	---	**0.123**	---	---	---	**0.015**	---	---	---
	4/19/2013	VOPAK		---	0.00224 J	0.0318	<0.00140	**0.909**	<0.00110	<0.00180	---	<0.00130	---	**0.0112**	---	---	---	**0.0741**	<0.00170	<0.00120	<0.00260
	7/1/2015	TRC		<0.0500	<0.00330	0.0773	<0.00172	**1.610**	<0.00200	NA	<0.00200	<0.00189	0.00745 J	**0.0156**	0.00931 J	<0.00200	<0.00200	**0.0351**	NA	NA	<0.00226
	11/23/2015	TRC		<0.0500	<0.00330	0.0838	0.00595 J	**1.890**	<0.00200	NA	<0.00200	<0.00189	0.00917 J	**0.0172**	<0.00495	<0.00200	<0.00200	**0.0573**	NA	NA	<0.00229

Analytical Summary Table 2-1
KMLT West Chemical Plant

Well ID	Date	Sampled By	Notes	Analytical Resuls																	
				VOCs (mg/L)																	
				Acetone	Benzene	Chlorobenzene	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	MTBE	Tetrachloroethene	Trans-1,2-Dichloroethene	Trichloroethene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	m- & p-Xylenes	o-Xylenes	Total Xylenes
TCEQ Tier I Commercial/Industrial $^{GW}GW_{ING}$ PCL				**66**	**0.005**	**0.1**	**0.005**	**0.07**	**0.7**	**7.3**	**0.73**	**0.005**	**0.1**	**0.005**	**1**	**3.7**	**3.7**	**0.002**	**10**	**10**	**10**
MW-32	8/6/2002	VOPAK		---	**0.0275**	<0.00121	<0.00204	2.69	0.00287 J	0.00548	---	0.00153 J	---	**0.00578**	---	---	---	**1.13**	0.00393 J	0.00216 J	0.00610 J
	2/4/2008	VOPAK		---	**0.048**	0.006	0.002 J	5.88	---	---	---	<1	---	0.003 J	---	---	---	**2.92**	---	---	---
	4/28/2011	VOPAK		---	**0.0851**	0.011	<0.000268	1.24	0.0415	0.00309 J	---	0.00356 J	---	**0.0084**	---	---	---	**0.77**	0.00399 J	0.00277 J	---
	4/19/2013	VOPAK		---	**0.232**	0.133	<0.00140	1.98	0.0473	0.00413 J	---	<0.00130	---	**0.00688 J**	---	---	---	**2.02**	0.00544 J	0.00243 J	0.00787 J
	7/1/2015	TRC		<0.0150	**0.0114**	0.00209 J	<0.000516	0.0442	0.00190 J	NA	<0.000600	<0.000567	<0.000600	<0.000951	0.00858	<0.000600	<0.000600	**0.254**	NA	NA	<0.000678
	11/23/2015	TRC		<0.00500	**0.00613**	0.000376 J	<0.000172	0.0607	0.00108	NA	<0.000200	<0.000189	0.00138	<0.000317	<0.000495	<0.000200	<0.000200	**0.0736**	NA	NA	0.000252 J
MW-33	8/6/2002	VOPAK		---	**0.174**	0.00361 J	<0.00204	0.0501	0.00442 J	0.00315 J	---	<0.00150	---	<0.00182	---	---	---	**0.0215**	<0.00236	<0.00117	<0.00342
	2/5/2003	VOPAK		---	**0.0713**	0.00173 J	<0.00101	0.0284	<0.000770	<0.000760	---	<0.00109	---	<0.00100	---	---	---	**0.0159**	<0.00176	<0.000770	<0.00229
	2/5/2008	VOPAK		---	**0.029**	0.002 J	<1	<1	---	---	---	<1	---	<1	---	---	---	<0.4	---	---	---
	4/19/2013	VOPAK		---	**0.0118**	0.00149	<0.000140	0.0135	<0.000110	0.000584 J	---	<0.000130	---	<0.000180	---	---	---	**0.00649**	<0.000170	<0.000120	<0.000260
	7/1/2015	TRC		<0.00500	**0.0329**	0.00413	<0.000172	0.0182	<0.000200	NA	<0.000200	<0.00189	<0.000200	<0.00317	0.00868	<0.000200	<0.000200	**0.02490**	NA	NA	<0.000226
	11/23/2015	TRC		<0.00500	**0.0288**	0.00314	<0.000172	0.0157	<0.00200	NA	<0.000200	<0.00189	<0.00200	<0.00317	<0.000495	<0.000200	<0.000200	**0.01330**	NA	NA	<0.000226
MW-34	8/6/2002	VOPAK		---	<0.00169	0.00148 J	<0.00204	<0.00290	<0.00136	0.0248	---	<0.00150	---	<0.00182	---	---	---	<0.00199	<0.00236	<0.00117	<0.00026
	2/5/2003	VOPAK		---	<0.000770	<0.000680	<0.00101	<0.00124	<0.000770	<0.000760	---	<0.00109	---	<0.00100	---	---	---	<0.00230	<0.00176	<0.000770	<0.00229
	2/5/2008	VOPAK		---	<1	<1	<1	<1	---	---	---	<1	---	<1	---	---	---	<0.4	---	---	---
	4/19/2013	VOPAK		---	0.00111	0.000319 J	<0.000140	0.000443 J	<0.000110	0.000260 J	---	<0.000130	---	<0.000180	---	---	---	<0.000110	<0.000170	<0.000120	<0.000260
	7/2/2015	TRC		<0.00500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	0.011	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226
	11/23/2015	TRC		<0.0500	<0.000330	<0.000136	<0.000172	<0.000121	<0.000200	NA	<0.000200	<0.000189	<0.000200	<0.000317	<0.000495	<0.000200	<0.000200	<0.000300	NA	NA	<0.000226

TRC Notes:

1. [1] - Tier II PCLs were calculated and presented in Appendix 3 of the 2012 RAP Addendum.
2. J - Estimated data: the reported quantitation limit or sample concentration is approximated due to exceedance of one or more QC requirements or the analyte was detected between the method quantitation limit and the sample quantiation limit.
3. < - The result is not detected above the sample quantitation limit.
4. NA - Not Analyzed
5. Bold - Values above the PCL
6. mg/L - milligrams per liter
7. '--' - PCL not calculated for analyte due to Tier 1 PCL not being exceeded.

VOPAK Notes:

8. VOPAK data obtained from Table 5B in Affected Property Assessment Report submitted July 8, 2013. Lab reports were not reviewed to verify results.
9. NS - Not Sampled
10. Product[1] - Results reported in mg/kg
11. '---' - Data not available

GROUNDWATER GAUGING DATA TABLE 2-2
KMLT WEST CHEMICAL PLANT
GALENA PARK, TEXAS

Well ID	Date of Measurement	Top of Casing Elevation	Depth to LNAPL (ft)	Depth to Groundwater (ft)	LNAPL Thickness (ft)	Corrected Groundwater Elevation (ft)
West Chemical Plant Monitoring Wells						
MW-1	6/3/2015	Well not located (assumed to be P&A'd)				
MW-2	6/3/2015	21.12	ND	7.19	0.00	13.93
	7/1/2015	21.12	ND	7.86	0.00	13.26
	2/1/2017	21.12	ND	9.58	0.00	11.54
	2/5/2018	21.12	ND	8.84	0.00	12.28
MW-3	6/3/2015	24.61	ND	7.57	0.00	17.04
	7/1/2015	24.61	ND	8.24	0.00	16.37
	2/1/2017	24.61	ND	10.22	0.00	14.39
	2/5/2018	24.61	ND	9.57	0.00	15.04
MW-4	6/3/2015	23.25	ND	7.11	0.00	16.14
	7/1/2015	23.25	ND	7.80	0.00	15.45
	2/1/2017	23.25	ND	9.77	0.00	13.48
	2/5/2018	23.25	ND	9.23	0.00	14.02
MW-6	6/3/2015	21.40	ND	1.05	0.00	20.35
	7/1/2015	21.40	ND	0.75	0.00	20.65
	2/1/2017	21.40	ND	1.36	0.00	20.04
	2/5/2018	21.40	Unable to locate well			
P-1	6/3/2015	27.81	ND	11.08	0.00	16.73
	7/1/2015	27.81	ND	11.61	0.00	16.20
	2/1/2017	27.81	ND	13.30	0.00	14.51
	2/5/2018	27.81	ND	12.76	0.00	15.05
P-2	6/3/2015	20.54	ND	11.96	0.00	8.58
	7/1/2015	20.54	ND	12.11	0.00	8.43
	2/1/2017	20.54	ND	13.02	0.00	7.52
	2/5/2018	20.54	ND	13.21	0.00	7.33
P-3	6/3/2015	19.90	ND	8.13	0.00	11.77
	7/1/2015	19.90	ND	7.30	0.00	12.60
	2/1/2017	19.90	ND	10.50	0.00	9.40
	2/5/2018	19.90	ND	9.96	0.00	9.94
VMW-1	6/3/2015	27.64	ND	10.71	0.00	16.93
	7/1/2015	27.64	ND	11.40	0.00	16.24
	2/1/2017	27.64	ND	13.21	0.00	14.43
	2/5/2018	27.64	ND	12.49	0.00	15.15
VMW-2	6/3/2015	22.54	ND	5.74	0.00	16.80
	7/1/2015	22.54	ND	6.37	0.00	16.17
	2/1/2017	22.54	ND	8.50	0.00	14.04
	2/5/2018	22.54	ND	7.79	0.00	14.75
VMW-3	6/3/2015	21.93	5.10	6.50	1.40	16.76
	6/22/2015	21.93	5.12	6.50	1.38	16.74
	7/1/2015	21.93	5.77	5.85	0.08	16.16
	7/13/2015	21.93	5.99	6.00	0.01	15.94
	7/31/2015	21.93	7.50	7.53	0.03	14.43
	8/13/2015	21.93	7.70	7.71	0.01	14.23
	8/28/2015	21.93	6.37	6.38	0.01	15.56
	11/23/2015	21.93	7.17	7.18	0.01	14.76
	2/10/2016	21.93	6.24	6.27	0.03	15.69
	3/29/2016	21.93	6.31	6.33	0.02	15.62
	4/26/2016	21.93	6.19	6.20	0.01	15.74
	6/28/2016	21.93	5.25	5.27	0.02	16.68
	7/27/2016	21.93	5.37	5.38	0.01	16.56
	8/26/2016	21.93	Sheen	5.84	Sheen	16.09
	9/29/2016	21.93	Sheen	6.41	Sheen	15.52
	10/26/2016	21.93	6.92	6.93	0.01	15.01

GROUNDWATER GAUGING DATA TABLE 2-2
KMLT WEST CHEMICAL PLANT
GALENA PARK, TEXAS

Well ID	Date of Measurement	Top of Casing Elevation	Depth to LNAPL (ft)	Depth to Groundwater (ft)	LNAPL Thickness (ft)	Corrected Groundwater Elevation (ft)
	11/29/2016	21.93	ND	6.89	0.00	15.04
	12/21/2016	21.93	ND	6.50	0.00	15.43
	2/1/2017	21.93	Sheen	7.95	Sheen	13.98
	3/23/2017	21.93	Sheen	6.01	Sheen	15.92
	4/26/2017	21.93	Sheen	6.04	Sheen	15.89
	5/31/2017	21.93	Sheen	6.25	Sheen	15.68
	6/30/2017	21.93	ND	5.64	0.00	16.29
	7/31/2017	21.93	5.71	5.72	0.01	16.21
	9/22/2017	21.93	5.61	5.63	0.02	16.30
	2/5/2018	21.93	Sheen	7.36	Sheen	14.57

GROUNDWATER GAUGING DATA TABLE 2-2
KMLT WEST CHEMICAL PLANT
GALENA PARK, TEXAS

Well ID	Date of Measurement	Top of Casing Elevation	Depth to LNAPL (ft)	Depth to Groundwater (ft)	LNAPL Thickness (ft)	Corrected Groundwater Elevation (ft)
VMW-4	6/3/2015	21.47	ND	3.86	0.00	17.61
	7/1/2015	21.47	ND	3.49	0.00	17.98
	2/1/2017	21.47	ND	4.35	0.00	17.12
	2/5/2018	21.47	ND	4.56	0.00	16.91
VMW-5	6/3/2015	Well Destroyed (Pad moved off of casing)				
VMW-6	6/3/2015	21.98	ND	5.68	0.00	16.30
	7/1/2015	21.98	ND	5.95	0.00	16.03
	2/1/2017	21.98	ND	8.05	0.00	13.93
	2/5/2018	21.98	ND	7.52	0.00	14.46
VMW-7	6/3/2015	25.99	ND	4.61	0.00	21.38
	7/1/2015	25.99	ND	4.91	0.00	21.08
	2/1/2017	25.99	ND	6.58	0.00	19.41
	2/5/2018	25.99	ND	6	0.00	19.99
VMW-8	6/3/2015	22.20	ND	5.35	0.00	16.85
	6/22/2015	22.20	Sheen	5.42	Sheen	16.78
	7/1/2015	22.20	5.67	5.68	0.01	16.53
	7/13/2015	22.20	5.89	5.90	0.01	16.31
	7/31/2015	22.20	7.47	7.48	0.01	14.73
	8/13/2015	22.20	7.55	7.56	0.01	14.65
	8/28/2015	22.20	Sheen	6.19	Sheen	16.01
	11/23/2015	22.20	6.61	6.64	0.03	15.59
	2/10/2016	22.20	6.01	6.02	0.01	16.19
	3/29/2016	22.20	Sheen	6.01	Sheen	16.19
	4/26/2016	22.20	Sheen	5.88	Sheen	16.32
	6/28/2016	22.20	Sheen	5.00	Sheen	17.20
	7/27/2016	22.20	Sheen	5.30	Sheen	16.90
	8/26/2016	22.20	ND	5.89	0.00	16.31
	9/29/2016	22.20	ND	6.37	0.00	15.83
	10/26/2016	22.20	ND	6.84	0.00	15.36
	11/29/2016	22.20	ND	6.81	0.00	15.39
	12/21/2016	22.20	ND	6.39	0.00	15.81
	2/1/2017	22.20	7.77	7.82	0.05	14.43
	3/23/2017	22.20	ND	5.97	0.00	16.23
	4/26/2017	22.20	5.98	6.00	0.02	16.22
	5/31/2017	22.20	Sheen	6.19	Sheen	16.01
	6/30/2017	22.20	5.76	5.79	0.03	16.44
	7/31/2017	22.20	5.8	5.83	0.03	16.40
	9/22/2017	22.20	5.52	5.61	0.09	16.68
	2/5/2018	22.20	7.16	7.2	0.04	15.04
VMW-9	6/3/2015	21.10	ND	3.13	0.00	17.97
	7/1/2015	21.10	ND	3.00	0.00	18.10
	2/1/2017	21.10	ND	3.58	0.00	17.52
	2/5/2018	21.10	ND	4.45	0.00	16.65

GROUNDWATER GAUGING DATA TABLE 2-2
KMLT WEST CHEMICAL PLANT
GALENA PARK, TEXAS

Well ID	Date of Measurement	Top of Casing Elevation	Depth to LNAPL (ft)	Depth to Groundwater (ft)	LNAPL Thickness (ft)	Corrected Groundwater Elevation (ft)
VMW-10	6/3/2015	18.58	4.71	9.74	5.03	13.62
	6/18/2015	18.58	3.95	9.45	5.50	14.36
	6/22/2015	18.58	4.32	6.32	2.00	14.16
	7/1/2015	18.58	5.13	5.94	0.81	13.41
	7/13/2015	18.58	5.25	5.83	0.58	13.30
	7/31/2015	18.58	5.61	6.11	0.50	12.95
	8/13/2015	18.58	6.08	6.41	0.33	12.48
	8/28/2015	18.58	5.75	6.10	0.35	12.81
	11/23/2015	18.58	4.94	5.52	0.58	13.61
	2/10/2016	18.58	5.59	6.19	0.60	12.96
	3/29/2016	18.58	5.68	6.12	0.44	12.88
	4/26/2016	18.58	5.57	6.09	0.52	12.98
	6/28/2016	18.58	4.86	5.51	0.65	13.69
	7/27/2016	18.58	4.55	5.04	0.49	14.01
	8/26/2016	18.58	5.01	5.52	0.51	13.54
	9/29/2016	18.58	5.12	5.66	0.54	13.43
	10/26/2016	18.58	5.61	6.30	0.69	12.94
	11/29/2016	18.58	5.82	6.30	0.48	12.74
	12/21/2016	18.58	5.51	5.88	0.37	13.05
	2/1/2017	18.58	5.50	5.70	0.20	13.07
	3/23/2017	18.58	5.71	5.88	0.17	12.86
	4/26/2017	18.58	5.20	5.24	0.04	13.38
	5/31/2017	18.58	5.49	5.59	0.10	13.09
	6/30/2017	18.58	5.16	5.29	0.13	13.41
	7/31/2017	18.58	5.21	5.32	0.11	13.36
	9/22/2017	18.58	4.95	5.11	0.16	13.62
	2/5/2018	18.58	5.06	5.11	0.05	13.52
West Plant Monitoring Wells						
MW-29	6/3/2015	24.46	ND	10.30	0.00	14.16
	7/1/2015	24.46	ND	10.69	0.00	13.77
MW-31	6/3/2015	23.16	ND	7.00	0.00	16.16
	7/1/2015	23.16	ND	7.65	0.00	15.51
MW-32	6/3/2015	23.08	ND	6.92	0.00	16.16
	7/1/2015	23.08	ND	7.31	0.00	15.77
MW-33	6/3/2015	25.03	ND	14.53	0.00	10.50
	7/1/2015	25.03	ND	14.91	0.00	10.12
MW-34	6/3/2015	25.33	ND	9.30	0.00	16.03
	7/1/2015	25.33	ND	9.45	0.00	15.88
MW-36	6/3/2015	23.81	ND	6.90	0.00	16.91
	7/1/2015	23.81	ND	NM	0.00	NM

Notes:

LNAPL - Light non-aqueous phase liquid

(ft) - feet

ND - not detected

NM - Not Monitored

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-122269-1
Client Project/Site: West Chemical Plant 11/24/2015

For:
TRC Solutions, Inc.
10550 Richmond Avenue
Suite 210
Houston, Texas 77042

Attn: Jake Wimberley

Kristy Ricke

Authorized for release by:
12/8/2015 1:43:26 PM

Kristy Ricke, Project Manager I
(615)301-5764
[redacted]

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Method Summary 4
Sample Summary 5
Client Sample Results 6
Definitions/Glossary 32
Surrogate Summary 33
QC Sample Results 34
QC Association Summary 48
Lab Chronicle 49
Certification Summary 53
Chain of Custody 54
Receipt Checklists 59

Job ID: 600-122269-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-122269-1

Comments
No additional comments.

Receipt
The samples were received on 11/25/2015 12:32 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.2º C.

Receipt Exceptions
A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA
Method 8260B: The following samples were diluted due to the nature of the sample matrix (foamy): MW-2 (600-122269-1), MW-6 (600-122269-4), and VMW-7 (600-122269-12). Elevated reporting limits (RLs) are provided.

Method 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: P-2 (600-122269-6), VMW-6 (600-122269-11), MW-29 (600-122269-14), and MW-31 (600-122269-15). Elevated reporting limits (RLs) are provided.

Method 8260B: Due to the high concentration of Benzene and cis1,2-Dichloroethene, the matrix spike / matrix spike duplicate (MS/MSD) for batches 122621 and 122622 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CC

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

Sample Summary

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-122269-1	MW-2	Water	11/24/15 09:25	11/25/15 12:32
600-122269-2	MW-3	Water	11/24/15 08:40	11/25/15 12:32
600-122269-3	MW-4	Water	11/23/15 15:20	11/25/15 12:32
600-122269-4	MW-6	Water	11/23/15 15:18	11/25/15 12:32
600-122269-5	P-1	Water	11/23/15 12:40	11/25/15 12:32
600-122269-6	P-2	Water	11/23/15 14:50	11/25/15 12:32
600-122269-7	P-3	Water	11/24/15 10:15	11/25/15 12:32
600-122269-8	VMW-1	Water	11/23/15 13:10	11/25/15 12:32
600-122269-9	VMW-2	Water	11/23/15 12:00	11/25/15 12:32
600-122269-10	VMW-4	Water	11/23/15 14:20	11/25/15 12:32
600-122269-11	VMW-6	Water	11/23/15 14:43	11/25/15 12:32
600-122269-12	VMW-7	Water	11/24/15 11:05	11/25/15 12:32
600-122269-13	VMW-9	Water	11/23/15 13:45	11/25/15 12:32
600-122269-14	MW-29	Water	11/23/15 13:02	11/25/15 12:32
600-122269-15	MW-31	Water	11/23/15 13:42	11/25/15 12:32
600-122269-16	MW-32	Water	11/23/15 14:11	11/25/15 12:32
600-122269-17	MW-33	Water	11/23/15 12:28	11/25/15 12:32
600-122269-18	MW-34	Water	11/23/15 11:55	11/25/15 12:32
600-122269-19	Trip Blank	Water	11/23/15 00:00	11/25/15 12:32

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: MW-2
Date Collected: 11/24/15 09:25
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0100	U	0.0200	0.0100	mg/L			12/01/15 15:30	2
Acetonitrile	0.0200	U	0.100	0.0200	mg/L			12/01/15 15:30	2
Benzene	0.000660	U	0.00200	0.000660	mg/L			12/01/15 15:30	2
Bromoform	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:30	2
Bromomethane	0.000784	U	0.0100	0.000784	mg/L			12/01/15 15:30	2
2-Butanone (MEK)	0.00200	U	0.0200	0.00200	mg/L			12/01/15 15:30	2
Carbon disulfide	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:30	2
Carbon tetrachloride	0.000502	U	0.00200	0.000502	mg/L			12/01/15 15:30	2
Chlorobenzene	0.000272	U	0.00200	0.000272	mg/L			12/01/15 15:30	2
Chlorodibromomethane	0.000446	U	0.00400	0.000446	mg/L			12/01/15 15:30	2
Chloroethane	0.000800	U	0.0100	0.000800	mg/L			12/01/15 15:30	2
Chloroform	0.000346	U	0.00200	0.000346	mg/L			12/01/15 15:30	2
Chloromethane	0.000780	U	0.0100	0.000780	mg/L			12/01/15 15:30	2
cis-1,2-Dichloroethene	0.000242	U	0.00200	0.000242	mg/L			12/01/15 15:30	2
cis-1,3-Dichloropropene	0.000292	U	0.00200	0.000292	mg/L			12/01/15 15:30	2
Dibromomethane	0.000330	U	0.00200	0.000330	mg/L			12/01/15 15:30	2
Dichlorobromomethane	0.000350	U	0.00200	0.000350	mg/L			12/01/15 15:30	2
1,1-Dichloroethane	0.000336	U	0.00200	0.000336	mg/L			12/01/15 15:30	2
1,2-Dichloroethane	0.000344	U	0.00200	0.000344	mg/L			12/01/15 15:30	2
1,1-Dichloroethene	0.000600	U	0.00200	0.000600	mg/L			12/01/15 15:30	2
2,2-Dichloropropane	0.000670	U	0.00200	0.000670	mg/L			12/01/15 15:30	2
1,2-Dichloropropane	0.000346	U	0.00200	0.000346	mg/L			12/01/15 15:30	2
1,3-Dichloropropane	0.000292	U	0.00200	0.000292	mg/L			12/01/15 15:30	2
1,1-Dichloropropene	0.000370	U	0.00200	0.000370	mg/L			12/01/15 15:30	2
1,4-Dioxane	0.0318	U	0.200	0.0318	mg/L			12/01/15 15:30	2
Ethyl acetate	0.00200	U	0.0100	0.00200	mg/L			12/01/15 15:30	2
Ethylbenzene	0.000400	U	0.00200	0.000400	mg/L			12/01/15 15:30	2
Ethylene Dibromide	0.000350	U	0.00200	0.000350	mg/L			12/01/15 15:30	2
Ethyl ether	0.000640	U	0.0100	0.000640	mg/L			12/01/15 15:30	2
Ethyl methacrylate	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:30	2
2-Hexanone	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:30	2
Iodomethane	0.000446	U	0.00400	0.000446	mg/L			12/01/15 15:30	2
Methylene Chloride	0.00400	U	0.0200	0.00400	mg/L			12/01/15 15:30	2
Methyl methacrylate	0.000400	U	0.0100	0.000400	mg/L			12/01/15 15:30	2
4-Methyl-2-pentanone (MIBK)	0.00102	U	0.0100	0.00102	mg/L			12/01/15 15:30	2
Methyl tert-butyl ether	0.000400	U	0.00200	0.000400	mg/L			12/01/15 15:30	2
2-Nitropropane	0.00200	U	0.0200	0.00200	mg/L			12/01/15 15:30	2
Styrene	0.000400	U	0.00200	0.000400	mg/L			12/01/15 15:30	2
1,1,2,2-Tetrachloroethane	0.000380	U	0.00200	0.000380	mg/L			12/01/15 15:30	2
Tetrachloroethene	0.000378	U	0.00200	0.000378	mg/L			12/01/15 15:30	2
Toluene	0.000990	U	0.00200	0.000990	mg/L			12/01/15 15:30	2
trans-1,2-Dichloroethene	0.000400	U	0.00200	0.000400	mg/L			12/01/15 15:30	2
trans-1,3-Dichloropropene	0.000400	U	0.0100	0.000400	mg/L			12/01/15 15:30	2
1,2,3-Trichlorobenzene	0.000434	U	0.0100	0.000434	mg/L			12/01/15 15:30	2
1,1,1-Trichloroethane	0.000600	U	0.00200	0.000600	mg/L			12/01/15 15:30	2
1,1,2-Trichloroethane	0.000346	U	0.00200	0.000346	mg/L			12/01/15 15:30	2
Trichloroethene	0.000634	U	0.00200	0.000634	mg/L			12/01/15 15:30	2
Trichlorofluoromethane	0.000488	U	0.00200	0.000488	mg/L			12/01/15 15:30	2
1,2,3-Trichloropropane	0.000382	U	0.00200	0.000382	mg/L			12/01/15 15:30	2

Client Sample ID: MW-2

Lab Sample ID: 600-122269-1

Date Collected: 11/24/15 09:25

Matrix: Water

Date Received: 11/25/15 12:32

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000820	U	0.00200	0.000820	mg/L			12/01/15 15:30	2
1,3,5-Trimethylbenzene	0.000400	U	0.00400	0.000400	mg/L			12/01/15 15:30	2
1,2,4-Trimethylbenzene	0.000400	U	0.00400	0.000400	mg/L			12/01/15 15:30	2
Vinyl acetate	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:30	2
Vinyl chloride	0.000600	U	0.00200	0.000600	mg/L			12/01/15 15:30	2
Xylenes, Total	0.000452	U	0.00400	0.000452	mg/L			12/01/15 15:30	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*69 - 130*		*12/01/15 15:30*	*2*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/01/15 15:30*	*2*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 15:30*	*2*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/01/15 15:30*	*2*

Client Sample ID: MW-3

Lab Sample ID: 600-122269-2

Date Collected: 11/24/15 08:40

Matrix: Water

Date Received: 11/25/15 12:32

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 16:20	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 16:20	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 16:20	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:20	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 16:20	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 16:20	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:20	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 16:20	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 16:20	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 16:20	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 16:20	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 16:20	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 16:20	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 16:20	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 16:20	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 16:20	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 16:20	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 16:20	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 16:20	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 16:20	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 16:20	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 16:20	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 16:20	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 16:20	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 16:20	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 16:20	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:20	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 16:20	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 16:20	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:20	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:20	1

Client Sample ID: MW-3

Date Collected: 11/24/15 08:40
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 16:20	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 16:20	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 16:20	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 16:20	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:20	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 16:20	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:20	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 16:20	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 16:20	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 16:20	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:20	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 16:20	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 16:20	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 16:20	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 16:20	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 16:20	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 16:20	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 16:20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 16:20	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 16:20	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 16:20	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:20	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 16:20	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*69 - 130*		*12/01/15 16:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 140*		*12/01/15 16:20*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/01/15 16:20*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/01/15 16:20*	*1*

Client Sample ID: MW-4

Date Collected: 11/23/15 15:20
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 16:45	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 16:45	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 16:45	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:45	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 16:45	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 16:45	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:45	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 16:45	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 16:45	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 16:45	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 16:45	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 16:45	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 16:45	1

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: MW-4
Date Collected: 11/23/15 15:20
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 16:45	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 16:45	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 16:45	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 16:45	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 16:45	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 16:45	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 16:45	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 16:45	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 16:45	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 16:45	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 16:45	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 16:45	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 16:45	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:45	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 16:45	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 16:45	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:45	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:45	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 16:45	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 16:45	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 16:45	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 16:45	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:45	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 16:45	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:45	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 16:45	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 16:45	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 16:45	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 16:45	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 16:45	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 16:45	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 16:45	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 16:45	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 16:45	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 16:45	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 16:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 16:45	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 16:45	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 16:45	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 16:45	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 16:45	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/01/15 16:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/01/15 16:45*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 16:45*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*12/01/15 16:45*	*1*

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: MW-6
Date Collected: 11/23/15 15:18
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0250	U	0.0500	0.0250	mg/L			12/01/15 15:55	5
Acetonitrile	0.0500	U	0.250	0.0500	mg/L			12/01/15 15:55	5
Benzene	0.00165	U	0.00500	0.00165	mg/L			12/01/15 15:55	5
Bromoform	0.00250	U	0.0250	0.00250	mg/L			12/01/15 15:55	5
Bromomethane	0.00196	U	0.0250	0.00196	mg/L			12/01/15 15:55	5
2-Butanone (MEK)	0.00500	U	0.0500	0.00500	mg/L			12/01/15 15:55	5
Carbon disulfide	0.00250	U	0.0250	0.00250	mg/L			12/01/15 15:55	5
Carbon tetrachloride	0.00126	U	0.00500	0.00126	mg/L			12/01/15 15:55	5
Chlorobenzene	0.000680	U	0.00500	0.000680	mg/L			12/01/15 15:55	5
Chlorodibromomethane	0.00112	U	0.0100	0.00112	mg/L			12/01/15 15:55	5
Chloroethane	0.00200	U	0.0250	0.00200	mg/L			12/01/15 15:55	5
Chloroform	0.000865	U	0.00500	0.000865	mg/L			12/01/15 15:55	5
Chloromethane	0.00195	U	0.0250	0.00195	mg/L			12/01/15 15:55	5
cis-1,2-Dichloroethene	**0.00531**		0.00500	0.000605	mg/L			12/01/15 15:55	5
cis-1,3-Dichloropropene	0.000730	U	0.00500	0.000730	mg/L			12/01/15 15:55	5
Dibromomethane	0.000825	U	0.00500	0.000825	mg/L			12/01/15 15:55	5
Dichlorobromomethane	0.000875	U	0.00500	0.000875	mg/L			12/01/15 15:55	5
1,1-Dichloroethane	0.000840	U	0.00500	0.000840	mg/L			12/01/15 15:55	5
1,2-Dichloroethane	0.000860	U	0.00500	0.000860	mg/L			12/01/15 15:55	5
1,1-Dichloroethene	0.00150	U	0.00500	0.00150	mg/L			12/01/15 15:55	5
2,2-Dichloropropane	0.00168	U	0.00500	0.00168	mg/L			12/01/15 15:55	5
1,2-Dichloropropane	0.000865	U	0.00500	0.000865	mg/L			12/01/15 15:55	5
1,3-Dichloropropane	0.000730	U	0.00500	0.000730	mg/L			12/01/15 15:55	5
1,1-Dichloropropene	0.000925	U	0.00500	0.000925	mg/L			12/01/15 15:55	5
1,4-Dioxane	0.0795	U	0.500	0.0795	mg/L			12/01/15 15:55	5
Ethyl acetate	0.00500	U	0.0250	0.00500	mg/L			12/01/15 15:55	5
Ethylbenzene	0.00100	U	0.00500	0.00100	mg/L			12/01/15 15:55	5
Ethylene Dibromide	0.000875	U	0.00500	0.000875	mg/L			12/01/15 15:55	5
Ethyl ether	0.00160	U	0.0250	0.00160	mg/L			12/01/15 15:55	5
Ethyl methacrylate	0.00250	U	0.0250	0.00250	mg/L			12/01/15 15:55	5
2-Hexanone	0.00250	U	0.0250	0.00250	mg/L			12/01/15 15:55	5
Iodomethane	0.00112	U	0.0100	0.00112	mg/L			12/01/15 15:55	5
Methylene Chloride	0.0100	U	0.0500	0.0100	mg/L			12/01/15 15:55	5
Methyl methacrylate	0.00100	U	0.0250	0.00100	mg/L			12/01/15 15:55	5
4-Methyl-2-pentanone (MIBK)	0.00255	U	0.0250	0.00255	mg/L			12/01/15 15:55	5
Methyl tert-butyl ether	0.00100	U	0.00500	0.00100	mg/L			12/01/15 15:55	5
2-Nitropropane	0.00500	U	0.0500	0.00500	mg/L			12/01/15 15:55	5
Styrene	0.00100	U	0.00500	0.00100	mg/L			12/01/15 15:55	5
1,1,2,2-Tetrachloroethane	0.000950	U	0.00500	0.000950	mg/L			12/01/15 15:55	5
Tetrachloroethene	0.000945	U	0.00500	0.000945	mg/L			12/01/15 15:55	5
Toluene	0.00248	U	0.00500	0.00248	mg/L			12/01/15 15:55	5
trans-1,2-Dichloroethene	0.00100	U	0.00500	0.00100	mg/L			12/01/15 15:55	5
trans-1,3-Dichloropropene	0.00100	U	0.0250	0.00100	mg/L			12/01/15 15:55	5
1,2,3-Trichlorobenzene	0.00109	U	0.0250	0.00109	mg/L			12/01/15 15:55	5
1,1,1-Trichloroethane	0.00150	U	0.00500	0.00150	mg/L			12/01/15 15:55	5
1,1,2-Trichloroethane	0.000865	U	0.00500	0.000865	mg/L			12/01/15 15:55	5
Trichloroethene	0.00159	U	0.00500	0.00159	mg/L			12/01/15 15:55	5
Trichlorofluoromethane	0.00122	U	0.00500	0.00122	mg/L			12/01/15 15:55	5
1,2,3-Trichloropropane	0.000955	U	0.00500	0.000955	mg/L			12/01/15 15:55	5

Client Sample ID: MW-6

Date Collected: 11/23/15 15:18
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	0.00205	U	0.00500	0.00205	mg/L			12/01/15 15:55	5
1,3,5-Trimethylbenzene	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:55	5
1,2,4-Trimethylbenzene	0.00100	U	0.0100	0.00100	mg/L			12/01/15 15:55	5
Vinyl acetate	0.00250	U	0.0250	0.00250	mg/L			12/01/15 15:55	5
Vinyl chloride	0.00150	U	0.00500	0.00150	mg/L			12/01/15 15:55	5
Xylenes, Total	0.00113	U	0.0100	0.00113	mg/L			12/01/15 15:55	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*69 - 130*		*12/01/15 15:55*	*5*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/01/15 15:55*	*5*
Toluene-d8 (Surr)	*100*		*70 - 130*		*12/01/15 15:55*	*5*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*12/01/15 15:55*	*5*

Client Sample ID: P-1

Date Collected: 11/23/15 12:40
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 17:11	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 17:11	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 17:11	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:11	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 17:11	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 17:11	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:11	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 17:11	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 17:11	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 17:11	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 17:11	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 17:11	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 17:11	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 17:11	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 17:11	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 17:11	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 17:11	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 17:11	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 17:11	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 17:11	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 17:11	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 17:11	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 17:11	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 17:11	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 17:11	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 17:11	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:11	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 17:11	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 17:11	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:11	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:11	1

Client Sample ID: P-1

Date Collected: 11/23/15 12:40
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 17:11	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 17:11	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 17:11	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 17:11	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:11	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 17:11	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:11	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 17:11	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 17:11	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 17:11	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:11	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 17:11	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 17:11	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 17:11	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 17:11	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 17:11	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 17:11	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 17:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 17:11	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 17:11	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 17:11	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:11	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 17:11	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 17:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/01/15 17:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/01/15 17:11*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/01/15 17:11*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*12/01/15 17:11*	*1*

Client Sample ID: P-2

Date Collected: 11/23/15 14:50
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-6

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 17:36	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 17:36	1
Benzene	**0.628**		0.00500	0.00165	mg/L			12/02/15 12:52	5
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:36	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 17:36	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 17:36	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:36	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 17:36	1
Chlorobenzene	**0.0543**		0.00100	0.000136	mg/L			12/01/15 17:36	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 17:36	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 17:36	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 17:36	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 17:36	1

Client Sample ID: P-2
Date Collected: 11/23/15 14:50
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 17:36	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 17:36	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 17:36	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 17:36	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 17:36	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 17:36	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 17:36	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 17:36	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 17:36	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 17:36	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 17:36	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 17:36	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 17:36	1
Ethylbenzene	**0.0183**		0.00100	0.000200	mg/L			12/01/15 17:36	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 17:36	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 17:36	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:36	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:36	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 17:36	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 17:36	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 17:36	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 17:36	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:36	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 17:36	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:36	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 17:36	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 17:36	1
Toluene	**0.0288**		0.00100	0.000495	mg/L			12/01/15 17:36	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 17:36	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 17:36	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 17:36	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 17:36	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 17:36	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 17:36	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 17:36	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 17:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 17:36	1
1,3,5-Trimethylbenzene	**0.00360**		0.00200	0.000200	mg/L			12/01/15 17:36	1
1,2,4-Trimethylbenzene	**0.00125**	**J**	0.00200	0.000200	mg/L			12/01/15 17:36	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 17:36	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 17:36	1
Xylenes, Total	**0.0299**		0.00200	0.000226	mg/L			12/01/15 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/01/15 17:36*	*1*
Dibromofluoromethane (Surr)	*100*		*69 - 130*		*12/02/15 12:52*	*5*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 140*		*12/01/15 17:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/02/15 12:52*	*5*
Toluene-d8 (Surr)	*103*		*70 - 130*		*12/01/15 17:36*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/02/15 12:52*	*5*

Client Sample ID: P-2

Date Collected: 11/23/15 14:50
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-6

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*12/01/15 17:36*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*12/02/15 12:52*	*5*

Client Sample ID: P-3

Date Collected: 11/24/15 10:15
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-7

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 18:02	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 18:02	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/02/15 13:18	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:02	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 18:02	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 18:02	1
Carbon disulfide	**0.0138**		0.00500	0.000500	mg/L			12/01/15 18:02	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 18:02	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 18:02	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 18:02	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 18:02	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 18:02	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 18:02	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 18:02	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 18:02	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 18:02	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 18:02	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 18:02	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 18:02	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 18:02	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 18:02	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 18:02	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 18:02	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 18:02	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 18:02	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 18:02	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:02	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 18:02	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 18:02	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:02	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:02	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 18:02	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 18:02	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 18:02	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 18:02	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:02	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 18:02	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:02	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 18:02	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 18:02	1

Client Sample ID: P-3

Date Collected: 11/24/15 10:15
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-7

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 18:02	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:02	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 18:02	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 18:02	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 18:02	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 18:02	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 18:02	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 18:02	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 18:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 18:02	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 18:02	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 18:02	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:02	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 18:02	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/01/15 18:02*	*1*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/02/15 13:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*		*12/01/15 18:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/02/15 13:18*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 18:02*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/02/15 13:18*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*12/01/15 18:02*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*12/02/15 13:18*	*1*

Client Sample ID: VMW-1

Date Collected: 11/23/15 13:10
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-8

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/02/15 14:33	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/02/15 14:33	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/02/15 14:33	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:33	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/02/15 14:33	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:33	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:33	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/02/15 14:33	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/02/15 14:33	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 14:33	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/02/15 14:33	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:33	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/02/15 14:33	1
cis-1,2-Dichloroethene	**0.124**		0.00100	0.000121	mg/L			12/02/15 14:33	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/02/15 14:33	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/02/15 14:33	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/02/15 14:33	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/02/15 14:33	1

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: VMW-1
Date Collected: 11/23/15 13:10
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/02/15 14:33	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:33	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/02/15 14:33	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:33	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/02/15 14:33	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/02/15 14:33	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/02/15 14:33	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/02/15 14:33	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:33	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/02/15 14:33	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/02/15 14:33	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:33	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:33	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 14:33	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/02/15 14:33	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/02/15 14:33	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/02/15 14:33	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:33	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:33	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:33	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/02/15 14:33	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/02/15 14:33	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/02/15 14:33	1
trans-1,2-Dichloroethene	**0.00239**		0.00100	0.000200	mg/L			12/02/15 14:33	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/02/15 14:33	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/02/15 14:33	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:33	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:33	1
Trichloroethene	**0.00253**		0.00100	0.000317	mg/L			12/02/15 14:33	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/02/15 14:33	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/02/15 14:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/02/15 14:33	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 14:33	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 14:33	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:33	1
Vinyl chloride	**0.0276**		0.00100	0.000300	mg/L			12/02/15 14:33	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/02/15 14:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*69 - 130*		*12/02/15 14:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*		*12/02/15 14:33*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/02/15 14:33*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/02/15 14:33*	*1*

Client Sample ID: VMW-2

Date Collected: 11/23/15 12:00
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-9

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 20:32	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 20:32	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 20:32	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:32	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 20:32	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 20:32	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:32	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 20:32	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 20:32	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 20:32	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 20:32	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 20:32	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 20:32	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 20:32	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 20:32	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 20:32	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 20:32	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 20:32	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 20:32	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 20:32	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 20:32	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 20:32	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 20:32	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 20:32	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 20:32	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 20:32	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:32	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 20:32	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 20:32	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:32	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:32	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 20:32	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 20:32	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 20:32	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 20:32	1
Methyl tert-butyl ether	**0.00144**		0.00100	0.000200	mg/L			12/01/15 20:32	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 20:32	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:32	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 20:32	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 20:32	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 20:32	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:32	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 20:32	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 20:32	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 20:32	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 20:32	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 20:32	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 20:32	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 20:32	1

Client Sample ID: VMW-2

Lab Sample ID: 600-122269-9

Date Collected: 11/23/15 12:00

Matrix: Water

Date Received: 11/25/15 12:32

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 20:32	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 20:32	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 20:32	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:32	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 20:32	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*69 - 130*		*12/01/15 20:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*		*12/01/15 20:32*	*1*
Toluene-d8 (Surr)	*103*		*70 - 130*		*12/01/15 20:32*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/01/15 20:32*	*1*

Client Sample ID: VMW-4

Lab Sample ID: 600-122269-10

Date Collected: 11/23/15 14:20

Matrix: Water

Date Received: 11/25/15 12:32

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/02/15 14:58	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/02/15 14:58	1
Benzene	**0.00135**		0.00100	0.000330	mg/L			12/02/15 14:58	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:58	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/02/15 14:58	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:58	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:58	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/02/15 14:58	1
Chlorobenzene	**0.0290**		0.00100	0.000136	mg/L			12/02/15 14:58	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 14:58	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/02/15 14:58	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:58	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/02/15 14:58	1
cis-1,2-Dichloroethene	**0.0217**		0.00100	0.000121	mg/L			12/02/15 14:58	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/02/15 14:58	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/02/15 14:58	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/02/15 14:58	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/02/15 14:58	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/02/15 14:58	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:58	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/02/15 14:58	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:58	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/02/15 14:58	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/02/15 14:58	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/02/15 14:58	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/02/15 14:58	1
Ethylbenzene	**0.00116**		0.00100	0.000200	mg/L			12/02/15 14:58	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/02/15 14:58	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/02/15 14:58	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:58	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:58	1

Client Sample ID: VMW-4

Date Collected: 11/23/15 14:20
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-10

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 14:58	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/02/15 14:58	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/02/15 14:58	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/02/15 14:58	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:58	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:58	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:58	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/02/15 14:58	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/02/15 14:58	1
Toluene	**0.00391**		0.00100	0.000495	mg/L			12/02/15 14:58	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:58	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/02/15 14:58	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/02/15 14:58	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:58	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:58	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/02/15 14:58	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/02/15 14:58	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/02/15 14:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/02/15 14:58	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 14:58	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 14:58	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:58	1
Vinyl chloride	**0.000669**	**J**	0.00100	0.000300	mg/L			12/02/15 14:58	1
Xylenes, Total	**0.00312**		0.00200	0.000226	mg/L			12/02/15 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*69 - 130*		*12/02/15 14:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/02/15 14:58*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/02/15 14:58*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*12/02/15 14:58*	*1*

Client Sample ID: VMW-6

Date Collected: 11/23/15 14:43
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-11

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.150	U	0.300	0.150	mg/L			12/02/15 13:24	30
Acetonitrile	0.300	U	1.50	0.300	mg/L			12/02/15 13:24	30
Benzene	**4.02**		0.0300	0.00990	mg/L			12/02/15 13:24	30
Bromoform	0.0150	U	0.150	0.0150	mg/L			12/02/15 13:24	30
Bromomethane	0.0118	U	0.150	0.0118	mg/L			12/02/15 13:24	30
2-Butanone (MEK)	0.0300	U	0.300	0.0300	mg/L			12/02/15 13:24	30
Carbon disulfide	0.0150	U	0.150	0.0150	mg/L			12/02/15 13:24	30
Carbon tetrachloride	0.00753	U	0.0300	0.00753	mg/L			12/02/15 13:24	30
Chlorobenzene	**0.508**		0.0300	0.00408	mg/L			12/02/15 13:24	30
Chlorodibromomethane	0.00669	U	0.0600	0.00669	mg/L			12/02/15 13:24	30
Chloroethane	0.0120	U	0.150	0.0120	mg/L			12/02/15 13:24	30
Chloroform	0.00519	U	0.0300	0.00519	mg/L			12/02/15 13:24	30
Chloromethane	0.0117	U	0.150	0.0117	mg/L			12/02/15 13:24	30

Client Sample ID: VMW-6
Date Collected: 11/23/15 14:43
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**3.47**		0.0300	0.00363	mg/L			12/02/15 13:24	30
cis-1,3-Dichloropropene	0.00438	U	0.0300	0.00438	mg/L			12/02/15 13:24	30
Dibromomethane	0.00495	U	0.0300	0.00495	mg/L			12/02/15 13:24	30
Dichlorobromomethane	0.00525	U	0.0300	0.00525	mg/L			12/02/15 13:24	30
1,1-Dichloroethane	0.00504	U	0.0300	0.00504	mg/L			12/02/15 13:24	30
1,2-Dichloroethane	0.00516	U F1	0.0300	0.00516	mg/L			12/02/15 13:24	30
1,1-Dichloroethene	0.00900	U	0.0300	0.00900	mg/L			12/02/15 13:24	30
2,2-Dichloropropane	0.0101	U	0.0300	0.0101	mg/L			12/02/15 13:24	30
1,2-Dichloropropane	0.00519	U	0.0300	0.00519	mg/L			12/02/15 13:24	30
1,3-Dichloropropane	0.00438	U	0.0300	0.00438	mg/L			12/02/15 13:24	30
1,1-Dichloropropene	0.00555	U	0.0300	0.00555	mg/L			12/02/15 13:24	30
1,4-Dioxane	0.477	U	3.00	0.477	mg/L			12/02/15 13:24	30
Ethyl acetate	0.0300	U F1	0.150	0.0300	mg/L			12/02/15 13:24	30
Ethylbenzene	**0.102**		0.0300	0.00600	mg/L			12/02/15 13:24	30
Ethylene Dibromide	0.00525	U	0.0300	0.00525	mg/L			12/02/15 13:24	30
Ethyl ether	0.00960	U	0.150	0.00960	mg/L			12/02/15 13:24	30
Ethyl methacrylate	0.0150	U	0.150	0.0150	mg/L			12/02/15 13:24	30
2-Hexanone	0.0150	U	0.150	0.0150	mg/L			12/02/15 13:24	30
Iodomethane	0.00669	U	0.0600	0.00669	mg/L			12/02/15 13:24	30
Methylene Chloride	0.0600	U	0.300	0.0600	mg/L			12/02/15 13:24	30
Methyl methacrylate	0.00600	U	0.150	0.00600	mg/L			12/02/15 13:24	30
4-Methyl-2-pentanone (MIBK)	0.0153	U	0.150	0.0153	mg/L			12/02/15 13:24	30
Methyl tert-butyl ether	**0.0120**	**J**	0.0300	0.00600	mg/L			12/02/15 13:24	30
2-Nitropropane	0.0300	U	0.300	0.0300	mg/L			12/02/15 13:24	30
Styrene	0.00600	U	0.0300	0.00600	mg/L			12/02/15 13:24	30
1,1,2,2-Tetrachloroethane	0.00570	U	0.0300	0.00570	mg/L			12/02/15 13:24	30
Tetrachloroethene	0.00567	U	0.0300	0.00567	mg/L			12/02/15 13:24	30
Toluene	**0.0309**		0.0300	0.0149	mg/L			12/02/15 13:24	30
trans-1,2-Dichloroethene	0.00600	U	0.0300	0.00600	mg/L			12/02/15 13:24	30
trans-1,3-Dichloropropene	0.00600	U	0.150	0.00600	mg/L			12/02/15 13:24	30
1,2,3-Trichlorobenzene	0.00651	U F1	0.150	0.00651	mg/L			12/02/15 13:24	30
1,1,1-Trichloroethane	0.00900	U	0.0300	0.00900	mg/L			12/02/15 13:24	30
1,1,2-Trichloroethane	0.00519	U	0.0300	0.00519	mg/L			12/02/15 13:24	30
Trichloroethene	0.00951	U	0.0300	0.00951	mg/L			12/02/15 13:24	30
Trichlorofluoromethane	0.00732	U	0.0300	0.00732	mg/L			12/02/15 13:24	30
1,2,3-Trichloropropane	0.00573	U	0.0300	0.00573	mg/L			12/02/15 13:24	30
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0123	U	0.0300	0.0123	mg/L			12/02/15 13:24	30
1,3,5-Trimethylbenzene	0.00600	U	0.0600	0.00600	mg/L			12/02/15 13:24	30
1,2,4-Trimethylbenzene	0.00600	U	0.0600	0.00600	mg/L			12/02/15 13:24	30
Vinyl acetate	0.0150	U	0.150	0.0150	mg/L			12/02/15 13:24	30
Vinyl chloride	**0.364**		0.0300	0.00900	mg/L			12/02/15 13:24	30
Xylenes, Total	0.00678	U	0.0600	0.00678	mg/L			12/02/15 13:24	30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*69 - 130*		*12/02/15 13:24*	*30*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 140*		*12/02/15 13:24*	*30*
Toluene-d8 (Surr)	*99*		*70 - 130*		*12/02/15 13:24*	*30*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*12/02/15 13:24*	*30*

Client Sample ID: VMW-7

Date Collected: 11/24/15 11:05
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0100	U	0.0200	0.0100	mg/L			12/02/15 14:08	2
Acetonitrile	0.0200	U	0.100	0.0200	mg/L			12/02/15 14:08	2
Benzene	**0.0766**		0.00200	0.000660	mg/L			12/02/15 14:08	2
Bromoform	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:08	2
Bromomethane	0.000784	U	0.0100	0.000784	mg/L			12/02/15 14:08	2
2-Butanone (MEK)	0.00200	U	0.0200	0.00200	mg/L			12/02/15 14:08	2
Carbon disulfide	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:08	2
Carbon tetrachloride	0.000502	U	0.00200	0.000502	mg/L			12/02/15 14:08	2
Chlorobenzene	0.000272	U	0.00200	0.000272	mg/L			12/02/15 14:08	2
Chlorodibromomethane	0.000446	U	0.00400	0.000446	mg/L			12/02/15 14:08	2
Chloroethane	0.000800	U	0.0100	0.000800	mg/L			12/02/15 14:08	2
Chloroform	0.000346	U	0.00200	0.000346	mg/L			12/02/15 14:08	2
Chloromethane	0.000780	U	0.0100	0.000780	mg/L			12/02/15 14:08	2
cis-1,2-Dichloroethene	**0.0182**		0.00200	0.000242	mg/L			12/02/15 14:08	2
cis-1,3-Dichloropropene	0.000292	U	0.00200	0.000292	mg/L			12/02/15 14:08	2
Dibromomethane	0.000330	U	0.00200	0.000330	mg/L			12/02/15 14:08	2
Dichlorobromomethane	0.000350	U	0.00200	0.000350	mg/L			12/02/15 14:08	2
1,1-Dichloroethane	0.000336	U	0.00200	0.000336	mg/L			12/02/15 14:08	2
1,2-Dichloroethane	0.000344	U	0.00200	0.000344	mg/L			12/02/15 14:08	2
1,1-Dichloroethene	0.000600	U	0.00200	0.000600	mg/L			12/02/15 14:08	2
2,2-Dichloropropane	0.000670	U	0.00200	0.000670	mg/L			12/02/15 14:08	2
1,2-Dichloropropane	0.000346	U	0.00200	0.000346	mg/L			12/02/15 14:08	2
1,3-Dichloropropane	0.000292	U	0.00200	0.000292	mg/L			12/02/15 14:08	2
1,1-Dichloropropene	0.000370	U	0.00200	0.000370	mg/L			12/02/15 14:08	2
1,4-Dioxane	0.0318	U	0.200	0.0318	mg/L			12/02/15 14:08	2
Ethyl acetate	0.00200	U	0.0100	0.00200	mg/L			12/02/15 14:08	2
Ethylbenzene	0.000400	U	0.00200	0.000400	mg/L			12/02/15 14:08	2
Ethylene Dibromide	0.000350	U	0.00200	0.000350	mg/L			12/02/15 14:08	2
Ethyl ether	0.000640	U	0.0100	0.000640	mg/L			12/02/15 14:08	2
Ethyl methacrylate	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:08	2
2-Hexanone	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:08	2
Iodomethane	0.000446	U	0.00400	0.000446	mg/L			12/02/15 14:08	2
Methylene Chloride	0.00400	U	0.0200	0.00400	mg/L			12/02/15 14:08	2
Methyl methacrylate	0.000400	U	0.0100	0.000400	mg/L			12/02/15 14:08	2
4-Methyl-2-pentanone (MIBK)	0.00102	U	0.0100	0.00102	mg/L			12/02/15 14:08	2
Methyl tert-butyl ether	0.000400	U	0.00200	0.000400	mg/L			12/02/15 14:08	2
2-Nitropropane	0.00200	U	0.0200	0.00200	mg/L			12/02/15 14:08	2
Styrene	0.000400	U	0.00200	0.000400	mg/L			12/02/15 14:08	2
1,1,2,2-Tetrachloroethane	0.000380	U	0.00200	0.000380	mg/L			12/02/15 14:08	2
Tetrachloroethene	0.000378	U	0.00200	0.000378	mg/L			12/02/15 14:08	2
Toluene	**0.00141**	**J**	0.00200	0.000990	mg/L			12/02/15 14:08	2
trans-1,2-Dichloroethene	0.000400	U	0.00200	0.000400	mg/L			12/02/15 14:08	2
trans-1,3-Dichloropropene	0.000400	U	0.0100	0.000400	mg/L			12/02/15 14:08	2
1,2,3-Trichlorobenzene	0.000434	U	0.0100	0.000434	mg/L			12/02/15 14:08	2
1,1,1-Trichloroethane	0.000600	U	0.00200	0.000600	mg/L			12/02/15 14:08	2
1,1,2-Trichloroethane	0.000346	U	0.00200	0.000346	mg/L			12/02/15 14:08	2
Trichloroethene	0.000634	U	0.00200	0.000634	mg/L			12/02/15 14:08	2
Trichlorofluoromethane	0.000488	U	0.00200	0.000488	mg/L			12/02/15 14:08	2
1,2,3-Trichloropropane	0.000382	U	0.00200	0.000382	mg/L			12/02/15 14:08	2

Client Sample ID: VMW-7

Date Collected: 11/24/15 11:05
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000820	U	0.00200	0.000820	mg/L			12/02/15 14:08	2
1,3,5-Trimethylbenzene	0.000400	U	0.00400	0.000400	mg/L			12/02/15 14:08	2
1,2,4-Trimethylbenzene	0.000400	U	0.00400	0.000400	mg/L			12/02/15 14:08	2
Vinyl acetate	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:08	2
Vinyl chloride	**0.0356**		0.00200	0.000600	mg/L			12/02/15 14:08	2
Xylenes, Total	0.000452	U	0.00400	0.000452	mg/L			12/02/15 14:08	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*69 - 130*		*12/02/15 14:08*	*2*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/02/15 14:08*	*2*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/02/15 14:08*	*2*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*12/02/15 14:08*	*2*

Client Sample ID: VMW-9

Date Collected: 11/23/15 13:45
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-13

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 18:52	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 18:52	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 18:52	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:52	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 18:52	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 18:52	1
Carbon disulfide	**0.000945**	**J**	0.00500	0.000500	mg/L			12/01/15 18:52	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 18:52	1
Chlorobenzene	**0.00109**		0.00100	0.000136	mg/L			12/01/15 18:52	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 18:52	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 18:52	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 18:52	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 18:52	1
cis-1,2-Dichloroethene	**0.00509**		0.00100	0.000121	mg/L			12/01/15 18:52	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 18:52	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 18:52	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 18:52	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 18:52	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 18:52	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 18:52	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 18:52	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 18:52	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 18:52	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 18:52	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 18:52	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 18:52	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:52	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 18:52	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 18:52	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:52	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:52	1

Client Sample ID: VMW-9

Date Collected: 11/23/15 13:45
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-13

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 18:52	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 18:52	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 18:52	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 18:52	1
Methyl tert-butyl ether	**0.000803**	**J**	0.00100	0.000200	mg/L			12/01/15 18:52	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 18:52	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:52	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 18:52	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 18:52	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 18:52	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 18:52	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 18:52	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 18:52	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 18:52	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 18:52	1
Trichloroethene	**0.000394**	**J**	0.00100	0.000317	mg/L			12/01/15 18:52	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 18:52	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 18:52	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 18:52	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 18:52	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 18:52	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 18:52	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*69 - 130*		*12/01/15 18:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 140*		*12/01/15 18:52*	*1*
Toluene-d8 (Surr)	*103*		*70 - 130*		*12/01/15 18:52*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*12/01/15 18:52*	*1*

Client Sample ID: MW-29

Date Collected: 11/23/15 13:02
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-14

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0150	U	0.0300	0.0150	mg/L			12/02/15 13:43	3
Acetonitrile	0.0300	U	0.150	0.0300	mg/L			12/02/15 13:43	3
Benzene	**0.00326**		0.00300	0.000990	mg/L			12/02/15 13:43	3
Bromoform	0.00150	U	0.0150	0.00150	mg/L			12/02/15 13:43	3
Bromomethane	0.00118	U	0.0150	0.00118	mg/L			12/02/15 13:43	3
2-Butanone (MEK)	0.00300	U	0.0300	0.00300	mg/L			12/02/15 13:43	3
Carbon disulfide	0.00150	U	0.0150	0.00150	mg/L			12/02/15 13:43	3
Carbon tetrachloride	0.000753	U	0.00300	0.000753	mg/L			12/02/15 13:43	3
Chlorobenzene	**0.227**		0.00300	0.000408	mg/L			12/02/15 13:43	3
Chlorodibromomethane	0.000669	U	0.00600	0.000669	mg/L			12/02/15 13:43	3
Chloroethane	0.00120	U	0.0150	0.00120	mg/L			12/02/15 13:43	3
Chloroform	0.000519	U	0.00300	0.000519	mg/L			12/02/15 13:43	3
Chloromethane	0.00117	U	0.0150	0.00117	mg/L			12/02/15 13:43	3

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: MW-29
Date Collected: 11/23/15 13:02
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.000363	U	0.00300	0.000363	mg/L			12/02/15 13:43	3
cis-1,3-Dichloropropene	0.000438	U	0.00300	0.000438	mg/L			12/02/15 13:43	3
Dibromomethane	0.000495	U	0.00300	0.000495	mg/L			12/02/15 13:43	3
Dichlorobromomethane	0.000525	U	0.00300	0.000525	mg/L			12/02/15 13:43	3
1,1-Dichloroethane	0.000504	U	0.00300	0.000504	mg/L			12/02/15 13:43	3
1,2-Dichloroethane	0.000516	U	0.00300	0.000516	mg/L			12/02/15 13:43	3
1,1-Dichloroethene	0.000900	U	0.00300	0.000900	mg/L			12/02/15 13:43	3
2,2-Dichloropropane	0.00101	U	0.00300	0.00101	mg/L			12/02/15 13:43	3
1,2-Dichloropropane	0.000519	U	0.00300	0.000519	mg/L			12/02/15 13:43	3
1,3-Dichloropropane	0.000438	U	0.00300	0.000438	mg/L			12/02/15 13:43	3
1,1-Dichloropropene	0.000555	U	0.00300	0.000555	mg/L			12/02/15 13:43	3
1,4-Dioxane	0.0477	U	0.300	0.0477	mg/L			12/02/15 13:43	3
Ethyl acetate	0.00300	U	0.0150	0.00300	mg/L			12/02/15 13:43	3
Ethylbenzene	0.000600	U	0.00300	0.000600	mg/L			12/02/15 13:43	3
Ethylene Dibromide	0.000525	U	0.00300	0.000525	mg/L			12/02/15 13:43	3
Ethyl ether	0.000960	U	0.0150	0.000960	mg/L			12/02/15 13:43	3
Ethyl methacrylate	0.00150	U	0.0150	0.00150	mg/L			12/02/15 13:43	3
2-Hexanone	0.00150	U	0.0150	0.00150	mg/L			12/02/15 13:43	3
Iodomethane	0.000669	U	0.00600	0.000669	mg/L			12/02/15 13:43	3
Methylene Chloride	0.00600	U	0.0300	0.00600	mg/L			12/02/15 13:43	3
Methyl methacrylate	0.000600	U	0.0150	0.000600	mg/L			12/02/15 13:43	3
4-Methyl-2-pentanone (MIBK)	0.00153	U	0.0150	0.00153	mg/L			12/02/15 13:43	3
Methyl tert-butyl ether	0.000600	U	0.00300	0.000600	mg/L			12/02/15 13:43	3
2-Nitropropane	0.00300	U	0.0300	0.00300	mg/L			12/02/15 13:43	3
Styrene	0.000600	U	0.00300	0.000600	mg/L			12/02/15 13:43	3
1,1,2,2-Tetrachloroethane	0.000570	U	0.00300	0.000570	mg/L			12/02/15 13:43	3
Tetrachloroethene	0.000567	U	0.00300	0.000567	mg/L			12/02/15 13:43	3
Toluene	0.00149	U	0.00300	0.00149	mg/L			12/02/15 13:43	3
trans-1,2-Dichloroethene	0.000600	U	0.00300	0.000600	mg/L			12/02/15 13:43	3
trans-1,3-Dichloropropene	0.000600	U	0.0150	0.000600	mg/L			12/02/15 13:43	3
1,2,3-Trichlorobenzene	0.000651	U	0.0150	0.000651	mg/L			12/02/15 13:43	3
1,1,1-Trichloroethane	0.000900	U	0.00300	0.000900	mg/L			12/02/15 13:43	3
1,1,2-Trichloroethane	0.000519	U	0.00300	0.000519	mg/L			12/02/15 13:43	3
Trichloroethene	0.000951	U	0.00300	0.000951	mg/L			12/02/15 13:43	3
Trichlorofluoromethane	0.000732	U	0.00300	0.000732	mg/L			12/02/15 13:43	3
1,2,3-Trichloropropane	0.000573	U	0.00300	0.000573	mg/L			12/02/15 13:43	3
1,1,2-Trichloro-1,2,2-trifluoroethane	0.00123	U	0.00300	0.00123	mg/L			12/02/15 13:43	3
1,3,5-Trimethylbenzene	0.000600	U	0.00600	0.000600	mg/L			12/02/15 13:43	3
1,2,4-Trimethylbenzene	0.000600	U	0.00600	0.000600	mg/L			12/02/15 13:43	3
Vinyl acetate	0.00150	U	0.0150	0.00150	mg/L			12/02/15 13:43	3
Vinyl chloride	0.000900	U	0.00300	0.000900	mg/L			12/02/15 13:43	3
Xylenes, Total	0.000678	U	0.00600	0.000678	mg/L			12/02/15 13:43	3

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*69 - 130*		*12/02/15 13:43*	*3*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 140*		*12/02/15 13:43*	*3*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/02/15 13:43*	*3*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*12/02/15 13:43*	*3*

Client Sample ID: MW-31

Date Collected: 11/23/15 13:42
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-15

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0500	U	0.100	0.0500	mg/L			12/01/15 19:17	10
Acetonitrile	0.100	U	0.500	0.100	mg/L			12/01/15 19:17	10
Benzene	0.00330	U	0.0100	0.00330	mg/L			12/01/15 19:17	10
Bromoform	0.00500	U	0.0500	0.00500	mg/L			12/01/15 19:17	10
Bromomethane	0.00392	U	0.0500	0.00392	mg/L			12/01/15 19:17	10
2-Butanone (MEK)	0.0100	U	0.100	0.0100	mg/L			12/01/15 19:17	10
Carbon disulfide	**0.00563**	**J**	0.0500	0.00500	mg/L			12/01/15 19:17	10
Carbon tetrachloride	0.00251	U	0.0100	0.00251	mg/L			12/01/15 19:17	10
Chlorobenzene	**0.0838**		0.0100	0.00136	mg/L			12/01/15 19:17	10
Chlorodibromomethane	0.00223	U	0.0200	0.00223	mg/L			12/01/15 19:17	10
Chloroethane	0.00400	U	0.0500	0.00400	mg/L			12/01/15 19:17	10
Chloroform	0.00173	U	0.0100	0.00173	mg/L			12/01/15 19:17	10
Chloromethane	0.00390	U	0.0500	0.00390	mg/L			12/01/15 19:17	10
cis-1,2-Dichloroethene	**1.89**		0.0100	0.00121	mg/L			12/01/15 19:17	10
cis-1,3-Dichloropropene	0.00146	U	0.0100	0.00146	mg/L			12/01/15 19:17	10
Dibromomethane	0.00165	U	0.0100	0.00165	mg/L			12/01/15 19:17	10
Dichlorobromomethane	0.00175	U	0.0100	0.00175	mg/L			12/01/15 19:17	10
1,1-Dichloroethane	0.00168	U	0.0100	0.00168	mg/L			12/01/15 19:17	10
1,2-Dichloroethane	**0.00595**	**J**	0.0100	0.00172	mg/L			12/01/15 19:17	10
1,1-Dichloroethene	0.00300	U	0.0100	0.00300	mg/L			12/01/15 19:17	10
2,2-Dichloropropane	0.00335	U	0.0100	0.00335	mg/L			12/01/15 19:17	10
1,2-Dichloropropane	0.00173	U	0.0100	0.00173	mg/L			12/01/15 19:17	10
1,3-Dichloropropane	0.00146	U	0.0100	0.00146	mg/L			12/01/15 19:17	10
1,1-Dichloropropene	0.00185	U	0.0100	0.00185	mg/L			12/01/15 19:17	10
1,4-Dioxane	0.159	U	1.00	0.159	mg/L			12/01/15 19:17	10
Ethyl acetate	0.0100	U	0.0500	0.0100	mg/L			12/01/15 19:17	10
Ethylbenzene	0.00200	U	0.0100	0.00200	mg/L			12/01/15 19:17	10
Ethylene Dibromide	0.00175	U	0.0100	0.00175	mg/L			12/01/15 19:17	10
Ethyl ether	0.00320	U	0.0500	0.00320	mg/L			12/01/15 19:17	10
Ethyl methacrylate	0.00500	U	0.0500	0.00500	mg/L			12/01/15 19:17	10
2-Hexanone	0.00500	U	0.0500	0.00500	mg/L			12/01/15 19:17	10
Iodomethane	0.00223	U	0.0200	0.00223	mg/L			12/01/15 19:17	10
Methylene Chloride	0.0200	U	0.100	0.0200	mg/L			12/01/15 19:17	10
Methyl methacrylate	0.00200	U	0.0500	0.00200	mg/L			12/01/15 19:17	10
4-Methyl-2-pentanone (MIBK)	0.00510	U	0.0500	0.00510	mg/L			12/01/15 19:17	10
Methyl tert-butyl ether	0.00200	U	0.0100	0.00200	mg/L			12/01/15 19:17	10
2-Nitropropane	0.0100	U	0.100	0.0100	mg/L			12/01/15 19:17	10
Styrene	0.00200	U	0.0100	0.00200	mg/L			12/01/15 19:17	10
1,1,2,2-Tetrachloroethane	0.00190	U	0.0100	0.00190	mg/L			12/01/15 19:17	10
Tetrachloroethene	0.00189	U	0.0100	0.00189	mg/L			12/01/15 19:17	10
Toluene	0.00495	U	0.0100	0.00495	mg/L			12/01/15 19:17	10
trans-1,2-Dichloroethene	**0.00917**	**J**	0.0100	0.00200	mg/L			12/01/15 19:17	10
trans-1,3-Dichloropropene	0.00200	U	0.0500	0.00200	mg/L			12/01/15 19:17	10
1,2,3-Trichlorobenzene	0.00217	U	0.0500	0.00217	mg/L			12/01/15 19:17	10
1,1,1-Trichloroethane	0.00300	U	0.0100	0.00300	mg/L			12/01/15 19:17	10
1,1,2-Trichloroethane	0.00173	U	0.0100	0.00173	mg/L			12/01/15 19:17	10
Trichloroethene	**0.0172**		0.0100	0.00317	mg/L			12/01/15 19:17	10
Trichlorofluoromethane	0.00244	U	0.0100	0.00244	mg/L			12/01/15 19:17	10
1,2,3-Trichloropropane	0.00191	U	0.0100	0.00191	mg/L			12/01/15 19:17	10

Client Sample ID: MW-31

Date Collected: 11/23/15 13:42
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	0.00410	U	0.0100	0.00410	mg/L			12/01/15 19:17	10
1,3,5-Trimethylbenzene	0.00200	U	0.0200	0.00200	mg/L			12/01/15 19:17	10
1,2,4-Trimethylbenzene	0.00200	U	0.0200	0.00200	mg/L			12/01/15 19:17	10
Vinyl acetate	0.00500	U	0.0500	0.00500	mg/L			12/01/15 19:17	10
Vinyl chloride	**0.0573**		0.0100	0.00300	mg/L			12/01/15 19:17	10
Xylenes, Total	0.00226	U	0.0200	0.00226	mg/L			12/01/15 19:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/01/15 19:17*	*10*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 140*		*12/01/15 19:17*	*10*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 19:17*	*10*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/01/15 19:17*	*10*

Client Sample ID: MW-32

Date Collected: 11/23/15 14:11
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-16
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/02/15 13:49	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/02/15 13:49	1
Benzene	**0.00613**		0.00100	0.000330	mg/L			12/02/15 13:49	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/02/15 13:49	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/02/15 13:49	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/02/15 13:49	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/02/15 13:49	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/02/15 13:49	1
Chlorobenzene	**0.000376**	**J**	0.00100	0.000136	mg/L			12/02/15 13:49	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 13:49	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/02/15 13:49	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/02/15 13:49	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/02/15 13:49	1
cis-1,2-Dichloroethene	**0.0607**		0.00100	0.000121	mg/L			12/02/15 13:49	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/02/15 13:49	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/02/15 13:49	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/02/15 13:49	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/02/15 13:49	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/02/15 13:49	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/02/15 13:49	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/02/15 13:49	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 13:49	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/02/15 13:49	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/02/15 13:49	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/02/15 13:49	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/02/15 13:49	1
Ethylbenzene	**0.00108**		0.00100	0.000200	mg/L			12/02/15 13:49	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/02/15 13:49	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/02/15 13:49	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 13:49	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/02/15 13:49	1

Client Sample ID: MW-32

Date Collected: 11/23/15 14:11
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-16

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 13:49	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/02/15 13:49	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/02/15 13:49	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/02/15 13:49	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/02/15 13:49	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/02/15 13:49	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 13:49	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/02/15 13:49	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/02/15 13:49	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/02/15 13:49	1
trans-1,2-Dichloroethene	**0.00138**		0.00100	0.000200	mg/L			12/02/15 13:49	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/02/15 13:49	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/02/15 13:49	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/02/15 13:49	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 13:49	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/02/15 13:49	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/02/15 13:49	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/02/15 13:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/02/15 13:49	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 13:49	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 13:49	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 13:49	1
Vinyl chloride	**0.0736**		0.00100	0.000300	mg/L			12/02/15 13:49	1
Xylenes, Total	**0.000252**	**J**	0.00200	0.000226	mg/L			12/02/15 13:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*69 - 130*		*12/02/15 13:49*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 140*		*12/02/15 13:49*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*12/02/15 13:49*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*12/02/15 13:49*	*1*

Client Sample ID: MW-33

Date Collected: 11/23/15 12:28
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-17

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 19:42	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 19:42	1
Benzene	**0.0288**		0.00100	0.000330	mg/L			12/01/15 19:42	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 19:42	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 19:42	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 19:42	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 19:42	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 19:42	1
Chlorobenzene	**0.00314**		0.00100	0.000136	mg/L			12/01/15 19:42	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 19:42	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 19:42	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 19:42	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 19:42	1

Client Sample ID: MW-33
Date Collected: 11/23/15 12:28
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-17
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**0.0157**		0.00100	0.000121	mg/L			12/01/15 19:42	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 19:42	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 19:42	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 19:42	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 19:42	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 19:42	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 19:42	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 19:42	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 19:42	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 19:42	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 19:42	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 19:42	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 19:42	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 19:42	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 19:42	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 19:42	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 19:42	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 19:42	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 19:42	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 19:42	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 19:42	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 19:42	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 19:42	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 19:42	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 19:42	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 19:42	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 19:42	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 19:42	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 19:42	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 19:42	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 19:42	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 19:42	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 19:42	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 19:42	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 19:42	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 19:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 19:42	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 19:42	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 19:42	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 19:42	1
Vinyl chloride	**0.0133**		0.00100	0.000300	mg/L			12/01/15 19:42	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*69 - 130*		*12/01/15 19:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/01/15 19:42*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 19:42*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*12/01/15 19:42*	*1*

Client Sample ID: MW-34

Date Collected: 11/23/15 11:55
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-18

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 20:07	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 20:07	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 20:07	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:07	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 20:07	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 20:07	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:07	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 20:07	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 20:07	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 20:07	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 20:07	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 20:07	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 20:07	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 20:07	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 20:07	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 20:07	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 20:07	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 20:07	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 20:07	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 20:07	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 20:07	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 20:07	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 20:07	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 20:07	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 20:07	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 20:07	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:07	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 20:07	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 20:07	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:07	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:07	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 20:07	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 20:07	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 20:07	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 20:07	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:07	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 20:07	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:07	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 20:07	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 20:07	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 20:07	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 20:07	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 20:07	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 20:07	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 20:07	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 20:07	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 20:07	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 20:07	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 20:07	1

Client Sample ID: MW-34

Lab Sample ID: 600-122269-18
Date Collected: 11/23/15 11:55
Matrix: Water
Date Received: 11/25/15 12:32

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 20:07	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 20:07	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 20:07	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 20:07	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 20:07	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 20:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*69 - 130*		*12/01/15 20:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*		*12/01/15 20:07*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 20:07*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*12/01/15 20:07*	*1*

Client Sample ID: Trip Blank

Lab Sample ID: 600-122269-19
Date Collected: 11/23/15 00:00
Matrix: Water
Date Received: 11/25/15 12:32

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/02/15 14:14	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/02/15 14:14	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/02/15 14:14	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:14	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/02/15 14:14	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:14	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:14	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/02/15 14:14	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/02/15 14:14	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 14:14	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/02/15 14:14	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:14	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/02/15 14:14	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/02/15 14:14	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/02/15 14:14	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/02/15 14:14	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/02/15 14:14	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/02/15 14:14	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/02/15 14:14	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:14	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/02/15 14:14	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:14	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/02/15 14:14	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/02/15 14:14	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/02/15 14:14	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/02/15 14:14	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:14	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/02/15 14:14	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/02/15 14:14	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:14	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:14	1

Client Sample ID: Trip Blank
Date Collected: 11/23/15 00:00
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-19
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 14:14	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/02/15 14:14	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/02/15 14:14	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/02/15 14:14	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:14	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/02/15 14:14	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:14	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/02/15 14:14	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/02/15 14:14	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/02/15 14:14	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 14:14	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/02/15 14:14	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/02/15 14:14	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:14	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 14:14	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/02/15 14:14	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/02/15 14:14	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/02/15 14:14	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/02/15 14:14	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 14:14	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 14:14	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 14:14	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/02/15 14:14	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/02/15 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*69 - 130*		*12/02/15 14:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 140*		*12/02/15 14:14*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*12/02/15 14:14*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*12/02/15 14:14*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DBFM	12DCE	TOL	BFB
Lab Sample ID	Client Sample ID	(69-130)	(70-140)	(70-130)	(70-130)
600-122269-1	MW-2	99	101	102	95
600-122269-2	MW-3	101	103	101	95
600-122269-3	MW-4	98	101	102	97
600-122269-4	MW-6	99	101	100	93
600-122269-5	P-1	98	101	101	93
600-122269-6	P-2	98	97	103	98
600-122269-6	P-2	100	101	101	94
600-122269-6 MS	P-2	100	102	103	98
600-122269-6 MSD	P-2	102	102	103	99
600-122269-7	P-3	98	102	102	94
600-122269-7	P-3	98	101	102	96
600-122269-8	VMW-1	99	102	102	95
600-122269-9	VMW-2	101	102	103	95
600-122269-10	VMW-4	100	101	102	97
600-122269-11	VMW-6	100	112	99	102
600-122269-11 MS	VMW-6	107	116	99	95
600-122269-11 MSD	VMW-6	106	114	99	95
600-122269-12	VMW-7	100	101	101	92
600-122269-13	VMW-9	99	100	103	96
600-122269-14	MW-29	100	103	101	96
600-122269-15	MW-31	98	100	102	95
600-122269-16	MW-32	105	115	99	102
600-122269-17	MW-33	98	101	102	96
600-122269-18	MW-34	99	102	102	94
600-122269-19	Trip Blank	101	113	98	101
LCS 560-122576/3	Lab Control Sample	102	104	102	96
LCS 560-122621/3	Lab Control Sample	100	103	101	98
LCS 560-122622/3	Lab Control Sample	105	115	100	96
MB 560-122576/8	Method Blank	102	103	102	94
MB 560-122621/8	Method Blank	99	101	100	94
MB 560-122622/8	Method Blank	103	115	99	104

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 560-122576/8
Matrix: Water
Analysis Batch: 122576

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/01/15 12:08	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/01/15 12:08	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/01/15 12:08	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/01/15 12:08	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/01/15 12:08	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/01/15 12:08	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/01/15 12:08	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/01/15 12:08	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/01/15 12:08	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 12:08	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/01/15 12:08	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/01/15 12:08	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/01/15 12:08	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/01/15 12:08	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/01/15 12:08	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/01/15 12:08	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/01/15 12:08	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/01/15 12:08	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/01/15 12:08	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/01/15 12:08	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/01/15 12:08	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 12:08	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/01/15 12:08	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/01/15 12:08	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/01/15 12:08	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/01/15 12:08	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 12:08	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/01/15 12:08	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/01/15 12:08	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 12:08	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/01/15 12:08	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/01/15 12:08	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/01/15 12:08	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/01/15 12:08	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/01/15 12:08	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/01/15 12:08	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/01/15 12:08	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 12:08	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/01/15 12:08	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/01/15 12:08	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/01/15 12:08	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/01/15 12:08	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/01/15 12:08	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/01/15 12:08	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/01/15 12:08	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/01/15 12:08	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/01/15 12:08	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/01/15 12:08	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 560-122576/8
Matrix: Water
Analysis Batch: 122576

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/01/15 12:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/01/15 12:08	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 12:08	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/01/15 12:08	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/01/15 12:08	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/01/15 12:08	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/01/15 12:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*69 - 130*		*12/01/15 12:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 140*		*12/01/15 12:08*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/01/15 12:08*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*12/01/15 12:08*	*1*

Lab Sample ID: LCS 560-122576/3
Matrix: Water
Analysis Batch: 122576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.0250	0.02956		mg/L		118	60 - 150
Acetonitrile	0.250	0.2814		mg/L		113	52 - 160
Benzene	0.0250	0.02408		mg/L		96	70 - 130
Bromoform	0.0250	0.02512		mg/L		100	63 - 145
Bromomethane	0.0250	0.02297		mg/L		92	50 - 146
2-Butanone (MEK)	0.0250	0.02517		mg/L		101	68 - 144
Carbon disulfide	0.0250	0.02449		mg/L		98	52 - 156
Carbon tetrachloride	0.0250	0.02415		mg/L		97	70 - 138
Chlorobenzene	0.0250	0.02411		mg/L		96	70 - 130
Chlorodibromomethane	0.0250	0.02504		mg/L		100	70 - 137
Chloroethane	0.0250	0.02772		mg/L		111	54 - 141
Chloroform	0.0250	0.02383		mg/L		95	70 - 130
Chloromethane	0.0250	0.02590		mg/L		104	46 - 142
cis-1,2-Dichloroethene	0.0250	0.02546		mg/L		102	70 - 130
cis-1,3-Dichloropropene	0.0250	0.02473		mg/L		99	70 - 138
Dibromomethane	0.0250	0.02411		mg/L		96	70 - 130
Dichlorobromomethane	0.0250	0.02446		mg/L		98	70 - 130
1,1-Dichloroethane	0.0250	0.02410		mg/L		96	70 - 130
1,2-Dichloroethane	0.0250	0.02493		mg/L		100	70 - 131
1,1-Dichloroethene	0.0250	0.02592		mg/L		104	70 - 139
2,2-Dichloropropane	0.0250	0.02358		mg/L		94	65 - 143
1,2-Dichloropropane	0.0250	0.02470		mg/L		99	70 - 130
1,3-Dichloropropane	0.0250	0.02448		mg/L		98	70 - 130
1,1-Dichloropropene	0.0250	0.02406		mg/L		96	70 - 130
1,4-Dioxane	0.500	0.5479		mg/L		110	66 - 150
Ethyl acetate	0.0500	0.06687		mg/L		134	59 - 200
Ethylbenzene	0.0250	0.02461		mg/L		98	70 - 130
Ethylene Dibromide	0.0250	0.02530		mg/L		101	70 - 130
Ethyl ether	0.0250	0.02569		mg/L		103	69 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 560-122576/3
Matrix: Water
Analysis Batch: 122576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethyl methacrylate	0.0250	0.02533		mg/L		101	70 - 130
2-Hexanone	0.0250	0.02486		mg/L		99	70 - 138
Iodomethane	0.0250	0.02632		mg/L		105	64 - 146
Methylene Chloride	0.0250	0.02393		mg/L		96	70 - 130
Methyl methacrylate	0.0500	0.04953		mg/L		99	70 - 137
4-Methyl-2-pentanone (MIBK)	0.0250	0.02637		mg/L		105	70 - 138
Methyl tert-butyl ether	0.0250	0.02372		mg/L		95	70 - 131
2-Nitropropane	0.0500	0.03554		mg/L		71	22 - 173
Styrene	0.0250	0.02535		mg/L		101	70 - 130
1,1,2,2-Tetrachloroethane	0.0250	0.02535		mg/L		101	70 - 130
Tetrachloroethene	0.0250	0.02493		mg/L		100	70 - 135
Toluene	0.0250	0.02452		mg/L		98	70 - 130
trans-1,2-Dichloroethene	0.0250	0.02567		mg/L		103	70 - 134
trans-1,3-Dichloropropene	0.0250	0.02343		mg/L		94	70 - 143
1,2,3-Trichlorobenzene	0.0250	0.03215		mg/L		129	70 - 158
1,1,1-Trichloroethane	0.0250	0.02386		mg/L		95	70 - 130
1,1,2-Trichloroethane	0.0250	0.02365		mg/L		95	70 - 130
Trichloroethene	0.0250	0.02566		mg/L		103	70 - 130
Trichlorofluoromethane	0.0250	0.02833		mg/L		113	39 - 146
1,2,3-Trichloropropane	0.0250	0.02606		mg/L		104	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.02623		mg/L		105	27 - 148
1,3,5-Trimethylbenzene	0.0250	0.02524		mg/L		101	70 - 131
1,2,4-Trimethylbenzene	0.0250	0.02533		mg/L		101	70 - 130
Vinyl acetate	0.0500	0.04900		mg/L		98	18 - 200
Vinyl chloride	0.0250	0.02381		mg/L		95	49 - 140
Xylenes, Total	0.0500	0.04793		mg/L		96	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 140*
Toluene-d8 (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: MB 560-122621/8
Matrix: Water
Analysis Batch: 122621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/02/15 12:27	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/02/15 12:27	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/02/15 12:27	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:27	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/02/15 12:27	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/02/15 12:27	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:27	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/02/15 12:27	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/02/15 12:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 560-122621/8
Matrix: Water
Analysis Batch: 122621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 12:27	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/02/15 12:27	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/02/15 12:27	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/02/15 12:27	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/02/15 12:27	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/02/15 12:27	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/02/15 12:27	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/02/15 12:27	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/02/15 12:27	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/02/15 12:27	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/02/15 12:27	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/02/15 12:27	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 12:27	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/02/15 12:27	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/02/15 12:27	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/02/15 12:27	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/02/15 12:27	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:27	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/02/15 12:27	1
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/02/15 12:27	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:27	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:27	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 12:27	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/02/15 12:27	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/02/15 12:27	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/02/15 12:27	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:27	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/02/15 12:27	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:27	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/02/15 12:27	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/02/15 12:27	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/02/15 12:27	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:27	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/02/15 12:27	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/02/15 12:27	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/02/15 12:27	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 12:27	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/02/15 12:27	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/02/15 12:27	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/02/15 12:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/02/15 12:27	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 12:27	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 12:27	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:27	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/02/15 12:27	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/02/15 12:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 560-122621/8
Matrix: Water
Analysis Batch: 122621

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*99*		*69 - 130*		*12/02/15 12:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*12/02/15 12:27*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*12/02/15 12:27*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*12/02/15 12:27*	*1*

Lab Sample ID: LCS 560-122621/3
Matrix: Water
Analysis Batch: 122621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.0250	0.02765		mg/L		111	60 - 150
Acetonitrile	0.250	0.2600		mg/L		104	52 - 160
Benzene	0.0250	0.02627		mg/L		105	70 - 130
Bromoform	0.0250	0.02575		mg/L		103	63 - 145
Bromomethane	0.0250	0.02425		mg/L		97	50 - 146
2-Butanone (MEK)	0.0250	0.02663		mg/L		107	68 - 144
Carbon disulfide	0.0250	0.02562		mg/L		102	52 - 156
Carbon tetrachloride	0.0250	0.02506		mg/L		100	70 - 138
Chlorobenzene	0.0250	0.02584		mg/L		103	70 - 130
Chlorodibromomethane	0.0250	0.02589		mg/L		104	70 - 137
Chloroethane	0.0250	0.02831		mg/L		113	54 - 141
Chloroform	0.0250	0.02571		mg/L		103	70 - 130
Chloromethane	0.0250	0.02736		mg/L		109	46 - 142
cis-1,2-Dichloroethene	0.0250	0.02682		mg/L		107	70 - 130
cis-1,3-Dichloropropene	0.0250	0.02709		mg/L		108	70 - 138
Dibromomethane	0.0250	0.02615		mg/L		105	70 - 130
Dichlorobromomethane	0.0250	0.02577		mg/L		103	70 - 130
1,1-Dichloroethane	0.0250	0.02617		mg/L		105	70 - 130
1,2-Dichloroethane	0.0250	0.02608		mg/L		104	70 - 131
1,1-Dichloroethene	0.0250	0.02681		mg/L		107	70 - 139
2,2-Dichloropropane	0.0250	0.02363		mg/L		95	65 - 143
1,2-Dichloropropane	0.0250	0.02691		mg/L		108	70 - 130
1,3-Dichloropropane	0.0250	0.02649		mg/L		106	70 - 130
1,1-Dichloropropene	0.0250	0.02529		mg/L		101	70 - 130
1,4-Dioxane	0.500	0.5310		mg/L		106	66 - 150
Ethyl acetate	0.0500	0.06554		mg/L		131	59 - 200
Ethylbenzene	0.0250	0.02624		mg/L		105	70 - 130
Ethylene Dibromide	0.0250	0.02740		mg/L		110	70 - 130
Ethyl ether	0.0250	0.02774		mg/L		111	69 - 136
Ethyl methacrylate	0.0250	0.02791		mg/L		112	70 - 130
2-Hexanone	0.0250	0.02461		mg/L		98	70 - 138
Iodomethane	0.0250	0.02761		mg/L		110	64 - 146
Methylene Chloride	0.0250	0.02545		mg/L		102	70 - 130
Methyl methacrylate	0.0500	0.05396		mg/L		108	70 - 137
4-Methyl-2-pentanone (MIBK)	0.0250	0.02852		mg/L		114	70 - 138
Methyl tert-butyl ether	0.0250	0.02541		mg/L		102	70 - 131
2-Nitropropane	0.0500	0.03607		mg/L		72	22 - 173
Styrene	0.0250	0.02724		mg/L		109	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 560-122621/3
Matrix: Water
Analysis Batch: 122621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	0.0250	0.02770		mg/L		111	70 - 130
Tetrachloroethene	0.0250	0.02613		mg/L		105	70 - 135
Toluene	0.0250	0.02619		mg/L		105	70 - 130
trans-1,2-Dichloroethene	0.0250	0.02750		mg/L		110	70 - 134
trans-1,3-Dichloropropene	0.0250	0.02591		mg/L		104	70 - 143
1,2,3-Trichlorobenzene	0.0250	0.03428		mg/L		137	70 - 158
1,1,1-Trichloroethane	0.0250	0.02505		mg/L		100	70 - 130
1,1,2-Trichloroethane	0.0250	0.02621		mg/L		105	70 - 130
Trichloroethene	0.0250	0.02734		mg/L		109	70 - 130
Trichlorofluoromethane	0.0250	0.02793		mg/L		112	39 - 146
1,2,3-Trichloropropane	0.0250	0.02907		mg/L		116	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.02596		mg/L		104	27 - 148
1,3,5-Trimethylbenzene	0.0250	0.02708		mg/L		108	70 - 131
1,2,4-Trimethylbenzene	0.0250	0.02742		mg/L		110	70 - 130
Vinyl acetate	0.0500	0.05338		mg/L		107	18 - 200
Vinyl chloride	0.0250	0.02427		mg/L		97	49 - 140
Xylenes, Total	0.0500	0.05108		mg/L		102	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 140*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 600-122269-6 MS
Matrix: Water
Analysis Batch: 122621

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.0250	U	0.125	0.1796		mg/L		144	32 - 157
Acetonitrile	0.0500	U	1.25	1.228		mg/L		98	10 - 182
Benzene	0.628		0.125	0.7288	4	mg/L		81	70 - 130
Bromoform	0.00250	U	0.125	0.1249		mg/L		100	57 - 145
Bromomethane	0.00196	U	0.125	0.1088		mg/L		87	56 - 141
2-Butanone (MEK)	0.00500	U	0.125	0.1160		mg/L		93	42 - 142
Carbon disulfide	0.00250	U	0.125	0.1164		mg/L		93	59 - 164
Carbon tetrachloride	0.00126	U	0.125	0.1143		mg/L		91	70 - 138
Chlorobenzene	0.0506		0.125	0.1705		mg/L		96	70 - 130
Chlorodibromomethane	0.00112	U	0.125	0.1239		mg/L		99	62 - 145
Chloroethane	0.00200	U	0.125	0.1236		mg/L		99	62 - 142
Chloroform	0.000865	U	0.125	0.1261		mg/L		101	70 - 130
Chloromethane	0.00195	U	0.125	0.1195		mg/L		96	57 - 148
cis-1,2-Dichloroethene	0.000605	U	0.125	0.1256		mg/L		100	70 - 130
cis-1,3-Dichloropropene	0.000730	U	0.125	0.1278		mg/L		102	46 - 136
Dibromomethane	0.000825	U	0.125	0.1223		mg/L		98	70 - 130
Dichlorobromomethane	0.000875	U	0.125	0.1199		mg/L		96	70 - 130
1,1-Dichloroethane	0.000840	U	0.125	0.1207		mg/L		97	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-122269-6 MS
Matrix: Water
Analysis Batch: 122621

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	0.000860	U	0.125	0.1382		mg/L		111	65 - 130
1,1-Dichloroethene	0.00150	U	0.125	0.1222		mg/L		98	67 - 143
2,2-Dichloropropane	0.00168	U	0.125	0.1050		mg/L		84	65 - 150
1,2-Dichloropropane	0.000865	U	0.125	0.1304		mg/L		104	70 - 130
1,3-Dichloropropane	0.000730	U	0.125	0.1252		mg/L		100	70 - 130
1,1-Dichloropropene	0.000925	U	0.125	0.1204		mg/L		96	70 - 130
1,4-Dioxane	0.0795	U	2.50	2.350		mg/L		94	20 - 152
Ethyl acetate	0.00500	U	0.250	0.3559		mg/L		142	53 - 144
Ethylbenzene	0.0158		0.125	0.1361		mg/L		96	70 - 130
Ethylene Dibromide	0.000875	U	0.125	0.1279		mg/L		102	70 - 130
Ethyl ether	0.00160	U	0.125	0.1291		mg/L		103	67 - 130
Ethyl methacrylate	0.00250	U	0.125	0.1382		mg/L		111	65 - 130
2-Hexanone	0.00250	U	0.125	0.1215		mg/L		97	56 - 130
Iodomethane	0.00112	U	0.125	0.1288		mg/L		103	70 - 162
Methylene Chloride	0.0100	U	0.125	0.1101		mg/L		88	70 - 130
Methyl methacrylate	0.00100	U	0.250	0.3083		mg/L		123	63 - 130
4-Methyl-2-pentanone (MIBK)	0.00255	U	0.125	0.1368		mg/L		109	54 - 130
Methyl tert-butyl ether	0.00100	U	0.125	0.1203		mg/L		96	63 - 134
2-Nitropropane	0.00500	U	0.250	0.1846		mg/L		74	22 - 173
Styrene	0.00100	U	0.125	0.1287		mg/L		103	28 - 150
1,1,2,2-Tetrachloroethane	0.000950	U	0.125	0.1271		mg/L		102	66 - 130
Tetrachloroethene	0.000945	U	0.125	0.1205		mg/L		96	69 - 130
Toluene	0.0269		0.125	0.1478		mg/L		97	70 - 130
trans-1,2-Dichloroethene	0.00100	U	0.125	0.1273		mg/L		102	57 - 148
trans-1,3-Dichloropropene	0.00100	U	0.125	0.1209		mg/L		97	44 - 139
1,2,3-Trichlorobenzene	0.00109	U	0.125	0.1233		mg/L		99	60 - 130
1,1,1-Trichloroethane	0.00150	U	0.125	0.1140		mg/L		91	70 - 133
1,1,2-Trichloroethane	0.000865	U	0.125	0.1259		mg/L		101	70 - 130
Trichloroethene	0.00159	U	0.125	0.1260		mg/L		101	70 - 130
Trichlorofluoromethane	0.00122	U	0.125	0.1279		mg/L		102	64 - 149
1,2,3-Trichloropropane	0.000955	U	0.125	0.1312		mg/L		105	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	0.00205	U	0.125	0.1180		mg/L		94	47 - 152
1,3,5-Trimethylbenzene	0.00323	J	0.125	0.1243		mg/L		97	70 - 130
1,2,4-Trimethylbenzene	0.00100	U	0.125	0.1232		mg/L		99	70 - 130
Vinyl acetate	0.00250	U	0.250	0.2533		mg/L		101	36 - 171
Vinyl chloride	0.00150	U	0.125	0.1097		mg/L		88	49 - 158
Xylenes, Total	0.0265		0.250	0.2647		mg/L		95	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*
Toluene-d8 (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-122269-6 MSD
Matrix: Water
Analysis Batch: 122621

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	0.0250	U	0.125	0.1822		mg/L		146	32 - 157	1	20
Acetonitrile	0.0500	U	1.25	1.206		mg/L		96	10 - 182	2	20
Benzene	0.628		0.125	0.7284	4	mg/L		81	70 - 130	0	20
Bromoform	0.00250	U	0.125	0.1259		mg/L		101	57 - 145	1	20
Bromomethane	0.00196	U	0.125	0.1187		mg/L		95	56 - 141	9	20
2-Butanone (MEK)	0.00500	U	0.125	0.1251		mg/L		100	42 - 142	8	20
Carbon disulfide	0.00250	U	0.125	0.1328		mg/L		106	59 - 164	13	20
Carbon tetrachloride	0.00126	U	0.125	0.1223		mg/L		98	70 - 138	7	20
Chlorobenzene	0.0506		0.125	0.1710		mg/L		96	70 - 130	0	20
Chlorodibromomethane	0.00112	U	0.125	0.1277		mg/L		102	62 - 145	3	20
Chloroethane	0.00200	U	0.125	0.1205		mg/L		96	62 - 142	3	20
Chloroform	0.000865	U	0.125	0.1315		mg/L		105	70 - 130	4	20
Chloromethane	0.00195	U	0.125	0.1308		mg/L		105	57 - 148	9	20
cis-1,2-Dichloroethene	0.000605	U	0.125	0.1343		mg/L		107	70 - 130	7	20
cis-1,3-Dichloropropene	0.000730	U	0.125	0.1334		mg/L		107	46 - 136	4	20
Dibromomethane	0.000825	U	0.125	0.1264		mg/L		101	70 - 130	3	20
Dichlorobromomethane	0.000875	U	0.125	0.1275		mg/L		102	70 - 130	6	20
1,1-Dichloroethane	0.000840	U	0.125	0.1279		mg/L		102	70 - 130	6	20
1,2-Dichloroethane	0.000860	U	0.125	0.1440		mg/L		115	65 - 130	4	20
1,1-Dichloroethene	0.00150	U	0.125	0.1303		mg/L		104	67 - 143	6	20
2,2-Dichloropropane	0.00168	U	0.125	0.1150		mg/L		92	65 - 150	9	20
1,2-Dichloropropane	0.000865	U	0.125	0.1336		mg/L		107	70 - 130	2	20
1,3-Dichloropropane	0.000730	U	0.125	0.1292		mg/L		103	70 - 130	3	20
1,1-Dichloropropene	0.000925	U	0.125	0.1264		mg/L		101	70 - 130	5	20
1,4-Dioxane	0.0795	U	2.50	2.039		mg/L		82	20 - 152	14	20
Ethyl acetate	0.00500	U	0.250	0.3491		mg/L		140	53 - 144	2	20
Ethylbenzene	0.0158		0.125	0.1407		mg/L		100	70 - 130	3	20
Ethylene Dibromide	0.000875	U	0.125	0.1295		mg/L		104	70 - 130	1	20
Ethyl ether	0.00160	U	0.125	0.1320		mg/L		106	67 - 130	2	20
Ethyl methacrylate	0.00250	U	0.125	0.1403		mg/L		112	65 - 130	2	20
2-Hexanone	0.00250	U	0.125	0.1215		mg/L		97	56 - 130	0	20
Iodomethane	0.00112	U	0.125	0.1346		mg/L		108	70 - 162	4	20
Methylene Chloride	0.0100	U	0.125	0.1227		mg/L		98	70 - 130	11	20
Methyl methacrylate	0.00100	U	0.250	0.3143		mg/L		126	63 - 130	2	20
4-Methyl-2-pentanone (MIBK)	0.00255	U	0.125	0.1394		mg/L		112	54 - 130	2	20
Methyl tert-butyl ether	0.00100	U	0.125	0.1252		mg/L		100	63 - 134	4	20
2-Nitropropane	0.00500	U	0.250	0.1987		mg/L		79	22 - 173	7	20
Styrene	0.00100	U	0.125	0.1336		mg/L		107	28 - 150	4	20
1,1,2,2-Tetrachloroethane	0.000950	U	0.125	0.1311		mg/L		105	66 - 130	3	20
Tetrachloroethene	0.000945	U	0.125	0.1261		mg/L		101	69 - 130	5	20
Toluene	0.0269		0.125	0.1520		mg/L		100	70 - 130	3	20
trans-1,2-Dichloroethene	0.00100	U	0.125	0.1336		mg/L		107	57 - 148	5	20
trans-1,3-Dichloropropene	0.00100	U	0.125	0.1249		mg/L		100	44 - 139	3	20
1,2,3-Trichlorobenzene	0.00109	U	0.125	0.1224		mg/L		98	60 - 130	1	20
1,1,1-Trichloroethane	0.00150	U	0.125	0.1215		mg/L		97	70 - 133	6	20
1,1,2-Trichloroethane	0.000865	U	0.125	0.1274		mg/L		102	70 - 130	1	20
Trichloroethene	0.00159	U	0.125	0.1325		mg/L		106	70 - 130	5	20
Trichlorofluoromethane	0.00122	U	0.125	0.1362		mg/L		109	64 - 149	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-122269-6 MSD
Matrix: Water
Analysis Batch: 122621

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3-Trichloropropane	0.000955	U	0.125	0.1358		mg/L		109	70 - 130	3	20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.00205	U	0.125	0.1264		mg/L		101	47 - 152	7	20
1,3,5-Trimethylbenzene	0.00323	J	0.125	0.1317		mg/L		103	70 - 130	6	20
1,2,4-Trimethylbenzene	0.00100	U	0.125	0.1284		mg/L		103	70 - 130	4	20
Vinyl acetate	0.00250	U	0.250	0.2582		mg/L		103	36 - 171	2	20
Vinyl chloride	0.00150	U	0.125	0.1177		mg/L		94	49 - 158	7	20
Xylenes, Total	0.0265		0.250	0.2757		mg/L		100	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*
Toluene-d8 (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: MB 560-122622/8
Matrix: Water
Analysis Batch: 122622

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.00500	U	0.0100	0.00500	mg/L			12/02/15 12:59	1
Acetonitrile	0.0100	U	0.0500	0.0100	mg/L			12/02/15 12:59	1
Benzene	0.000330	U	0.00100	0.000330	mg/L			12/02/15 12:59	1
Bromoform	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:59	1
Bromomethane	0.000392	U	0.00500	0.000392	mg/L			12/02/15 12:59	1
2-Butanone (MEK)	0.00100	U	0.0100	0.00100	mg/L			12/02/15 12:59	1
Carbon disulfide	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:59	1
Carbon tetrachloride	0.000251	U	0.00100	0.000251	mg/L			12/02/15 12:59	1
Chlorobenzene	0.000136	U	0.00100	0.000136	mg/L			12/02/15 12:59	1
Chlorodibromomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 12:59	1
Chloroethane	0.000400	U	0.00500	0.000400	mg/L			12/02/15 12:59	1
Chloroform	0.000173	U	0.00100	0.000173	mg/L			12/02/15 12:59	1
Chloromethane	0.000390	U	0.00500	0.000390	mg/L			12/02/15 12:59	1
cis-1,2-Dichloroethene	0.000121	U	0.00100	0.000121	mg/L			12/02/15 12:59	1
cis-1,3-Dichloropropene	0.000146	U	0.00100	0.000146	mg/L			12/02/15 12:59	1
Dibromomethane	0.000165	U	0.00100	0.000165	mg/L			12/02/15 12:59	1
Dichlorobromomethane	0.000175	U	0.00100	0.000175	mg/L			12/02/15 12:59	1
1,1-Dichloroethane	0.000168	U	0.00100	0.000168	mg/L			12/02/15 12:59	1
1,2-Dichloroethane	0.000172	U	0.00100	0.000172	mg/L			12/02/15 12:59	1
1,1-Dichloroethene	0.000300	U	0.00100	0.000300	mg/L			12/02/15 12:59	1
2,2-Dichloropropane	0.000335	U	0.00100	0.000335	mg/L			12/02/15 12:59	1
1,2-Dichloropropane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 12:59	1
1,3-Dichloropropane	0.000146	U	0.00100	0.000146	mg/L			12/02/15 12:59	1
1,1-Dichloropropene	0.000185	U	0.00100	0.000185	mg/L			12/02/15 12:59	1
1,4-Dioxane	0.0159	U	0.100	0.0159	mg/L			12/02/15 12:59	1
Ethyl acetate	0.00100	U	0.00500	0.00100	mg/L			12/02/15 12:59	1
Ethylbenzene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:59	1
Ethylene Dibromide	0.000175	U	0.00100	0.000175	mg/L			12/02/15 12:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 560-122622/8
Matrix: Water
Analysis Batch: 122622

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl ether	0.000320	U	0.00500	0.000320	mg/L			12/02/15 12:59	1
Ethyl methacrylate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:59	1
2-Hexanone	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:59	1
Iodomethane	0.000223	U	0.00200	0.000223	mg/L			12/02/15 12:59	1
Methylene Chloride	0.00200	U	0.0100	0.00200	mg/L			12/02/15 12:59	1
Methyl methacrylate	0.000200	U	0.00500	0.000200	mg/L			12/02/15 12:59	1
4-Methyl-2-pentanone (MIBK)	0.000510	U	0.00500	0.000510	mg/L			12/02/15 12:59	1
Methyl tert-butyl ether	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:59	1
2-Nitropropane	0.00100	U	0.0100	0.00100	mg/L			12/02/15 12:59	1
Styrene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:59	1
1,1,2,2-Tetrachloroethane	0.000190	U	0.00100	0.000190	mg/L			12/02/15 12:59	1
Tetrachloroethene	0.000189	U	0.00100	0.000189	mg/L			12/02/15 12:59	1
Toluene	0.000495	U	0.00100	0.000495	mg/L			12/02/15 12:59	1
trans-1,2-Dichloroethene	0.000200	U	0.00100	0.000200	mg/L			12/02/15 12:59	1
trans-1,3-Dichloropropene	0.000200	U	0.00500	0.000200	mg/L			12/02/15 12:59	1
1,2,3-Trichlorobenzene	0.000217	U	0.00500	0.000217	mg/L			12/02/15 12:59	1
1,1,1-Trichloroethane	0.000300	U	0.00100	0.000300	mg/L			12/02/15 12:59	1
1,1,2-Trichloroethane	0.000173	U	0.00100	0.000173	mg/L			12/02/15 12:59	1
Trichloroethene	0.000317	U	0.00100	0.000317	mg/L			12/02/15 12:59	1
Trichlorofluoromethane	0.000244	U	0.00100	0.000244	mg/L			12/02/15 12:59	1
1,2,3-Trichloropropane	0.000191	U	0.00100	0.000191	mg/L			12/02/15 12:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.000410	U	0.00100	0.000410	mg/L			12/02/15 12:59	1
1,3,5-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 12:59	1
1,2,4-Trimethylbenzene	0.000200	U	0.00200	0.000200	mg/L			12/02/15 12:59	1
Vinyl acetate	0.000500	U	0.00500	0.000500	mg/L			12/02/15 12:59	1
Vinyl chloride	0.000300	U	0.00100	0.000300	mg/L			12/02/15 12:59	1
Xylenes, Total	0.000226	U	0.00200	0.000226	mg/L			12/02/15 12:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*69 - 130*		*12/02/15 12:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 140*		*12/02/15 12:59*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*12/02/15 12:59*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*12/02/15 12:59*	*1*

Lab Sample ID: LCS 560-122622/3
Matrix: Water
Analysis Batch: 122622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.0250	0.02956		mg/L		118	60 - 150
Acetonitrile	0.250	0.2195		mg/L		88	52 - 160
Benzene	0.0250	0.02424		mg/L		97	70 - 130
Bromoform	0.0250	0.03100		mg/L		124	63 - 145
Bromomethane	0.0250	0.02814		mg/L		113	50 - 146
2-Butanone (MEK)	0.0250	0.02669		mg/L		107	68 - 144
Carbon disulfide	0.0250	0.02558		mg/L		102	52 - 156
Carbon tetrachloride	0.0250	0.02886		mg/L		115	70 - 138
Chlorobenzene	0.0250	0.02443		mg/L		98	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 560-122622/3
Matrix: Water
Analysis Batch: 122622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorodibromomethane	0.0250	0.02588		mg/L		104	70 - 137
Chloroethane	0.0250	0.02550		mg/L		102	54 - 141
Chloroform	0.0250	0.02643		mg/L		106	70 - 130
Chloromethane	0.0250	0.02336		mg/L		93	46 - 142
cis-1,2-Dichloroethene	0.0250	0.02606		mg/L		104	70 - 130
cis-1,3-Dichloropropene	0.0250	0.02787		mg/L		111	70 - 138
Dibromomethane	0.0250	0.02621		mg/L		105	70 - 130
Dichlorobromomethane	0.0250	0.02745		mg/L		110	70 - 130
1,1-Dichloroethane	0.0250	0.02513		mg/L		101	70 - 130
1,2-Dichloroethane	0.0250	0.02793		mg/L		112	70 - 131
1,1-Dichloroethene	0.0250	0.02595		mg/L		104	70 - 139
2,2-Dichloropropane	0.0250	0.02709		mg/L		108	65 - 143
1,2-Dichloropropane	0.0250	0.02540		mg/L		102	70 - 130
1,3-Dichloropropane	0.0250	0.02436		mg/L		97	70 - 130
1,1-Dichloropropene	0.0250	0.02588		mg/L		104	70 - 130
1,4-Dioxane	0.500	0.5109		mg/L		102	66 - 150
Ethyl acetate	0.0500	0.07473		mg/L		149	59 - 200
Ethylbenzene	0.0250	0.02521		mg/L		101	70 - 130
Ethylene Dibromide	0.0250	0.02619		mg/L		105	70 - 130
Ethyl ether	0.0250	0.02482		mg/L		99	69 - 136
Ethyl methacrylate	0.0250	0.02522		mg/L		101	70 - 130
2-Hexanone	0.0250	0.02523		mg/L		101	70 - 138
Iodomethane	0.0250	0.02651		mg/L		106	64 - 146
Methylene Chloride	0.0250	0.02266		mg/L		91	70 - 130
Methyl methacrylate	0.0500	0.05373		mg/L		107	70 - 137
4-Methyl-2-pentanone (MIBK)	0.0250	0.02720		mg/L		109	70 - 138
Methyl tert-butyl ether	0.0250	0.02587		mg/L		103	70 - 131
2-Nitropropane	0.0500	0.05968		mg/L		119	22 - 173
Styrene	0.0250	0.02657		mg/L		106	70 - 130
1,1,2,2-Tetrachloroethane	0.0250	0.02352		mg/L		94	70 - 130
Tetrachloroethene	0.0250	0.02638		mg/L		106	70 - 135
Toluene	0.0250	0.02449		mg/L		98	70 - 130
trans-1,2-Dichloroethene	0.0250	0.02626		mg/L		105	70 - 134
trans-1,3-Dichloropropene	0.0250	0.02542		mg/L		102	70 - 143
1,2,3-Trichlorobenzene	0.0250	0.03524		mg/L		141	70 - 158
1,1,1-Trichloroethane	0.0250	0.02732		mg/L		109	70 - 130
1,1,2-Trichloroethane	0.0250	0.02451		mg/L		98	70 - 130
Trichloroethene	0.0250	0.02624		mg/L		105	70 - 130
Trichlorofluoromethane	0.0250	0.02836		mg/L		113	39 - 146
1,2,3-Trichloropropane	0.0250	0.02559		mg/L		102	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.02684		mg/L		107	27 - 148
1,3,5-Trimethylbenzene	0.0250	0.02590		mg/L		104	70 - 131
1,2,4-Trimethylbenzene	0.0250	0.02571		mg/L		103	70 - 130
Vinyl acetate	0.0500	0.05018		mg/L		100	18 - 200
Vinyl chloride	0.0250	0.02440		mg/L		98	49 - 140
Xylenes, Total	0.0500	0.05093		mg/L		102	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 560-122622/3
Matrix: Water
Analysis Batch: 122622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	*105*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 140*
Toluene-d8 (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: 600-122269-11 MS
Matrix: Water
Analysis Batch: 122622

Client Sample ID: VMW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.150	U	0.750	0.9025		mg/L		120	32 - 157
Acetonitrile	0.300	U	7.50	6.131		mg/L		82	10 - 182
Benzene	4.02		0.750	4.307	4	mg/L		38	70 - 130
Bromoform	0.0150	U	0.750	0.8636		mg/L		115	57 - 145
Bromomethane	0.0118	U	0.750	0.8135		mg/L		108	56 - 141
2-Butanone (MEK)	0.0300	U	0.750	0.7469		mg/L		100	42 - 142
Carbon disulfide	0.0150	U	0.750	0.7275		mg/L		97	59 - 164
Carbon tetrachloride	0.00753	U	0.750	0.8126		mg/L		108	70 - 138
Chlorobenzene	0.508		0.750	1.141		mg/L		84	70 - 130
Chlorodibromomethane	0.00669	U	0.750	0.7345		mg/L		98	62 - 145
Chloroethane	0.0120	U	0.750	0.7334		mg/L		98	62 - 142
Chloroform	0.00519	U	0.750	0.7395		mg/L		99	70 - 130
Chloromethane	0.0117	U	0.750	0.6935		mg/L		92	57 - 148
cis-1,2-Dichloroethene	3.47		0.750	4.049	4	mg/L		77	70 - 130
cis-1,3-Dichloropropene	0.00438	U	0.750	0.7848		mg/L		105	46 - 136
Dibromomethane	0.00495	U	0.750	0.7367		mg/L		98	70 - 130
Dichlorobromomethane	0.00525	U	0.750	0.7783		mg/L		104	70 - 130
1,1-Dichloroethane	0.00504	U	0.750	0.7173		mg/L		96	70 - 130
1,2-Dichloroethane	0.00516	U F1	0.750	0.9129		mg/L		122	65 - 130
1,1-Dichloroethene	0.00900	U	0.750	0.7592		mg/L		101	67 - 143
2,2-Dichloropropane	0.0101	U	0.750	0.7605		mg/L		101	65 - 150
1,2-Dichloropropane	0.00519	U	0.750	0.7284		mg/L		97	70 - 130
1,3-Dichloropropane	0.00438	U	0.750	0.6984		mg/L		93	70 - 130
1,1-Dichloropropene	0.00555	U	0.750	0.7279		mg/L		97	70 - 130
1,4-Dioxane	0.477	U	15.0	14.76		mg/L		98	20 - 152
Ethyl acetate	0.0300	U F1	1.50	2.093		mg/L		140	53 - 144
Ethylbenzene	0.102		0.750	0.7893		mg/L		92	70 - 130
Ethylene Dibromide	0.00525	U	0.750	0.7289		mg/L		97	70 - 130
Ethyl ether	0.00960	U	0.750	0.7008		mg/L		93	67 - 130
Ethyl methacrylate	0.0150	U	0.750	0.7129		mg/L		95	65 - 130
2-Hexanone	0.0150	U	0.750	0.7573		mg/L		101	56 - 130
Iodomethane	0.00669	U	0.750	0.7588		mg/L		101	70 - 162
Methylene Chloride	0.0600	U	0.750	0.6614		mg/L		88	70 - 130
Methyl methacrylate	0.00600	U	1.50	1.496		mg/L		100	63 - 130
4-Methyl-2-pentanone (MIBK)	0.0153	U	0.750	0.7692		mg/L		103	54 - 130
Methyl tert-butyl ether	0.0120	J	0.750	0.7593		mg/L		100	63 - 134
2-Nitropropane	0.0300	U	1.50	1.716		mg/L		114	22 - 173
Styrene	0.00600	U	0.750	0.7321		mg/L		98	28 - 150

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-122269-11 MS
Matrix: Water
Analysis Batch: 122622

Client Sample ID: VMW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	0.00570	U	0.750	0.6727		mg/L		90	66 - 130
Tetrachloroethene	0.00567	U	0.750	0.7266		mg/L		97	69 - 130
Toluene	0.0309		0.750	0.7130		mg/L		91	70 - 130
trans-1,2-Dichloroethene	0.00600	U	0.750	0.7547		mg/L		101	57 - 148
trans-1,3-Dichloropropene	0.00600	U	0.750	0.7050		mg/L		94	44 - 139
1,2,3-Trichlorobenzene	0.00651	U F1	0.750	0.9433		mg/L		126	60 - 130
1,1,1-Trichloroethane	0.00900	U	0.750	0.7850		mg/L		105	70 - 133
1,1,2-Trichloroethane	0.00519	U	0.750	0.7037		mg/L		94	70 - 130
Trichloroethene	0.00951	U	0.750	0.7581		mg/L		101	70 - 130
Trichlorofluoromethane	0.00732	U	0.750	0.7990		mg/L		107	64 - 149
1,2,3-Trichloropropane	0.00573	U	0.750	0.7375		mg/L		98	70 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0123	U	0.750	0.7690		mg/L		103	47 - 152
1,3,5-Trimethylbenzene	0.00600	U	0.750	0.7268		mg/L		97	70 - 130
1,2,4-Trimethylbenzene	0.00600	U	0.750	0.7341		mg/L		98	70 - 130
Vinyl acetate	0.0150	U	1.50	1.451		mg/L		97	36 - 171
Vinyl chloride	0.364		0.750	1.031		mg/L		89	49 - 158
Xylenes, Total	0.00678	U	1.50	1.411		mg/L		94	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*107*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 140*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 600-122269-11 MSD
Matrix: Water
Analysis Batch: 122622

Client Sample ID: VMW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	0.150	U	0.750	1.006		mg/L		134	32 - 157	11	20
Acetonitrile	0.300	U	7.50	7.065		mg/L		94	10 - 182	14	20
Benzene	4.02		0.750	4.819	4	mg/L		106	70 - 130	11	20
Bromoform	0.0150	U	0.750	0.9661		mg/L		129	57 - 145	11	20
Bromomethane	0.0118	U	0.750	0.9191		mg/L		123	56 - 141	12	20
2-Butanone (MEK)	0.0300	U	0.750	0.8306		mg/L		111	42 - 142	11	20
Carbon disulfide	0.0150	U	0.750	0.8205		mg/L		109	59 - 164	12	20
Carbon tetrachloride	0.00753	U	0.750	0.9317		mg/L		124	70 - 138	14	20
Chlorobenzene	0.508		0.750	1.279		mg/L		103	70 - 130	11	20
Chlorodibromomethane	0.00669	U	0.750	0.8088		mg/L		108	62 - 145	10	20
Chloroethane	0.0120	U	0.750	0.8241		mg/L		110	62 - 142	12	20
Chloroform	0.00519	U	0.750	0.8441		mg/L		113	70 - 130	13	20
Chloromethane	0.0117	U	0.750	0.7528		mg/L		100	57 - 148	8	20
cis-1,2-Dichloroethene	3.47		0.750	4.523	4	mg/L		140	70 - 130	11	20
cis-1,3-Dichloropropene	0.00438	U	0.750	0.8938		mg/L		119	46 - 136	13	20
Dibromomethane	0.00495	U	0.750	0.8301		mg/L		111	70 - 130	12	20
Dichlorobromomethane	0.00525	U	0.750	0.8800		mg/L		117	70 - 130	12	20
1,1-Dichloroethane	0.00504	U	0.750	0.8063		mg/L		108	70 - 130	12	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-122269-11 MSD
Matrix: Water
Analysis Batch: 122622

Client Sample ID: VMW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloroethane	0.00516	U F1	0.750	1.036	F1	mg/L		138	65 - 130	13	20
1,1-Dichloroethene	0.00900	U	0.750	0.8372		mg/L		112	67 - 143	10	20
2,2-Dichloropropane	0.0101	U	0.750	0.8724		mg/L		116	65 - 150	14	20
1,2-Dichloropropane	0.00519	U	0.750	0.8361		mg/L		111	70 - 130	14	20
1,3-Dichloropropane	0.00438	U	0.750	0.7709		mg/L		103	70 - 130	10	20
1,1-Dichloropropene	0.00555	U	0.750	0.8231		mg/L		110	70 - 130	12	20
1,4-Dioxane	0.477	U	15.0	16.97		mg/L		113	20 - 152	14	20
Ethyl acetate	0.0300	U F1	1.50	2.387	F1	mg/L		159	53 - 144	13	20
Ethylbenzene	0.102		0.750	0.8979		mg/L		106	70 - 130	13	20
Ethylene Dibromide	0.00525	U	0.750	0.8205		mg/L		109	70 - 130	12	20
Ethyl ether	0.00960	U	0.750	0.7820		mg/L		104	67 - 130	11	20
Ethyl methacrylate	0.0150	U	0.750	0.8118		mg/L		108	65 - 130	13	20
2-Hexanone	0.0150	U	0.750	0.8450		mg/L		113	56 - 130	11	20
Iodomethane	0.00669	U	0.750	0.8567		mg/L		114	70 - 162	12	20
Methylene Chloride	0.0600	U	0.750	0.7338		mg/L		98	70 - 130	10	20
Methyl methacrylate	0.00600	U	1.50	1.714		mg/L		114	63 - 130	14	20
4-Methyl-2-pentanone (MIBK)	0.0153	U	0.750	0.8698		mg/L		116	54 - 130	12	20
Methyl tert-butyl ether	0.0120	J	0.750	0.8590		mg/L		113	63 - 134	12	20
2-Nitropropane	0.0300	U	1.50	1.904		mg/L		127	22 - 173	10	20
Styrene	0.00600	U	0.750	0.8418		mg/L		112	28 - 150	14	20
1,1,2,2-Tetrachloroethane	0.00570	U	0.750	0.7519		mg/L		100	66 - 130	11	20
Tetrachloroethene	0.00567	U	0.750	0.8160		mg/L		109	69 - 130	12	20
Toluene	0.0309		0.750	0.7925		mg/L		102	70 - 130	11	20
trans-1,2-Dichloroethene	0.00600	U	0.750	0.8611		mg/L		115	57 - 148	13	20
trans-1,3-Dichloropropene	0.00600	U	0.750	0.7953		mg/L		106	44 - 139	12	20
1,2,3-Trichlorobenzene	0.00651	U F1	0.750	1.064	F1	mg/L		142	60 - 130	12	20
1,1,1-Trichloroethane	0.00900	U	0.750	0.8870		mg/L		118	70 - 133	12	20
1,1,2-Trichloroethane	0.00519	U	0.750	0.7659		mg/L		102	70 - 130	8	20
Trichloroethene	0.00951	U	0.750	0.8576		mg/L		114	70 - 130	12	20
Trichlorofluoromethane	0.00732	U	0.750	0.8573		mg/L		114	64 - 149	7	20
1,2,3-Trichloropropane	0.00573	U	0.750	0.8008		mg/L		107	70 - 130	8	20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0123	U	0.750	0.8217		mg/L		110	47 - 152	7	20
1,3,5-Trimethylbenzene	0.00600	U	0.750	0.8297		mg/L		111	70 - 130	13	20
1,2,4-Trimethylbenzene	0.00600	U	0.750	0.8148		mg/L		109	70 - 130	10	20
Vinyl acetate	0.0150	U	1.50	1.616		mg/L		108	36 - 171	11	20
Vinyl chloride	0.364		0.750	1.141		mg/L		104	49 - 158	10	20
Xylenes, Total	0.00678	U	1.50	1.608		mg/L		107	70 - 130	13	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*69 - 130*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 140*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

GC/MS VOA

Analysis Batch: 122576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-122269-1	MW-2	Total/NA	Water	8260B	
600-122269-2	MW-3	Total/NA	Water	8260B	
600-122269-3	MW-4	Total/NA	Water	8260B	
600-122269-4	MW-6	Total/NA	Water	8260B	
600-122269-5	P-1	Total/NA	Water	8260B	
600-122269-6	P-2	Total/NA	Water	8260B	
600-122269-7	P-3	Total/NA	Water	8260B	
600-122269-9	VMW-2	Total/NA	Water	8260B	
600-122269-13	VMW-9	Total/NA	Water	8260B	
600-122269-15	MW-31	Total/NA	Water	8260B	
600-122269-17	MW-33	Total/NA	Water	8260B	
600-122269-18	MW-34	Total/NA	Water	8260B	
LCS 560-122576/3	Lab Control Sample	Total/NA	Water	8260B	
MB 560-122576/8	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 122621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-122269-6	P-2	Total/NA	Water	8260B	
600-122269-6 MS	P-2	Total/NA	Water	8260B	
600-122269-6 MSD	P-2	Total/NA	Water	8260B	
600-122269-7	P-3	Total/NA	Water	8260B	
600-122269-8	VMW-1	Total/NA	Water	8260B	
600-122269-10	VMW-4	Total/NA	Water	8260B	
600-122269-12	VMW-7	Total/NA	Water	8260B	
600-122269-14	MW-29	Total/NA	Water	8260B	
LCS 560-122621/3	Lab Control Sample	Total/NA	Water	8260B	
MB 560-122621/8	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 122622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-122269-11	VMW-6	Total/NA	Water	8260B	
600-122269-11 MS	VMW-6	Total/NA	Water	8260B	
600-122269-11 MSD	VMW-6	Total/NA	Water	8260B	
600-122269-16	MW-32	Total/NA	Water	8260B	
600-122269-19	Trip Blank	Total/NA	Water	8260B	
LCS 560-122622/3	Lab Control Sample	Total/NA	Water	8260B	
MB 560-122622/8	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: MW-2
Date Collected: 11/24/15 09:25
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	5 mL	5 mL	122576	12/01/15 15:30	A1C	TAL CC

Client Sample ID: MW-3
Date Collected: 11/24/15 08:40
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 16:20	A1C	TAL CC

Client Sample ID: MW-4
Date Collected: 11/23/15 15:20
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 16:45	A1C	TAL CC

Client Sample ID: MW-6
Date Collected: 11/23/15 15:18
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	122576	12/01/15 15:55	A1C	TAL CC

Client Sample ID: P-1
Date Collected: 11/23/15 12:40
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 17:11	A1C	TAL CC

Client Sample ID: P-2
Date Collected: 11/23/15 14:50
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 17:36	A1C	TAL CC
Total/NA	Analysis	8260B		5	5 mL	5 mL	122621	12/02/15 12:52	A1C	TAL CC

Lab Chronicle

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: P-3

Lab Sample ID: 600-122269-7
Date Collected: 11/24/15 10:15
Matrix: Water
Date Received: 11/25/15 12:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 18:02	A1C	TAL CC
Total/NA	Analysis	8260B		1	5 mL	5 mL	122621	12/02/15 13:18	A1C	TAL CC

Client Sample ID: VMW-1

Lab Sample ID: 600-122269-8
Date Collected: 11/23/15 13:10
Matrix: Water
Date Received: 11/25/15 12:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122621	12/02/15 14:33	A1C	TAL CC

Client Sample ID: VMW-2

Lab Sample ID: 600-122269-9
Date Collected: 11/23/15 12:00
Matrix: Water
Date Received: 11/25/15 12:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 20:32	A1C	TAL CC

Client Sample ID: VMW-4

Lab Sample ID: 600-122269-10
Date Collected: 11/23/15 14:20
Matrix: Water
Date Received: 11/25/15 12:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122621	12/02/15 14:58	A1C	TAL CC

Client Sample ID: VMW-6

Lab Sample ID: 600-122269-11
Date Collected: 11/23/15 14:43
Matrix: Water
Date Received: 11/25/15 12:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		30	5 mL	5 mL	122622	12/02/15 13:24	A1C	TAL CC

Client Sample ID: VMW-7

Lab Sample ID: 600-122269-12
Date Collected: 11/24/15 11:05
Matrix: Water
Date Received: 11/25/15 12:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	5 mL	5 mL	122621	12/02/15 14:08	A1C	TAL CC

Lab Chronicle

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: VMW-9
Date Collected: 11/23/15 13:45
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 18:52	A1C	TAL CC

Client Sample ID: MW-29
Date Collected: 11/23/15 13:02
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		3	5 mL	5 mL	122621	12/02/15 13:43	A1C	TAL CC

Client Sample ID: MW-31
Date Collected: 11/23/15 13:42
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	5 mL	5 mL	122576	12/01/15 19:17	A1C	TAL CC

Client Sample ID: MW-32
Date Collected: 11/23/15 14:11
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122622	12/02/15 13:49	A1C	TAL CC

Client Sample ID: MW-33
Date Collected: 11/23/15 12:28
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 19:42	A1C	TAL CC

Client Sample ID: MW-34
Date Collected: 11/23/15 11:55
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122576	12/01/15 20:07	A1C	TAL CC

Lab Chronicle

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Client Sample ID: Trip Blank

Date Collected: 11/23/15 00:00
Date Received: 11/25/15 12:32

Lab Sample ID: 600-122269-19

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	122622	12/02/15 14:14	A1C	TAL CC

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

Certification Summary

Client: TRC Solutions, Inc.
Project/Site: West Chemical Plant 11/24/2015

TestAmerica Job ID: 600-122269-1

Laboratory: TestAmerica Houston

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704223-15-18	10-31-16

Laboratory: TestAmerica Corpus Christi

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	2015-119	08-31-16
Texas	NELAP	6	T104704210-15-14	03-31-16
USDA	Federal		P330-14-00328	09-30-17

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: J. Wimberley	Lab PM: Ricke, Kristy	Carrier Tracking No(s):	COC No: 600-40368-12162.1
Client Contact: Jake Wimberley	Phone: 832-470-0026	E-Mail: kristy.ricke@testamericainc.com		Page: Page 1 of 2
Company: TRC Solutions, Inc.				Job #:
Address: 10550 Richmond Avenue Suite 210	Due Date Requested:			
City: Houston	TAT Requested (days): Standard			
State, Zip: TX, 77042				
Phone: 713-244-1032(Tel)	PO #: PO Requested			
Email: jwimberley@trcsolutions.com	WO #:			
Project Name: West Chemical Plant	Project #: 60004716			
Site WCP	SSOW#:			

Analysis Requested

600-122269 Chain of Custody

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - 8260B Routine Compound List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-2	11/24/15	0925	G	Water			X		
MW-3	11/24/15	0840	G	Water			X		
MW-4	11/23/15	1520	G	Water			X		
MW-6	11/23/15	1518	G	Water			X		
P-1	11/23/15	1240	G	Water			X		
P-2	11/23/15	1450	G	Water			X		
P-3	11/24/15	1015	G	Water			X		
VMW-1	11/23/15	1310	G	Water			X		
VMW-2	11/23/15	1200	G	Water			X		
~~VMW-3~~				Water					
VMW-4	11/23/15	1420	G	Water			X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		11/24/15 1346	TRC		11/24/15 1346	TRC
2		11/25/15 1232	TRC		11-25-15 1232	TA
3						

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

12/8/2015

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: J. Wimberley	Lab PM: Ricke, Kristy	Carrier Tracking No(s):	COC No. 600-40368-12162.2
Client Contact: Jake Wimberley	Phone: 832-470-0026	E-Mail: kristy.ricke@testamericainc.com		Page: Page 2 of 2
Company: TRC Solutions, Inc.				Job #:
Address: 10550 Richmond Avenue Suite 210	Due Date Requested:			
City: Houston	TAT Requested (days): Standard			
State, Zip: TX, 77042				
Phone: 713-244-1032(Tel)	PO #: PO Requested			
Email: jwimberley@trcsolutions.com	WO #:			
Project Name: West Chemical Plant	Project #: 60004716			
Site: WCP	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - 8260B Routine Compound List	Total Number of containers	Special Instructions/Note:
Preservation Code:							A		
VMW-6	11/23/15	1443	G	Water			X		
VMW-7	11/24/15	1105	G	Water			X		
~~VMW-8~~				Water					
VMW-9	11/23/15	1345	G	Water			X		
~~VMW-10~~				Water					
MW-29	11/23/15	1302	G	Water			X		
MW-31	11/23/15	1342	G	Water			X		
~~MW-33~~ MW-32	11/23/15	1411	G	Water			X		
MW-33	11/23/15	1228	G	Water			X		
MW-34	11/23/15	1155	G	Water			X		
				Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time	Method of Shipment:

	Date/Time:	Company		Date/Time:	Company
Relinquished by:	11/24/15 1346	TRC	Received by:	11/24/15 1346	TRC
Relinquished by:	11/25/15 1232	TRC	Received by:	11-25-15 1232	TA
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

12/8/2015

TestAmerica Houston

Loc: 600
122269

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

'15 NOV 25 12:32

Sample Rece st

Date/Time Received: _____

JOB NUMBER: _____ CLIENT: TRC

UNPACKED BY: _____ CARRIER/DRIVER: Client

Custody Seal Present: ☒ YES ☐ NO Number of Coolers Received: 1

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Them CF	Corrected Temp (°C)
RW	Y / N	Y / N	0.5	5B	-.3	0.3
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice? ☒ YES ☐ NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: ☒ NO ☐ YES

Base samples are>pH 12: ☐ YES ☐ NO Acid preserved are<pH 2: ☐ YES ☐ NO

pH paper Lot #_____

VOA headspace acceptable (5-6mm): ☒ YES ☐ NO ☐ NA

	YES	NO
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?		

COMMENTS:

HS-SA-WI-013 Rev. 3; 07/01/2014

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN

Loc: 600
122269

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ricke, Kristy	Carrier Tracking No(s):	COC No: 600-17966.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kristy.ricke@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.				Job #: 600-122269-1
Address: 1733 N. Padre Island Drive, ,	Due Date Requested: 12/8/2015			
City: Corpus Christi	TAT Requested (days):			
State, Zip: TX, 78408				
Phone: 361-289-2673(Tel) 361-289-2471(Fax)	PO #:			
Email:	WO #:			
Project Name: West Chemical Plant	Project #: 60004716			
Site:	SSOW#:			

600-122269 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B/5030B 8260B Routine Compound List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-2 (600-122269-1)	11/24/15	09:25 Central		Water			X	3	
MW-3 (600-122269-2)	11/24/15	08:40 Central		Water			X	3	
MW-4 (600-122269-3)	11/23/15	15:20 Central		Water			X	3	
MW-6 (600-122269-4)	11/23/15	15:18 Central		Water			X	3	
P-1 (600-122269-5)	11/23/15	12:40 Central		Water			X	3	0.2°C/0.6°C
P-2 (600-122269-6)	11/23/15	14:50 Central		Water			X	3	ID6
P-3 (600-122269-7)	11/24/15	10:15 Central		Water			X	3	SEd1
VMW-1 (600-122269-8)	11/23/15	13:10 Central		Water			X	3	
VMW-2 (600-122269-9)	11/23/15	12:00 Central		Water			X	3	
VMW-4 (600-122269-10)	11/23/15	14:20 Central		Water			X	3	
VMW-6 (600-122269-11)	11/23/15	14:43 Central		Water			X	3	

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: FEdEx: 658066835388		
Relinquished by: [signature]	Date/Time: 11/27/15 1500	Company: TA	Received by: [signature]	Date/Time: 12/1/15 10:15	Company: TACC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmericc
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ricke, Kristy	Carrier Tracking No(s):	COC No: 600-17966.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: kristy.ricke@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.				Job #: 600-122269-1
Address: 1733 N. Padre Island Drive, ,	Due Date Requested: 12/8/2015			
City: Corpus Christi	TAT Requested (days):			
State, Zip: TX, 78408				
Phone: 361-289-2673(Tel) 361-289-2471(Fax)	PO #:			
Email:	WO #:			
Project Name: West Chemical Plant	Project #: 60004716			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B/5030B 8260B Routine Compound List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
VMW-7 (600-122269-12)	11/24/15	11:05 Central		Water			X	3	
VMW-9 (600-122269-13)	11/23/15	13:45 Central		Water			X	3	
MW-29 (600-122269-14)	11/23/15	13:02 Central		Water			X	3	
MW-31 (600-122269-15)	11/23/15	13:42 Central		Water			X	3	
MW-32 (600-122269-16)	11/23/15	14:11 Central		Water			X	3	0.2°C/0.6°C
MW-33 (600-122269-17)	11/23/15	12:28 Central		Water			X	3	ID6
MW-34 (600-122269-18)	11/23/15	11:55 Central		Water			X	3	SEAL

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: FedEx: 6580 6068 3538 8	
Relinquished by:	Date/Time: 11/27/15 1500	Company: TA	Received by: CYAdams	Date/Time: 12/1/15 10:15 Company: TACC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: Company

12/8/2015

Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-122269-1

Login Number: 122269
List Number: 1
Creator: Crafton, Tommie S

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-122269-1

Login Number: 122269
List Number: 2
Creator: Adams, Christi L

List Source: TestAmerica Corpus Christi
List Creation: 12/01/15 02:22 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	Obs - 0.2 / Corr - 0.6 IR-6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	Trip Blank was received, not on the COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 600-122269-1

Login Number: 122269
List Number: 3
Creator: Contreras, Kristen N

List Source: TestAmerica Corpus Christi
List Creation: 12/08/15 09:08 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Internal Chain of Custody received.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix 4
Institutional Controls

- Deed Notice

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Stephanie Bergeron Perdue, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 16, 2018

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Approval of Filing of Institutional Controls
Institutional Control Filing - West Plant Galena Park Terminal, dated May 15, 2018
North Holding Basin and Southeast Holding Basin
Kinder Morgan Liquids Terminals, LLC - Galena Park;
TCEQ SWR No. 30573;
TCEQ Hazardous Waste Permit/Compliance Plan No. 50054
EPA ID No. TXD026481523;
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ), Remediation Division received your letter on May 16, 2018 submitted by Kinder Morgan containing proof of filing of institutional controls for the West Plant Galena Park Terminal which includes an approved revised plume management zone (PMZ) and commercial/industrial land use deed notice.

After reviewing the proof of filing of institutional controls the TCEQ concurs that the institutional control requirements of 30 Texas Administrative Code (TAC) §350.111 have been completed. The institutional controls were filed to inform others of ongoing long-term response actions within the revised PMZ boundary. Please continue the response actions in accordance with the approved Response Action Plan (RAP) and submit Response Action Effectiveness Reports (RAERs) in accordance with the schedule proposed in the approved RAP.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions.

Questions concerning this letter should be directed to me at (512) 239-2034. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic

and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division, and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MH/mdh

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

FILED FOR RECORD

3:16:09 PM

Monday, May 7, 2018

Stan Stanart

COUNTY CLERK, HARRIS COUNTY, TEXAS

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.

THE STATE OF TEXAS
COUNTY OF HARRIS

I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED; in the Official Public Records of Real Property of Harris County Texas

Monday, May 7, 2018

Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

RP-2018-198626
05/07/2018 RP2 $84.00

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

A legal property description used in the last recorded vesting deed, covering the Property that includes the entire recorded tract of land held by the owner executing this deed notice, is attached hereto and incorporated herein by reference as Exhibit A.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

METES AND BOUNDS DESCRIPTION of a 51.726 acre tract of land, extending over, through, along and across, a called 69.31248 acre tract of land (Second Tract) as recorded in File No. C288395, Film Code 051-2411421, Official Public Records of Real Property of Harris County, Texas, and called 37 acre tract of land (Exhibit "A") as recorded in File No. 20070466722, Official Public Records of Harris County, Texas, said tracts being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 U.S. survey feet.

COMMENCING at a 5/8" iron rod found for the Northeast corner of a called 17.66626 acre tract of land (First Tract) as recorded in File No. C288395, Film Code 051-24-1421, Official Public Records of Real Property of Harris County, Texas, said corner having coordinates N=13,833,097.40, E=3,164,701.32;

THENCE, South 03°27'57" East, along the East boundary line of said 17.66626 acre tract, at 693.02 feet passing the southeast corner of said, 17.66626 acre tract, crossing an eighty feet (80') wide rightof-way, as recorded in Volume 371, Page 245, of the Deed Records of Harris County, Texas, at 773.04 feet to a point on the south line of said eighty feet (80') wide right-of-way, same said point being in the northeast corner of the above mention 69.31248 acre tract, continuing along and with the east boundary line of said 69.31248 acre tract, a total distance of 1993.38 feet to a point;

THENCE, South 86°36'30" West, a distance of 23.57 feet to the POINT OF BEGINNING having coordinates N=13,831,105.66, E=3,164,798.53;

THENCE, South 13°46'21" East, a distance of 76.03 feet to a point;

THENCE, South 03°15'52" East, a distance of 121.42 feet to a point;

THENCE, South 00°42'57" West, a distance of 127.83 feet to a point;

THENCE, South 56°47'37" West, a distance of 17.86 feet to a point;

THENCE, South 63°15'20" West, a distance of 583.65 feet to a point;

THENCE, North 70°55'46" West, a distance of 124.24 feet to a point;

THENCE, South 63°58'35" West, a distance of 113.54 feet to a point;

THENCE, North 69°04'27" West, a distance of 80.58 feet to a point;

THENCE, South 64°03'36" West, a distance of 203.63 feet to a point;

THENCE, South 28°18'19" East, a distance of 148.51 feet to a point;

THENCE, South 63°19'30" West, a distance of 144.80 feet to a point;

THENCE, North 26°43'13" West, a distance of 155.06 feet to a point;

THENCE, South 49°47'25" West, a distance of 122.60 feet to a point;

THENCE, South 01°23'13" West, a distance of 49.15 feet to a point;

THENCE, South 62°46'36" West, a distance of 70.90 feet to a point;

THENCE, North 60°48'41" West, a distance of 35.36 feet to a point;

THENCE, South 64°54'55" West, a distance of 118.01 feet to a point;

THENCE, South 11°19'37" West, a distance of 171.28 feet to a point;

THENCE, South 57°42'08" West, a distance of 94.03 feet to a point;

THENCE, In a Southwesterly direction along the arc of a curve to the right having a radius of 137.51 feet, a central angle 33°43'04", arc distance of 80.92 feet and a chord bearing of South 77°42'53" West for a distance of 79. 76 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 399.28 feet, a central angle of 43°57'45", arc distance of 306.37 feet and a chord bearing of North 66°03'24" West for a distance of 298.91 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 478.75 feet, a central angle of 21°27'26", arc distance of 176.29 feet and a chord bearing of North 29°48'40" West for a distance of 178.24 feet to a point;

THENCE, North 10°00'30" West, a distance of 64.65 feet a point;

THENCE, North 01°33'22" West, a distance of 1,418.86 feet to a point;

THENCE, North 01°09'54" East, a distance of 40.52 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 72.78 feet, a central angle 18°14'43", arc distance of 23.18 feet and a chord bearing of North 10°41 '28" East for a distance of 23.08 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 50.79 feet, a central angle 77°00'56", arc distance of 68.27 feet and a chord bearing of North 59°33'57" East for a distance of 63.25 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 226.75 feet, a central angle 28°36'39", arc distance of 113.23 feet and a chord bearing of South 69°12'21" East for a distance of 112.05 feet to a point;

THENCE, South 55°54'50" East, a distance of 59.24 feet to a point;

THENCE, South 54°21 '05" East, a distance of 103.63 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 334.54 feet, a central angle 29°08'33", arc distance of 170.16 feet and a chord bearing of South 66°39'19" East for a distance of 168.33 feet to a point;

THENCE, South 79°57'40" East, a distance of 54.81 feet to a point;

THENCE, South 77°34'39" East, a distance of 40.21 feet to a point;

THENCE, South 73°53'04" East, a distance of 43.54 feet to a point;

THENCE, South 71°05'42" East, a distance of 68. 75 feet to a point;

THENCE, South 70°59' 16" East, a distance of 109.67 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 1,350.04 feet, a central angle 05°10'55", arc distance of 122.10 feet and a chord distance of South 75°23'02" East for a distance of 122.06 feet to a point;

THENCE, South 79°17'36" East, a distance of 132.02 feet to a point;

THENCE, South 81°15'47" East, a distance of 245.02 feet to a point;

THENCE, South 79°37'02" East, a distance of 102.48 feet to a point;

THENCE, South 76°46'01" East, a distance of 97.48 feet to a point;

THENCE, South 74°21 '27" East, a distance of 61.65 feet to a point;

THENCE, South 72°56'07" East, a distance of 57.79 feet to a point;

THENCE, South 71 °55'26" East, a distance of 130.00 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 595.80 feet, a central angle 19°45'05", arc distance of 205.39 feet and a chord distance of South 61 °02 '22" East for a distance of 204.37 feet to a point;

THENCE, South 47°54'26" East, a distance of 94.31 feet to a point;

THENCE, South 63°17'49" East, a distance of 99.36 feet to the POINT OF BEGINNING containing 51 .726 acres of land.

The certified meets and bounds description and corresponding plat maps of the Affected Property for groundwater (referred to as the Plume Management Zone) are attached hereto and incorporated herein by reference as Exhibit B.

The constituents of concern in groundwater at the Affected Property (the Plume Management Zone), defined here as exceeding TRRP Protective Concentration Levels (PCLs) for residential and commercial/industrial land use, are benzene, ethylbenzene, xylenes, isopropylbenzene, chlorobenzene, cis-1,2-dichloroethene, 1,2-dichloroethane, tetrachloroethene, trichloroethene, vinyl chloride, and bis(2-chloroethyl)ether.

This notice is required for the following reasons:

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC 350.33(f)(4). The undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit B provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.

As of the date of this Notice, the record owner of fee title to the Property is KM Liquids Terminals, [redacted] with an address of 1001 Louisiana St., Suite 1000, Houston, Texas 77002.
LLC

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 2nd day of MAY, 2018.

KM Liquids Terminals LLC

By: [signature]

Name: Jeffesy A. Hessperger

Title: GENERAL MANAGER

IQR

STATE OF TEXAS
HARRIS COUNTY

BEFORE ME, on this the 2nd day of May, 2018 personally appeared [name] Jeffrey A. Hersperger [title] General Manager, of [company] KM Liquids Terminals LLC, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 2nd day of May, 2018.

Notary Public in and for the State of Texas,
County of

My Commission Expires:
August 10, 2019

PATRICIA RAE MONROE
Notary Public
STATE OF TEXAS
My Comm. Exp. August 10, 2019

Ret:
Ryan Koch
10550 Richmond Ave Ste 210
Houston, TX 77042

EXHIBIT A

Exhibit A

West Chemical Plant Property Description
Galena Park, Texas

THAT CERTAIN TRACT OR PARCEL OF LAND CONTAINING THIRTY SEVEN (37) ACRES MORE OR LESS OUT OF THE EAST HALF OF THE EZEKIEL THOMAS LEAGUE A-73 IN HARRIS COUNTY, TEXAS, AS CONVEYED TO C. D. KEEN AND W. C. WOOLF BY OSCEOLA E. TOD, AS INDEPENDENT EXECUTRIX OF THE ESTATE OF JOHN G. TOD, DECEASED, BY DEED DATED AUGUST 16TH, 1919, AND RECORDED IN VOLUME 431, PAGE 44 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS; INCLUDING ANY LAND ALONG THE WESTERN BOUNDARIES OF SAID TRACT CONVEYED TO KEEN & WOOLF OIL COMPANY BY CLARION OIL COMPANY BY DEED DATED FEBRUARY 6, 1928, AND RECORDED IN VOLUME 730, PAGE 710 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS, AND EXCEPTING HEREFROM ANY LANDS RELEASED TO SAID CLARION OIL COMPANY BY KEEN & WOOLF OIL COMPANY ALONG THE WESTERN BOUNDARY LINE BY SAID DEED DATED FEBRUARY 6TH, 1923, THE TRACT OF LAND HEREBY CONVEYED BEING FURTHER DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT AN 8" INCH IRON PIPE MARKING THE EXISTING NORTHWEST CORNER OF THE AFORESAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND AT THE NORTHEAST CORNER OF THE CLARION OIL COMPANY TRACT OF LAND ON THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE;

THENCE SOUTH 0° 01' 52" WEST, ALONG THE WEST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND, ON THE EAST LINE OF THE AFORESAID CLARION OIL COMPANY TRACT OF LAND, A DISTANCE OF 3698.06 FEET TO A POINT MARKING THE SOUTH-WESTERLY CORNER OF THE SAID KEEN AND WOOLF 37 ACRE TRACT OF LAND ON THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL;

THENCE NORTH 55° 23' 04" EAST, ALONG THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL, A DISTANCE OF 563.37 FEET TO THE SOUTHEASTERLY CORNER OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND;

THENCE NORTH 0° 02' 12" EAST, ALONG THE EAST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND ON THE WEST LINE OF THE A. M. BAKER, W. G. PRIESTER, IKE EDWARDS, M. TOD, AND J. EDWARDS TRACTS OF LAND, A DISTANCE OF 3381.39 FEET TO A 6 INCH IRON PIPE FOR CORNER ON THE SOUTH LINE OF CLINTON DRIVE;

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 231.30 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 0° 25' EAST, A DISTANCE OF 150.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 89° 35' WEST ALONG A LINE PARALLEL TO AND 150 FEET SOUTH OF THE SOUTH LINE OF CLINTON DRIVE, A DISTANCE OF 200.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

CONTINUED ON ATTACHMENT

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 32.50 FEET TO THE PLACE OF BEGINNING; SAVE AND EXCEPT AN 80 FOOT STRIP CONVEYED BY JOHN G. TOD TO THE TEXAS AND NEW ORLEANS RAILROAD COMPANY BY DEED DATED SEPTEMBER 28, 1916, RECORDED IN VOLUME 371, PAGE 245 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS.

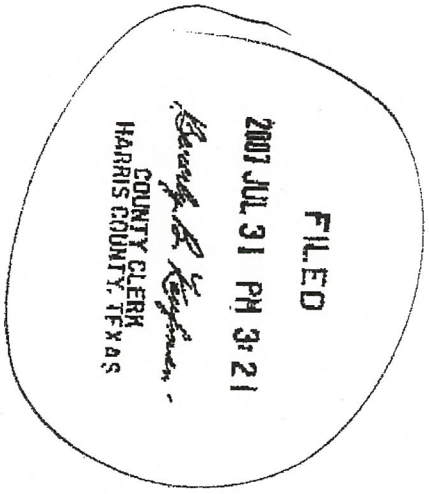


EXHIBIT B

April 26, 2018

STATE OF TEXAS

COUNTY OF HARRIS

EXHIBIT "A"

METES AND BOUNDS DESCRIPTION FOR A
51.726 ACRE AREA
PLUME MANAGEMENT ZONE

METES AND BOUNDS DESCRIPTION of a 51.726 acre tract of land, extending over, through, along and across, a called 69.31248 acre tract of land (Second Tract) as recorded in File No. C288395, Film Code 051-24-1421, Official Public Records of Real Property of Harris County, Texas, and called 37 acre tract of land (Exhibit "A") as recorded in File No. 20070466722, Official Public Records of Harris County, Texas, said tracts being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83 U.S. survey feet.

COMMENCING at a 5/8" iron rod found for the Northeast corner of a called 17.66626 acre tract of land (First Tract) as recorded in File No. C288395, Film Code 051-24-1421, Official Public Records of Real Property of Harris County, Texas, said corner having coordinates N=13,833,097.40, E=3,164,701.32;

THENCE, South 03°27'57" East, along the East boundary line of said 17.66626 acre tract, at 693.02 feet passing the southeast corner of said, 17.66626 acre tract, crossing an eighty feet (80') wide right-of-way, as recorded in Volume 371, Page 245, of the Deed Records of Harris County, Texas, at 773.04 feet to a point on the south line of said eighty feet (80') wide right-of-way, same said point being in the northeast corner of the above mention 69.31248 acre tract, continuing along and with the east boundary line of said 69.31248 acre tract, a total distance of 1993.38 feet to a point;

THENCE, South 86°36'30" West, a distance of 23.57 feet to the **POINT OF BEGINNING** having coordinates N=13,831,105.66, E=3,164,798.53;

THENCE, South 13°46'21" East, a distance of 76.03 feet to a point;

THENCE, South 03°15'52" East, a distance of 121.42 feet to a point;

THENCE, South 00°42'57" West, a distance of 127.83 feet to a point;

THENCE, South 56°47'37" West, a distance of 17.86 feet to a point;

THENCE, South 63°15'20" West, a distance of 583.65 feet to a point;

THENCE, North 70°55'46" West, a distance of 124.24 feet to a point;

THENCE, South 63°58'35" West, a distance of 113.54 feet to a point;

THENCE, North 69°04'27" West, a distance of 80.58 feet to a point;

THENCE, South 64°03'36" West, a distance of 203.63 feet to a point;

THENCE, South 28°18'19" East, a distance of 148.51 feet to a point;

THENCE, South 63°19'30" West, a distance of 144.80 feet to a point;

THENCE, North 26°43'13" West, a distance of 155.06 feet to a point;

THENCE, South 49°47'25" West, a distance of 122.60 feet to a point;

THENCE, South 01°23'13" West, a distance of 49.15 feet to a point;

THENCE, South 62°46'36" West, a distance of 70.90 feet to a point;

THENCE, North 60°48'41" West, a distance of 35.36 feet to a point;

THENCE, South 64°54'55" West, a distance of 118.01 feet to a point;

THENCE, South 11°19'37" West, a distance of 171.28 feet to a point;

THENCE, South 57°42'08" West, a distance of 94.03 feet to a point;

THENCE, In a Southwesterly direction along the arc of a curve to the right having a radius of 137.51 feet, a central angle 33°43'04", arc distance of 80.92 feet and a chord bearing of South 77°42'53" West for a distance of 79.76 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 399.28 feet, a central angle of 43°57'45", arc distance of 306.37 feet and a chord bearing of North 66°03'24" West for a distance of 298.91 feet to a point;

THENCE, In a Northwesterly direction along the arc of a curve to the right having a radius of 478.75 feet, a central angle of 21°27'26", arc distance of 176.29 feet and a chord bearing of North 29°48'40" West for a distance of 178.24 feet to a point;

THENCE, North 10°00'30" West, a distance of 64.65 feet a point;

THENCE, North 01°33'22" West, a distance of 1,418.86 feet to a point;

THENCE, North 01°09'54" East, a distance of 40.52 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 72.78 feet, a central angle 18°14'43", arc distance of 23.18 feet and a chord bearing of North 10°41'28" East for a distance of 23.08 feet to a point;

THENCE, In a Northeasterly direction along the arc of a curve to the right having a radius of 50.79 feet, a central angle 77°00'56", arc distance of 68.27 feet and a chord bearing of North 59°33'57" East for a distance of 63.25 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 226.75 feet, a central angle 28°36'39", arc distance of 113.23 feet and a chord bearing of South 69°12'21" East for a distance of 112.05 feet to a point;

THENCE, South 55°54'50" East, a distance of 59.24 feet to a point;

THENCE, South 54°21'05" East, a distance of 103.63 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 334.54 feet, a central angle 29°08'33", arc distance of 170.16 feet and a chord bearing of South 66°39'19" East for a distance of 168.33 feet to a point;

THENCE, South 79°57'40" East, a distance of 54.81 feet to a point;

THENCE, South 77°34'39" East, a distance of 40.21 feet to a point;

THENCE, South 73°53'04" East, a distance of 43.54 feet to a point;

THENCE, South 71°05'42" East, a distance of 68.75 feet to a point;

THENCE, South 70°59'16" East, a distance of 109.67 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the left having a radius of 1,350.04 feet, a central angle 05°10'55", arc distance of 122.10 feet and a chord distance of South 75°23'02" East for a distance of 122.06 feet to a point;

THENCE, South 79°17'36" East, a distance of 132.02 feet to a point;

THENCE, South 81°15'47" East, a distance of 245.02 feet to a point;

THENCE, South 79°37'02" East, a distance of 102.48 feet to a point;

THENCE, South 76°46'01" East, a distance of 97.48 feet to a point;

THENCE, South 74°21'27" East, a distance of 61.65 feet to a point;

THENCE, South 72°56'07" East, a distance of 57.79 feet to a point;

THENCE, South 71°55'26" East, a distance of 130.00 feet to a point;

THENCE, In a Southeasterly direction along the arc of a curve to the right having a radius of 595.80 feet, a central angle 19°45'05", arc distance of 205.39 feet and a chord distance of South 61°02'22" East for a distance of 204.37 feet to a point;

THENCE, South 47°54'26" East, a distance of 94.31 feet to a point;

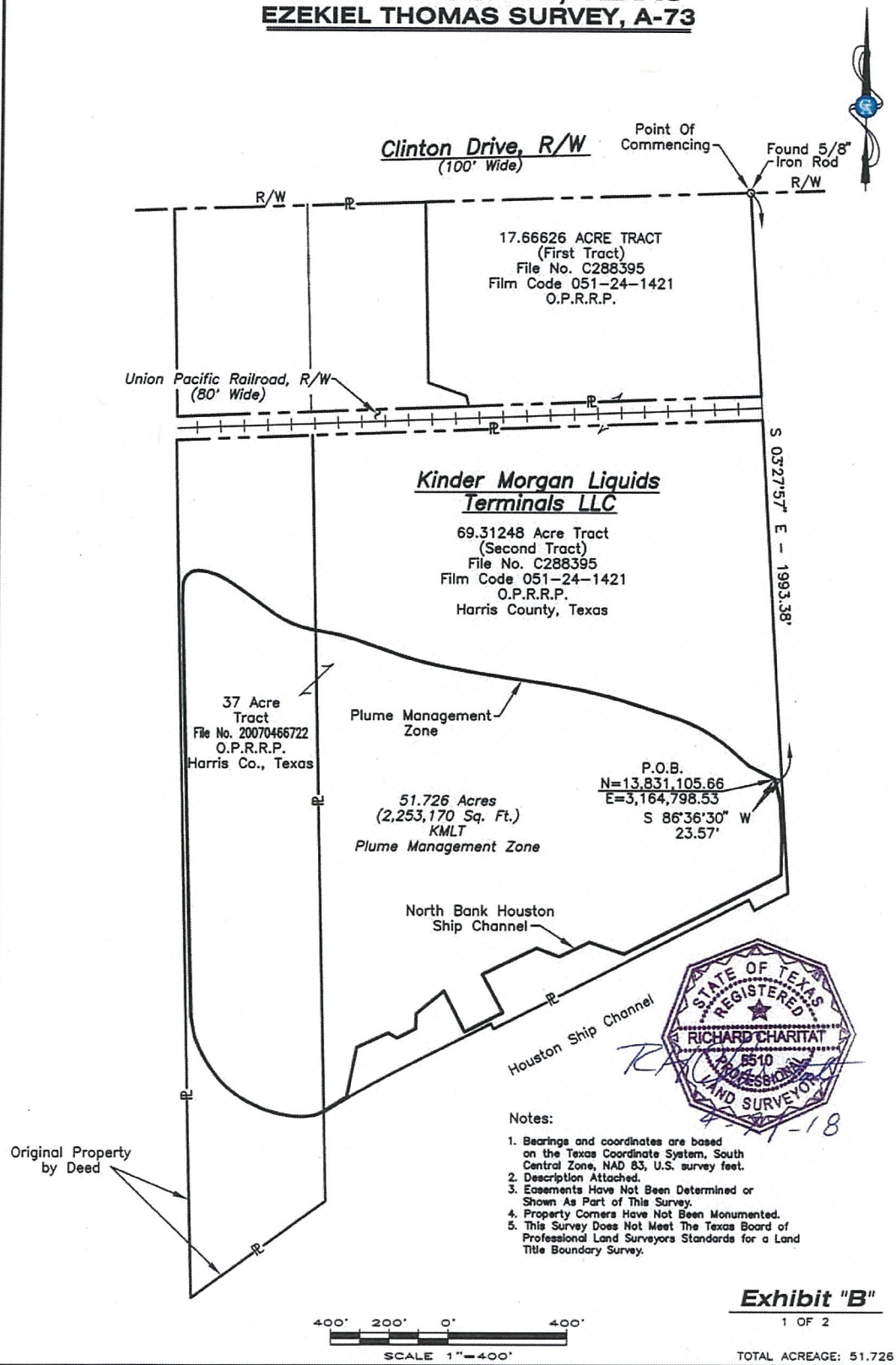
THENCE, South 63°17'49" East, a distance of 99.36 feet to the **POINT OF BEGINNING** containing 51.726 acres of land.



RH Charitat 4-26-18

Richard Charitat R.P.L.S. No. 5510

HARRIS COUNTY, TEXAS
EZEKIEL THOMAS SURVEY, A-73



STATE OF TEXAS REGISTERED RICHARD CHARITAT 6510 PROFESSIONAL LAND SURVEYOR

4-27-18

Notes:

1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

Exhibit "B"

1 OF 2

TOTAL ACREAGE: 51.726

GULLETT & ASSOCIATES, INC.
7135 OFFICE CITY DRIVE
HOUSTON, TEXAS 77087
(713) 844-3219
Firm No. TX 100884-00
www.guloniine.com

NO.	DATE	REVISION

DRAWN BY:	RM	DATE:	04/18
CHECKED BY:	RC	DATE:	04/18
PLOT SCALE:	1"=400'	CAD FILE:	5151201_

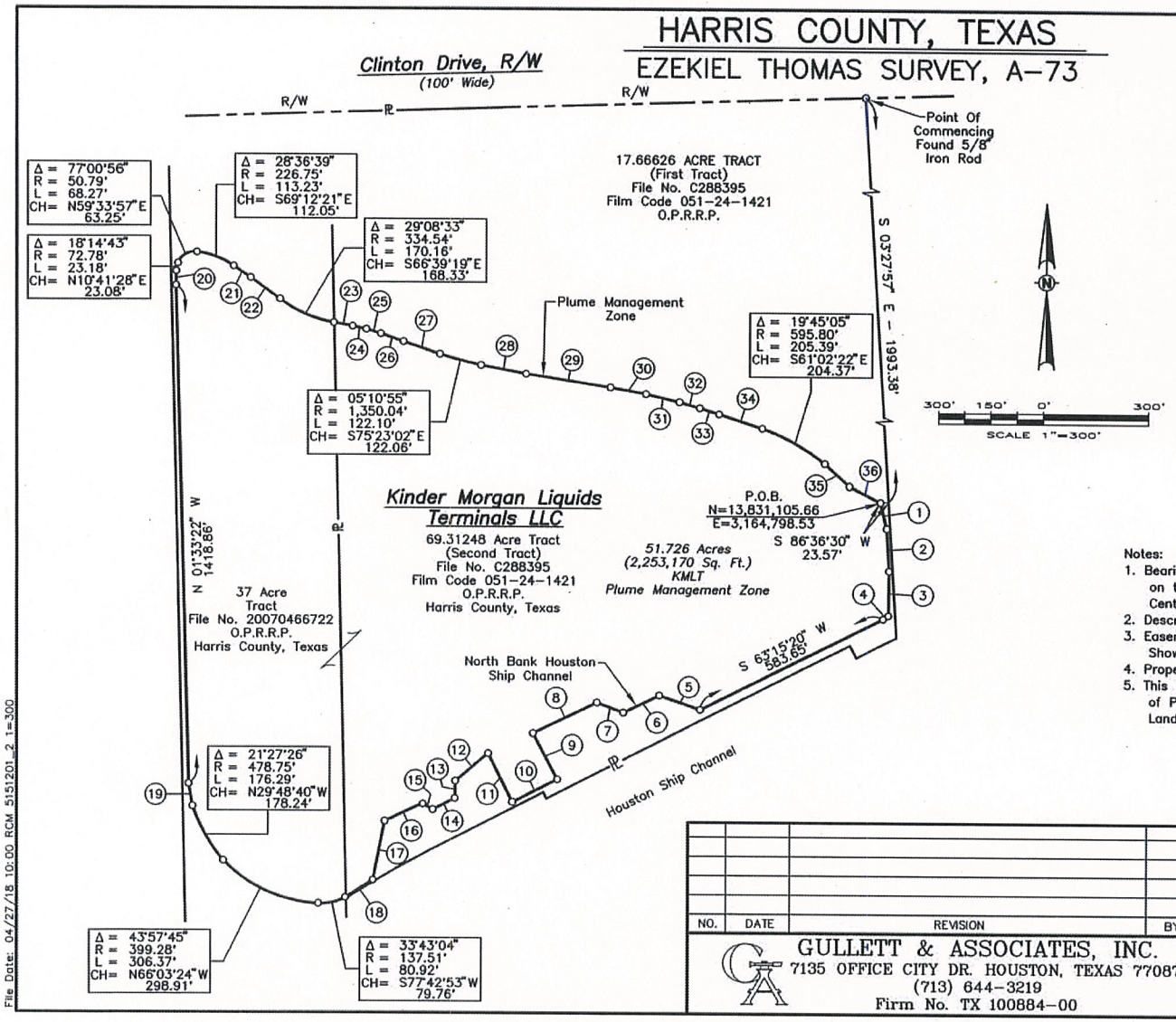
TRC
16350 Park Ten Place Suite 101
Ph: 281-616-0100 Houston, Texas 77084 Fax: 281-616-0125

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUIDS TERMINALS LLC
HARRIS COUNTY, TEXAS

CA-5151-201 REV. 0

FILE DATE: 5/3/2018 7:31 AM Rmanning 5151201_ 1" = 400'

HARRIS COUNTY, TEXAS
EZEKIEL THOMAS SURVEY, A-73



BEARING CHART		
NO.	BEARING	DISTANCE
1	S 13°46'21" E	76.03'
2	S 03°15'52" E	121.42'
3	S 00°42'57" W	127.83'
4	S 56°47'37" E	17.86'
5	N 50°55'46" W	124.24'
6	S 63°58'35" W	113.54'
7	N 69°04'27" W	80.58'
8	S 64°03'36" W	203.63'
9	S 28°18'19" E	148.51'
10	S 63°19'30" W	144.08'
11	N 269°43'13" E	155.06'
12	S 49°47'25" W	122.60'
13	S 01°23'13" W	49.151'
14	S 62°46'36" W	70.90'
15	N 60°48'41" W	35.36'
16	S 64°54'55" W	118.01'
17	S 11°19'37" W	171.28'
18	S 57°42'08" W	94.03'

BEARING CHART		
NO.	BEARING	DISTANCE
19	N 10°00'30" W	64.65'
20	N 01°09'54" E	40.52'
21	S 55°54'50" E	59.24'
22	S 54°21'05" E	103.63'
23	S 79°57'40" E	54.81'
24	S 77°34'39" E	40.21'
25	S 73°53'04" E	43.54'
26	S 71°05'42" E	68.75'
27	S 70°59'16" E	109.67'
28	S 79°17'36" E	132.02'
29	S 81°15'47" E	245.02'
30	S 79°37'02" E	102.48'
31	S 76°46'01" E	97.48'
32	S 74°21'27" E	61.65'
33	S 72°56'07" E	57.79'
34	S 71°55'26" E	130.00'
35	S 47°54'26" E	94.31'
36	S 63°17'49" E	99.36'

Notes:
1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

STATE OF TEXAS REGISTERED RICHARD CHARITAT 5510 PROFESSIONAL LAND SURVEYOR

4-27-18

EXHIBIT "B"
2 OF 2

NO.	DATE	REVISION	BY

GULLETT & ASSOCIATES, INC.
7135 OFFICE CITY DR. HOUSTON, TEXAS 77087
(713) 644-3219
Firm No. TX 100884-00

TRC
16350 Park Ten Place Suite 101
Ph: 281-616-0100 Houston, Texas 77084 Fax: 281-616-0125

PLUME MANAGEMENT ZONE
ACROSS KINDER MORGAN LIQUIDS TERMINALS LLC
HARRIS COUNTY, TEXAS

DRAWN BY: RM	DATE: 04/18	CA-5151-201
CHECKED BY: G&A	DATE: 04/18	
SCALE: 1"=300'	W.O.	CAD FILE: 5151201_1 REV. 0

File Date: 04/27/18 10:00 RCM 5151201_2 1=300

Exhibit B

Plume Management Zone Maintenance and Monitoring Requirements

Facility monitoring will consist of semi-annual groundwater monitoring of the approved plume management zone well network with annual reporting to the Texas Commission on Environmental Quality (TCEQ). More detail regarding monitoring and maintenance can be found in the TCEQ-approved Response Action Plan Addendum for the West Plant of the Galena Park Terminal (October 2017)

RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION				REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION	
Site Name:	**KM Liquids Terminals LLC – North Plant Tank 100-11 and 100-12**			Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No	
Address 1:	**405 Clinton Drive**			Program Area:	**IHW CORRECTIVE ACTION**
Address 2:				Mail Code:	**MC-127**
City:	**Galena Park**	State:	**Texas**	Is This A New Site To This Program Area? ☐ Yes ☑ No	
Zip Code:	**77547**	County:	**Harris**	**TCEQ Facility ID No.:**	**30573**
TCEQ Region:	**Region 12 - Houston**			**--Leave This Field Blank--**	**--Leave This Field Blank--**

DOCUMENT(S) IDENTIFICATION

	PHASE OF REMEDIATION	DOCUMENT NAME
1.	**REMEDIATION**	**RESPONSE ACTION PLAN (RAP) REVISION**
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name:	**Johnny Kennedy**						
Company:	**KM Liquids Terminals LLC**	Phone Number:	**(713) 654-6035**		Fax Number:		
Address 1:	**1500 Clinton Drive**	City:	**Galena Park**	State:	**Texas**	Zip Code:	**77547**
Address 2:		Email Address:	[redacted]				

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name:	**Ryan Carroll**						
Company:	**Tetra Tech, Inc.**	Phone Number:	**(832)-251-5160**		Fax Number:		
Address 1:	**1500 CityWest Blvd.**	City:	**Houston**	State:	**Texas**	Zip Code:	**77042**
Address 2:	**Suite 1000**	Email Address:	[redacted]				

TCEQ INTERNAL USE ONLY

Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**RAP REV**	4.	
2.		5.	
3.			

KINDER MORGAN
KM Liquids Terminals LLC

June 28, 2024

Ms. Maria Sifuentes-Chavez
Project Manager, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality
Building D, MC-127
12100 Park 35 Circle
Austin, Texas 78753

Re: Report Transmittal – Response Action Plan Addendum for North Plant Tank 100-11 and Tank 100-12 (North Plant)
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
ISWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA I.D. No. TXD026481523

Dear Ms. Sifuentes-Chavez:

Please find enclosed one hard copy and one electronic copy of the Response Action Plan (RAP) Addendum for the North Plant Tank 100-11 and Tank 100-12 (North Plant) on the KM Liquids Terminals LLC (KMLT) Galena Park Terminal. This RAP Addendum was prepared to update the current response actions being completed at North Plant.

KMLT is also proposing to include the corrective actions presented in the RAP Addendum at North Plant into the renewal application for Hazardous Waste Permit 50054. North Plant would be included into the permit as an area of concern (AOC). The permit renewal application would update Compliance Plan (CP) Tables II, III, IIIA, and V to incorporate North Plant into the Hazardous Waste Permit and Compliance Plan.

If you have any questions regarding this submittal or require additional information, please feel free to contact me at (713) 654-6035, or if you wish you can e-mail me at [redacted]

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy
Remediation Manager

Enclosure

cc: Waste Program Manager – TCEQ Region 12, Houston, Texas

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) SWR No. 30573
check one: ___ Initial submittal for this on-site property X Subsequent submittal for this on-site property
Report date: June 28, 2024 TCEQ Region No.: 12

TCEQ Program (check one)

X	Corrective Action (Mail Code 127)		Superfund PRP Lead (Mail Code 143)
	Voluntary Cleanup Program (Mail Code 221)		Municipal Solid Waste Permits (Mail Code 124)
	RPR Section (Mail Code 137)		

On-Site Property Information

On-Site Property Name: KM Liquids Terminals LLC – North Plant Tank 100-11 and 100-12 (Formerly Tank 118-1 and 118-2)
Street no. 405 Pre dir: ___ Street name Clinton Street type: Drive Post dir: ___
City: Galena Park County: Harris County Code: 101 Zip: 77547
Nearest street intersection or location description: Federal Road and Clinton Drive

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29° 43' 59.38"
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95° 13' 20.80"

Off-Site Affected Property Information

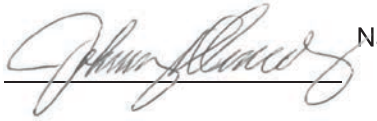
Off-Site Affected Property Name:
Physical Address:
Street no. ___ Pre dir: ___ Street name ___ Street type: ___ Post dir: ___
City: ___ County: ___ County Code: ___ Zip: ___

☐ Check if no off-site properties affected

Contact Person Information and Acknowledgement

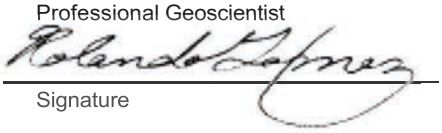
Person (or company) Name: KM Liquids Terminals LLC
Contact Person: Johnny Kennedy Title: Remediation Manager
Mailing Address: 1500 Clinton Drive
City: Galena Park State: TX Zip: 77547 E-mail [redacted]
Phone: 713-654-6035 Fax:

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person  Name, print: Johnny Kennedy Date: 6/28/2024

Professional Signatures and Seals

Professional Geoscientist

Rolando Gómez	11184	August 31, 2024
Professional Geoscientist	Geoscientist License Number	Expiration date
	06/28/2024	
Signature	Date	
832-489-3992	N/A	[redacted]
Telephone number	FAX number	E-mail

Professional Engineer

Professional Engineer	P.E. License number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



RAP Executive Summary	ID No.: SWR No. 30573 Page _1_ of _3_
	Report Date: June 28, 2024

Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and PCLE zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

This Response Action Plan (RAP) has been prepared to provide a compilation of the proposed response action documented in the March 2005 initial RAP, the May 2006 RAP Addendum, and subsequent January 2007 RAP Addendum submittals, as well as address current amendments based on recent data. **Attachment 1A-1** depicts the layout of the North Plant.

The original RAP was submitted on March 31, 2005 and approved by the TCEQ in a letter dated May 11, 2005. An addendum to the RAP was prepared to accommodate remedial activities planned for the alkylate release within the MTBE plume area was submitted to the TCEQ on May 5, 2006 and approved by the TCEQ on August 26, 2006. This program was implemented in accordance with the RAP Addendum (dated January 26, 2007), approved by the TCEQ on May 29, 2007. Previous RAERs documenting response action effectiveness were submitted to the TCEQ on June 15, 2011, July 17, 2014, June 12, 2017, June 19, 2020 and June 21, 2023.

MTBE Dissolved Phase Plume

The response action for the MTBE groundwater plume in the North Plant is enhanced in-situ bioremediation by delivery of oxygen into groundwater through passive oxygenation at 22 selected locations within the MTBE plume. The objective of this program is to enhance natural biodegradation of the MTBE plume by promoting a nutrient and oxygen-rich environment in site groundwater.

Nutrients are introduced into the MTBE plume at 24 selected well locations. In order to achieve the objective, and as approved in the Underground Injection Control (UIC) permit (TCEQ Authorization No. 5X2600543), KMLT currently monitors nitrate levels in groundwater in wells associated within the MTBE plume. Nutrient levels were historically measured on a weekly basis. They were then conducted on a semiannual basis during the semiannual groundwater monitoring events with the employment of the nutrient canisters. Currently, the nutrient canisters are inspected monthly and if the nutrients in the canister are spent, additional nutrients are added.

The injection authorization was amended in December 2021 and November 2022. The first amendment approved the well status conversion of 22 injection wells (OW-1, OW-2, OW-4, OW-5, OW-6, and OW-8 through OW-24), as designated within the permit, from injection well status to monitor well status. These wells were subsequently plugged and abandoned in January and February 2022. The second amendment approved the well status conversion of 4 injection wells (DG-1 through DG-3 and UG-1), as designated within the permit, from injection well status to monitor well status. These wells were also plugged and abandoned on November 29, 2022.

Treatment of dissolved phase MTBE-impacted groundwater and impacted soils originating beneath the area of Tank 100-12 is treated in-situ with a passive delivery of oxygen and nutrient enriched water beneath Tank 100-12 through a sump inlet for a gravity feed infiltration gallery beneath Tank 100-12.

KMLT initiated an Accelerated Remediation Technologies (ART) Integrated Remediation System pilot test at the Tank 100-12 containment area in October 2016. The objective of the ART System pilot test was to treat the near-source area core of the MTBE plume within the Tank 100-12 containment area through a combination of in-situ air-stripping, air-sparging, and Soil Vapor Extraction (SVE). As part of the pilot test, amendments to existing UIC Permits 5X2600543B and 5X2600543C were implemented in 2016 for the

installation of two new injection wells and the injection of atmospheric air as an injectate ahead of ART System installation. The ART System equipment consists of two, 6-inch ART System atmospheric air injection wells and a dedicated skid unit containing the vapor extraction pump and a pneumatic well pump compressor.

The combination of MTBE response actions has proven to be successful as the dissolved MTBE plume has decreased in size while the concentrations of MTBE continue to decline as shown on **Attachment 1A-4.**

MTBE-affected groundwater currently extends from Tank 100-12 approximately 450 feet to the southwest and remains contained within the KMLT property. When the MTBE plume was initially delineated in 2011, it extended from Tank 100-12 approximately 600 feet to the southwest. Since the MTBE plume has been decreasing in size (aerial extent), KMLT has selectively reduced the number of wells used to monitor the down-gradient or cross-gradient extent of the MTBE plume. With the reduction on the MTBE plume extent, KM has also modified the locations of oxygenation wells (iSOC wells) to more effectively attenuate the MTBE Plume.

Attachment 1A-1 shows the location of the current response action components employed at the KMLT NP, including the RAP monitoring wells, the oxygenation wells, nutrient delivery wells, gravity feed infiltration gallery, and the ART System.

Alkylate Plume

The original RAP for the KMLT NP MTBE remediation was submitted to the TCEQ on March 31, 2005, and approved by the TCEQ on May 11, 2005. An alkylate release near Tank 100-11 was encountered within the MTBE dissolved-phase groundwater plume area during the original RAP implementation activities and is depicted on the Affected Property Map **(Attachment 1A-2).**

As stated in the January 2007 RAP Addendum, the response action for the free-phase alkylate plume was to recover alkylate at Tank 100-11 to minimal thicknesses (< 0.10 feet). Alkylate is currently being monitored and removed as necessary on a bi-weekly basis. During the 2023 reporting period, only observation well OW-3 had measurable alkylate that could be removed. The alkylate thickness has been substantially reduced through the recovery program. Based on a review of cumulative data through Second Half 2023, the Response Action for the free-phase alkylate plume has been achieved.

The full-scale MTBE remediation system (which was operated simultaneously with the previously approved remedy for the alkylate plume), was installed in August 2006 and has been in operation for 18 years, effectively decreasing the lateral extent of the groundwater plume. A review of the 2023 groundwater sampling data indicates that plume degradation is still occurring.

Based on the reduced lateral plume extent, a KMLT is proposing a modified Remedy Standard B to reduce the MTBE Remediation System well network to wells located within the immediate vicinity of the tank battery, establish a Plume Management Zone (PMZ) to monitor continued operation of the MTBE groundwater remediation, and implementation of institutional controls (*i.e.,* deed restriction).

What is the selected remedy standard for this affected property? ___ A X B

RAP Executive Summary	ID No.: SWR No. 30573 Page _3_ of _3_
	Report Date: June 28, 2024

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Groundwater	Alkylate (TPH)	X					
Groundwater	MTBE		X		X		

Is there a media that contains a PCLE zone that is not addressed in this RAP? X yes ___ no
If yes, provide justification for not addressing the PCLE zone in this RAP.

Remediation of MTBE affected soil at the North Plant was addressed in the original RAP submitted March 31, 2005, and approved by the TCEQ in a letter dated May 11, 2005. Since the approved soil remedy has already been implemented at the site and remains the same, this RAP amendment does not address soil media.

On-site land use: [ ] Residential [X] Commercial/Industrial
Off-site land use: [ ] Residential [X] Commercial/Industrial (check all that apply)

Is this a re-submittal or revision of a previous RAP? X Yes ___ No
If yes, explain why the RAP is being revised or resubmitted.

This submittal is provided to amend the portion of the January 26, 2007 RAP Addendum to address the change from Remedy Standard A to a modified Remedy Standard B, reducing the MTBE Remediation System well network to wells located within the immediate vicinity of the tank battery, establishing a PMZ to monitor continued operation of the MTBE groundwater remediation, and implementation of institutional controls (i.e., deed restriction).

Were all the appropriate notifications made in accordance with §350.55? X Yes ___ No
If no, explain why notifications were not made:

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).
[2] If a modified groundwater response objective is proposed, check the type(s) of proposed modifications.

Chronology

Kinder Morgan Liquids Terminal (KMLT) LLC North Plant
Galena Park Texas Terminal

November 29, 2022 – Monitor wells UG-01, DG-01, DG-02, DG-03, were plugged and abandoned.

November 14, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 31, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 17, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 11, 2022 – Kinder Morgan received approval from the TCEQ for the Class V Authorization 5X2600543 to be amended for the conversion of the injection wells UG-1, DG1, DG-2 and DG-3 to monitor wells.

October 3, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 21, 2022 - Kinder Morgan submitted a Class V Injection Well Authorization/Inventory – Injection Well Status Change Request to the TCEQ UIC Permits Section – Radioactive Materials Division requesting the TCEQ to authorize the status change of 4 selected injection wells (DG-1 through DG-3 and UG-1) from injection well status to monitor well status.

September 19, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 6, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 22, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 9, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 1, 2022 – AECOM completed sampling of North Plant wells for MTBE and TPH.

July 25, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from

OW-3.

July 15, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

July 6, 2022 – AECOM submitted Semiannual Status Report – Class V Aquifer Remediation Injection Wells Permit.

June 16, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 31, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 16, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 4, 2022 – AECOM added 210 milligrams (mg) nitrate to wells MW-10A, MW-12, OW-25, OW-37 through OW-48, TMW-4, and TMW-8 through TMW-12.

May 2, 2022 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW- 03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

April 18, 2022 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

April 4, 2022 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW- 03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

March 21, 2022 - AECOM completed gauging the alkylate thickness for (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

March 8, 2022 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 22, 2022 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 18, 2022 - AECOM completed sampling of North Plant wells for MTBE and TPH.

February 7, 2022 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, OW-03, OW-7 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

January and February, 2022 - Observation wells OW-1, OW-2, OW-4 through OW-6, and OW-8 through OW-24 were plugged and abandoned.

January 13, 2022 - AECOM submitted Semiannual Status Report - Class V Aquifer Remediation Injection Wells Permit.

January 11, 2022 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

December 28, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

December 16, 2021 – TCEQ approved the well status conversion of 22 injection wells (OW-1, OW-2, OW-4 – OW-6, and OW-8 – OW-24), as designated within the permit, from injection well status to monitor well status was approved by the TCEQ via letter dated December 16, 2021.

December 13, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

November 29, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

November 19, 2021 - Kinder Morgan submitted a Class V Injection Well Authorization/Inventory – Injection Well Status Change Request to the TCEQ UIC Permits Section – Radioactive Materials Division requesting the TCEQ to authorize the status change of 22 selected injection wells (OW-1, OW-2, OW-4 through OW-6, and OW-8 through OW-24) from injection well status to monitor well status.

November 15, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

November 1, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 18, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 4, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 20, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 8, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 2, 2021 – AECOM added 210 mg nitrate to wells MW-10A, MW-12, OW-25, OW-37 through OW-48, TMW-4, and TMW-8 through TMW-12.

August 24, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 12, 2021 - AECOM completed sampling of North Plant wells for MTBE and TPH.

August 8, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

July 26, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

July 12, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

July 8, 2021 - AECOM submitted Semiannual Status Report - Class V Aquifer Remediation Injection Wells Permit.

June 28, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

June 14, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

June 1, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 17, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 4, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

April 19, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.
April 6, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

March 22, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM

removed alkylate from OW-3.

March 8, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 22, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 8, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 2, 2021 - AECOM completed sampling of North Plant wells for MTBE and TPH.

January 25, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

January 12, 2021 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

January 7, 2021 - AECOM submitted Semiannual Status Report - Class V Aquifer Remediation Injection Wells Permit.

December 30, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

December 15, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

December 1, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

November 17, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

November 2, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 19, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

October 5, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 23, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

September 8, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG- 03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 24, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 11, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

August 5, 2020 – AECOM added 210 mg nitrate to wells OW-43 through OW-48, TMW-4, TMW-8, TMW-9, and TMW-10.

August 4, 2020 - AECOM completed sampling of North Plant wells for MTBE and TPH.

July 28, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

July 14, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

July 13, 2020 - AECOM submitted Semiannual Status Report - Class V Aquifer Remediation Injection Wells Permit.

June 29, 2020 – AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

June 15, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

June 1, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 19, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

May 5, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

April 21, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-

03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

April 6, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

March 9, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 24, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

February 10, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3. AECOM added 210 mg nitrate to MW-12 and OW-7.

February 6, 2020 - AECOM completed sampling of North Plant wells for MTBE and TPH. February 3,

2020 – AECOM added 210 mg nitrate to MW-12, OW-7, and OW-4.

January 27, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

January 15, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

January 13, 2020 - AECOM submitted Semiannual Status Report - Class V Aquifer Remediation Injection Wells Permit.

January 8, 2020 – AECOM added 210 mg of nitrate to wells MW-10A, OW-25, OW-37 through OW-48, TMW-4, TMW-8, TMW-10, TMW-11, and TMW-12.

January 3, 2020 - AECOM completed gauging the alkylate thickness for wells (UG-01, DG-01, DG-02, DG-03, and OW-01 through OW-10 and MW-12) inside the containment of Tank 100-11. AECOM removed alkylate from OW-3.

Chronology between August 2006 and January 1, 2020 is provided in the July 17, 2014 Response Action Effectiveness Report (RAER), June 12, 2017 RAER, and June 19, 2020 RAER.

August 2006 - MTBE passive oxygenation system initiated.

August 2, 2006 - TCEQ approved RAP addendum for alkylate recovery system. July 13, 2006- TCEQ approved North Plant Tank Farm APAR Addendum.

2nd Quarter 2006 - Twenty-four oxygenation wells were installed for the full-scale implementation of the passive oxygenation system.

May 4, 2006 - Completed pilot-test for remediation of MTBE in groundwater using passive oxygenation.

January 19, 2006 - Began pilot-test for remediation of MTBE in groundwater using passive oxygenation.

January 2006 - Installed pilot test for passive oxygenation to enhance bioremediation of the MTBE in groundwater.

January 14, 2006- Alkylate recovery system initiated in Tank 100-11 containment area. April 28, 2006 - Submitted RAP Addendum for alkylate recovery system to TCEQ. April 22, 2006 - North Plant Tank Farm APAR Addendum submitted to the TCEQ.

1st Quarter 2006 - Alkylate was observed in MW-12, within the containment area of Tank 100-11.

1st Quarter 2006 - Approximately 13,000 cubic yards of MTBE-affected soil was excavated from an area west of Tank 100-12.

May 11, 2005 - TCEQ approved the RAP for the North Plant Tank Farm.

March 31, 2005 - The RAP for the North Plant Tank Farm was prepared by ARCADIS and submitted to the TCEQ.

November 10-11, 2004 – Seven permanent monitoring wells, MW-11 to MW-17, were installed in the North Plant Tank Farm.

July 16, 2004 – TCEQ approved the APAR for the North Plant Tank Farm, approved the HSVIZ for No Further Action, and requested a RAP for the Tanks.

February 3, 2004 – Borings were advanced and samples were collected by Tank 100-11 and 100-12 to test biodegradation in the field pilot study.

January 29, 2004 – APAR submitted for the North Plant Tank Farm.
January 15-22, 2004 – Excavation and backfill of impacted soil in the Historic Soil VOC Impact Zone took place.

January 7, 2004 – Borings were advanced and samples were collected by Tank 100-11 and 100-12 to test biodegradation in the field pilot study.

December 17, 2003 – The eighth injection event took place for the field pilot study.

November 26, 2003 – Borings were advanced and samples were collected by Tank 100-11 and 100-12 to test biodegradation in the field pilot study.

November 5, 2003 – The seventh injection event took place for the field pilot study.

October 23, 2003 – Borings were advanced and samples were collected by Tank 100-11 and 100-12 to test biodegradation in the field pilot study.

October 7-8, 2003 – The sixth injection event took place for the field pilot study.

September 18, 2003 – There was further field investigation to complete delineation of TPH in the North Plant. Borings NT-134A to NT-136A were advanced and sampled. These borings were advanced in the same locations as their namesakes.

September 18, 2003 – Borings were advanced and samples were collected by Tank 100-11 and 100-12 to test biodegradation in the field pilot study.

September 3-4, 2003 – The fifth injection event took place for the field pilot study.

August 21, 2003 – Borings were advanced and samples were collected by Tank 100-11 and 100-12 to test biodegradation in the field pilot study.

July 25, 2003 – The fourth injection event took place for the field pilot study.

July 15-17, 2003 – A trench was installed in the berm of Tank 100-12 (former Tank 118-2) in support of the field pilot study.

July 9, 2003 – The field investigation continued in order to complete the delineation of MTBE in soil by former Tank 118-1. Step-out borings NT-174 and NT-175 were advanced.

July 1-2, 2003 – The third injection event took place for field the pilot study.

June 23, 2003 – Further field investigation took place to complete the delineation of MTBE in soil by former Tanks 118-1 and 118-2. Borings NT-170 to NT-173 were advanced.

June 20, 2003 – Sampling of soil took place in the North Plant, and four injection points were installed in support of the field pilot study.

May 20, 2003 – The second injection event took place for the field pilot study.

May 19, 2003 – Borings were advanced and were samples collected by Tank 100-11 to test biodegradation in the field pilot study.

April 23-24, 2003 – The first injection event took place for the field pilot study.

February 28, 2003 – Samples were collected by Tank 100-11 to test biodegradation in the field pilot study.

February 18, 2003 – Samples were collected by Tank 100-11 to test biodegradation in the field pilot study.

October 26, 2002 – Groundwater samples were collected from temporary monitoring wells NT-166 to NT-169 installed in Clinton Drive.

October 2, 2002 – Shallow borings were advanced in the berms of the new tanks, Tank 100-11 and 100-12, to support efforts by Kinder Morgan to landscape the bermed area to control the flow of stormwater. The borings were designated NT-148 to NT-165.

August 29, 2002 – The laboratory bench scale study was completed. Ferric chloride emerged as the best candidate as a remediation reagent.

August 28, 2002 – The geotechnical study report was released. The report showed that the stratigraphic data did not preclude the possibility of migration of MTBE in groundwater offsite to the south.

July 25, 2002 – Kinder Morgan met with Harris County officials to inform them of the potential that MTBE crossed the property line in groundwater under Clinton Drive at concentrations in excess of the PCLs. Clinton Drive belongs to Harris County. Kinder Morgan sought permission to drill into the road to investigate the groundwater. The County gave Kinder Morgan advice as to how to obtain permission to drill in a public roadway.

July 2, 2002 – Temporary monitoring wells NT-143 to NT-147 were advanced to complete the delineation of MTBE in groundwater to residential assessment levels on three sides of the affected property. It was not possible to assess the south side because we did not yet have a permit from Harris County to stop traffic and drill into Clinton Drive.

June 25, 2002 – The geotechnical borings were surveyed.

June 18, 2002 – Geotechnical borings (GT-1 to GT-5) were advanced to determine whether the stratigraphy precludes the migration of MTBE across Clinton Drive.

May 22, 2002 – Temporary monitoring wells NT-131, NT-136, NT-140 to NT-142 were advanced to delineate the MTBE in groundwater to commercial/industrial PCLs.

April 23-25, 2002 – Temporary monitoring wells were advanced to delineate the MTBE in the area west of former Tank 118-2, to delineate the groundwater plume, and to complete the investigation of the Historic Soil VOC Impact Zone. Borings NT-129, NT-130, NT-132 to NT-135, NT-137, and NT-139 were advanced.

April 22, 2002 – Impacts in temporary groundwater monitoring wells of MTBE in groundwater at concentrations greater than 1 mg/L were confirmed in the southernmost portion of the North Plant in which drilling was feasible. ARCADIS recommended a stratigraphic study to determine if the transmissive sand pinched out under Clinton Drive. This hypothesis had support in data from the Texmark RFI and the observation that there was a buried stream channel, but existing data were insufficient to confirm this hypothesis without further investigation.

April 16-18, 2002 – ARCADIS oversaw the excavation and backfilling of impacted soil east of former Tank 118-1, and the installation of the gravity feed system.
April 15, 2002 – Temporary monitoring wells were advanced to delineate the groundwater plume toward the south: NT-121, NT-122, and NT-138.

April 1, 2002 – NT-112, a temporary monitoring well, was installed to locate the southeast extent of the MTBE plume.

March 25-27, 2002 – ARCADIS oversaw the installation of the former Tank 118-2 remediation system, including a pipe gallery of infiltration and extraction lines, and sparge points for the deeper vadose zone.

March 9-21, 2002 – ARCADIS oversaw the installation of the former Tank 118-1 remediation system, including a pipe gallery of infiltration and extraction lines, and sparge points for the deeper vadose zone.

March 6, 2002 – Borings were advanced to delineate potential soil and groundwater impacts from the Historic Soil VOC Impact Zone. In this area, NT-123, and NT-125 to NT-128 were advanced.

March 4-6, 2002 – Borings were advanced to delineate the groundwater plume to the west, and to locate the edge of the LNAPL plume by former Tank 118-2. One additional boring was advanced to complete the soil delineation east of former Tank 118-1. Borings NT-60, NT-108, NT-116 to NT-120, and NT-124 were advanced, and NT-98 advanced in the southeast corner of the affected property.

March 4, 2002 – Data became available showing MTBE detections in groundwater at concentrations greater than 1 mg/L in temporary monitoring wells along the southern boundary just north of the presence of utilities and other obstructions. These were the southernmost points feasible for drilling. ARCADIS informed Kinder Morgan, and recommended that confirmation sampling take place for NT-99, NT-101, NT-105, and NT-107.

February 26-27, 2002 – Excavation and backfilling of impacted soils in the central part of the footprint of former Tank 118-2 took place.

February 22-3, 2002 – Excavation and backfilling of impacted soils in former Tank 118-2 tank ring took place.

February 19, 2002 – The bench scale biogeochemical study commenced in Durham, North Carolina to determine the feasibility of six in-situ remediation reagents for MTBE and its degradation product, TBA.

February 18-21, 2002 – Borings were advanced to delineate the southern edge of the plume (NT-99 to NT-107, NT-111), and to locate the extent of the LNAPL plume (NT-86 to NT-90, NT-113 to NT-115); NT-50 extended to a greater depth to vertically delineate MTBE in soil by former Tank 118-1.

February 11-13, 2002 – Borings were advanced to delineate the MTBE that was discovered under the footprint and to the west of former Tank 118-2 (NT-73 to NT-85), and to delineate MTBE to the east of former Tank 118-1 (NT-48, NT-50, NT-52 to NT-54, NT-58A, NT-58B, NT-59A, and NT-59B).

February 6-7, 2002 – The initial seven borings were installed in the footprint of former Tank 118-2 (NT-66 to NT-72).

February 5, 2002 – Seven borings previously installed by hand auger within the footprint of former Tank 80-28 were extended by geoprobe to a depth of 16 feet to determine the vertical extent of TPH and MTBE. No constituents were detected at depths greater than 2 feet bgs, and no MTBE was detected in groundwater.

February 2, 2002 – Temporary monitoring well in boring NT-65 was converted into a permanent well, MW-10, in order to facilitate the recovery of LNAPL.

January 30, 2002 – Boring NT-65 was installed in order to determine if the LNAPL discovered in NT-64 was widespread. LNAPL was found; borings were advanced to delineate a soil impact by MTBE east of former Tank 118-1 (NT-45-51).

January 28-29, 2002 – Borings were installed on all four sides of former Tank 118-2 to determine if MTBE and TPH were present in soil surrounding the former tank (NT-61 to NT-64). LNAPL was discovered at NT-64.

January 28, 2002 – The investigation of former Tank 80-28 commenced with seven borings installed by hand auger within the tank footprint (NT-91 to NT-97). Detections of MTBE in NT-91, and detections of TPH in three borings, prompted further study. Borings were advanced near the footprint of former Tank 118-1 (NT-42 to NT44) to delineate MTBE in groundwater; the full list of parameters used in the RFI at the Kinder Morgan facility was analyzed in soil and groundwater at NT-42.

January 21, 2002 – Borings were installed on the other three of four sides (south boring was previously installed) of former Tank 118-1 to determine if MTBE had migrated in groundwater and soil from under the footprint of the former Tank 118-1 (NT-28, NT-29, and NT-31). Samples were collected south of the former tank to delineate MTBE (NT-39 to NT-41); discolored soil was observed in NT-28, thus the Historic Soil VOC Impact Zone was identified.

January 17, 2002 – Deeper samples were collected from an existing investigation point at the ring wall (NT-33).

January 15, 2002 – The first of four borings (NT-30) that were to surround former Tank 118-1 was advanced. The investigation of soil at the former tank continued with the advancement of a boring in an impacted area in the center of the tank (NT-32) and of several borings near the former ring (NT-33 to NT-38).

January 11, 2002 – The investigation of footprint of former Tank 118-1 began with seven initial borings (NT-21 to NT-27) advanced by geoprobe. TPH was not detected, but the detections of MTBE over PCLs in soil and groundwater indicated that further investigation was necessary.

January 9, 2002 – Kinder Morgan informed ARCADIS that the demolition on Tank 118-1 was complete and the demolition of Tank 118-2 was in progress. Kinder Morgan requested that ARCADIS conduct an investigation of the soil under the floors of the tanks to determine if there were environmental issues.

November 16, 2001 – Tank 118-1 was decommissioned. Tank 118-2 was decommissioned shortly thereafter. Both tanks were demolished in January 2002.

June 2001 – Kinder Morgan removed soil in the footprint under former Tank 80-27 in which the Tier 2 PCL for MTBE was exceeded. There were two excavations, one at NT-1 and the other at NT-6. Confirmation samples were collected.

June 18, 2001 – ARCADIS issued its report on the delineation of MTBE impacts at former Tank 80-27. The report recommended that all soil that was impacted with MTBE above Tier 2 PCLs be removed.

May 31, 2001 – Borings (NT-12 to NT-17) were advanced to delineate an area at NT-6 under the footprint of former Tank 80-27 in which MTBE exceeded the Tier 2 PCLs. A composite sample called "NT-18" (not a real boring) confirmed that TPH was below the applicable PCL.

May 22-23, 2001 – ARCADIS conducted an investigation of the soil and groundwater at and around the footprint of former Tank 80-27 (NT-1 to NT-11).

May 2001 – Tank 80-26 and Tank 80-27 were demolished. Kinder Morgan determined that there were no environmental issues with Tank 80-26, but called ARCADIS to investigate the footprint of former Tank 80-27.

March 2, 2001 – Kinder Morgan Liquids Terminals, LLC purchased the Galena Park facility from GATX Terminals Corporation.

Approximately 1990 – Tanks 80-26, 80-27, 80-28, 118-1, and 118-2 were converted from crude oil storage to MTBE storage.

1950's – GATX purchased a large portion of what is now the North Plant from Texaco. The land was part of a petroleum refinery.

April 3, 1944 – The earliest known aerial photograph was taken that shows former Tanks 80-26, 80-27, 80-28, 118-1, and 118-2.

1936 – Texaco erected several petroleum storage tanks including former Tanks 80-26, 80-27, 80-28, 118-1, and 118-2.

1928 – The Galena Signal Oil Company sold the property that now comprises the North, East and Central Plants to the Texas Company, the predecessor to Texaco.

Checklist for Report Completeness

ID No.: SWR No. 30573 Page _1_ of _2_

Report Date: June 28, 2024

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.

				Report Contents
		Required	**Cover Page**	☒
		Required	**Executive Summary**	☒
		Required	**Checklist for Report Completeness**	☒
		Required	**Worksheet 1.0** Response Action Objectives	☒
No ☐	Have new data been collected that was not previously submitted?	☒ Yes	**Attachment 1A*** Maps and Cross Sections	☒
			Attachment 1B* Graphs of Concentration versus Time	☐
		Required	**Worksheet 2.0** Response Action Design	☒
		Required	**Attachment 2A*** Response Action Diagrams and Component/Equipment Descriptions	☒
		Required	**Attachment 2B*** Proposed Well Design	☐
No ☒	Is an ecological services analysis or compensatory restoration plan part of the proposed response action?	☐ Yes	**Attachment 2C*** ESA and Compensatory Restoration Plan	☐
No ☒	Is a plume management zone proposed as part of the response action?	☒ Yes	**Worksheet 2.1** Plume Management Zone	☒
			Attachment 2D* Plume Management Zone Map	☒
			Attachment 2E* Attenuation Action Levels Determination	☒
No ☒	Is a waste control unit proposed as part of the response action?	☐ Yes	**Worksheet 2.2** Waste Control Unit	☐
			Attachment 2F* Map of Waste Control Unit	☐
No ☒	Is a technical impracticability area proposed as part of the response action?	☐ Yes	**Worksheet 2.3** Technical Impracticability	☐
			Attachment 2G* Map of Technical Impracticability Area	☐

Checklist for Report Completeness	ID No.: SWR No. 30573 Page _2_ of _2_
	Report Date: June 28, 2024

				Report Contents
No ☐	Is the response action a remedy standard B?	☒ Yes →	**Worksheet 2.4** Institutional Controls	☒
		Required	**Worksheet 3.0** Performance Measures and Potential Problems	☒
		Required	**Worksheet 3.1** Monitoring and Sampling	☒
		Required	**Attachment 3A*** Map of Monitoring and Sampling Points	☒
		Required	**Worksheet 3.2** Operation and Maintenance	☒
		Required	**Worksheet 4.0** Confirmation Sampling Plan	☒
		Required	**Attachment 4A*** Map of Confirmation Sampling Points	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Worksheet 5.0** Post Response Action Care	☒
		→	**Attachment 5A*** Map of PRAC Monitoring and Sampling Points	☒
		→	**Attachment 5B*** PRAC Costs	☐
No ☒	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes →	**Attachment 5C*** Small Business Affidavit	☐
		Required	**Worksheet 6.0** Implementation Schedule	☒
		Required	**Appendix 1*** References	☒
No ☒	Was any data collected that was not previously reported?	☐ Yes →	**Appendix 2*** Data Tables and Boring Logs	☐
No ☒	Were any studies or tests conducted?	☐ Yes →	**Appendix 3*** Studies and Tests Documentation	☐
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Appendix 4*** Proposed Institutional Controls	☒
No ☒	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes →	**Appendix 5*** Landowner Concurrence	☐
No ☒	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes →	**Appendix 6*** Sampling Procedures	☐
No ☒	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☒	Was approval received from the TCEQ regarding the use of different rules to address a media?	☐ Yes →	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Use this worksheet to describe the objectives for the response action in each media.

Response Action Objectives

List the environmental media to which this applies Groundwater
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

The objectives for the response action for groundwater as addressed in the March 2005 initial RAP, the May 2006 RAP Addendum, and subsequent January 2007 RAP Addendum are as follows:

- Remove recoverable free-phase alkylate from the groundwater surface in a portion of the dissolved phase MTBE plume to minimal thickness;
- Enhance soil biological activity and subsequent bioremediation of MTBE; and
- Mitigate the potential for plume migration and expansion of free-phase alkylate and dissolved phase MTBE.

Alkylate Plume

As stated in the January 2007 RAP Addendum, the response action for the free-phase alkylate plume was to recover alkylate at Tank 100-11 to minimal thicknesses (< 0.10 feet). The alkylate skimmer system, installed within the alkylate plume, has demonstrated the capability of recovering alkylate to minimal thicknesses. Alkylate is currently being monitored, and recovered when necessary, from wells within the plume. The alkylate thickness has been substantially reduced since recovery began in January 2006. A continued decrease in alkylate thickness in 2009 and 2010 was observed in select monitoring wells which currently have measurable alkylate. From January 2020 through May 2023, alkylate was only observed in monitoring well OW-3 at a thickness greater than 0.1 feet (0.11 feet in January 2020 and February 2023 and 0.14 feet in October 2022, respectively). Based on a review of cumulative data through Second Half 2023, KMLT believes that the Response Action Objective has been met and no further action related to the alkylate plume is required.

MTBE Dissolved Phase Plume

Oxygenation
The response action for the MTBE groundwater plume in the NP is enhanced in-situ bioremediation by delivery of oxygen into groundwater through passive oxygenation at 22 selected locations within the MTBE plume. The objective of this program is to enhance natural biodegradation of the MTBE plume by promoting a nutrient and oxygen-rich environment in site groundwater. The layout of the oxygenation system is wells is shown on **Attachment 1A-1.**

Nutrients
Nutrients have also been introduced into the MTBE plume at 24 selected well locations. In order to achieve the objective, and as approved in the UIC permit, KMLT used to monitor nitrate levels in groundwater from wells associated within the MTBE plume. Nutrient levels were historically measured on a weekly basis and on a semiannual basis during the semiannual groundwater monitoring events. Currently, the wells are monitored periodically. The nutrient canisters are inspected monthly and if the nutrients in the canister are spent, additional nutrients are added. Wells receiving nitrate addition are shown in **Attachment 1A-1**.

In the past, nutrients were added to selected wells by suspending a permeable bag with approximately 30

milligrams (mg) (2 teaspoons) of Scotts Osmocote® Mini Prill in the groundwater within the well to enhance natural biodegradation of the MTBE within the groundwater at selected well locations. Once hydrated, the Osmocote® slowly dissolves, diffusing the nitrates into the groundwater.

On March 11, 2019, Kinder Morgan notified the TCEQ of its intent to test a new type of nutrient delivery system consisting of a 2-foot long by 1-inch diameter section of slotted polyvinyl chloride (PVC) well screen, replacing the permeable bags. The canister nutrient delivery systems were initiated in May 2019.

The canisters deliver nutrients over a larger cross-sectional area of the water column over a longer period between monitoring periods versus the previous delivery system. During May 2019, these nutrient delivery canisters containing approximately 210 mg of nitrate each were placed into two wells, replacing the previous smaller nutrient-permeable bag systems. The design of the larger-capacity canisters is such that they only require monthly rather than weekly monitoring/replenishment. The nutrient canisters are inspected monthly and if the nutrients in the canister are spent, additional nutrients are added. Field observations indicate that the nutrient canisters deliver nitrates into the groundwater for up to 60 days. The canisters are not replaced but the nutrients are replenished as necessary.

ART System

The objective of the Accelerated Remediation Technology (ART) System pilot test was to treat the near source area core of the MTBE plume within the Tank 100-12 containment area through a combination of in-situ air-stripping, air-sparging, and Soil Vapor Extraction (SVE). The ART System equipment consists of two, 6-inch ART System atmospheric air injection wells and a dedicated skid unit containing the SVE vacuum pump and a pneumatic well pump compressor. Two SVE off-gas activated carbon drums in series are located adjacent to the dedicated skid unit to treat the off-gas. Vapors extracted from the ART wells are monitored with a photo-ionization detector (PID) during operation at several points within the system to monitor performance and identify potential leaks or problems. The ART System components and layout are illustrated on **Attachment 2A-1.**

Layout of the full-scale MTBE remediation systems is shown on **Attachment 1A-1**.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Recovered alkylate is temporarily stored in a polyethylene tank located adjacent to the recovery wells. KMLT removes alkylate from the polyethylene tank with a vacuum truck, and the recovered alkylate is then transferred to another tank at their facility used for managing off-specification liquid products.

No MTBE is recovered from the *in situ*, passive oxygenation remediation system. The response action is degrading the concentration of MTBE in groundwater to a concentration below the 0.73 mg/L commercial industrial PCL within the containment areas and 0.24 mg/L residential PCL at downgradient property lines.

State the proposed “reasonable time frame” and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

KMLT will continue operation of the current passive oxygenation system in order to control plume migration and to promote MTBE degradation for 10 years. Since the MTBE plume has decreased significantly in extent, KMLT is proposing to continue MTBE remediation activities within the immediate

tank battery area and establish a PMZ to monitor MTBE plume stability and continued plume degradation over time on a semiannual basis.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

Not Applicable

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

Not Applicable

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies Sandy Channel Fill
Repeat this section for each groundwater-bearing unit for which a different response action is proposed.
Groundwater classification ____ 1 X 2 ___ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? X Yes ____ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? X Yes ____ No

If yes, complete the appropriate portions of this report.
If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

Not Applicable

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh\text{-}V}$) is exceeded.

Not Applicable

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

Not Applicable

Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

Not Applicable

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Groundwater
List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

Alkylate Plume

As stated in the January 2007 RAP Addendum, the response action for the free-phase alkylate plume was to recover alkylate at Tank 100-11 to minimal thicknesses (< 0.10 feet). The alkylate recovery system was initiated on January 14, 2006. Alkylate was initially recovered with a skimmer pump system. However, due to diminishing volumes of alkylate recovered using the skimmer pump system, the pumps were deactivated in February 2010. Hand bailing was being conducted on an as needed basis in OW-3, the only well with measurable alkylate. Alkylate gauging of monitoring wells was then conducted on a bi-weekly basis and recorded.

MTBE Dissolved Phase Plume

As presented in the January 26, 2007 RAP Addendum, MTBE is being removed by enhanced bioremediation through the passive oxygenation of affected groundwater. This response action was chosen due to the tendency for MTBE to be degraded by microbial organisms. Passive oxygenation was chosen because it allows for oxygen to be dissolved by groundwater through contact with a large static oxygen surface within the emitter, rather than by sparging or other turbulent dissolution processes, which may cause COCs to volatilize and spread.

Twenty-four wells placed throughout the plume have been fitted with oxygen emitters (iSOC® units) to passively deliver oxygen to groundwater *in situ* **(Attachment 2A-2).** As demonstrated by the pilot system, an increase in the DO of the affected groundwater will enhance the microbial activity within the affected area and will subsequently decrease the MTBE concentrations in the affected media.

Nutrients are also introduced into the MTBE plume at 24 selected well locations. In order to achieve the objective, and as approved in the UIC permit, KMLT used to monitor nitrate levels in groundwater from wells associated within the MTBE plume. Nutrient levels were historically measured on a weekly basis and on a semiannual basis during the semiannual groundwater monitoring events. Currently, the wells are monitored periodically. The nutrient canisters are inspected monthly and if the nutrients in the canister are spent, additional nutrients are added. Wells receiving nitrate addition are shown in **Attachment 1A-1**.

Nutrients are added to the monitoring wells by suspending a 2-foot long by 1-inch diameter section of slotted polyvinyl chloride (PVC) well screen filled with approximately 210 mg of Scotts Osmocote® Mini Prill in the groundwater within the well to enhance natural biodegradation of the MTBE within the groundwater at selected well locations. The nutrient canisters are inspected monthly and if the nutrients in the canister are spent, additional nutrients are added. The canisters are not replaced but the nutrients are replenished as necessary.

To allow for fluctuations in COC concentrations and flow heterogeneities, KMLT will adjust the number

and location of iSOCs as needed within the parameters of the UIC permit.

ART System

The objective of the Accelerated Remediation Technology (ART) System pilot test was to treat the near source area core of the MTBE plume within the Tank 100-12 containment area through a combination of in-situ air-stripping, air-sparging, and Soil Vapor Extraction (SVE). The ART System equipment consists of two, 6-inch ART System atmospheric air injection wells and a dedicated skid unit containing the SVE vacuum pump and a pneumatic well pump compressor. Two SVE off-gas activated carbon drums in series are located adjacent to the dedicated skid unit to treat the off-gas. Vapors extracted from the ART wells are monitored with a photo-ionization detector (PID) during operation at several points within the system to monitor performance and identify potential leaks or problems. The ART System components and layout are illustrated on **Attachment 2A-1.**

The ART System was activated on October 26, 2016, after receipt of amendment approval of Class V Injection Well Authorization 5X2600543 for two additional injection wells and addition of atmospheric air as an injectate. The ART system was initially operated only during daylight hours while a field technician was at the site. The system was later modified to maintain a lower operating temperature and as of February 24, 2020, the system now operates 24 hours per day during the work week when possible. KMLT is proposing to continue running the ART system to promote continued degradation of any residual source mass that may still be present in soil at the foot of Tank 10-112.

Plume Management Zone

Based on the continued decrease in MTBE concentrations and the current lateral plume extent, a PMZ will be implemented to contain COCs within the limits of KMLT property.

Institutional Controls

Institutional controls in the form of a deed recordation will also be implemented as an administrative COC exposure control.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

Attachment 1A-1 depicts the modified MTBE system layout and passive oxygenation system components proposed in this RAP. The system includes:

- Oxygenation wells fitted with iSOC® oxygen emitters and individual oxygen cylinders
- ART system connected to ART-1 and ART-2 wells
- 10 permanent monitor wells to be used as Plume Management Zone (PMZ) wells (shown in **Attachment 2-D**)

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
TCEQ UIC	Class V Injection Permit	5X2600543	09/14/2009

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and

appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not Applicable

Plume Management Zone	RAP Worksheet 2.1	Page 1 of 2
Associated Information: Attachments 2D, 2E	ID No.: SWR No. 30573	Report Date: June 28, 2024

Complete this worksheet when a PMZ is proposed as part of the response action. Include in Attachment 2D a map of the proposed PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone. If a PMZ is not proposed, do not submit this worksheet.

Groundwater-bearing unit Sandy Channel Fill
Repeat this worksheet for each groundwater-bearing unit for which a PMZ is proposed.
Groundwater classification **X** 2 ____ 3

Provide justification as to why the PMZ is appropriate in accordance with §350.33(f)(4)(A). Include supporting documentation in Attachment 2E.

The combination of MTBE response actions has proven to be successful as the dissolved MTBE plume has decreased in size while the concentrations of MTBE continue to decline as shown on **Attachment 1A-2**. MTBE-affected groundwater currently extends from Tank 100-12 approximately 450 feet to the southwest and remains contained within the KMLT property. When the MTBE plume was initially delineated in 2011, it extended from Tank 100-12 approximately 600 feet to the southwest. Since the MTBE plume has been decreasing in size (aerial extent), KMLT has selectively reduced the number of wells used to monitor the down-gradient or cross-gradient extent of the MTBE plume. With the reduction on the MTBE plume extent, KM has also modified the locations of oxygenation wells (iSOC wells) to more effectively attenuate the MTBE Plume.

The affected groundwater bearing unit is classified as Class 2 groundwater. Any groundwater that may be used in the area will be obtained from deeper (greater than 100 feet below ground surface) aquifers and utilized for industrial water supplies. Water in the area surrounding the site is provided by a public water supply system and therefore, eliminating the need for local groundwater as a drinking water supply source.

Is the alternate POE proposed to be beyond the current limits of the PCLE zone? ____ Yes X No
If yes, how far? Not Applicable (§350.37(l) or (m) as applicable)
Is it to be off-site? ____ Yes X No
On an off-site property that currently does not contain a residential-based groundwater PCLE zone?
____ Yes X No

If yes and this is a Class 2 groundwater, provide the basis for concluding that this groundwater does not have a reasonably anticipated future beneficial use (§350.37(l)(3)).

Not Applicable

Is NAPL present? ____ Yes X No
If so, describe how the response action will achieve the performance criteria in §350.33(f)(4)(E).

Not Applicable

If this is a Class 2 groundwater, explain how the response action will ensure that leachate from the surface soil and subsurface soil PCLE zones will not increase concentration of COCs greater than the current measured concentrations (at time of RAP submittal). (§350.33(a)(2))

The release occurred near the base of the tank. Affected soils were removed and backfilled with clean fill, eliminating the potential of leachate from the surface soil and subsurface soil PCLE zones to groundwater. Furthermore, the top of the uppermost groundwater bearing unit is located 7 to 10 feet below ground surface, with overlying soils comprised of low transmissivity clays, further mitigating the potential of leachate from the surface soil and subsurface soil PCLE zones to groundwater.

Plume Management Zone	RAP Worksheet 2.1	Page _2_ of _2_
Associated Information: Attachments 2D, 2E	ID No.: SWR No. 30573	Report Date: June 28, 2024

Provide the basis that the COCs will not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachment 2E.

A review of the historic groundwater data for the past 10 years shows the plume to be shrinking in a direction farther away from the proposed Point of Exposure (POE) wells. Based on this long term trend, KMLT does not believe that the plume will extend beyond the downgradient boundary of the PMZ.

Describe the methods used to determine that there are no artificial penetrations which can allow COCs to migrate from the groundwater PCLE zone to currently unaffected groundwater-bearing units. Include supporting documentation in Attachment 2E.

A review of the Texas Water Development Board online water well interactive maps as well as the Railroad Commission of Texas' Oil and Gas well interactive maps did not identify any current or historic wells within the groundwater plume extent. Furthermore, the powerline right-of-way located northeast of the plume is upgradient/crossgradient of the groundwater plume, mitigating the potential for downward COC migration via powerline tower footers.

List the attenuation action level determined for each attenuation monitoring point. Illustrate the proposed attenuation monitoring points and the groundwater PCLE zone on the map in Attachment 2D. Include all calculations and other methods of determining the attenuation action levels in Attachment 2E.

COC	Attenuation Monitoring Point (well number)	Attenuation Action Level (mg/L)	Attenuation Action Level limited by $^{Air}GW_{Inh\text{-}V}$ or existing COC concentration? Y/N
Methyl-tert butyl ether	TMW-07A	0.49	N
	OW-36	1.34	N
	OW-31	1.34	N

Waste Control Unit	RAP Worksheet 2.2	Page 1 of 1
Associated Information: Attachment 2F	ID No.: SWR No. 30573	Report Date: June 28, 2024

NOT APPLICABLE

Use this worksheet to document the use of a waste control unit to modify the groundwater response actions (§350.33(f)(2)). Provide a map in Attachment 2F of the waste control unit overlying the PCLE zone. Include proposed institutional controls in Appendix 4. If this modification does not apply, do not submit this worksheet.

Is the waste control unit an existing unit? ____ Yes ____ No
If yes, provide: the permit number _____
description _____
status ____ active ____ closed

Describe how the existing or proposed WCU meets the definition set forth in §350.4(a)(91).

If the WCU is proposed, identify any applicable permitting process that must be completed prior to operation of the WCU.

Has the applicable permit been pursued yet? ____ Yes ____ No
If not, when will this be initiated?

Technical Impracticability	RAP Worksheet 2.3 Page _1_ of _1_	
Associated Information: Attachment 2G	ID No.: SWR No. 30573	Report Date: June 28, 2024

NOT APPLICABLE

Use this worksheet to justify the use of technical impracticability (TI) to modify the groundwater response objectives. Also complete Worksheet 2.2 to propose a plume management zone for the TI area. Include a map of the groundwater PCLE zone and area of technical impracticability in Attachment 2G. Include in the attachment any other documentation needed to make the justification. If technical impracticability is not proposed as part of the response action, do not submit this worksheet.

Describe the groundwater PCLE zone and demonstrate in accordance with *Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration* (EPA OSWER Directive 9234.2-25), unless otherwise approved by TCEQ, why it is technically impractical to reduce the COC concentrations to the critical PCLs, taking into account all currently available remediation technologies, and hydrogeologic and chemical-specific factors. Identify the specific COCs and list the PCLs that cannot be achieved.

Are there groundwater COCs in excess of the critical PCLs beyond the TI area? ___ Yes ___ No
If yes, make sure removal/decontamination actions are documented in Worksheet 1.0.

Will actions be required or already completed to prevent COC migration outside the area of technical impracticability and/or outside the existing boundary of the groundwater PCLE zone?
____ Yes ____ No
If yes, make sure removal/decontamination actions are documented in Worksheet 1.0.

Institutional Control	RAP Worksheet 2.4 Page _1_ of _1_	
Associated Information: Appendices 4, 5	ID No.: SWR No. 30573	Report Date: June 28, 2024

Complete this worksheet if an institutional control will be used as part of the response action. Include a draft of the proposed institutional controls in Appendix 4. Provide a list of landowners from whom landowner concurrence will be requested, as necessary, in Appendix 5.
Specify the property for which this applies. *Kinder Morgan Liquids Terminals, LP. – Tank 100-11 (Formerly Tank 118-1)*
Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[1]				Property Ownership		Anticipated Filing Date[2]
	Deed Notice	Restrictive Covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))	X				X		180 days following RAP Addendum Approval
Document use of physical or institutional control under Remedy Standard B §350.31(g))	X				X		180 days following RAP Addendum Approval
Document notice of on-going long term response action (§350.31(h))	X				X		180 days following RAP Addendum Approval
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))							
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(I))	X				X		180 days following RAP Addendum Approval
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							

[1] Check the appropriate box(es) to indicate the type of institutional control required for the proposed response action.
[2] Specify date or amount of time after RAP approval.

Performance Measures and Potential Problems	RAP Worksheet 3.0 Page _1_ of _1_	
	ID No.: SWR No. 30573	Report Date: June 28, 2024

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that will be used to determine if reasonable progress is being made by the response action in a timely manner. Use these measures to document effectiveness of the response action in the RAER.

Performance of the oxygenation system will be monitored by sampling observation wells for DO and MTBE. Evaluation of the oxygenation/nutrient system effectiveness will be evaluated on a semiannual basis. KMLT may propose to reduce and/or decommission the oxygenation/nutrient system based on observed decreasing trends. KMLT will request regulatory closure if AMP and POE concentrations are reported at concentrations less than AALs/PCLs for a minimum of 3 years following oxygenation/nutrient system decommissioning.

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: MTBE Passive Oxygenation/Nutrient System

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
DO rates are not increasing	Leak in oxygen line	X		Periodic checking of oxygen levels in groundwater and checking pressure in oxygen line.
MTBE degradation not occurring as expected	Additional nutrients (*i.e.*, phosphorus and nitrogen) needed	X		Periodically inspect nutrient delivery canisters and add additional nutrients as needed.
Increase in MTBE concentrations in source area and/or AMP wells	Regulatory non-compliance	X		Reinstate MTBE Passive Oxygenation/Nutrient System at monitor wells TMW-04, TMW-08, TMW-09, OW-43 and OW-48

Monitoring and Sampling Associated Information: Attachment 3A	RAP Worksheet 3.1 Page _1_ of _2_	
	ID No.: SWR No. 30573	Report Date: June 28, 2024

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/ Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Surface Soil							
Subsurface Soil							
Groundwater	MTBE	Dissolved Oxygen (DO)	Low Flow Groundwater Sampling	*Background wells:* MW-11; MW-13A *Source Area Wells:* OW-42; OW-45; *Attenuation Monitoring Point (AMP) Wells:* TMW-07A; OW-36; OW-31 *Point of Exposure (POE) Wells:* MW-15; MW-16; MW-18		MTBE via SW 846 EPA Method 8260	Semi-annually
Surface water							
Sediment							
Air							
Other Media (specify)							

Explain the reasons for the above-listed monitoring and sampling plan.

Semi-annual monitoring of MW-10A, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-18 has been conducted as part of the MTBE plume remediation dating back to February 2011 The following wells have been monitored voluntarily by KMLT to demonstrate effectiveness of the response action: MW-10A, MW-11, MW-14, OW-1, OW-11, OW-14, OW-15, OW-20, OW-23 , OW-25, OW-29, OW-37, OW-42, OW-43, OW-45, TMW-01, TMW-

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

02, TMW-03, TMW-04, TMW-08, TMW-7, TMW-11, TMW-13, and TMW-15. Based on current plume concentrations lateral extent(s), the following wells are being proposed to be monitored as part of the PMZ: Background wells: MW-11, MW-13A; Source Area Wells: OW-42, OW-45; Attenuation Monitoring Point (AMP) Wells: TMW-07A, OW-36 OW-31; and Point of Exposure (POE) Wells: MW-15, MW-16, MW-18.

Operation and Maintenance	RAP Worksheet 3.2	Page _1_ of _1_
	ID No.: SWR No. 30573	Report Date: June 28, 2024

Response Action Name/Designation: MTBE Passive Oxygenation/Nutrient Delivery System
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

System performance will be monitored on a weekly basis. The monitoring activities will include documenting the volume of oxygen in each oxygen cylinder, checking the pressure gauges, and visually inspecting the oxygenation wells, gas cylinders, hosing and connectors.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The primary consideration is to ensure that the oxygen lines are not leaking and that oxygen is being delivered to the iSOCs. The system will generally be inspected weekly to determine whether sufficient oxygen is being delivered to the wells. If a leak or drop in pressure is detected, the system will be closely inspected to determine the cause of the problem and it will be repaired.

List the routine tasks required to operate the response action.

- Check oxygen pressure on the gas cylinder;
- Visually inspect oxygenation wells, gas cylinders, hosing and connectors;
- Periodically sample observation wells for DO and MTBE

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Operation and maintenance described in the preceding sections will be generally performed on a weekly basis.

Confirmation Sampling Plan	RAP Worksheet 4.0 Page _1_ of _2_	
Associated Information: Attachment 4A	ID No.: SWR No. 30573	Report Date: June 28, 2024

List the COCs and other parameters that will be sampled to confirm completion of the response action. Illustrate the monitoring or sampling locations in Attachment 4A. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided. If needed, describe the sample collection and handling methods, if not previously provided, in Appendix 6.

Media	COC[1]	Other parameter (specify)	Sampling Method	Sampling points[2]	Depth/ height (ft.)	Analytical Method	Sampling Frequency
Surface Soil							
Subsurface Soil							
Groundwater	MTBE	Dissolved Oxygen (DO)	Low Flow Groundwater Sampling	*Background wells:* MW-11; MW-13A *Source Area Wells:* OW-42; OW-45; *Attenuation Monitoring Point (AMP) Wells:* TMW-07A; OW-36 OW-31 *Point of Exposure (POE) Wells:* MW-15; MW-16; MW-18		MTBE via SW 846 EPA Method 8260	Three semiannual events
Surface water							
Sediment							
Air							
Other media (specify)							

[1] Specify either a specific COC or type of COC (such as VOCs, metals).
[2] Specify the sampling point to the degree it is known, (for example, MW-1, or near former boring #2).

Explain the reasons for the above-listed sampling plan. Discuss statistical or geostatistical methodology(ies) which will be applied, if any, in the data collection process. Discuss any assumptions made in the statistical/geostatistical assessment, and how they will be met.

When an MTBE concentration in the Source Area and observations wells demonstrate a continuing decreasing trend in AMP and POE wells, the TCEQ will be notified and the oxygenation system will be deactivated. The observation wells will be monitored for three semiannual events to verify that MTBE concentrations do not increase.

Post-Response Action Care Associated Information: Attachments 5A-5C	RAP Worksheet 5.0 Page _1_ of _2_ ID No.: SWR No. 30573	Report date: June 28, 2024

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) __10__ years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

Based on historic MTBE degradation trends since the MTBE remediation system was installed, KM expects MTBE concentrations to degrade to commercial/industrial PCL concentrations within 10 years.

What is the foreseeable land use during the post-response action care period? commercial/industrial

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

No physical controls are being implemented for this response action. No change in future land use is anticipated for the upgradient portion of the plume closest to Tank 100-112. Should the portion of the site towards the downgradient end of the plume be developed, monitor wells will be converted to at grade completions; iSOC/nutrient delivery wells will be converted to below grade vaults to mitigate the potential for damage from vehicular traffic and/or construction activities.

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

N/A

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? __X__ Yes ___ No

If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies _____
Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? $ _____

What is the total estimated cost for a third party to perform PRAC activities? $ _____

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

N/A

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___Yes ___No

If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

Implementation Schedule	RAP Worksheet 6.0 Page _1_ of _1_	
	ID No.: SWR No. 30573	Report Date: June 28, 2024

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	**Start**	**Finish**	**Duration**
Install and operate alkylate removal skimmer system	January 2006	December 2007	2 year (estimated maximum)
Post-removal interface probe measurements	January 2008	June 2008	2 quarters
Install and operate MTBE oxygenation system	January 2007	January 2034	37 years
Post –response MTBE monitoring	January 2034	June 2034	2 quarters

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	**Submittal date**
Response Action Effectiveness Report (RAER)	
RAER submittal number 1	RAERs to be discontinued and incorporated into annual Corrective Action Report
RAER submittal number 2	N/A
RAER submittal number 3	N/A
Response Action Completion Report (RACR)	
Post-Response Action Care Report (PRACR)	
PRACR submittal number 1	
PRACR submittal number 2	
PRACR submittal number 3	

ATTACHMENT 1A

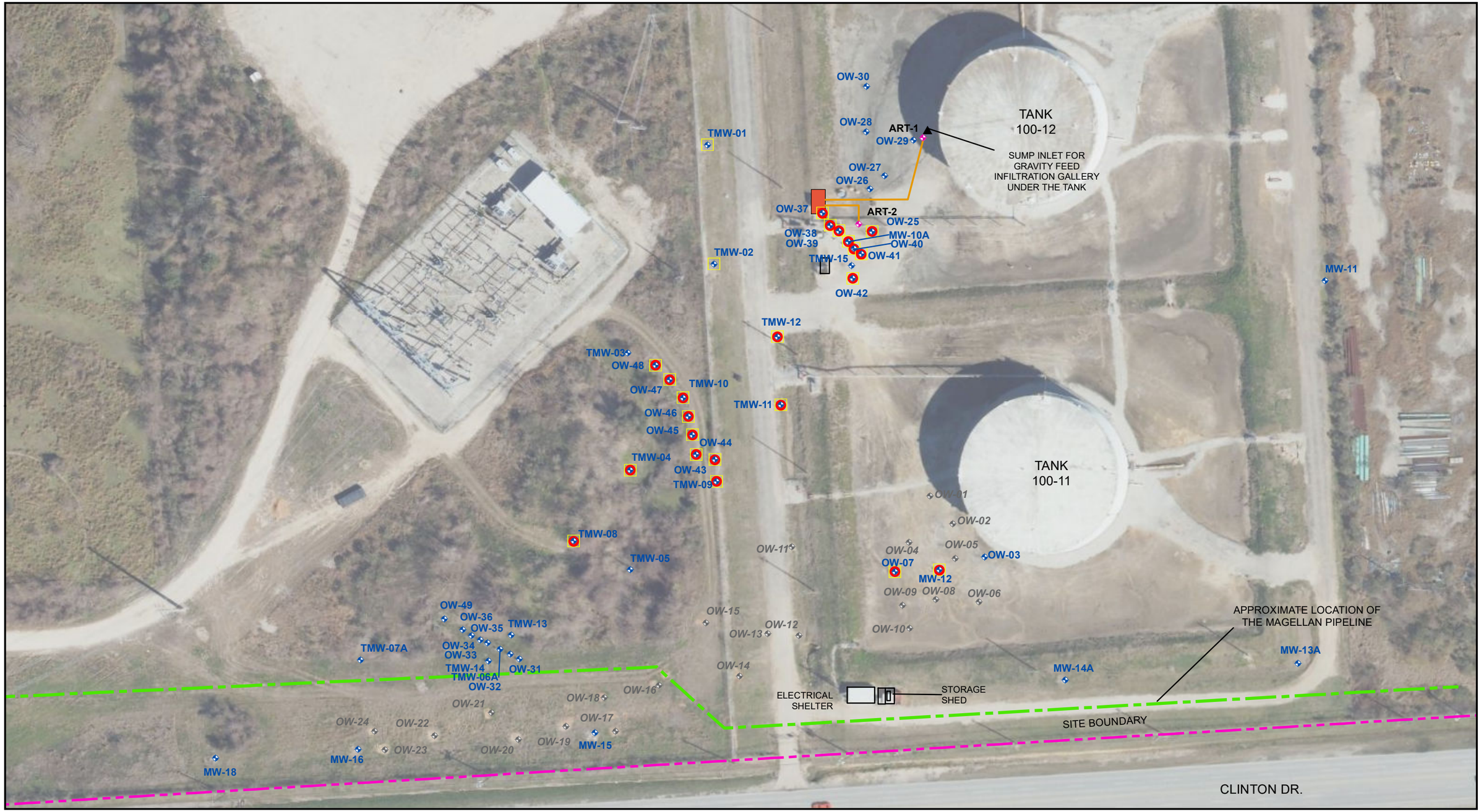
Maps and Cross Sections

1A-1 – North Plant Site Layout Map

1A-2 – Affected Property Map

1A-3 – Cumulative MTBE and TPH Results through August 2022

1A-4 – North Plant MTBE Results Map through August 2022



Legend

- Monitoring Well Location
- Well Plugged and Abandoned
- iSOC Oxygenation Installation
  Individual Oxygen Cylinder at Each Location
- Accelerated Remediation Technology (ART)
  groundwater remediation Pilot Test System Wells
  (Installed October 2016)
- Nitrate Addition in Wells
- Magellan Pipeline
- ART System Piping ART
- System Control Skid Site
- Boundary

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

AECOM
19219 KATY FREEWAY, SUITE 100
HOUSTON, TX 77094
PH: (281) 646-2400

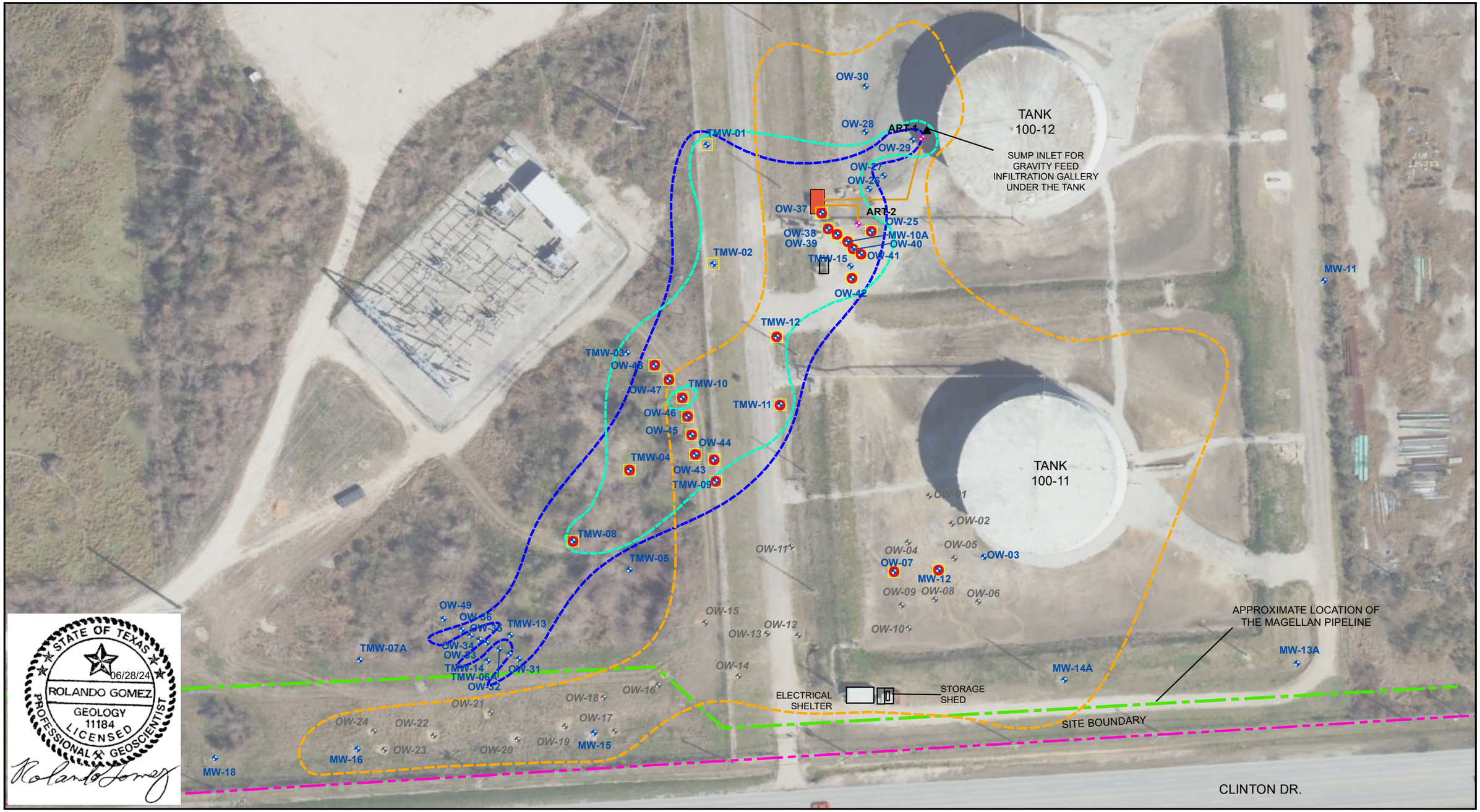
Title: **North Plant Site Layout Map**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
As Shown	KPL	6/20/2023	60699810	Att1A-1_NP_SiteLayout.mxd	1A-1
	Chk'd by: ZK	Date: 6/20/2023			

Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\North_Plant\MXD\RAER 2023\Att1A-1_NP_SiteLayout.mxd



STATE OF TEXAS
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST
06/28/24

Legend

- Monitoring Well Location
- Well Plugged and Abandoned
- iSOC Oxygenation Installation
  Individual Oxygen Cylinder at Each Location
- Accelerated Remediation Technology (ART)
  groundwater remediation Pilot Test System Wells
  (Installed October 2016)
- Nitrate Addition in Wells
- Response Action Plan (RAP)
  Defined MTBE Groundwater Plume Boundary
- Approximate MTBE Plume Boundary - August 2022
- Approximate MTBE Plume Boundary - 2012
- Magellan Pipeline
- ART System Piping
- ART System Control Skid
- Site Boundary

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

AECOM
19219 KATY FREEWAY, SUITE 100
HOUSTON, TX 77094
PH: (281) 646-2400

Title: **Affected Property Map**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
As Shown	KPL	6/21/2023	60699810	Att1A-2_NP_AffectedProperty.mxd	1A-2
	Chk'd by: ZK	Date: 6/21/2023			

Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\North_Plant\MXD\RAER 2023\Att1A-2_NP_AffectedProperty.mxd

Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\North_Plant\MXD\NP MTBE_Aug2023.mxd

TANK 100-12

SUMP INLET FOR GRAVITY FEED INFILTRATION GALLERY UNDER THE TANK

OXYGEN SUPPLY ENCLOSURE

ELECTRICAL SHELTER

STORAGE SHED

APPROXIMATE LOCATION OF THE MAGELLAN PIPELINE

SITE BOUNDARY

CLINTON DR

TMW-1	8/14/2023 0.33
OW-37	8/14/2023 1970
OW-38	8/14/2023 1.09
TMW-2	8/14/2023 0.188
OW-39	8/14/2023 35.3
OW-48	8/14/2023 1.23
TMW-3	8/14/2023 69.4
OW-47	8/14/2023 17.6
OW-45	8/14/2023 995
TMW-4	8/14/2023 1.1
TMW-8	8/14/2023 43.5
TMW-5	8/14/2023 0.00426 J
TMW-13	8/14/2023 0.004 J
OW-49	2/8/2017 0.0219
OW-36	8/16/2017 0.00113
OW-35	2/8/2017 0.0347
OW-34	2/9/2017 0.00157
OW-33	8/15/2017 0.000326 J
TMW-14	8/14/2023 0.00139 U
TMW-06A	2/9/2017 0.000554 J
OW-32	2/9/2017 0.0635
OW-31	2/9/2017 0.000128 J
OW-18	8/1/2018 0.000466 J
MW-15	8/14/2023 0.00139 U
OW-23	2/22/2012 0.000442 Jb
MW-16	8/14/2023 0.00139 U
MW-18	8/14/2023 0.00139 U
TMW-12	8/14/2023 0.198
TMW-10	8/14/2023 0.134
TMW-11	8/14/2023 87.5
OW-46	8/14/2023 16.1
OW-44	8/14/2023 1.78
OW-43	8/14/2023 0.00139 U
TMW-9	8/14/2023 0.127
OW-4	8/12/2021 0.00493 J
OW-7	8/14/2023 0.00139 U
OW-9	8/12/2021 0.00124 J
OW-10	8/1/2018 0.000849 J
OW-30	2/11/2019 0.00238
OW-28	2/11/2019 0.003
OW-29	8/14/2023 3.76
OW-27	2/11/2019 0.00338
OW-26	8/14/2023 0.00139 U
OW-25	8/14/2023 6.27
MW-10A	8/14/2023 5.16
OW-40	8/14/2023 1.83
OW-41	8/14/2023 8.19
TMW-15	8/14/2023 120
OW-42	8/14/2023 1020
OW-8	8/12/2021 0.00301 J
MW-14	8/14/2023 0.00139 U
OW-5	8/12/2021 0.0160
MW-12	8/14/2023 0.00139 U
OW-6	8/1/2018 0.00684
MW-11	8/14/2023 0.0272
MW-13	8/14/2023 0.00139 U

STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

Legend

Status

- Monitoring Well Location
- Well Plugged and Abandoned
- iSOC Oxygenation Installation Individual Oxygen Cylinder at Each Location
- Accelerated Remediation Technology (ART) groundwater remediation Pilot Test System Wells (Installed October 2016)
- Nitrate Addition in Wells
- ART System Piping
- ART System Control Skid
- Approximate MTBE Plume Boundary - August 2023

0.0011 Jt - Green text indicates a significant decreasing trend.
2.02 - Red text indicates a significant increasing trend.
0.000442 Jb - Black text indicates no significant trend.
Commercial / Industrial PCL 0.73 mg/L
Residential PCL 0.24 mg/L
All results reported in milligrams per liter (mg/L).
Results highlighted in yellow are above the residential PCL.

Image: TNRIS Imagery Service
Date: 4/16/2023

N

0 40 80 160
Feet

AECOM
19219 KATY FREEWAY, SUITE 100
HOUSTON, TX 77094
PH: (281) 646-2400

Scale: As Shown	Drawn by: KPL	Date: 12/5/2023	
	Chk'd by: ZK	Date: 12/5/2023	

Title: **North Plant MTBE Results Map August 2023**

Project: North Plant, Galena Park, Texas, KM Liquids Terminal LLC

Client: **KM Liquids Terminal LLC**

Project No.:	File Name:	Attachment:
60699810	NP MTBE_Aug2023.mxd	1A-3

Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\North_Plant\MXD\NP MTBE_TPH_Aug2023.mxd

TANK 100-12

ART-1

SUMP INLET FOR GRAVITY FEED INFILTRATION GALLERY UNDER THE TANK

ART-2

MW-10A

Analyte	MW-10A	
MTBE	8/14/2023	5.16
TPH (C6-12)	8/14/2023	NA

MW-11

Analyte	MW-11	
MTBE	8/14/2023	0.272
TPH (C6-12)	2/11/2019	0.72 U

MW-12

Analyte	MW-12	
MTBE	8/14/2023	0.00139 U
TPH (C6-12)	8/14/2023	0.453 U

MW-13A

Analyte	MW-13	
MTBE	8/14/2023	0.00139 U
TPH (C6-12)	2/11/2019	0.73 U

MW-14A

Analyte	MW-14	
MTBE	8/14/2023	0.00139 U
TPH (C6-12)	8/14/2023	0.452 U

MW-15

Analyte	MW-15	
MTBE	8/14/2023	0.00139 U
TPH (C6-12)	8/14/2023	0.453 U

MW-16

Analyte	MW-16	
MTBE	8/14/2023	0.00139 U
TPH (C6-12)	8/12/2021	0.819 U

MW-18

Analyte	MW-18	
MTBE	8/14/2023	0.00139 U
TPH (C6-12)	2/11/2019	0.72 U

ELECTRICAL SHELTER

STORAGE SHED

APPROXIMATE LOCATION OF THE MAGELLAN PIPELINE

SITE BOUNDARY

CLINTON DR

STATE OF TEXAS
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST
06/28/24

Legend

- Monitoring Well Location
- ART System Piping
- ART System Control Skid
- Approximate MTBE Plume Boundary - August 2023

0.0011 Jt - Green text indicates a significant decreasing trend.
2.02 - Red text indicates a significant increasing trend.
0.000442 Jb - Black text indicates no significant trend.
Commercial / Industrial PCL 0.73 mg/L
Residential PCL 0.24 mg/L
All results reported in milligrams per liter (mg/L).
Results highlighted in yellow are above the residential PCL.

Image: TNRIS Imagery Service
Date: 4/16/2023

N

0 40 80 160
Feet

AECOM
19219 KATY FREEWAY, SUITE 100
HOUSTON, TX 77094
PH: (281) 646-2400

Scale:	Drawn by:	Date:
As Shown	KPL	6/6/2024
	Chk'd by: ZK	Date: 6/6/2024

Title: **North Plant MTBE - TPH Results Map August 2023**

Project: North Plant, Galena Park, Texas, KM Liquids Terminal LLC

Client: **KM Liquids Terminal LLC**

Project No.:	File Name:	Attachment:
60699810	NP MTBE_TPH_Aug2023.mxd	1A-4

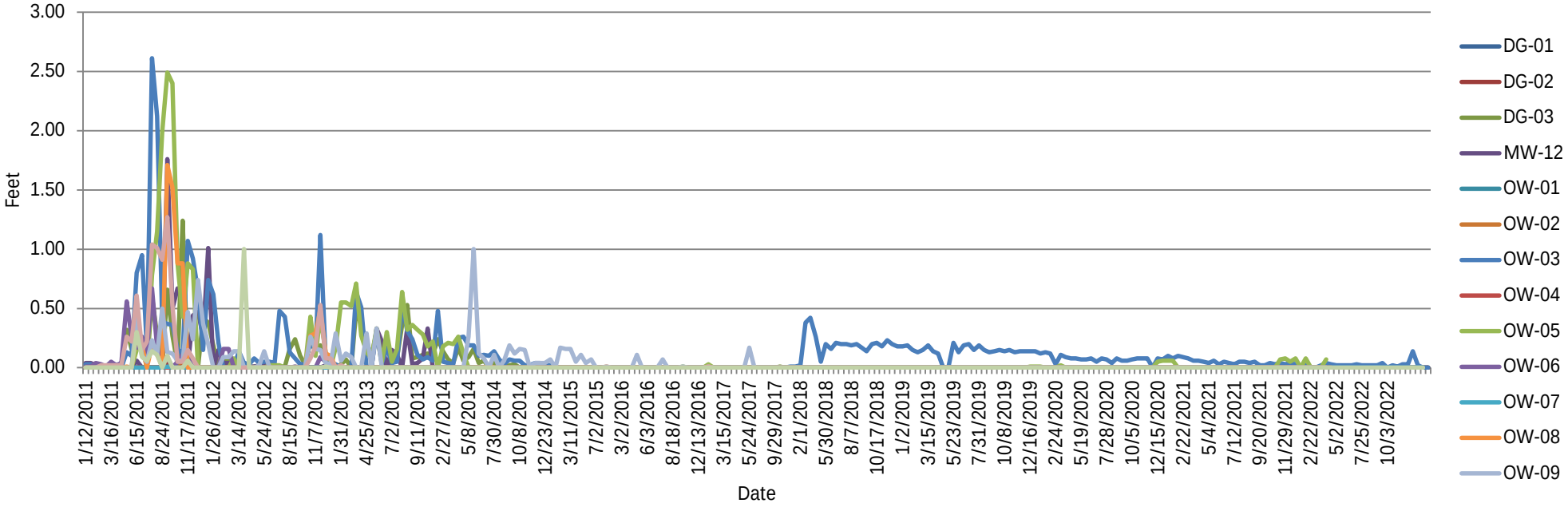
ATTACHMENT 1B

Graphs

1B-1 – Alkylate Thickness 2010 – 2022

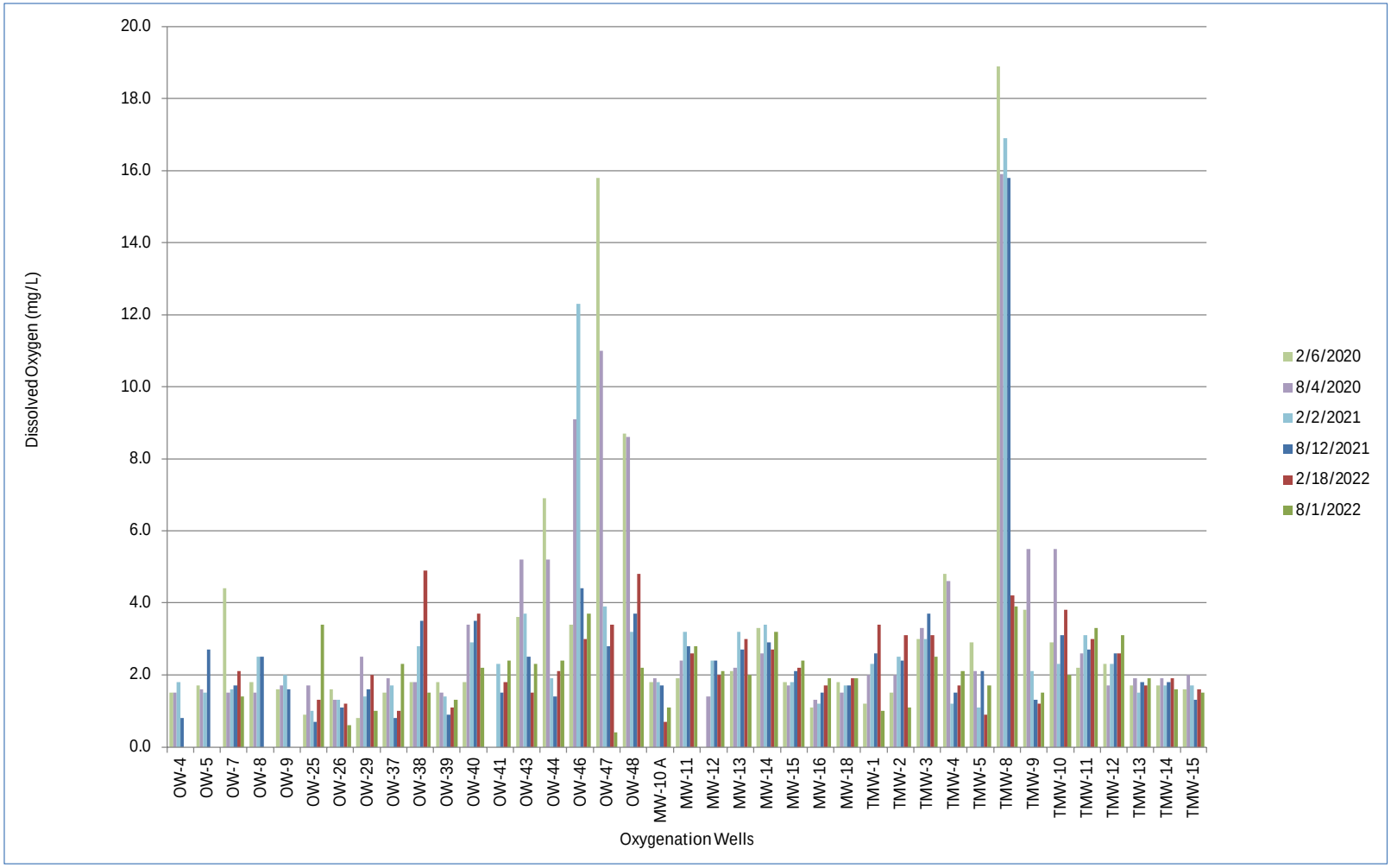
1B-2 – 2020 - 2022 DO Measurements

Attachment 1B-1
Kinder Morgan Liquids Terminals LLC
North Plant Alkylate Thickness
2011-2022



Attachment 1B-2

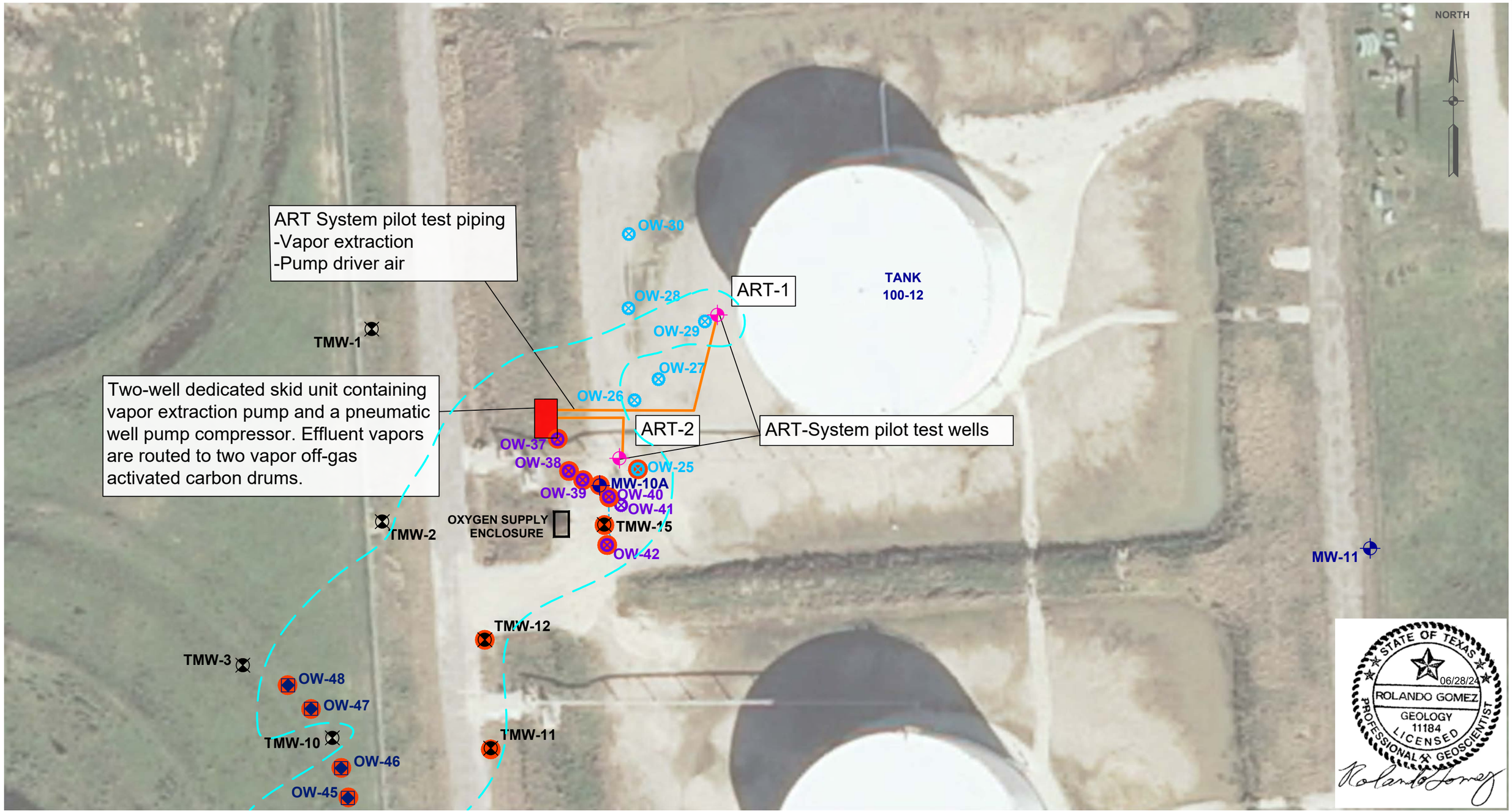
Kinder Morgan North Plant Dissolved Oxygen Readings, 2020 - 2022



ATTACHMENT 2A

Response Action Diagrams

2A-1 – ART System Layout
2A-2 – iSOC® Product Information



LEGEND

- Monitoring Well Location
- Temporary Monitoring Well Location
- ISOC Installation
- ART System Pilot Test Wells
- Oxygenation Well Location [Tank 100-12 System]
- Oxygenation Well Location (Installed 2011)
- Oxygenation Well Location (2012)
- Approximate MTBE Plume Boundary - February 2019

Source:
HGAC Aerial Photography dated 2012
Coordinates in NAD83 Texas State Plane, South Central Zone, feet

0 25 50 100
APPROXIMATE SCALE IN FEET

AECOM
19219 Katy Freeway Suite 100
Houston, Texas 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Scale:	Drawn by:	Date:
AS SHOWN	NEF	6-3-2020
	Chk'd by: WG	Date: 6-3-2020

Title: **Remediation Systems Layout Map**

Project: NORTH PLANT
KM LIQUIDS TERMINALS LLC
GALENA PARK, TEXAS

Client: **KM LIQUIDS TERMINALS LLC**

Project No.:	File Name:	Attachment:
60626194	Figure1C-2_ART_System.dwg	2A

File: P:_ENVP2\JOBS2\Kinder Morgan\60626194 KM Galena Park FY20 Support\900-Work\920-939-GIS or Graphics\North Plant\2020 RAER\MXD\Figure1C-2_ART_System_Layout.dwg Layout: 11x17 User: forbesn Plotted: Jun 03, 2020 – 1:08pm

ATTACHMENT 2A-2

iSOC® Product Information

iSOC® info

iSOC® YOUR ULTIMATE MANAGED ATTENUATION TOOL



iSOC® UPDATES

iSOC® has become a very popular bioremediation tool for remediating a wide range of contaminants, including recalcitrant compounds in groundwater and saturated porous media. iSOC® has already been used at hundreds of sites for effective hydrocarbon remediation, but we are continuing to improve and extend the technology.

A New Application of iSOC® Technology: Chlorinated Sites

Recently, iSOC® technology has been applied to sites contaminated with chlorinated hydrocarbons using oxygen and other gases to treat chlorinated sites under both anaerobic and aerobic conditions. Our website has been updated to reflect these bioremediation alternatives and various processes and soon our microcosm studies will provide more information to optimize delivery of combinations of gases to best stimulate the biological degradation of harmful substances.

A Micro-sized Control Panel

iSOC® is often used in individual wells with a small access box covering the well. While this set-up is cost-efficient and convenient, requiring no major site disruption or costly installation, the size of the access box is very limiting. Using innovative technology originally developed by NASA and successfully proven on our other Gas inFusion devices, we developed a small gas flow control device to sit in the top of the iSOC® unit. The result is a much simpler and easier installation that benefits the consultant and site owner both.

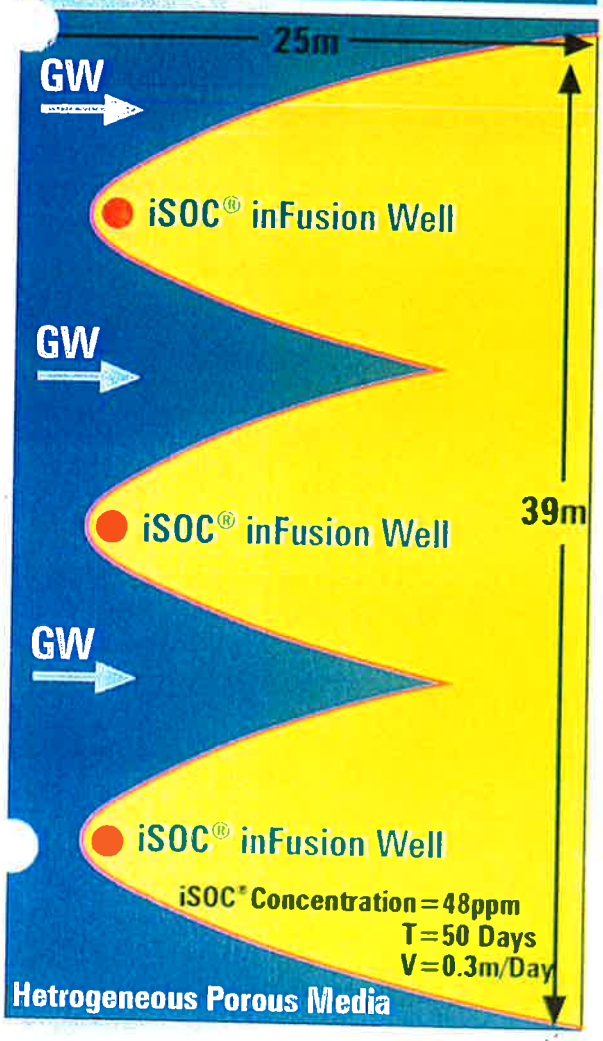


iSOC® AND BIOREMEDIATION ENHANCEMENT

iSOC® is an ingenious gas delivery system based on inVenture's patented Gas inFusion technology - a unique method of infusing supersaturated levels of dissolved gas into liquids. At the heart of iSOC®, the proprietary structured polymer mass transfer device is filled with micro-porous hollow fiber that provides an enormous surface area for mass transfer - in excess of 7000 m^2/m^3. It is hydrophobic and therefore excludes water. Maintaining gas pressure less than the surrounding liquid pressure ensures that ultra efficient mass transfer takes place without sparging.

In an aerobic bioremediation application, the iSOC® supersaturates the monitoring well with low decay dissolved oxygen (DO), typically 40-200 PPM depending on depth in groundwater. A natural convection current and a designed release bubble from the top of the iSOC® fills the well with a uniform DO curtain. The supersaturated DO curtain of water disperses around the well into the adjacent groundwater and enhanced bioremediation removes organics through natural attenuation. Placement of injection wells depends on site-specific conditions. The system is installed in a few hours and easily moved from well to well to optimize performance and remediation strategies.

iSOC® CONES OF INFLUENCE BASED ON FEMLAB MODEL



iSOC® REMEDIATION APPROACH

- Create an oxygen barrier at the leading edge of the contaminant plume to avoid boundary litigation and to protect off-site receptors.
- Reduce contamination levels by source treatment with supersaturated oxygen at the heart of the plume.
- Achieve rapid, localized remediation of low-level contamination and hot spots in existing monitoring wells.
- Accelerate site closure through natural attenuation as a primary remediation strategy or as a polisher.
- Lowest annual O&M cost of any passive enhancement technology.

HYDROCARBONS AND iSOC®

The use of dissolved oxygen in hydrocarbon contaminated groundwater to enhance natural attenuation of hydrocarbons such as MTBE and BTEX has been growing as a remediation technology since the mid-1990s. Conventional sparging technologies typically waste most of their delivered oxygen. Sparging bubbles make preferential flow paths and rise to the top of the groundwater table, escaping before they have a chance to dissolve and be utilized by naturally occurring hydrocarbon-degrading micro-organisms. Other in-situ technologies generate oxygen for a short period of time but are inadequate in aquifers with high ferrous iron, moderate BOD, and/or high concentrations of hydrocarbon constituents. iSOC® is a proven bioremediation technology that delivers high concentrations of dissolved oxygen into the aquifer. Very low O&M costs allow the iSOC® technology to be deployed in all types of remediation projects and site conditions.

iSOC® RADIUS OF INFLUENCE

Case studies and field measurements have shown the typical iSOC® radius of influence to be 10 feet (3 m) to 20 feet (6 m) laterally from the infusion well and many more feet in the direction of groundwater flow. Flowing groundwater and molecular diffusion transport the dissolved gas (e.g. oxygen, alkane, hydrogen) to the saturated porous media. The higher the concentration in the infusion well, the further the transport of the gas and the greater the influence. The influence is best measured by biological parameters, as the measure of dissolved gases at a distance from the infusion well is often inconclusive.

TYPICAL GAS CONCENTRATIONS (ppm)

GAS TYPE	WATER COLUMN DEPTH (ft/m)				
	5'/1.5	10'/3	15'/4.6	20'/6.1	50'/15.2
Oxygen	42	55	62	69	111
Methane	22	30	33	37	59
Propane	66	88	99	110	175
Hydrogen	2	2	3	3	5
Ethane	57	75	85	95	150

USING OTHER GASES WITH iSOC®

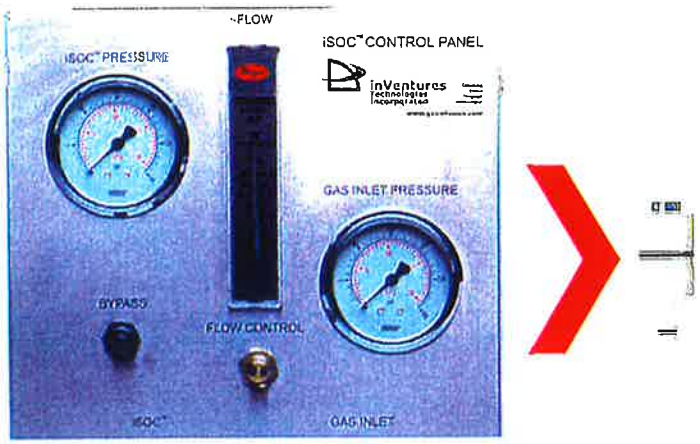
Consultants may need to use gases other than oxygen in their remediation approach. For example, hydrogen, methane, or propane may be used for remediation of chlorinated solvents and perchlorate. iSOC® will transfer these gases into the groundwater as effectively as it transfers oxygen, as shown above.

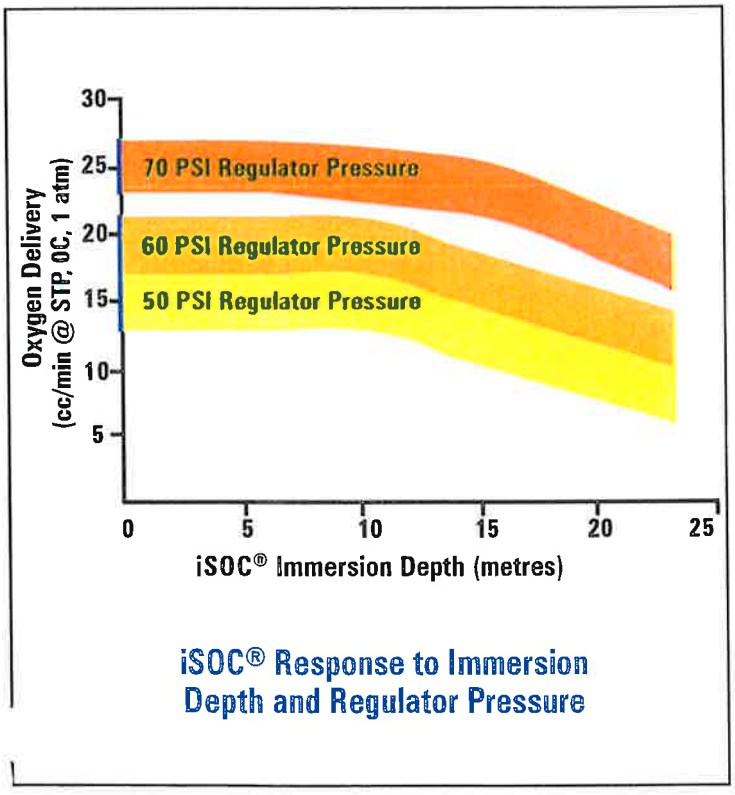
iSOC® ADVANTAGES

- Infuses 4 to 10 times more DO than any competitive technology.
- Delivers 40 to 200 PPM DO depending on iSOC® depth.
- Installs in existing 2-inch (50mm) monitoring wells.
- Application not limited by iron fouling under most conditions.
- Connects to standard gas cylinder.
- No power requirements, off-gases, pumps, or hazardous by-products.
- Small, simple, efficient, predictable, easy to use, & very low O&M.

MICRO-SIZING THE iSOC® CONTROL PANEL

In an effort to make the iSOC® System as easy to deploy as possible, the iSOC® Control Panel which determined the gas flow to the iSOC® and its structured polymer mass transfer device has been micro-sized. It now sits within the top of the iSOC® device and automatically controls the gas flow depending on groundwater depth and pressure regulator setting. All the installer has to do is set the pressure on the two-stage regulator. The iSOC® is simply attached to the tubing from the iSOC® Distribution Header and lowered into the well. There is no longer any need to house and mount a bulky control panel. The micro-sized flow controller is based upon valve control technology initially developed in the NASA Space program and currently used on other Gas inFusion Technology applications.





iSOC® Response to Immersion Depth and Regulator Pressure

MICRO-FLOW CONTROLLER

The built-in flow controller delivers a range of oxygen flow to the mass transfer device within the iSOC® depending on the immersion depth in groundwater and the pressure regulator setting. For immersion depths of less than 60 feet (18.3 m) of water, it is recommended that the oxygen regulator be set at 50 psi (3.4 bar). This will result in an average of 15 standard cc/min of oxygen delivered to the groundwater by the iSOC®. For greater depths, the regulator setting should be adjusted such that it is a minimum of 25 psi (1.7 bar) above the head pressure of the water.

WHERE HAS iSOC® BEEN USED?

The iSOC® technology has been used at hundreds of sites in the US, Canada, UK, Europe and Africa. It is currently being piloted on sites in Australasia and Japan. The technology has been deployed to bioremediate a range of hydrocarbons and other chemicals using direct aerobic, cometabolic, and anaerobic degradation methods.

iSOC® YOUR ULTIMATE MANAGED ATTENUATION TOOL



iSOC® DISTRIBUTION HEADER

Each order is supplied with a distribution header. Multiple port distribution headers are available. The size ordered is determined by the number of iSOC® units being run from each regulator. The distribution header can be directly mounted onto the gas regulator. The header is supplied with an on/off valve for each iSOC® unit such that the gas bottles can be changed without pulling the iSOC® from the well. For further detail go to www.isocinfo.com - Installation and Design - Installation Procedures.

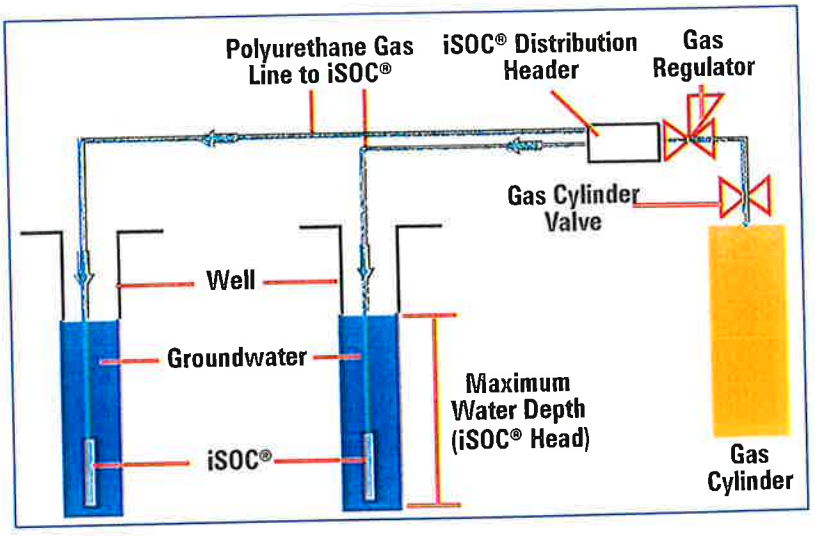
iSOC® QUALITY CONSTRUCTION

iSOC® is constructed of high quality SS316 stainless steel using the latest manufacturing equipment and a proprietary structured polymer mass transfer device. iSOC® is 1.62" (41 mm) in diameter and 12.65" (321 mm) long with a barb connector for 0.17" (4 mm) ID polyurethane tubing. The housings for the pressure and flow control unit and the drain plug are made from nylon. iSOC® has a lifting ring for connecting to a suspension line for insertion in 2" (50 mm) or larger monitoring wells.

CHLORINATED SOLVENTS AND iSOC®

The iSOC® Gas inFusion system is used to effectively remediate chlorinated solvent contaminated groundwater. Where tetrachloroethene (PCE) is the main contaminant of concern, a two-stage sequential bioremediation approach is used to first degrade PCE to trichloroethene (TCE) by reductive dechlorination, followed by aerobic cometabolic oxidation of TCE and other daughter products such as DCE and vinyl chloride. Alkane gas delivered by iSOC® stimulates the anaerobic process. iSOC®s are used to deliver oxygen and additional alkane gas to achieve aerobic cometabolic treatment of the daughter products. The aerobic process can be applied independently to TCE, DCE and VC sites and is not subject to stall due to competing electron acceptors or limited availability of necessary anaerobic microorganisms. Several alternative bioremediation approaches can also be implemented with iSOC®s including direct aerobic treatment of vinyl chloride and reductive dechlorination of chlorinated solvents by direct hydrogen delivery.

SYSTEM SET-UP

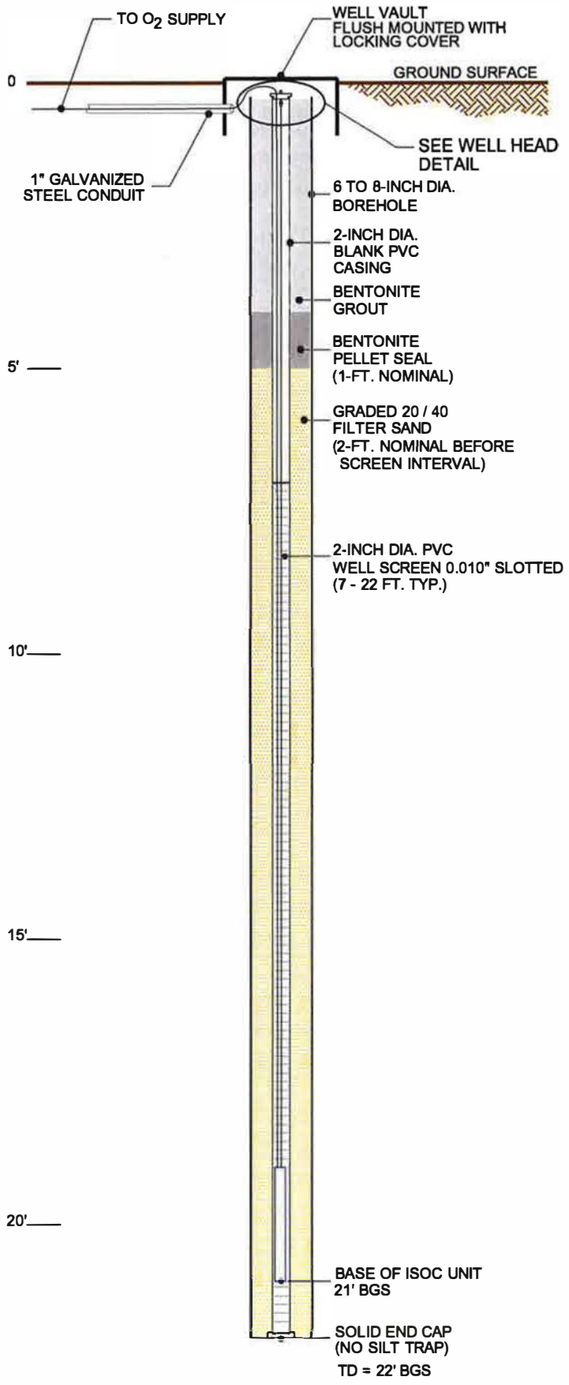


iSOC® COSTS

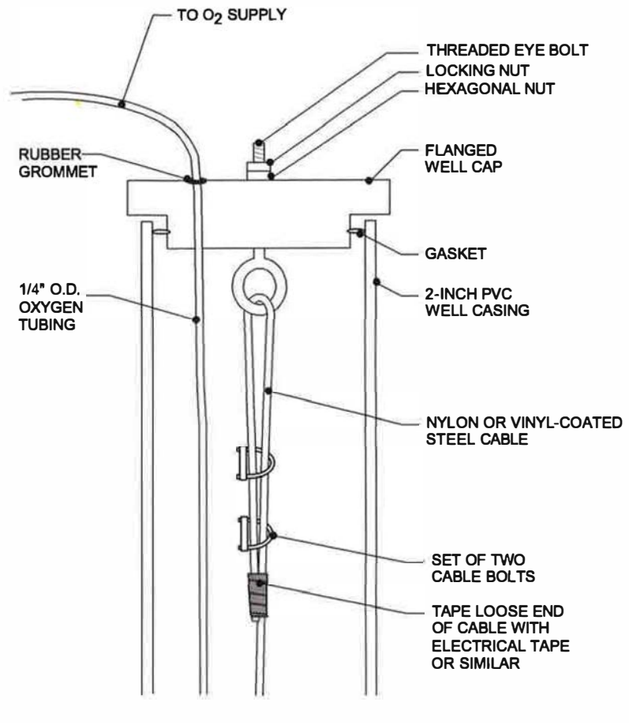
The iSOC® groundwater remediation technology is the leading and most cost effective solution in the marketplace today. Speak with your local iSOC® Sales Representative for system pricing. Your nearest Sales Representative can be found at www.isocinfo.com

ATTACHMENT 2B

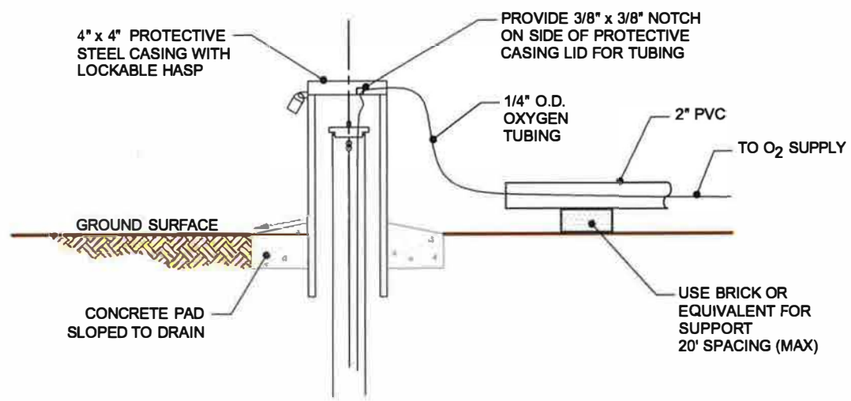
Proposed Well Design



TYPICAL INJECTION WELL
BELOW GRADE INSTALLATION



TYPICAL INJECTION WELL
HEAD DETAIL



TYPICAL INJECTION WELL
ABOVE GRADE INSTALLATION
(INSIDE TANK BERM)

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-5699
FAX: (713) 780-8404

Title: **MTBE Oxygenation System Typical Injection Well and Oxygen Supply Area**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
NOT TO SCALE	SJF	1-23-07	25009090	Typical Well Injection and Detail.dwg	2B –
	Chk'd by: BJ	Date: 1-23-07			

File: K:\ELM\2500\...nder Morgan Remediation.05\Dwgs\Mead\RAP\Attach 2B-2 – MTBE Oxygenation System Typical ...n Well.dwg Layout: Layout1 User: susan forres Plotted: Jan 23, 2007 – 2:57pm

Attachment 2D

Plume Management Zone Map

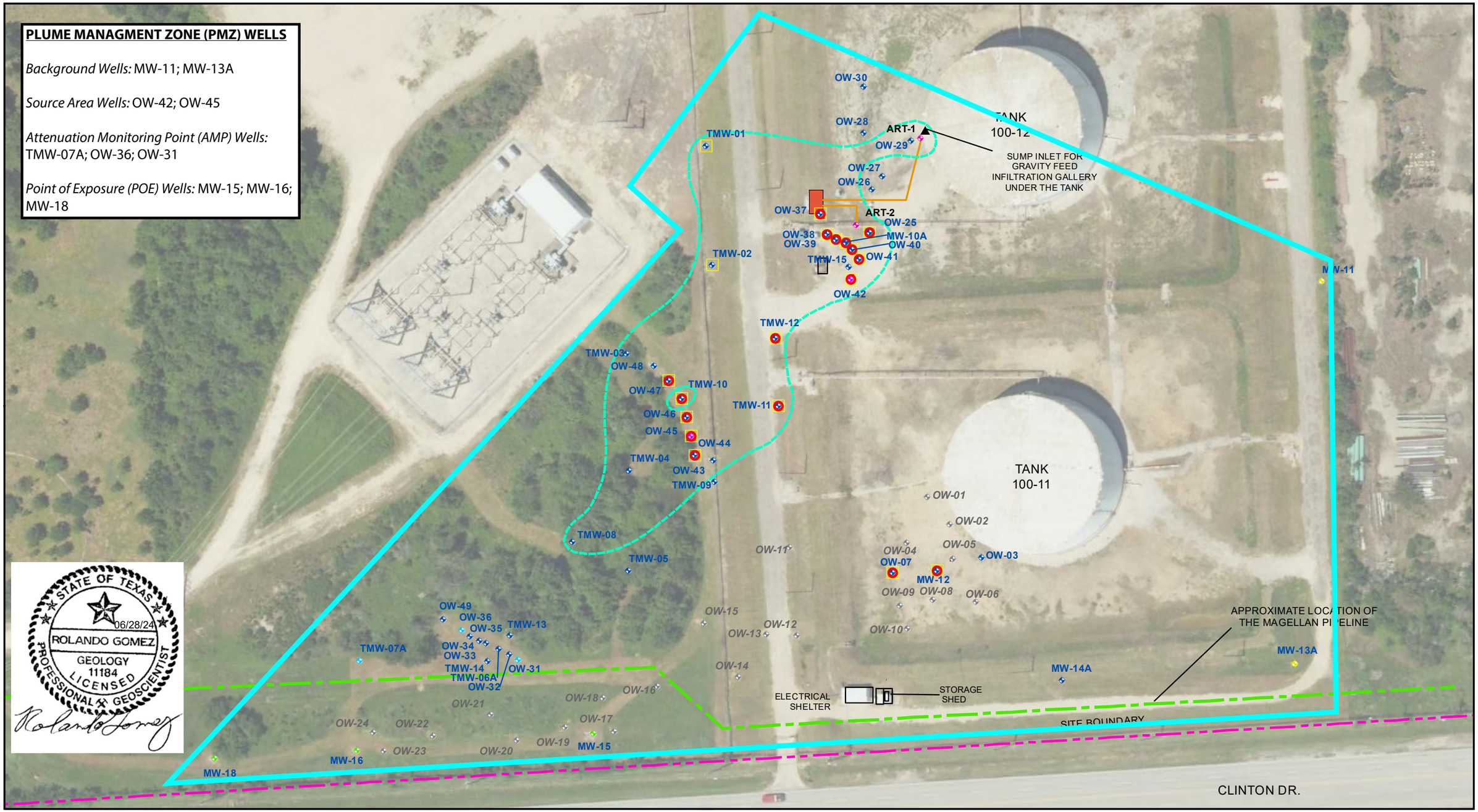
PLUME MANAGMENT ZONE (PMZ) WELLS

Background Wells: MW-11; MW-13A

Source Area Wells: OW-42; OW-45

Attenuation Monitoring Point (AMP) Wells: TMW-07A; OW-36; OW-31

Point of Exposure (POE) Wells: MW-15; MW-16; MW-18



Legend

- Site Boundary
- ART System Control Skid
- Monitoring Well Location
- Well Plugged and Abandoned
- Source Area Well
- Attenuation Monitoring Point (AMP) Well
- Point of Exposure (POE) Well
- Background Well
- Accelerated Remediation Technology (ART) Groundwater Remediation Pilot Test System Wells (Installed October 2018)
- iSOC Oxygenation Installation (Individual Oxygen Cylinder at Each Location)
- Nitrate Addition in Wells
- Approximate MTBE Plume Boundary - August 2022
- Magellan Pipeline
- ART System Piping
- Plume Management Zone Boundary Extent

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

TETRA TECH

Scale: As Shown	Drawn by: KPL/RTF	Date: 5/26/2024	
	Chk'd by: ZK/RC	Date: 5/26/2024	

Title: **PLUME MANAGEMENT ZONE MAP**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

Project No.: 212C-HN-02660

ATTACHMENT 2D

Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Figures\Attachment 2D.mxd

ATTACHMENT 2E

Attenuation Action Levels Determination

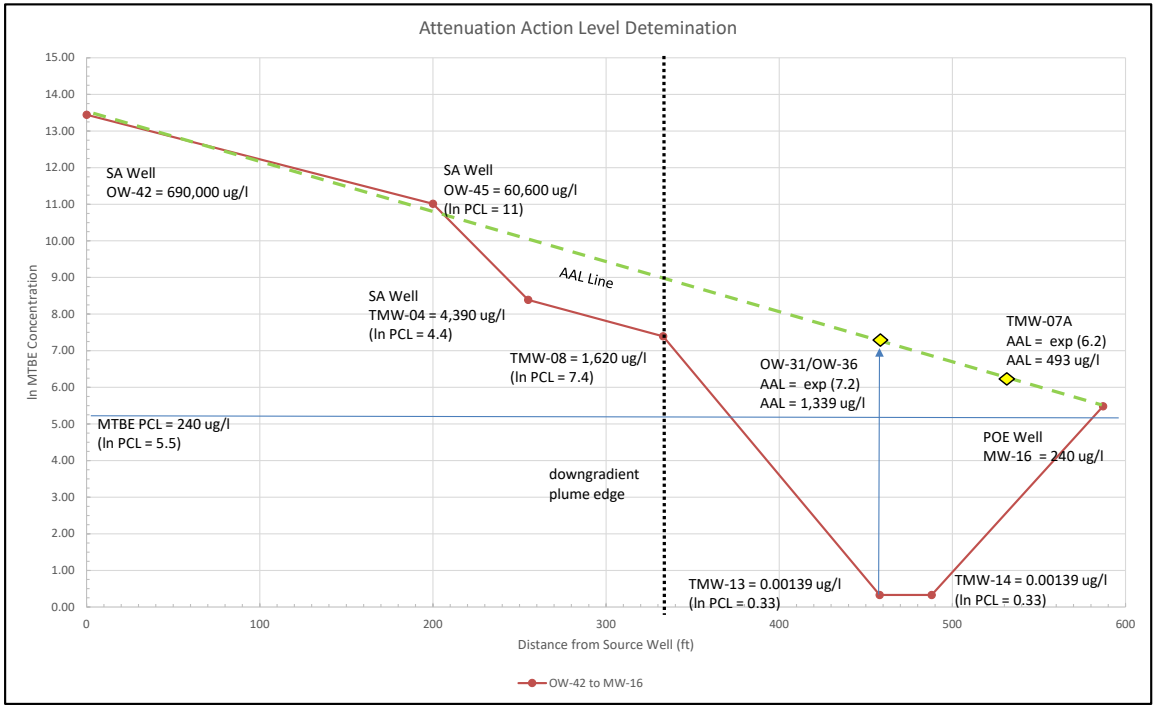
Attachment 2E-1 - Attenuation Action Levels Determination OW-42 to MW-16

Attachment 2E-2 - Attenuation Action Levels Determination OW-45 to MW-16

Attachment 2E-1
Attenuation Action Levels Determination
OW-42 to MW-16

WELL ID	Dist. From Source (ft.)	MTBE Conc. (mg/l)	LN MTBE Conc. (ug/l)	MTBE Conc. (ug/l)
OW-42	0	690	13.44	690,000
OW-45	200	60.6	11.01	60,600
TMW-04	255	4.39	8.39	4,390
TMW-08	333	1.62	7.39	1,620
TMW-13	458	0.00139	0.33	1.39
TMW-14	488	0.00139	0.33	1.39
MW-16	587	0.24	5.48	240
PROPOSED AMP WELLS				
TMW-07A	540	0.49	6.2	493
OW-36	460	1.34	7.2	1339
OW-31	460	1.34	7.2	1339

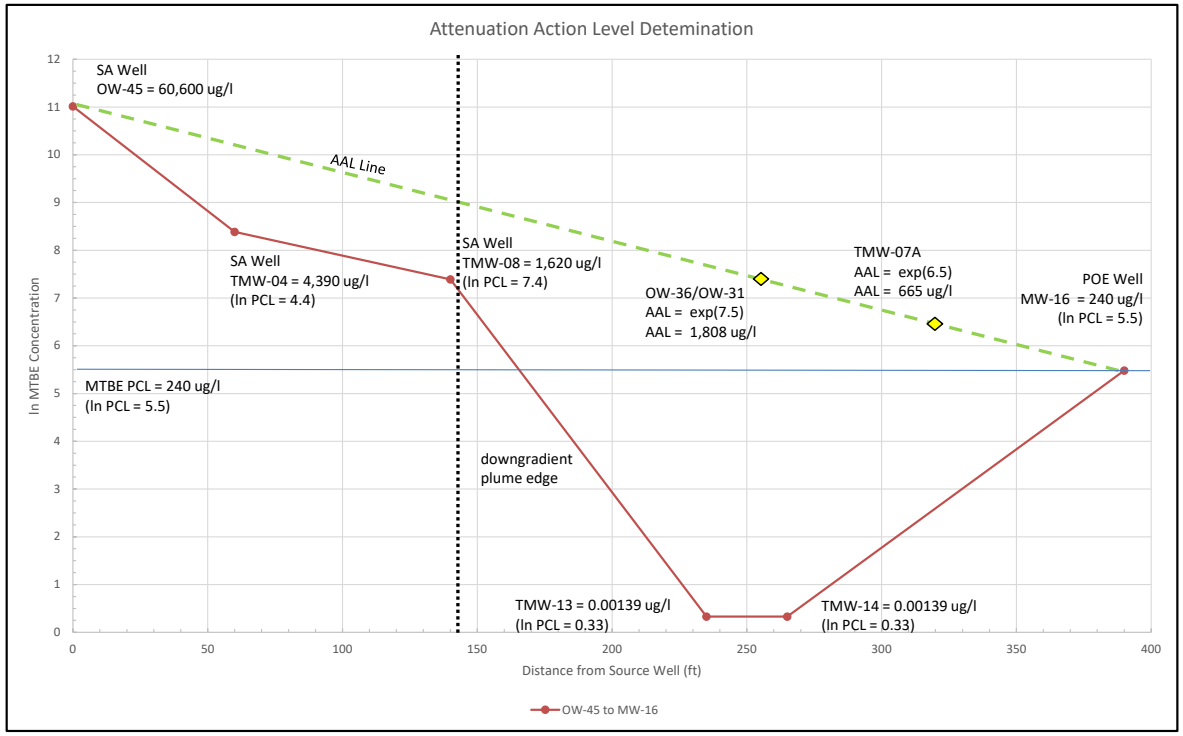
NOTE:
Attenuation Action Levels (AALs) were calculated utilizing the most recent ground water analytical data obtained from February 2024 sampling.



Attachment 2E-2
Attenuation Action Levels Determination
OW-45 to MW-16

WELL ID	Dist. From Source (ft.)	MTBE Conc. (mg/l)	LN MTBE Conc. (ug/l)	MTBE Conc. (ug/l)
OW-45	0	60.6	11.01205017	60600
TMW-04	60	4.39	8.387084506	4390
TMW-08	140	1.62	7.390181428	1620
TMW-13	235	0.00139	0.329303747	1.39
TMW-14	265	0.00139	0.329303747	1.39
MW-16	390	0.24	5.480638923	240
PROPOSED AMP WELLS				
TMW-07A	330	0.67	6.5	665
OW-36	255	1.81	7.5	1808
OW-31	255	1.81	7.5	1808

NOTE:
Attenuation Action Levels (AALs) were calculated utilizing the most recent ground water analytical data obtained from February 2024 sampling.



Attachment 3A

Map of Monitoring and Sampling Points

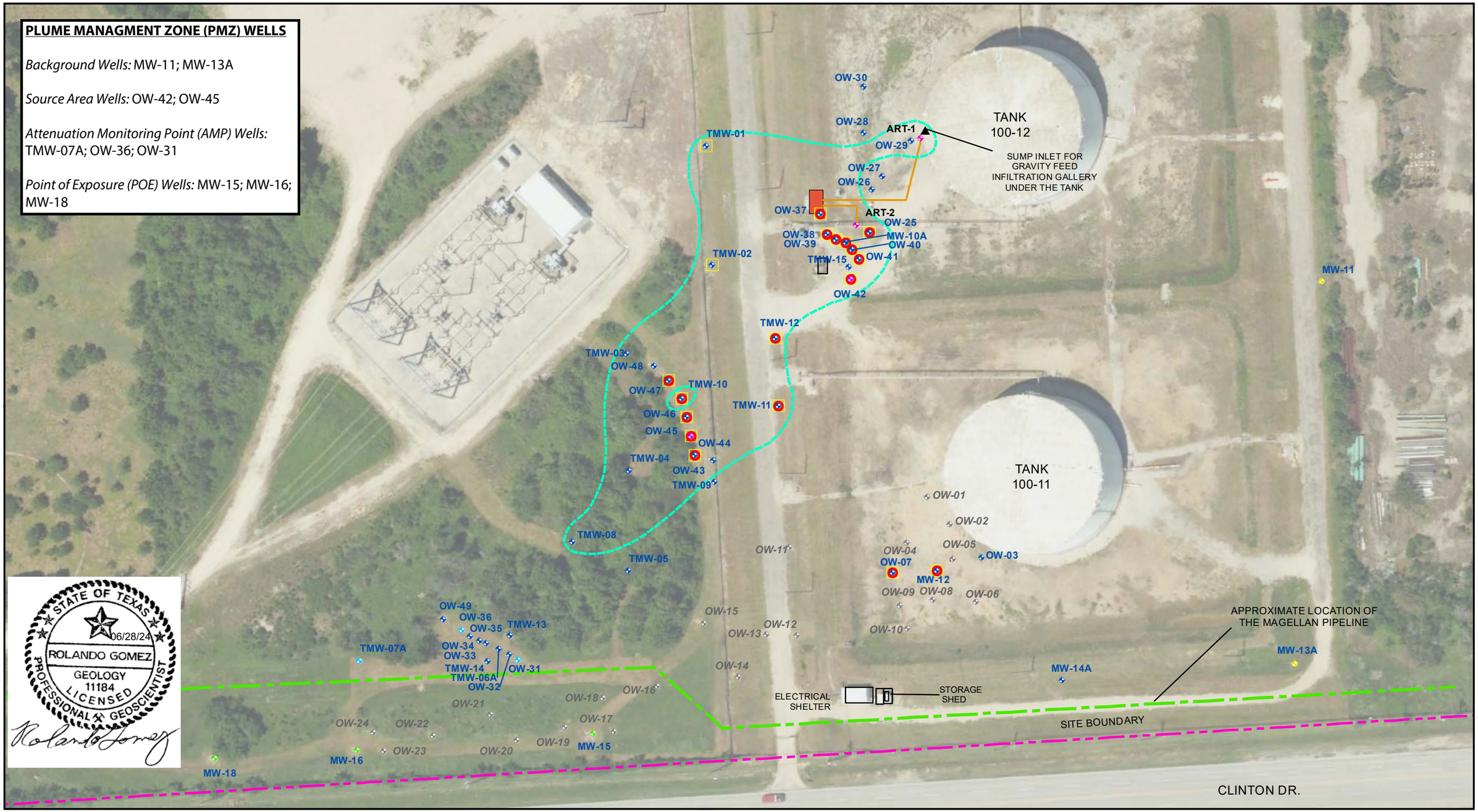
PLUME MANAGMENT ZONE (PMZ) WELLS

Background Wells: MW-11; MW-13A

Source Area Wells: OW-42; OW-45

Attenuation Monitoring Point (AMP) Wells: TMW-07A; OW-36; OW-31

Point of Exposure (POE) Wells: MW-15; MW-16; MW-18



STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

Legend

- Site Boundary
- ART System Control Skid
- Monitoring Well Location
- Well Plugged and Abandoned
- Source Area Well
- Attenuation Monitoring Point (AMP) Well
- Point of Exposure (POE) Well
- Background Well
- Accelerated Remediation Technology (ART) Groundwater Remediation Pilot Test System Wells (Installed October 2018)
- iSOC Oxygenation Installation (Individual Oxygen Cylinder at Each Location)
- Nitrate Addition in Wells
- Approximate MTBE Plume Boundary - August 2022
- Magellan Pipeline
- ART System Piping

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

TETRA TECH

Scale: As Shown	Drawn by: KPL/RTF	Date: 5/26/2024	
	Chk'd by: ZK/RC	Date: 5/26/2024	

Title: **MAP OF MONITORING AND SAMPLING POINTS**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

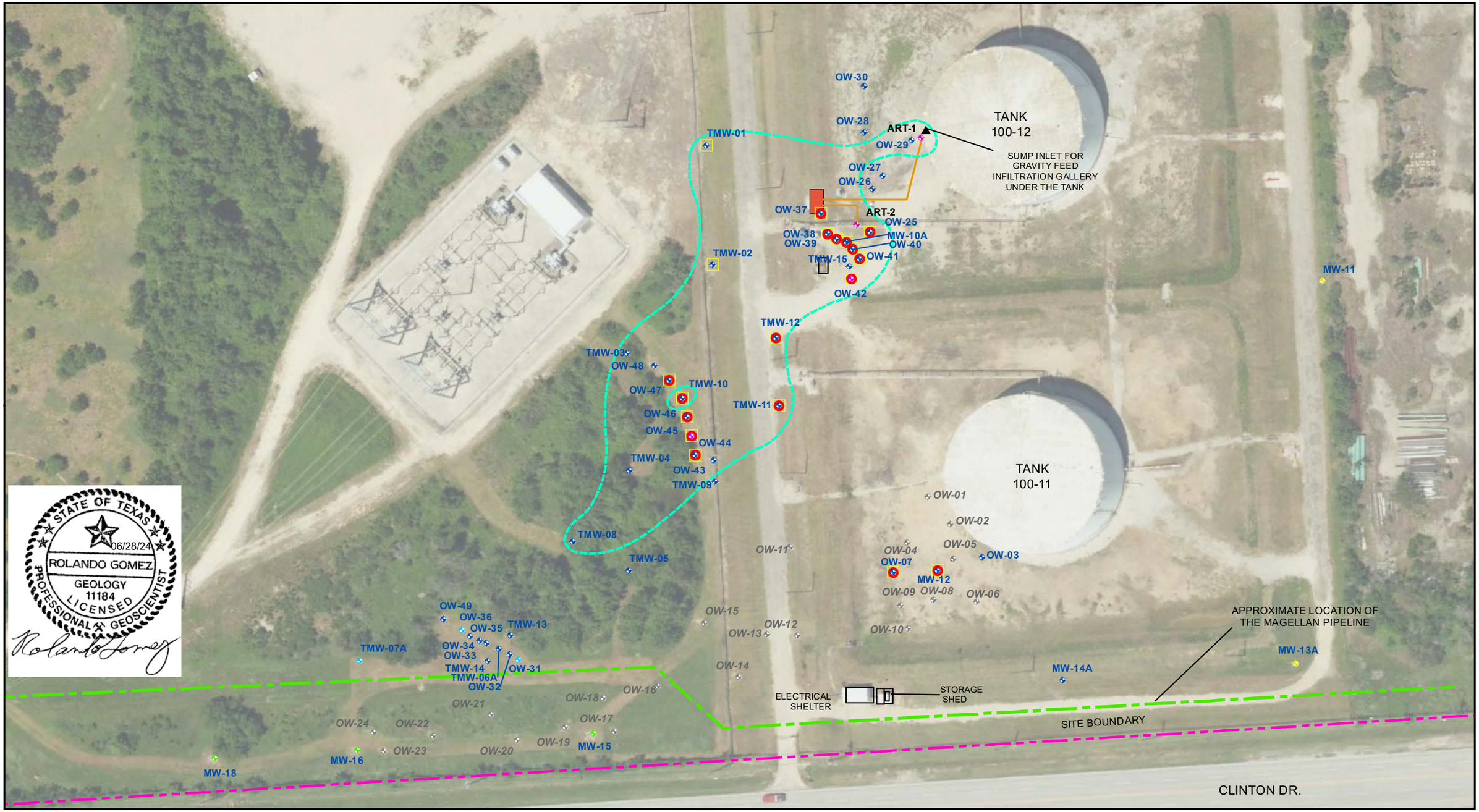
Project No.: 212C-HN-02660

ATTACHMENT 3A

Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Figures\Attachment 2D.mxd

Attachment 4A

Map of Confirmation Sampling Points



STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

Legend

- Site Boundary
- ART System Control Skid
- Monitoring Well Location
- Well Plugged and Abandoned
- Source Area Well
- Attenuation Monitoring Point (AMP) Well
- Point of Exposure (POE) Well
- Background Well
- Accelerated Remediation Technology (ART) Groundwater Remediation Pilot Test System Wells (Installed October 2018)
- iSOC Oxygenation Installation (Individual Oxygen Cylinder at Each Location)
- Nitrate Addition in Wells
- Approximate MTBE Plume Boundary - August 2022
- Magellan Pipeline
- ART System Piping

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

TETRA TECH

Scale: As Shown	Drawn by: KPL/RTF	Date: 5/26/2024	
	Chk'd by: ZK/RC	Date: 5/26/2024	

Title: **MAP OF CONFIRMATION MONITORING AND SAMPLING POINTS**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

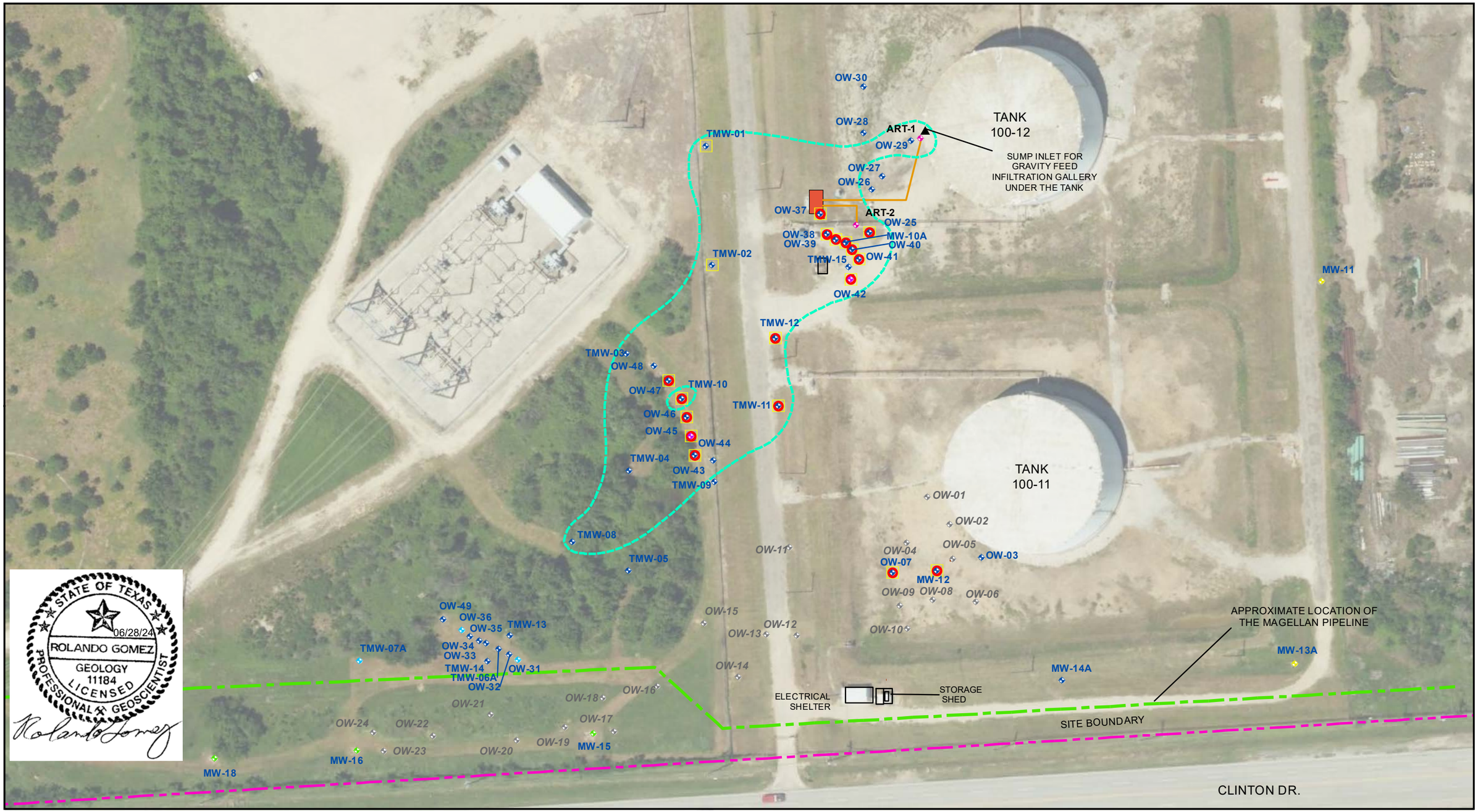
Project No.: 212C-HN-02660

ATTACHMENT 4A

Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Figures\Attachment 2D.mxd

Attachment 5A

Map of PRAC Monitoring and Sampling Points



STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

Legend

- Site Boundary
- ART System Control Skid
- Monitoring Well Location
- Well Plugged and Abandoned
- Source Area Well
- Attenuation Monitoring Point (AMP) Well
- Point of Exposure (POE) Well
- Background Well
- Accelerated Remediation Technology (ART) Groundwater Remediation Pilot Test System Wells (Installed October 2018)
- iSOC Oxygenation Installation (Individual Oxygen Cylinder at Each Location)
- Nitrate Addition in Wells
- Approximate MTBE Plume Boundary - August 2022
- Magellan Pipeline
- ART System Piping

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

TETRA TECH

Scale: As Shown	Drawn by: KPL/RTF	Date: 5/26/2024	
	Chk'd by: ZK/RC	Date: 5/26/2024	

Title: **MAP OF PRAC MONITORING AND SAMPLING POINTS**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

Project No.: 212C-HN-02660

ATTACHMENT 5A

Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Figures\Attachment 2D.mxd

Appendix 1

References

References

Response Action Plan Addendum

ARCADIS, 2005. Response Action Plan - North Plant Tank Farm, Kinder Morgan Liquids Terminals, LP., Galena Park, Texas, March 31, 2005.

Texas Risk Reduction Rules, 30 Texas Administrative Code (TAC), Chapter 335, Subchapter S.

URS, 2006. Affected Property Assessment Report - North Plant Tank Farm Addendum, Alkylate Assessment Report, Kinder Morgan Liquids Terminals, L.P., Galena Park, Texas, April 21, 2006.

URS, 2006. Response Action Plan Addendum - Alkylate Recovery System, North Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas, May 5, 2006.

URS, 2007. Response Action Plan Addendum - Alkylate Recovery System, North Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas, January 30, 2007.

AECOM, 2023. Response Action Effectiveness Report - KM Liquids Terminals LLC, North Plant Galena Park Texas Terminal, June 21, 2023.

April 10 & 11, 2001, Environmental Transport and Fate Alkylates, Workshop of the Increased Use of Ethanol and Alkylates in Automotive Fuels in California, Lawrence Livermore National Laboratory, Oakland, California.

Appendix 4

Proposed Institutional Controls

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS §

§

COUNTY OF HARRIS §

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows and attached hereto and incorporated herein by reference as **Exhibit A**.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is attached hereto and incorporated herein by reference as **Exhibit B**. The following chemicals of concern exceed their critical Protective Concentration Levels:

Chemical of Concern	*Environmental Media*
Methyl-tert butyl ether	Groundwater

This Notice is required for the following reasons:

Commercial/Industrial Land Use

The Affected Property currently meets TRRP standards for commercial/industrial use. Based on the reports, the chemicals of concern pose no significant present or future risk to humans or the environment based on commercial/industrial land use. No further remediation of the Affected Property is required by the TCEQ as long as the Affected Property is not to be used for residential purposes as the property may not be protective for residential use. If any person desires in the future to use the Affected Property for residential purposes, the TCEQ must be notified at least 60 days in advance of such use and additional response actions may be necessary before the property may be used for residential purposes. Persons contemplating a change in land use for the Affected Property are encouraged to review the definitions for commercial/industrial and residential land use contained in TRRP as the definition of residential land use is broad.

Plume Management Zone

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC

§350.33(f)(4). The undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached **Exhibit C** provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all of the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice [and the physical control] must not be removed or modified without prior approval from TCEQ.

Long Term (>15 years) Response Action

Remediation of the Affected Property is in progress to achieve protective conditions for the use of the Affected Property for commercial/industrial use. This notice is required to inform others of the ongoing long-term response action.

As of the date of this Notice, the record owner of fee title to the Property is _____with an address of _____.

For additional information, contact:

TCEQ	Mail:	TCEQ - MC 199
Central Records		P O Box 13087
12100 Park 35 Circle, Building E		Austin, Texas 78711-3087
Austin, Texas 78753		

TCEQ Program and Identifier No.: Industrial& Hazardous Waste/Corrective Action; SWR. No. 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this _____day of _____,_____.

[OWNER or RESPONDER]

By:_____

Name:_____

Title:_____

STATE OF TEXAS

HARRIS COUNTY

BEFORE ME, on this the_____day of _____, personally appeared _____[***name***]_____ , _____[***title***]_____, of _____[***company***]_____, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _ day of _____, ___.

Notary Public in and for the State of Texas

County of _____

My Commission Expires: _____

EXHBIT A

REAL PROPERTY DESCRIPTION

Metes and bounds survey to be included in final IC

EXHBIT B

AFFECTED PROPERTY DESCRIPTION

PMZ metes and bounds survey to be included in final IC

EXHBIT C

PLUME MANAGEMENT ZONE EXTENT/
MAINTENANCE & MONITORING REQUIREMMENTS

Kinder Morgan Liquids Terminals, LP.

Tank 100-11 (Formerly Tank 118-1)

Plume Management Zone Location/Extent; Maintenance and Monitoring Requirements

LOCATION AND EXTENT

The Site is located within The Kinder Morgan Liquids Terminal – North Plant located at 405 Clinton Drive, Galena Park, Harris County, Texas. The extent of the ground water monitoring plume is depicted in **Attachment 1.**

MAINTENANCE AND MONITORING REQUIREMENTS

The Plume Management Zone (PMZ) monitoring well network will be monitored and sampled on a semiannual basis. Monitoring wells will be analyzed for methyl-tert butyl ether (MTBE) only to assess plume mobility and extent.

Monitoring well inspections will be completed concurrently during monitoring and sampling activities. Inspection activities will include a visual inspection of well integrity as well as components related to the in situ, passive oxygenation remediation and enhanced bioremediation systems. System components will be maintained on an as needed basis. Significant maintenance and/or replacement activities (well replacement, for example) will be completed before the subsequent monitoring and sampling event following discovery of the issue/condition.

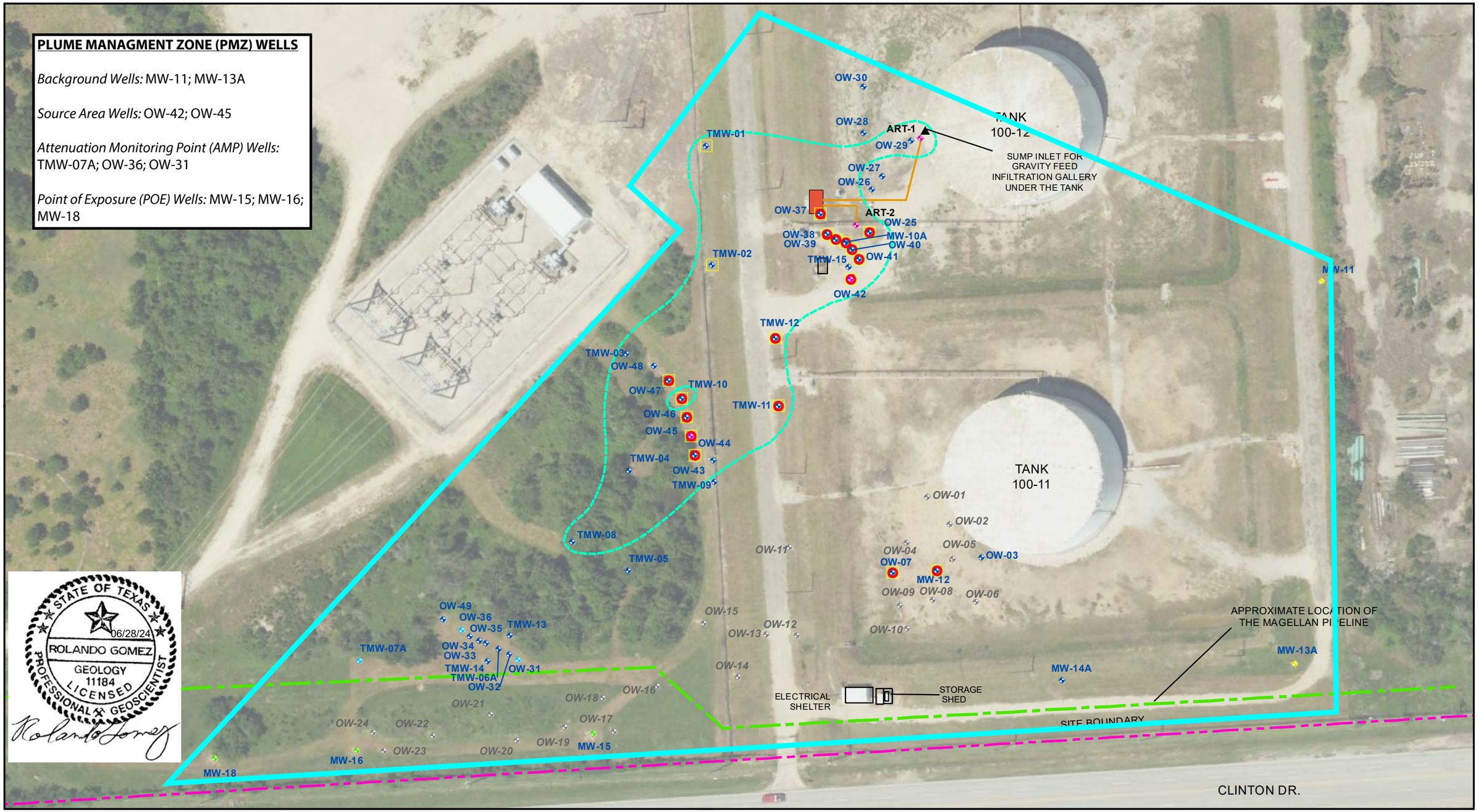
PLUME MANAGMENT ZONE (PMZ) WELLS

Background Wells: MW-11; MW-13A

Source Area Wells: OW-42; OW-45

Attenuation Monitoring Point (AMP) Wells: TMW-07A; OW-36; OW-31

Point of Exposure (POE) Wells: MW-15; MW-16; MW-18



STATE OF TEXAS
06/28/24
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

Legend

- Site Boundary
- ART System Control Skid
- Monitoring Well Location
- Well Plugged and Abandoned
- Source Area Well
- Attenuation Monitoring Point (AMP) Well
- Point of Exposure (POE) Well
- Background Well
- Accelerated Remediation Technology (ART) Groundwater Remediation Pilot Test System Wells (Installed October 2018)
- iSOC Oxygenation Installation (Individual Oxygen Cylinder at Each Location)
- Nitrate Addition in Wells
- Approximate MTBE Plume Boundary - August 2022
- Magellan Pipeline
- ART System Piping
- Plume Management Zone Boundary Extent

Image: TNRIS Imagery Service
Date: 11/16/2020

N

0 40 80 160
Feet

TETRA TECH

Scale: As Shown	Drawn by: KPL/RTF	Date: 5/26/2024	
	Chk'd by: ZK/RC	Date: 5/26/2024	

Title: **PLUME MANAGEMENT ZONE MAP**

Project: NORTH PLANT
GALENA PARK, TEXAS
KM LIQUIDS TERMINALS LLC

Client: **KM LIQUIDS TERMINALS LLC**

Project No.: 212C-HN-02660

ATTACHMENT 1

Path: S:\NEW Projects\Kinder Morgan\Galena Park Terminal\Projects\Permit\Figures\Attachment 2D.mxd

RESPONSE ACTION PLAN ADDENDUM

TANK 100-11 AND TANK 100-12

NORTH PLANT

GALENA PARK, TEXAS

KM LIQUIDS TERMINALS, L.P.



PREPARED FOR:

KINDER MORGAN

JANUARY 30, 2007

PREPARED BY:

URS

HOUSTON, TEXAS

KINDER MORGAN
KM LIQUIDS TERMINALS, LP

January 30, 2007

Ms. Kellie Green, Project Manager
Team I, Environmental Cleanup Section II
Remediation Division
Texas Commission on Environmental Quality (TCEQ)
12100 Park 35 Circle, Bldg. D. MC-127
Austin, Texas 78711-3087

Re: Response Action Plan Addendum for the North Plant Tank 100-11 and Tank 100-12
KM Liquids Terminals, L.P. (KMLT)
Galena Park, Texas
TCEQ SWR No. 30573 / EPA ID No. TXD026481523
TCEQ Hazardous Waste Permit/Compliance Plan No. HW/CP-50054

Dear Ms. Green:

Enclosed please find the Response Action Plan (RAP) Addendum, prepared by URS Corporation (URS) and submitted on behalf of KM Liquids Terminals, L.P. (KMLT) for the above referenced North Plant Tank 100-11 and Tank 100-12 in Galena Park, Texas. The RAP Addendum is submitted to update the schedule of the Alkylate RAP Addendum submitted to the TCEQ on May 5, 2006 and approved in a letter dated August 26, 2006, as well as to amend portions of the original MTBE Remediation RAP submitted to the TCEQ on March 31, 2005 and approved on May 11, 2005.

After receiving approval of the RAP for MTBE Remediation at North Plant, KMLT evaluated several alternate remedial technologies. After the consideration of factors including implementability, effectiveness, and cost, KMLT selected the response action addressed in the enclosed RAP Addendum. KMLT further investigated the chosen response action with the implementation of a pilot system, the results of which are also presented in this RAP Addendum.

As you know, I have taken on Lance Richard's previous responsibilities for remediation efforts at this facility. If have any questions or need additional information, please do not hesitate to contact me at (713) 920-8491 or Raaj Patel (URS) at (713) 914-6422.

Sincerely,
KM Liquids Terminals L.P.

Richard B. Steinberg

CC: Ms. Nicole Bealle, TCEQ Region 12 Office, Houston, Texas
Mr. Neal McHugh, KMLT Manager - Environmental Remediation, Carteret, NJ

405 Clinton Drive *Galena Park, TX 77547* *Ph: 713-920-8491 Fax: 713-472-7660*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) 30573
check one: __ Initial submittal for this on-site property X Subsequent submittal for this on-site property
Report date: January 26, 2007 TCEQ Region No.: 12

TCEQ Program (check one)

- [X] Corrective Action (Mail Code 127)
- [ ] Voluntary Cleanup Program (Mail Code 221)
- [ ] RPR Section (Mail Code 137)
- [ ] Superfund PRP Lead (Mail Code 143)
- [ ] Municipal Solid Waste Permits (Mail Code 124)

On-Site Property Information

On-Site Property Name: KM Liquids Terminals, LP. – North Plant Tank 100-11 and Tank 100-12 (Formerly Tanks 118-1 and 118-2)
Street no. 405 Pre dir: __ Street name Clinton Street type: Drive Post dir: __
City: Galena Park County: Harris County Code: 101 Zip: 77547
Nearest street intersection or location description: Federal Road and Clinton Drive

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29° 43' 59.38"
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95° 13' 20.80"

Off-Site Affected Property Information

Off-Site Affected Property Name:
Physical Address:
Street no. Pre dir: Street name Street type: Post dir:
City: County: County Code: Zip:

[X] Check if no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: KM Liquids Terminals, LP. (KMLT)
Contact Person: Mr. Lance Richards, P.E. Title: KMLT Manager, Environmental Remediation
Mailing Address: 405 Clinton Drive
City: Galena Park State: TX Zip: 77547-0465 E-mail address Lance_Richards@kindermorgan.com
Phone: 713-920-8491 Fax: 713-472-7660

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person: Lance Richards Name, print: LANCE RICHARDS Date: 1/27/7

Professional Signatures and Seals

Professional Geoscientist

Raaj U. Patel, P.G.	License No. 1014	7/31/2007
Professional Geoscientist	**Geoscientist License number**	**Expiration date**
Raaj U. Patel	1/30/07	
Signature	**Date**	
(713) 914-6422	(713) 789-8404	[redacted]
Telephone number	**FAX number**	**E-mail**

Professional Engineer

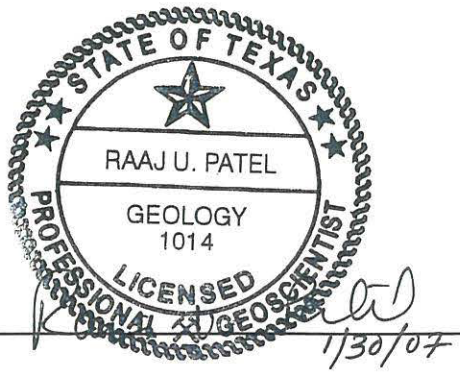
Robert N Jennings, P.E.	Texas License No: 53437	3/31/2007
Professional Engineer	**P.E. License number**	**Expiration date**
Signature	**Date**	
(713) 914-6593	(713) 789-8404	[redacted]
Telephone number	**FAX number**	**E-mail**

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



1/30/07



1/30/07

TABLE OF CONTENTS

Executive Summary
Chronology
Checklist for Report Completeness

1.0 Response Action Objectives
- Worksheet 1.0
- Figures 1-1 through 1-4
- Attachment 1A (1A-1 through 1A-4)
- Attachment 1B (1B-1 through 1B-3)

2.0 Response Action Design
- Worksheet 2.0
- Attachment 2A (2A-1 through 2A-7)
- Attachment 2B (2B-1 and 2B-2)

3.0 Performance Measures & Potential Problems
- Worksheet 3.0
- Worksheet 3.1
- Worksheet 3.2
- Attachment 3A (3A-1 and 3A-2)

4.0 Confirmation Sampling Plan
- Worksheet 4.0
- Attachment 4A (4A-1 and 4A-2)

5.0 Post-Response Action Care
- Worksheet 5.0

6.0 Implementation Schedule
- Worksheet 6.0

Appendices

Appendix 1 – References
Appendix 2 – Boring Logs
Appendix 3 – Studies and Tests Documentation

RAP Executive Summary	ID No.: 30573
	Report Date: January 26, 2007

Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and PCLE zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

The enclosed Response Action Plan (RAP) has been prepared to amend portions of the original RAP for KMLT's Galena Park North Plant MTBE remediation, which was submitted to the Texas Commission on Environmental Quality (TCEQ) on 03/31/05, and approved by the TCEQ in a letter dated May 11, 2005. Figure 1-1 depicts the layout of the North Plant.

An addendum to the 3/31/05 RAP was prepared to accommodate remedial activities planned for the alkylate release within the MTBE plume area (Figure 1-2), and submitted to the TCEQ on 05/05/06. This RAP addendum was approved by the TCEQ on August 26, 2006.

In the first quarter of 2006, KMLT began a series of activities related to the remediation of MTBE. These included excavation of approximately 13,000 cubic yards of affected soils, and solicitation of recommendations and cost estimates for groundwater remediation. A pilot study was conducted to evaluate an alternate remedial technology for the remediation of MTBE in groundwater.

For the pilot study, KMLT installed several wells within the MTBE plume, located in the containment of Tank 100-11, to evaluate the effectiveness of the pilot system. Figure 1-3 depicts the layout of the pilot study. The pilot test utilized an *in situ*, passive oxygenation system that delivers diffused oxygen to the groundwater to create aerobic conditions, therefore enhancing biological activities for MTBE degradation.

Based on the pilot test results, KMLT has decided to implement a full-scale MTBE groundwater remediation program at the North Plant. Layout of the full-scale system is shown together with the MTBE groundwater plume in Figure 1-4. Selection of this remedy does not affect the current TCEQ approved remedy for alkylate, which is being recovered by skimmer pumps placed within the alkylate plume.

What is the selected remedy standard for this affected property? X A ___ B

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Groundwater	Alkylate (TPH)	X					
	MTBE		X				

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).
[2] If a modified groundwater response objective is proposed, check the type(s) of proposed modifications.

RAP Executive Summary	ID No.: 30573
	Report Date: January 26, 2007

Is there a media that contains a PCLE zone that is not addressed in this RAP? X Yes ___ no
If yes, provide justification for not addressing the PCLE zone in this RAP.

Remediation of MTBE impacted soil at the North Plant was addressed in the original RAP submitted March 31, 2005, and approved by the TCEQ in a letter dated May 11, 2005. Since the approved soil remedy has already been implemented at the site and remains the same, this RAP amendment does not address soil media.

On-site land use: [ ] Residential [X] Commercial/Industrial
Off-site land use: [ ] Residential [X] Commercial/Industrial (check all that apply)

Is this a re-submittal or revision of a previous RAP? X Yes ___ No
If yes, explain why the RAP is being revised or resubmitted.

This submittal is provided to amend the portion of the 3/31/05 RAP to address the change in remedial technology for groundwater treatment at the site.

Were all the appropriate notifications made in accordance with §350.55? X Yes ___ No
If no, explain why notifications were not made:

Chronology
Kinder Morgan North Plant

August 2006 – MTBE passive oxygenation system initiated.

August 2, 2006 – TCEQ approved RAP addendum for alkylate recovery system.

July 13, 2006 – TCEQ approved North Plant Tank Farm APAR Addendum.

2nd Quarter 2006 – Twenty-four oxygenation wells were installed for the full-scale implementation of the passive oxygenation system.

May 4, 2006 – Completed pilot-test for remediation of MTBE in groundwater using passive oxygenation.

January 19, 2006 – Began pilot-test for remediation of MTBE in groundwater using passive oxygenation.

January 2006 – Installed pilot test for passive oxygenation to enhance bioremediation of the MTBE in groundwater.

January 14, 2006 – Alkylate recovery system initiated in Tank 100-11 containment area.

April 28, 2006 – Submitted RAP Addendum for alkylate recovery system to TCEQ.

April 22, 2006 – North Plant Tank Farm APAR Addendum submitted to the TCEQ.

1st Quarter 2006 – Alkylate was observed in MW-12, within the containment area of Tank 100-11.

1st Quarter 2006 – Approximately 13,000 cubic yards of MTBE-affected soil was excavated from an area west of Tank 100-12.

May 11, 2005 – TCEQ approved the RAP for the North Plant Tank Farm.

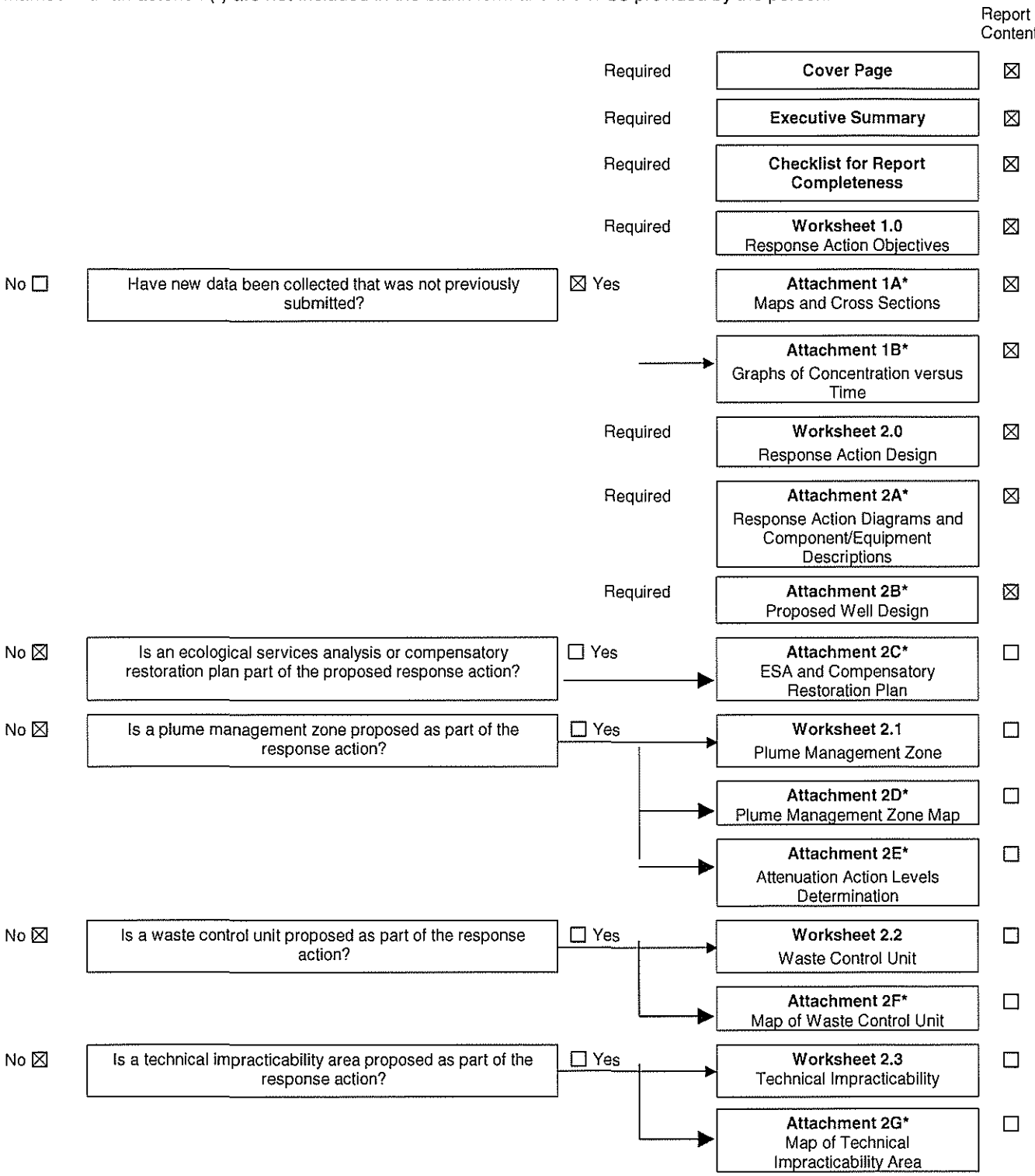
March 31, 2005 – The RAP for the North Plant Tank Farm was prepared by ARCADIS and submitted to the TCEQ.

Chronology prior to March 31, 2005 is provided in the 3/31/05 RAP.

Checklist for Report Completeness

ID No.: 30573
Report Date: January 26, 2007

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.



Checklist for Report Completeness

ID No.: 30573
Report Date: January 26, 2007

				Report Contents
No ☒	Is the response action a remedy standard B?	☐ Yes	**Worksheet 2.4** Institutional Controls	☐
		Required	**Worksheet 3.0** Performance Measures and Potential Problems	☒
		Required	**Worksheet 3.1** Monitoring and Sampling	☒
		Required	**Attachment 3A*** Map of Monitoring and Sampling Points	☒
		Required	**Worksheet 3.2** Operation and Maintenance	☒
		Required	**Worksheet 4.0** Confirmation Sampling Plan	☒
		Required	**Attachment 4A*** Map of Confirmation Sampling Points	☒
No ☒	Is the response action a Remedy Standard B?	☐ Yes	**Worksheet 5.0** Post Response Action Care	☐
			Attachment 5A* Map of PRAC Monitoring and Sampling Points	☐
			Attachment 5B* PRAC Costs	☐
No ☒	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes	**Attachment 5C*** Small Business Affidavit	☐
		Required	**Worksheet 6.0** Implementation Schedule	☒
		Required	**Appendix 1*** References	☒
No ☐	Was any data collected that was not previously reported?	☒ Yes	**Appendix 2*** Data Tables and Boring Logs	☒
No ☐	Were any studies or tests conducted?	☒ Yes	**Appendix 3*** Studies and Tests Documentation	☒
No ☒	Is the response action a Remedy Standard B?	☐ Yes	**Appendix 4*** Proposed Institutional Controls	☐
No ☒	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes	**Appendix 5*** Landowner Concurrence	☐
No ☒	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes	**Appendix 6*** Sampling Procedures	☐
No ☒	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes	**Appendix 7*** Statistical Methodology	☐
No ☒	Was approval received from the TCEQ regarding the use of different rules to address a media?	☐ Yes	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Use this worksheet to describe the objectives for the response action in each media.

Response Action Objectives

List the environmental media to which this applies Groundwater
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

The objectives are as follows:

- Remove recoverable alkylate from the groundwater surface;
- Enhance soil biological activity and subsequent bioremediation of MTBE;
- Mitigate the potential for plume migration; and
- Mitigate the potential for plume expansion.

The alkylate skimmer system, installed within the alkylate plume, has demonstrated the capability of recovering alkylate to minimal thicknesses. Alkylate is currently being recovered from selected wells within the plume based on the periodic gauging results. The alkylate thickness has been substantially reduced since recovery began in January 2006 (see Attachment 1B)

The response action for the MTBE groundwater plume for the North Plant is enhanced bioremediation by delivery of oxygen to groundwater through passive oxygenation. The initial response action submitted in the 2005 RAP was injection of ferric chloride to treat MTBE-affected groundwater. Subsequently, several additional remedial alternatives were evaluated. Considering implementability, effectiveness, and cost, KMLT selected oxygen as the reagent for MTBE remediation. In addition to being less expensive than traditional chemical oxidants, the chosen delivery system passively introduces oxygen into the groundwater, thereby mitigating potential plume migration and other issues associated with the chemical injection process.

A pilot test of the oxygenation system was conducted over a four-month period from February through May 2006. The pilot test included an injection well with an oxygen emitter and five observation wells (one upgradient and four downgradient wells). Figure 1-3 depicts the pilot-test layout. Results of the pilot test indicated increased dissolved oxygen (DO) levels in all wells and decreased MTBE levels in all but two wells, thus indicating that increased oxygenation in the MTBE plume promotes the removal of MTBE (see Attachment 1B).

The stratigraphy in the area of the pilot test is consistent with the stratigraphy of the overall area of the MTBE groundwater plume. Figures 1A-1 through 1A-4 depict generalized cross-sections of subsurface soils in the vicinity of the plumes.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Recovered alkylate is temporarily stored in a polyethylene tank located adjacent to the recovery wells. KMLT will remove alkylate from the polyethylene tank with a vacuum truck, and the recovered alkylate will be transferred to another tank at their facility used for managing off-specification liquid products.

No MTBE will be recovered from the *in situ*, passive oxygenation remediation system. The response action will degrade the concentration of MTBE in groundwater to a concentration below the 0.73 mg/L commercial industrial PCL within the containment areas and 0.24 mg/L residential PCL at downgradient property lines.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

KMLT plans to operate the alkylate recovery system as long as recoverable alkylate is present. It is anticipated that the system will be in operation for less than two years or until no product is detected in selected site wells for two consecutive quarters. Continuous removal of alkylate will ensure that the plume does not migrate or expand. Periodic thickness measurements in the recovery wells and monitoring wells will be used to verify that the alkylate plume is being controlled.

When the alkylate recovery system was initiated during the week ending January 14, 2006, alkylate thickness measured in RW-1 was approximately 5 ft. Alkylate thickness was reduced to less than 0.1 ft; however, the system was not operated during the 4th quarter of 2007 due to heavy rains causing flooding of the containment area. As of 12/29/06, alkylate thickness measured in RW-1 (with the system in operation) was approximately 0.6 ft. Attachment 1B-3 depicts alkylate thickness vs. time. The alkylate recovery system was reinitiated on January 2, 2007.

The MTBE passive oxygenation system will be operated as long as MTBE is detected above the applicable PCLs in site groundwater. Continuous oxygen will be delivered throughout the plume to ensure that the MTBE within the plume is degraded to concentrations below the applicable PCLs. The MTBE oxygenation system is currently projected to operate for three years, but may be discontinued if the desired results are achieved and confirmed before that time.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

Not Applicable

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

Not Applicable

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies: Sandy Channel Fill

Repeat this section for each groundwater-bearing unit for which a different response action is proposed.

Groundwater classification ____ 1 _X_ 2 ___ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? ___ Yes _X_ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? __ Yes __ No

If yes, complete the appropriate portions of this report.

If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

The response action for alkylate involves removal of alkylate from the groundwater surface. Because the solubility of alkylate is very low, treatment for dissolved-phase alkylate will not be required.

The presence of alkylate can be identified by analysis for total petroleum hydrocarbons (TPH). The predominant component of alkylate is octane isomers, which would show up as C8 in a TPH analysis. During the 1/20/06 groundwater sampling event for the monitoring well MW-12 (where alkylate was initially observed and is currently being recovered) petroleum hydrocarbons in the C6 - C12 range were detected at an estimated concentration of 1.83 mg/L, which is below the commercial/industrial PCL. TPH has not been detected in the nearest downgradient well, MW-15, or in the nearest cross-gradient well, MW-14.

The response action for MTBE is enhanced bioremediation through the passive oxygenation of affected groundwater. During the preliminary testing of remediation techniques, DO was tested as a variable against the previously suggested technique of ferric chloride injection. The test results indicated that increasing only the DO in the affected area would have a comparable effect to chemical oxidation without the possibility of technical issues (i.e. fouling and O&M efforts). As a result, a passive oxygenation pilot test was conducted within the containment area of Tank 100-11. The oxygenation pilot system effectively demonstrated that an increase in dissolved oxygen in the affected groundwater subsequently caused a decrease in MTBE in observation wells.

KMLT is implementing a full-scale passive oxygenation system that consists of a series of oxygenation wells and monitor wells placed within the plume boundary and monitor wells located within and outside of the plume to monitor remediation progress. The wells are concentrated along the downgradient boundary to ensure no offsite migration will occur.

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh\text{-}V}$) is exceeded.

Not Applicable

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

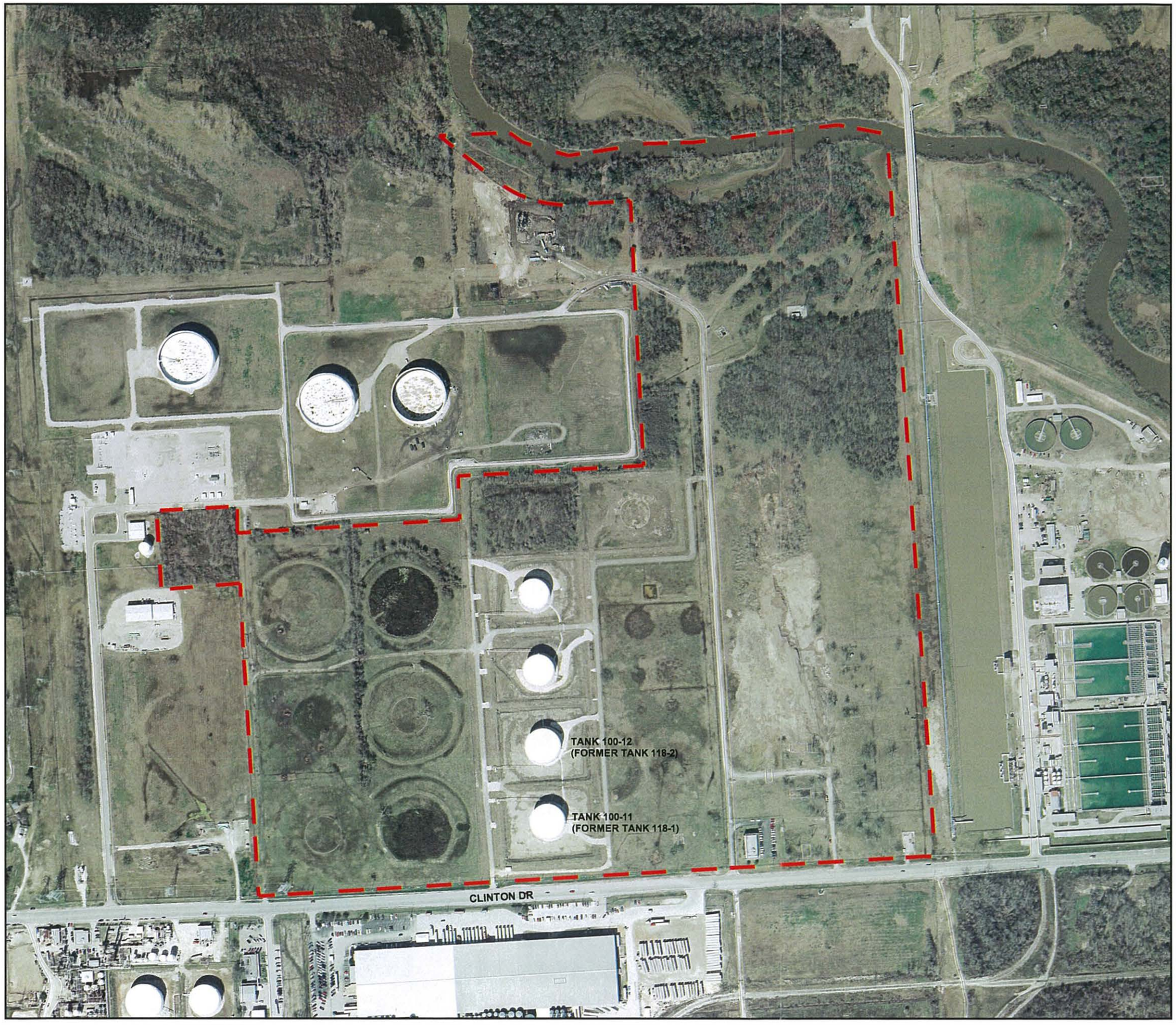
Delineation demonstrated that alkylate is confined to a small area within the southwestern portion of the tank berm surrounding Tank 100-11 (Figure 1-2). The alkylate thickness has been substantially reduced since recovery began in January 2006. Continued alkylate recovery and subsequent plume reduction will ensure that alkylate does not migrate beyond the berm for Tank 100-11.

The MTBE plume is located primarily within the containments of Tank 100-12 and Tank 100-11, but extends approximately 600 feet to the southwest of Tank 100-11 (Figure 1-2). The oxygenation wells are situated throughout the downgradient length of the plume to treat the entire affected area. A permanent monitoring well at the downgradient edge of the plume will be used to ensure that the plume does not migrate beyond its current location. No discharge of affected groundwater to surface water is anticipated.

Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

The extent of alkylate in groundwater is contained within the berm for Tank 100-11. There is no human or ecological receptor exposure for groundwater in this area.

MTBE affected groundwater extends from the containment areas of Tank 100-12, and Tank 100-11 to MW-16 located approximately 400 feet to the southwest of the Tank 100-11 berm. Delineation of the extent of the plume was provided in the initial RAP submittal. There is no human or ecological receptor or exposure for groundwater in this area.



NORTH

- GALENA PARK NORTH PLANT SITE BOUNDARY (APPROXIMATE)

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
01/30/07

0 400 800
APPROXIMATE SCALE IN FEET

Source:

HGAC photography taken February 2004.
Coordinates in NAD 83 State Plane Texas, South Central Zone, feet.

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

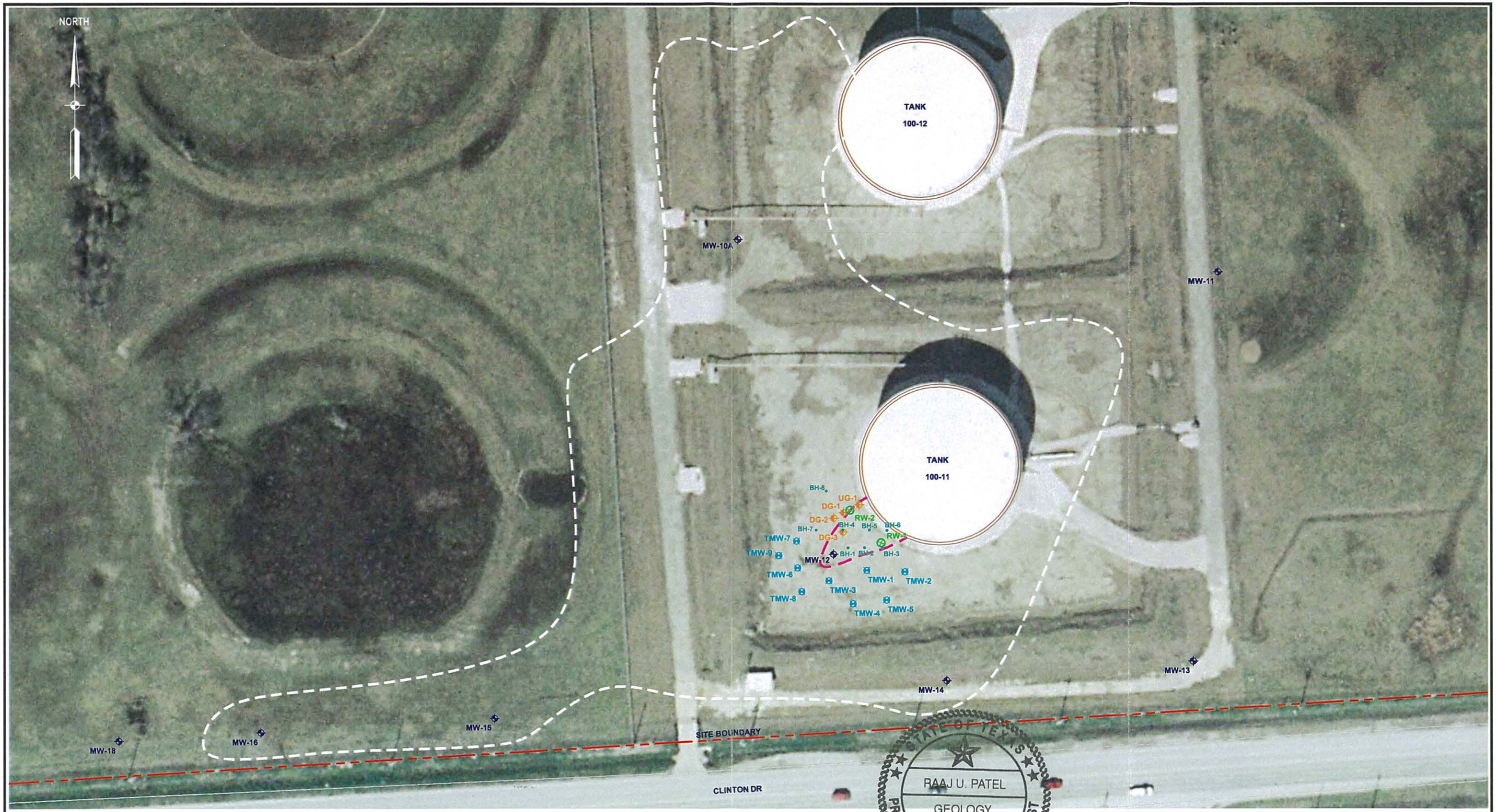
Title: **NORTH PLANT SITE LAYOUT**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Figure:
AS SHOWN	KPL / SJF	1-23-07	25009090	North Plant Site Layout.dwg	1-1
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009...\Under Morgan Remediation.05\Dwgs\Acad\RAP\Fig 1-1 - North Plant Site Layout.dwg Layout: ... User: susan forrest Plotted: Jan 23, 2007 - 2:55pm



Note: Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas
South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Alkylate Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- Temporary Monitoring Well Location (TMW-1)
- MTBE Pilot Test Well Location (UG-1)
- Soil Boring Location (BH-1) from Delta Environmental Consultants (initial geoprobe investigation to locate extent of alkylate, September 2005)

MTBE $^{GW}GW_{ing}$ [2]	
Residential	0.24 mg/L
Commercial / Industrial	0.73 mg/L

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST
1/30/07

0 40 80 160
APPROXIMATE SCALE IN FEET

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF	1-23-07
	Chk'd by: RP	Date: 1-23-07

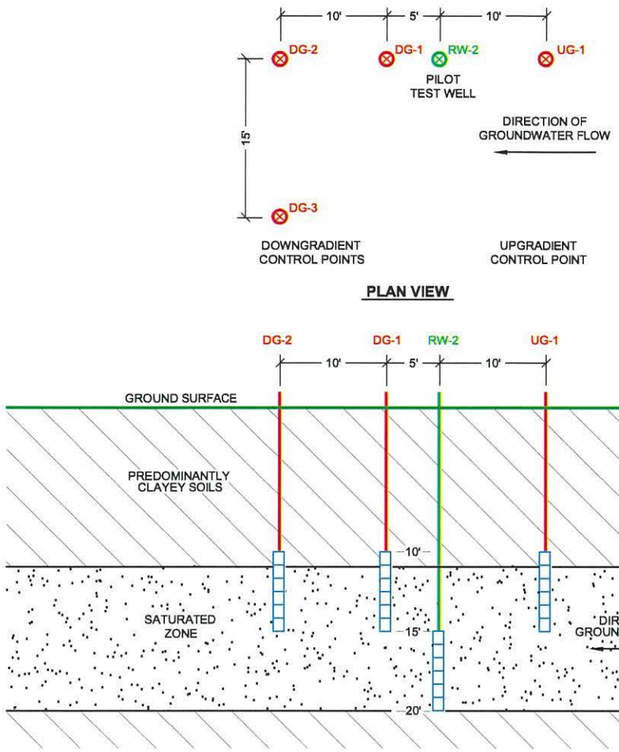
Title: **Affected Property Map**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Figure:
25009090	Affected Property Map.dwg	1-2

File: K:\ELM\25009090_Morgan Remediation.05\Dwgs\Acad\RAP\Fig 1-2 - Affected Property Map.dwg Layout: 11x17 User: scott.forrest Plotted: Jan 23, 2007 - 2:53pm



PLAN VIEW

SECTION VIEW

PILOT TEST LAYOUT

LEGEND

- MTBE Groundwater Plume Boundary (currently addressed under TCEQ approved RAP dated 3-31-05)
- Permanent Monitoring Well Location
- Alkylate Recovery Well Location
- MTBE Pilot Test Well Location

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas
South Central Zone, feet

0 40 80 160
APPROXIMATE SCALE IN FEET

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale: AS SHOWN	Drawn by: KPL / SJF	Date: 1-23-07	
	Chk'd by: RP	Date: 1-23-07	

Title: **Pilot Test Layout**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Figure:
25009090	Pilot Test Layout.dwg	1-3

File: K:\ELM\25009090\User Morgan Remediation.05\Dwgs\Acad\RAP\Fig 1-3 - Pilot Test Layout.dwg Layout: 11x17 User: susan.west Plotted: Jan 23, 2007 - 2:55pm

NORTH

TANK
100-12

TANK
100-11

MW-10A

MW-11

MW-12

MW-13

MW-14

MW-15

MW-16

MW-18

OW-1
OW-2
RW-2
OW-3
RW-1
OW-4
OW-5
OW-6
OW-7
OW-8
OW-9
OW-10
OW-11
OW-12
OW-13
OW-14
OW-15
OW-16
OW-17
OW-18
OW-19
OW-20
OW-21
OW-22
OW-23
OW-24

EXISTING ABOVE AND UNDERGROUND LINE

ELECTRICAL SHELTER

OXYGEN SUPPLY ENCLOSURE

TREATMENT BUILDING (EXISTING)

SITE BOUNDARY

CLINTON DR

Note: Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- Monitoring Points for the MTBE Remediation System
- Oxygenation Well Location (OW-1)
- Aboveground Transport Line
- Underground Transport Line

0 40 80 160

APPROXIMATE SCALE IN FEET

STATE OF TEXAS
RAAJAN PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF	1-23-07
	Chk'd by: RP	Date: 1-23-07

Title: **Full-Scale MTBE Oxygenation System**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Figure:
25009090	MTBE Oxygenation System.dwg	1-4

File: K:\ELM\25009090 Morgan Remediation (05)\Dwgs\Acad\RAP\Fig 1-4 - MTBE Oxygenation System.dwg Layout: 11x17 Plotted: Jan 23, 2007 - 2:54pm



Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas, South Central Zone, feet.

Note: Monitor well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Previous sample locations are approximate. Locations were based off three drawings from ARCADIS reports dated 2003.

LEGEND

- ◆ - Existing Monitoring Well Location
- □ - Previous Sample Location

0 120 240

APPROXIMATE SCALE IN FEET

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

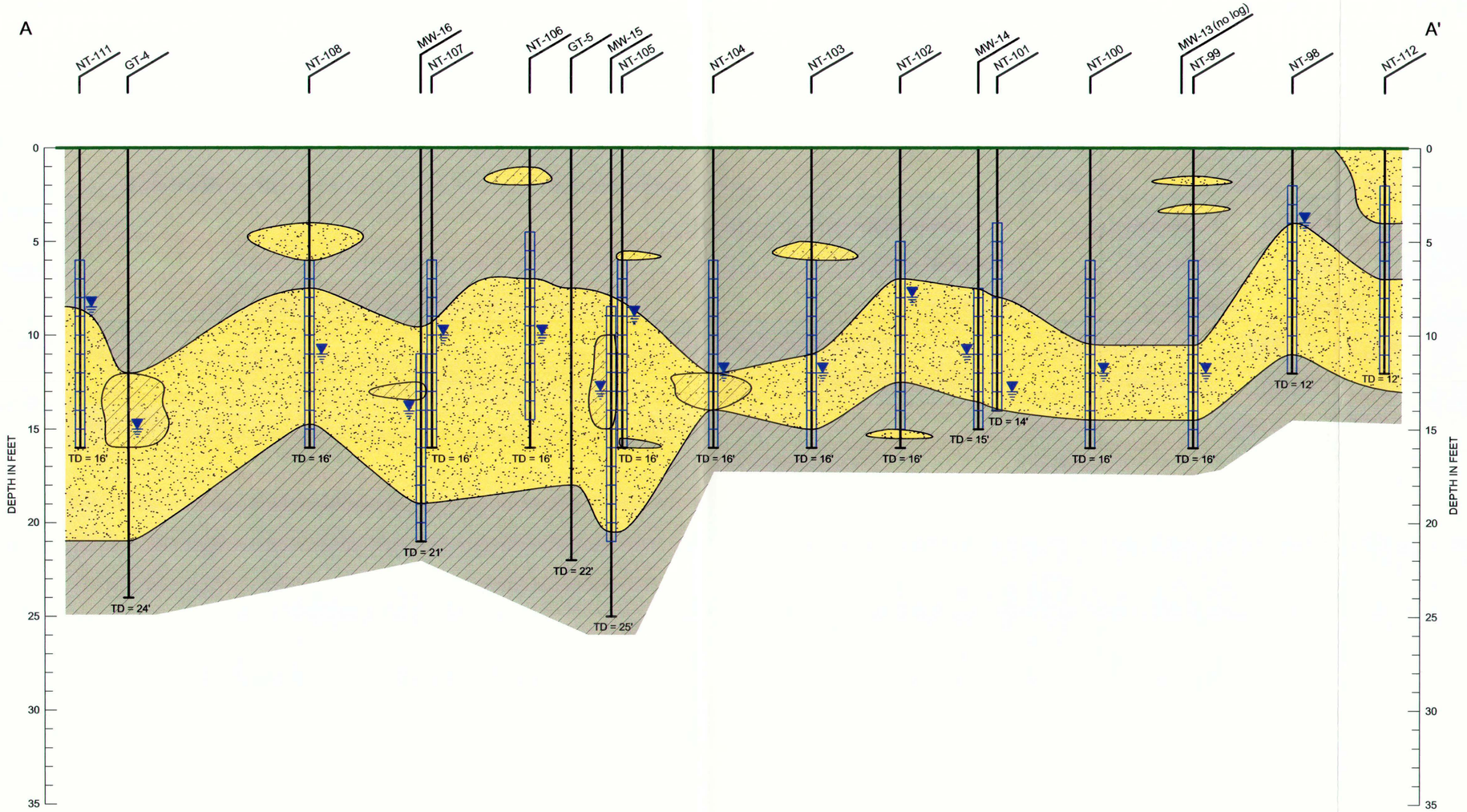
Title: **CROSS-SECTION LOCATIONS**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	KPL / SJF	1-23-07	25009090	Cross Section Location.dwg	1A-1
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009090\Morgan Remediation.05\Dwgs\Acad\RAP\Attach 1A-1 - Cross Section Location.dwg Layout: layout Plotted: Jan 23, 2007 - 2:52pm



Source:

Boring logs provided from the "Affected Property Assessment Report, North Plant Tank Farm", January 2004 (Arcadis).

LEGEND:

MW-15 — DESIGNATION NUMBER

SCREENED INTERVAL

INITIAL GROUNDWATER DURING DRILLING

TD = 25' — TOTAL DEPTH IN FEET

(CH / CL) CLAY / SILTY CLAY / SANDY CLAY

(SC / SM) CLAYEY SAND / SILTY SAND

(SW) SAND / GRAVELLY SAND

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOLOGIST
1/30/07

VERTICAL (FEET): 0, 1, 2, 3, 4, 5

HORIZONTAL (FEET): 0, 50, 100

VERTICAL EXAGGERATION = 20 x

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale: AS SHOWN	Drawn by: KPL / SJF	Date: 1-23-07	
	Chk'd by: RP	Date: 1-23-07	

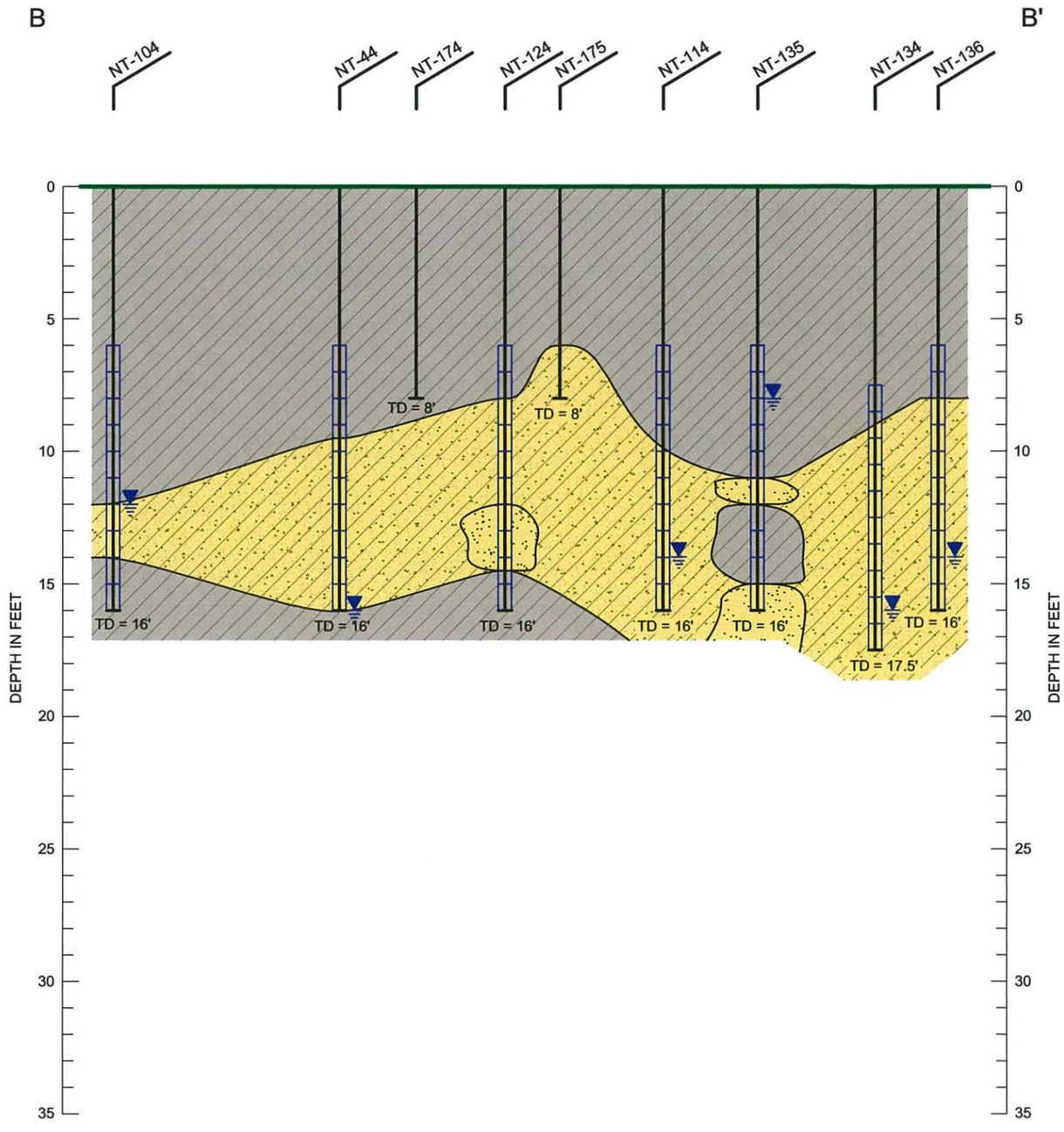
Title: **CROSS-SECTION A - A'**

Project: NORTH PLANT RAP, KM LIQUIDS TERMINALS, L.P., GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Attachment:
25009090	Cross-Sections A-B-C.dwg	1A-2

File: K:\LAH\350\Kinder Morgan Remediation\05\Dwgs\Acad\RAP\Attach 1A-2 1A-3 1A-4 - Cross-Sections A - B - C.dwg Layout: A-4 User: susan.forrest Plotted: Jan 23, 2007 - 1:42pm



Source:

Boring logs provided from the "Affected Property Assessment Report, North Plant Tank Farm", January 2004 (Arcadis).

LEGEND:

NT-104 — DESIGNATION NUMBER

SCREENED INTERVAL

INITIAL GROUNDWATER DURING DRILLING

TD = 25' — TOTAL DEPTH IN FEET

(CH / CL) CLAY / SILTY CLAY / SANDY CLAY

(SC / SM) CLAYEY SAND / SILTY SAND

(SW) SAND / GRAVELLY SAND

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST
1/30/07

VERTICAL (FEET): 0, 1, 2, 3, 4, 5

HORIZONTAL (FEET): 0, 50, 100

VERTICAL EXAGGERATION = 20 x

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

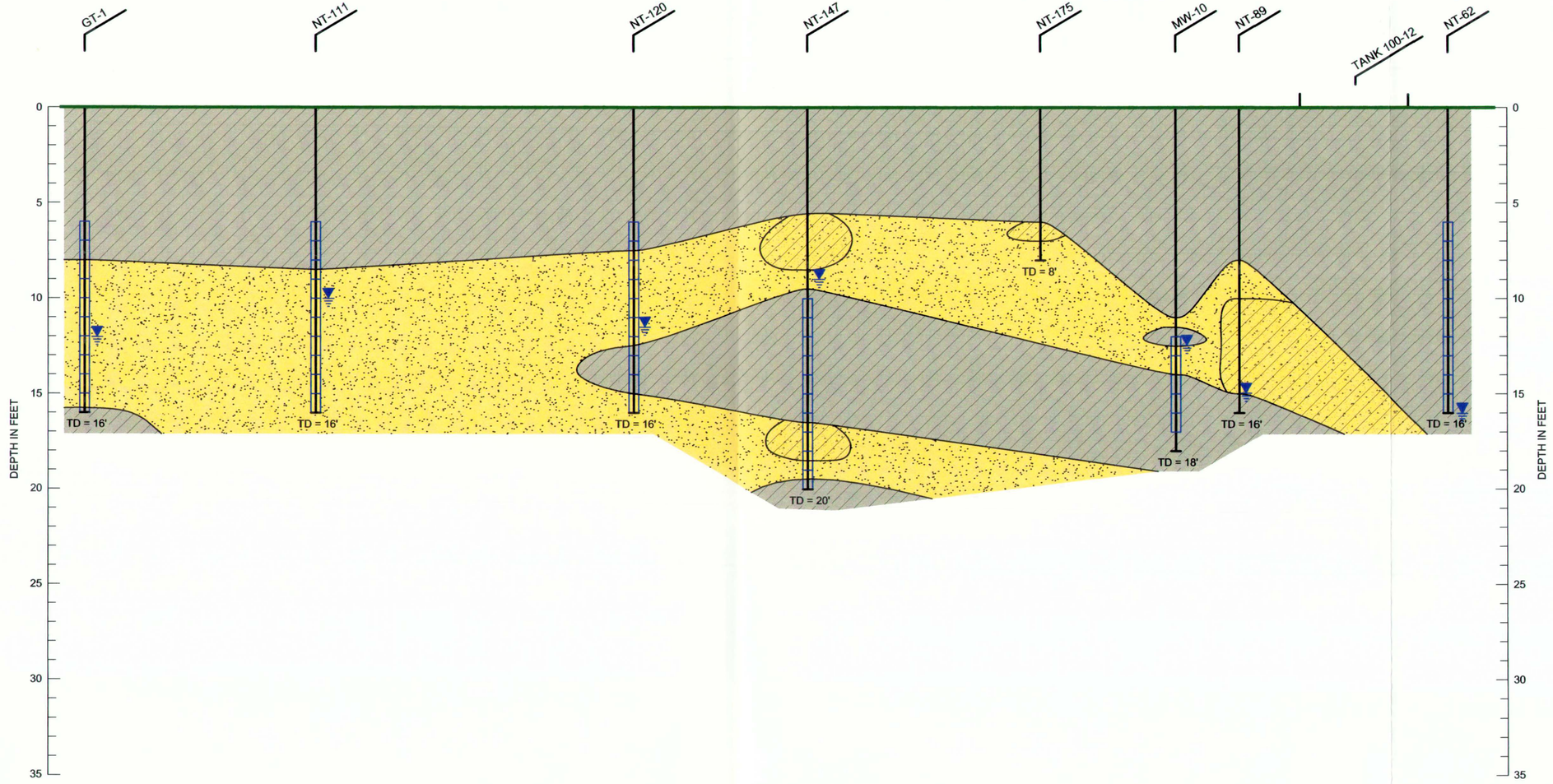
Title: CROSS-SECTION B - B'

Project: NORTH PLANT RAP, KM LIQUIDS TERMINALS, L.P., GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	KPL / SJF	1-23-07	25009090	Cross-Sections A-B-C.dwg	1A-3
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25C\Kinder Morgan Remediation.05\Dwgs\Acad\RAP\Attach 1A-2 1A-3 1A-4 - Cross-Sections A - B -
Layout: B-B User: susan forrest Plotted: Jan 23, 2007 - 1:43pm



LEGEND:

MW-10 DESIGNATION NUMBER

SCREENED INTERVAL

INITIAL GROUNDWATER DURING DRILLING

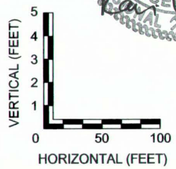
TD = 25' TOTAL DEPTH IN FEET

(CH / CL) CLAY / SILTY CLAY / SANDY CLAY

(SC / SM) CLAYEY SAND / SILTY SAND

(SW) SAND / GRAVELLY SAND

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOLOGIST
01/30/07



VERTICAL EXAGGERATION = 20 x

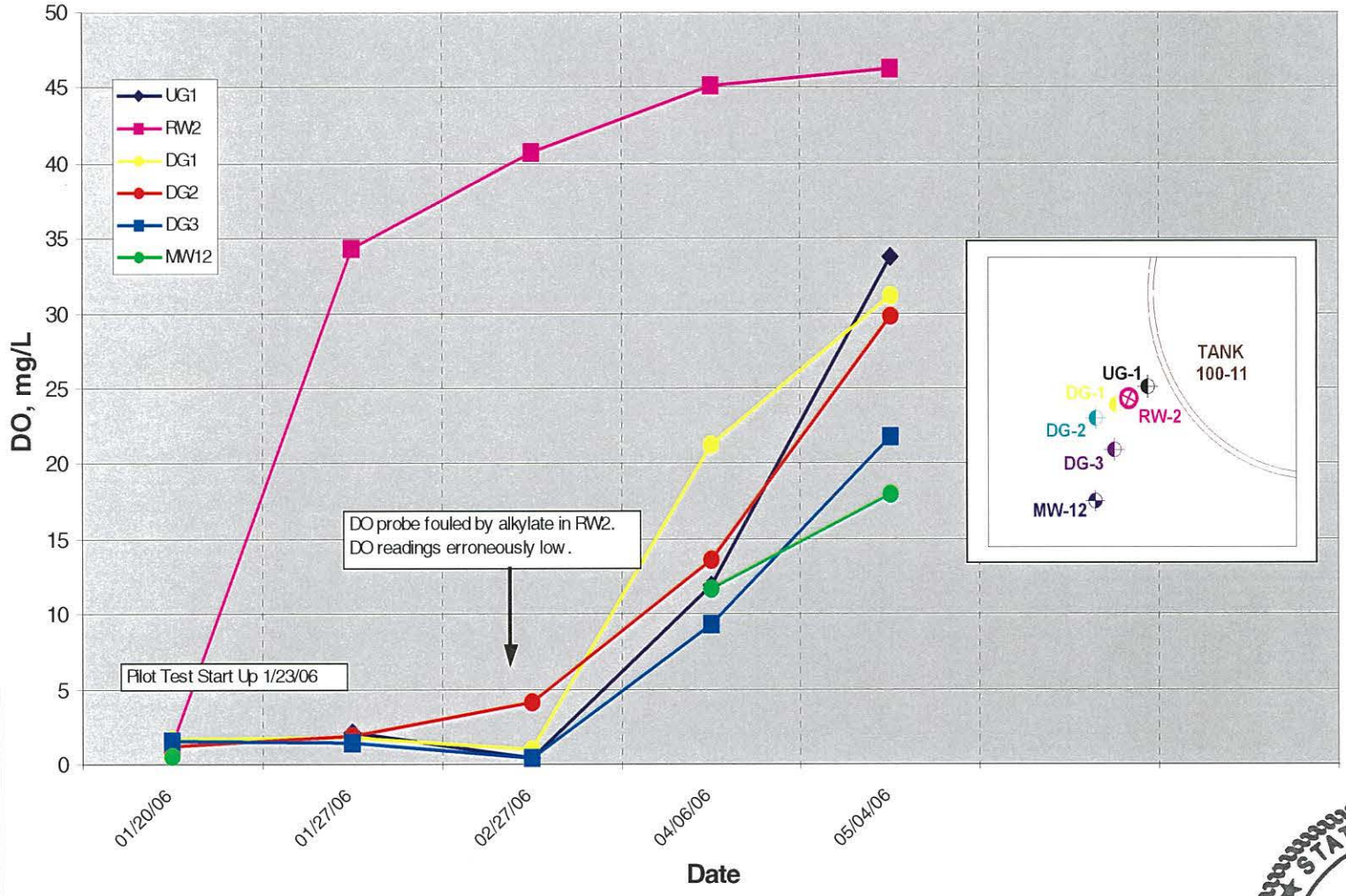
Source:

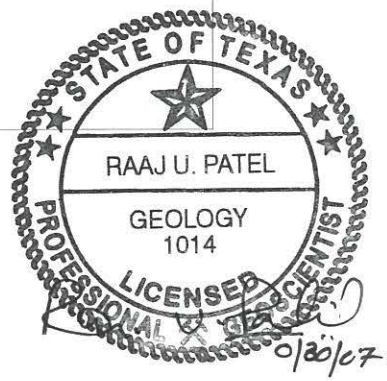
Boring logs provided from the "Affected Property Assessment Report, North Plant Tank Farm", January 2004 (Arcadis).

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

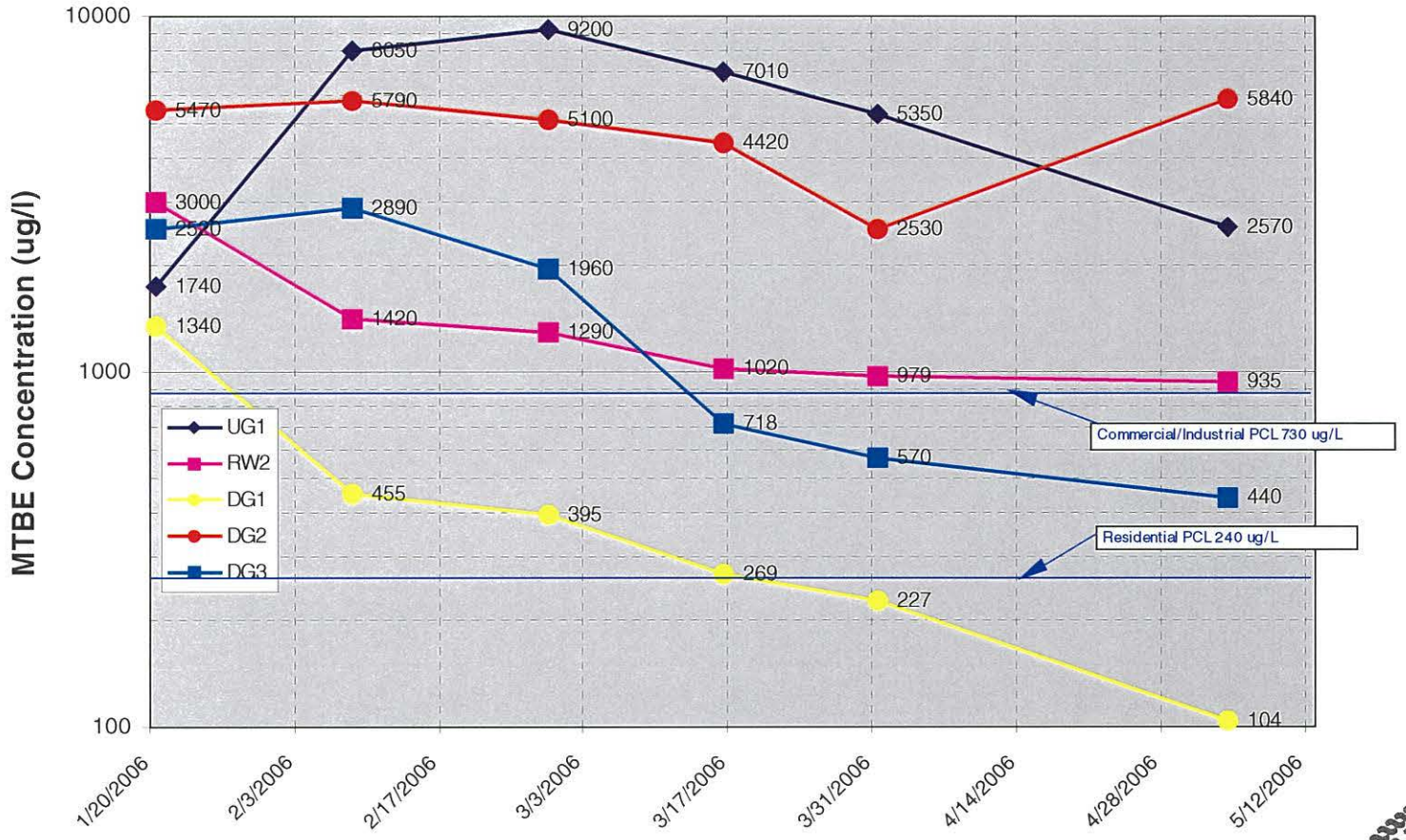
Title: CROSS-SECTION C - C'					
Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS					
Client: KMLT					
Scale: AS SHOWN	Drawn by: KPL / SJF	Date: 1-23-07	Project No.: 25009090	File Name: Cross-Sections A-B-C.dwg	Attachment: 1A-4
	Chk'd by: RP	Date: 1-23-07			

Attachment 1B-1: Dissolved Oxygen Results from MTBE Oxygenation Pilot Test





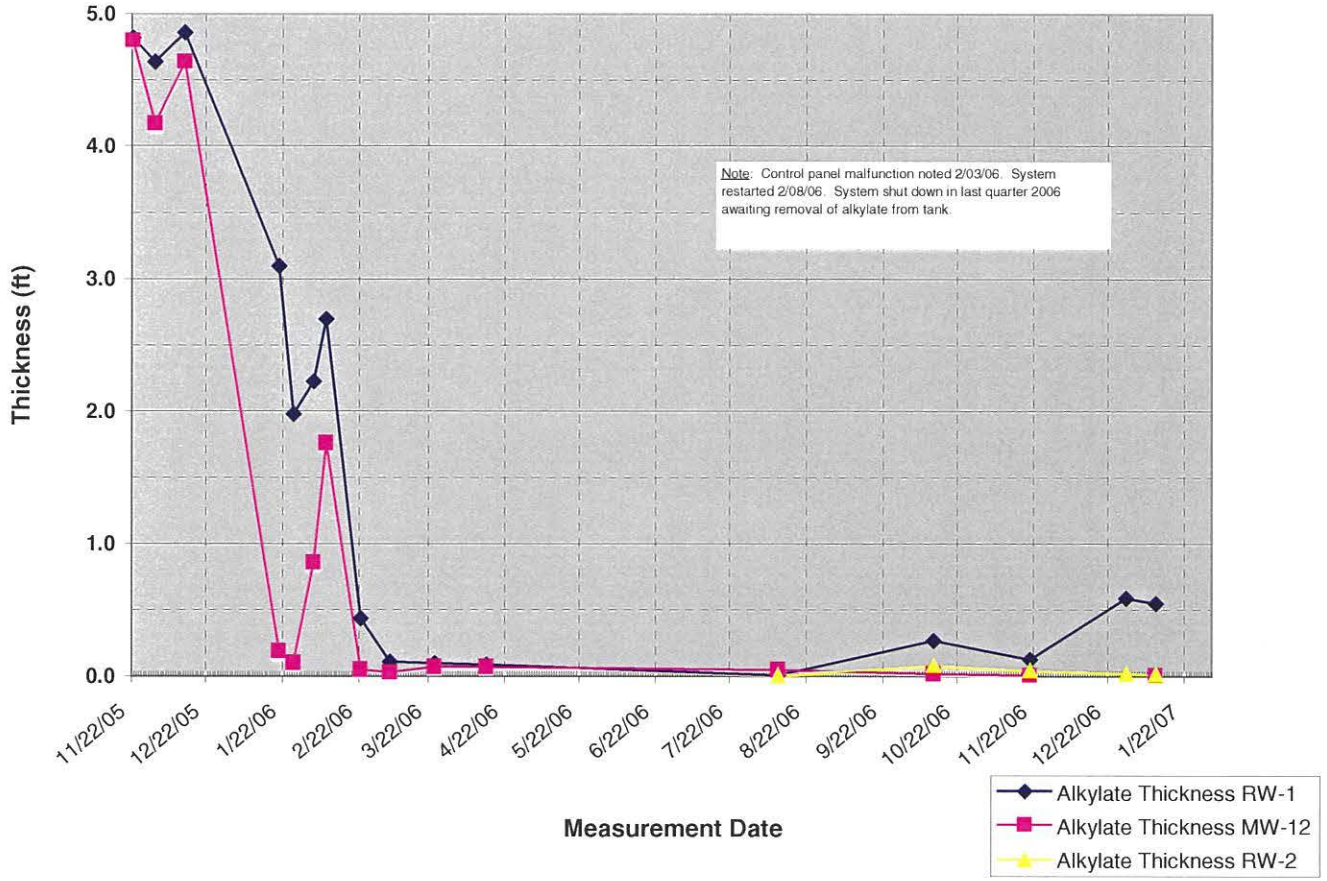
Attachment 1B-2: Summary of MTBE Results from MTBE Oxygenation Pilot Test



NOTES: Pilot test startup 1/23/06.

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
01/30/0

Attachment 1B-3: Graph of Alkylate Thickness vs Time



STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

1/30/07

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Groundwater
List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

Alkylate removal is being accomplished by a product-only skimmer collection system. Removal was chosen as an appropriate response action because it is a fast and thorough way to eliminate alkylate from the subsurface. Skimming was chosen because of the low solubility of alkylate and the relatively flat groundwater gradient in the impact area. Skimming also has the advantage of minimizing the volume of groundwater produced during alkylate removal.

Alkylate is skimmed from the surface of the groundwater and pumped to an aboveground temporary collection tank. Through March 13, 2006, approximately 356 gallons of alkylate had been recovered. Measured thickness in RW-1 (the 4-inch diameter recovery well) had been reduced from approximately 5 ft to less than 0.1 ft. Because of inability to access and adjust skimmer pump depths due to bad weather (heavy rain) causing the containment to be flooded most of the time, the system was not operational during the fourth quarter of 2006. Measured thicknesses were approximately 0.6 ft. in RW-1 on December 29, 2006. The vendor schematic for a typical alkylate recovery well is included with the boring log in Attachment 2B-1 and Appendix 2.

MTBE will be removed by enhanced bioremediation through the passive oxygenation of affected groundwater. This response action was chosen due to the tendency for MTBE to be degraded by microbial organisms. Passive oxygenation was chosen because it allows for oxygen to be dissolved by groundwater through contact with a large static oxygen surface within the emitter, rather than by sparging or other turbulent dissolution processes, which may cause COCs to volatilize and spread.

Twenty-four wells placed throughout the plume have been fitted with oxygen emitters (iSOC® units) to passively deliver oxygen to groundwater *in situ* (Attachment 2A-7). The typical MTBE oxygenation well completion and oxygen supply are diagram is depicted on Attachment 2B-2. As demonstrated by the pilot system, an increase in the DO of the affected groundwater will enhance the microbial activity within the affected area and will subsequently decrease the MTBE concentrations in the affected media.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

Figures 2A-2 and 2A-6 illustrate the layout and system components of the alkylate recovery system. Generally, these include the following:

- Recovery wells (2-inch and 4-inch)
- Skimmers
- Pumps
- Piping and Hoses
- Control Panel

- Pressure Regulators
- Temporary Alkylate Storage Tank
- Air Compressor
- Compressor Building

A sketch depicting the pump assembly is also included in Figure 2A-6.

Figures 2A-2 through 2A-5 depict the MTBE pilot system layout, full-scale system layout and passive oxygenation system components. Generally, the system includes:

- 24 Oxygenation wells fitted with iSOC® oxygen emitters
- 8 permanent monitor wells to be used as observation wells
- Oxygen cylinders
- Treatment building with fenced enclosure to house oxygen cylinders
- ¼-inch polyurethane tubing housed in 2-inch schedule 80 PVC pipe to connect cylinders to wells

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
Not Applicable			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

Not Applicable



Note: Previous sample locations are approximate. Locations were based off three drawings from ARCADIS reports dated 2003.

Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004.
Coordinates in NAD 83 State Plane Texas, South Central Zone, feet.

LEGEND

- Existing Monitoring Well Location
- Excavation Area (Approximate Location)
- Groundwater Plume Boundary, (Residential PCL) Tier 1 Exceedances (Aradis Drawing 6B.2.1, APAR, Jan. 2004)

0 120 240

APPROXIMATE SCALE IN FEET

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

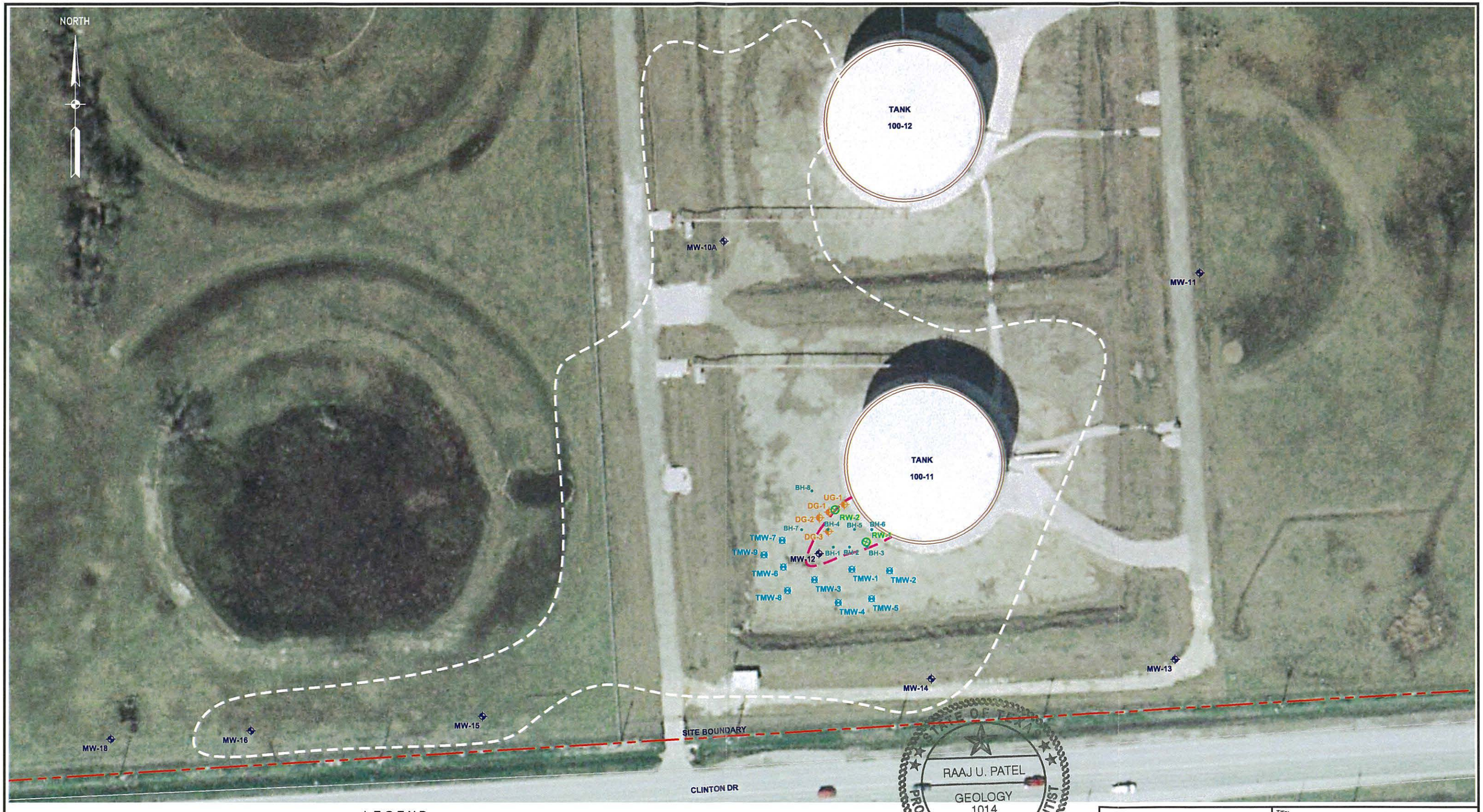
Title: **REMEDIATION AREAS**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	KPL / SJF	1-23-07	25009090	Remediation Areas.dwg	2A-1
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009090.r Morgan Remediation.05\Dwgs\Acad\RAP\Attach 2A-1 Remediation Areas.dwg Layout: layout Users: susc... Plotted: Jan 23, 2007 - 2:52pm



Note: Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Alkylate Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- Temporary Monitoring Well Location (TMW-1)
- MTBE Pilot Test Well Location (UG-1)
- Soil Boring Location (BH-1) from Delta Environmental Consultants (initial geoprobe investigation to locate extent of alkylate, September 2005)

MTBE $^{GW}GW_{ing}$ [2]	
Residential	0.24 mg/L
Commercial / Industrial	0.73 mg/L

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

0 40 80 160
APPROXIMATE SCALE IN FEET

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale: AS SHOWN	Drawn by: SJF	Date: 1-23-07	
	Chk'd by: RP	Date: 1-23-07	

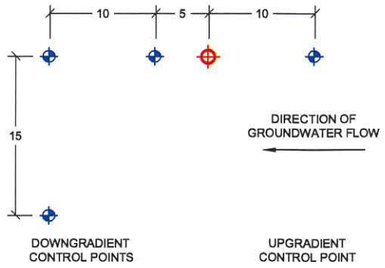
Title: **Affected Property Map**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

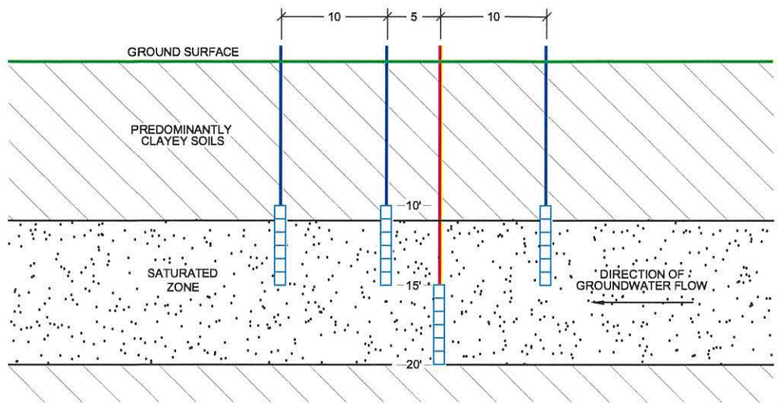
Client: KMLT

Project No.:	File Name:	Attachment:
25009090	Affected Property Map.dwg	2A-2

File: K:\ELM\25009090\Morgan Remediation.05\Dwgs\Acad\RAP\Attach 2A-2 - Affected Property Map.dwg Layout: 11x17 User: jason forrest Plotted: Jan 23, 2007 - 2:51pm



PLAN VIEW



SECTION VIEW

PILOT TEST LAYOUT

Note: Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004.
Coordinates in NAD 83 State Plane Texas, South Central Zone, feet.

LEGEND

- Existing Monitoring Well Location
- Groundwater Plume Boundary, (Residential PCL) Tier 1 Exceedances (Aradis Drawing 6B.2.1, APAR, Jan. 2004)

0 80 160

APPROXIMATE SCALE IN FEET

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Pilot Test and Monitoring Well Locations**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	KPL / SJF	1-23-07	25009090	Pilot Test and MW Locs.dwg	2A-3
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009090 Morgan Remediation.05\Dwgs\Acad\RAP\Attach 2A-3 - Pilot Test and MW Locs.dwg Layout: layout Us
Jan Forrest Plotted: Jan 24, 2007 - 11:23am



Note: Monitor well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Previous sample locations are approximate. Locations were based off three drawings from ARCADIS reports dated 2003.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas, South Central Zone, feet.

LEGEND

- Permanent Monitoring Well Location
- Groundwater Plume Boundary, (Residential PCL) Tier 1 Exceedances (Aradis Drawing 6B.2.1, APAR, Jan. 2004)
- Passive Oxygenation Location

0 120 240

APPROXIMATE SCALE IN FEET

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Passive Oxygenation System Conceptual Layout**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	KPL / SJF	1-23-07	25009090	Conceptual Layout Passive Oxygenation Sys.dwg	2A-4
	Chk'd by: BJ	Date: 1-23-07			

File: K:\ELM\25009090 Kinder Morgan Remediation\05\Dwgs\Acad\RAP\Attach 2A-4 – Conceptual Layout-Passive Oxygenation Sys.dwg Layout: Layout User: Susan Forrest Plotted: Jan 24, 2007 – 4:23pm

iSOC®info

iSOC® YOUR ULTIMATE MANAGED ATTENUATION TOOL



iSOC® DISTRIBUTION HEADER

Each order is supplied with a distribution header. Multiple port distribution headers are available. The size ordered is determined by the number of iSOC® units being run from each regulator. The distribution header can be directly mounted onto the gas regulator. The header is supplied with an on/off valve for each iSOC® unit such that the gas bottles can be changed without pulling the iSOC® from the well. For further detail go to www.isocinfo.com - Installation and Design - Installation Procedures.

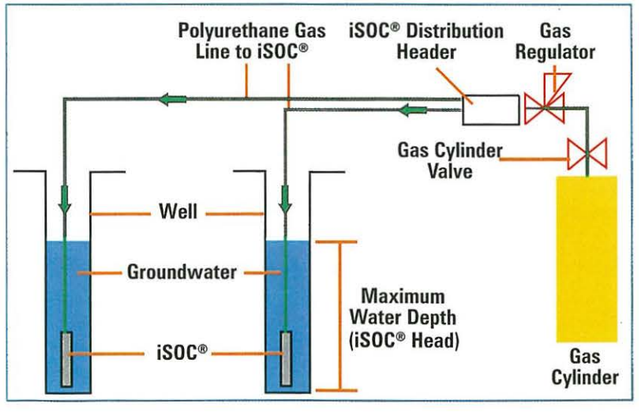
iSOC® QUALITY CONSTRUCTION

iSOC® is constructed of high quality SS316 stainless steel using the latest manufacturing equipment and a proprietary structured polymer mass transfer device. iSOC® is 1.62" (41 mm) in diameter and 12.65" (321 mm) long with a barb connector for 0.17" (4 mm) ID polyurethane tubing. The housings for the pressure and flow control unit and the drain plug are made from nylon. iSOC® has a lifting ring for connecting to a suspension line for insertion in 2" (50 mm) or larger monitoring wells.

CHLORINATED SOLVENTS AND iSOC®

The iSOC® Gas inFusion system is used to effectively remediate chlorinated solvent contaminated groundwater. Where tetrachloroethene (PCE) is the main contaminant of concern, a two-stage sequential bioremediation approach is used to first degrade PCE to trichloroethene (TCE) by reductive dechlorination, followed by aerobic cometabolic oxidation of TCE and other daughter products such as DCE and vinyl chloride. Alkane gas delivered by iSOC® stimulates the anaerobic process. iSOC®s are used to deliver oxygen and additional alkane gas to achieve aerobic cometabolic treatment of the daughter products. The aerobic process can be applied independently to TCE, DCE and VC sites and is not subject to stall due to competing electron acceptors or limited availability of necessary anaerobic microorganisms. Several alternative bioremediation approaches can also be implemented with iSOC®s including direct aerobic treatment of vinyl chloride and reductive dechlorination of chlorinated solvents by direct hydrogen delivery.

SYSTEM SET-UP



iSOC® COSTS

The iSOC® groundwater remediation technology is the leading and most cost effective solution in the marketplace today. Speak with your local iSOC® Sales Representative for system pricing. Your nearest Sales Representative can be found at www.isocinfo.com

iSOC®info

iSOC® YOUR ULTIMATE MANAGED ATTENUATION TOOL



iSOC® UPDATES

iSOC® has become a very popular bioremediation tool for remediating a wide range of contaminants, including recalcitrant compounds in groundwater and saturated porous media. iSOC® has already been used at hundreds of sites for effective hydrocarbon remediation, but we are continuing to improve and extend the technology.

A New Application of iSOC® Technology: Chlorinated Sites
Recently, iSOC® technology has been applied to sites contaminated with chlorinated hydrocarbons using oxygen and other gases to treat chlorinated sites under both anaerobic and aerobic conditions. Our website has been updated to reflect these bioremediation alternatives and various processes and soon our microcosm studies will provide more information to optimize delivery of combinations of gases to best stimulate the biological degradation of harmful substances.

A Micro-sized Control Panel
iSOC® is often used in individual wells with a small access box covering the well. While this set-up is cost-efficient and convenient, requiring no major site disruption or costly installation, the size of the access box is very limiting. Using innovative technology originally developed by NASA and successfully proven on our other Gas inFusion devices, we developed a small gas flow control device to sit in the top of the iSOC® unit. The result is a much simpler and easier installation that benefits the consultant and site owner both.



iSOC® AND BIOREMEDIATION ENHANCEMENT

iSOC® is an ingenious gas delivery system based on inVenture's patented Gas inFusion technology - a unique method of infusing supersaturated levels of dissolved gas into liquids. At the heart of iSOC®, the proprietary structured polymer mass transfer device is filled with micro-porous hollow fiber that provides an enormous surface area for mass transfer - in excess of 7000 m^2/m^3. It is hydrophobic and therefore excludes water. Maintaining gas pressure less than the surrounding liquid pressure ensures that ultra efficient mass transfer takes place without sparging.

In an aerobic bioremediation application, the iSOC® supersaturates the monitoring well with low decay dissolved oxygen (DO), typically 40-200 PPM depending on depth in groundwater. A natural convection current and a designed release bubble from the top of the iSOC® fills the well with a uniform DO curtain. The supersaturated DO curtain of water disperses around the well into the adjacent groundwater and enhanced bioremediation removes organics through natural attenuation. Placement of injection wells depends on site-specific conditions. The system is installed in a few hours and easily moved from well to well to optimize performance and remediation strategies.

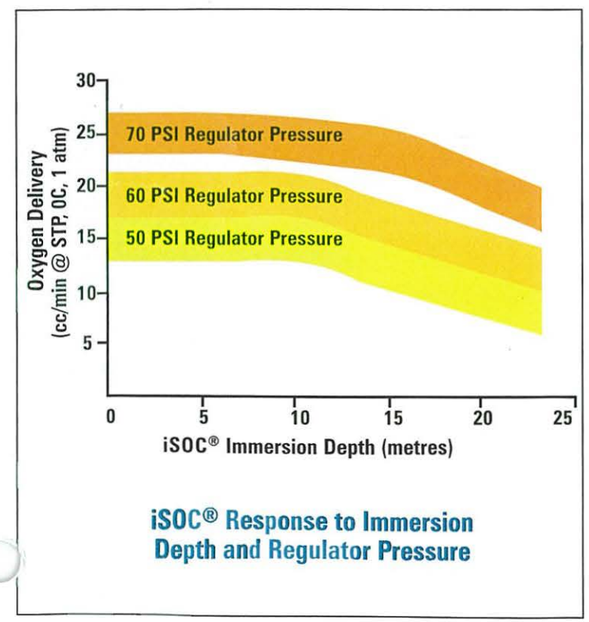
iSOC® ADVANTAGES

- Infuses 4 to 10 times more DO than any competitive technology.
- Delivers 40 to 200 PPM DO depending on iSOC® depth.
- Installs in existing 2-inch (50mm) monitoring wells.
- Application not limited by iron fouling under most conditions.
- Connects to standard gas cylinder.
- No power requirements, off-gases, pumps, or hazardous by-products.
- Small, simple, efficient, predictable, easy to use, & very low O&M.

MICRO-SIZING THE iSOC® CONTROL PANEL

In an effort to make the iSOC® System as easy to deploy as possible, the iSOC® Control Panel which determined the gas flow to the iSOC® and its structured polymer mass transfer device has been micro-sized. It now sits within the top of the iSOC® device and automatically controls the gas flow depending on groundwater depth and pressure regulator setting. All the installer has to do is set the pressure on the two-stage regulator. The iSOC® is simply attached to the tubing from the iSOC® Distribution Header and lowered into the well. There is no longer any need to house and mount a bulky control panel. The micro-sized flow controller is based upon valve control technology initially used in the NASA Space program and currently used on other Gas inFusion Technology applications.





iSOC® Response to Immersion Depth and Regulator Pressure

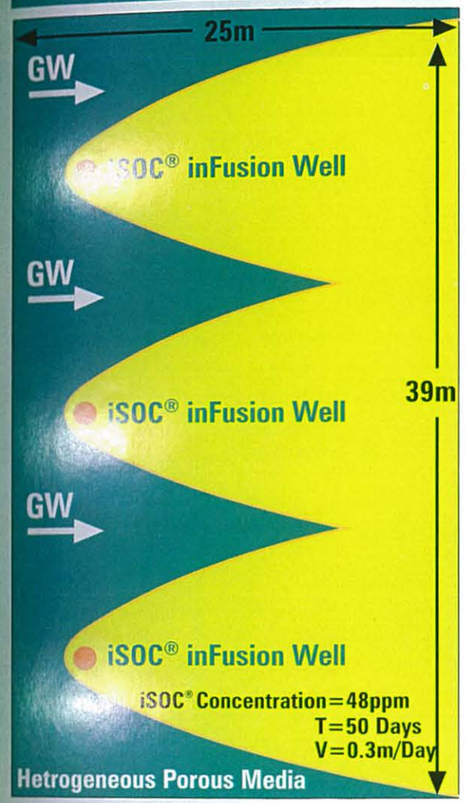
MICRO-FLOW CONTROLLER

The built-in flow controller delivers a range of oxygen flow to the mass transfer device within the iSOC® depending on the immersion depth in groundwater and the pressure regulator setting. For immersion depths of less than 60 feet (18.3 m) of water, it is recommended that the oxygen regulator be set at 50 psi (3.4 bar). This will result in an average of 15 standard cc/min of oxygen delivered to the groundwater by the iSOC®. For greater depths, the regulator setting should be adjusted such that it is a minimum of 25 psi (1.7 bar) above the head pressure of the water.

WHERE HAS iSOC® BEEN USED?

The iSOC® technology has been used at hundreds of sites in the US, Canada, UK, Europe and Africa. It is currently being piloted on sites in Australasia and Japan. The technology has been deployed to bioremediate a range of hydrocarbons and other chemicals using direct aerobic, cometabolic, and anaerobic degradation methods.

iSOC® CONES OF INFLUENCE BASED ON FEMLAB MODEL



iSOC® RADIUS OF INFLUENCE

Case studies and field measurements have shown the typical iSOC® radius of influence to be 10 feet (3 m) to 20 feet (6 m) laterally from the infusion well and many more feet in the direction of groundwater flow. Flowing groundwater and molecular diffusion transport the dissolved gas (e.g. oxygen, alkane, hydrogen) to the saturated porous media. The higher the concentration in the infusion well, the further the transport of the gas and the greater the influence. The influence is best measured by biological parameters, as the measure of dissolved gases at a distance from the infusion well is often inconclusive.

iSOC® REMEDIATION APPROACH

- Create an oxygen barrier at the leading edge of the contaminant plume to avoid boundary litigation and to protect off-site receptors.
- Reduce contamination levels by source treatment with supersaturated oxygen at the heart of the plume.
- Achieve rapid, localized remediation of low-level contamination and hot spots in existing monitoring wells.
- Accelerate site closure through natural attenuation as a primary remediation strategy or as a polisher.
- Lowest annual O&M cost of any passive enhancement technology.

HYDROCARBONS AND iSOC®

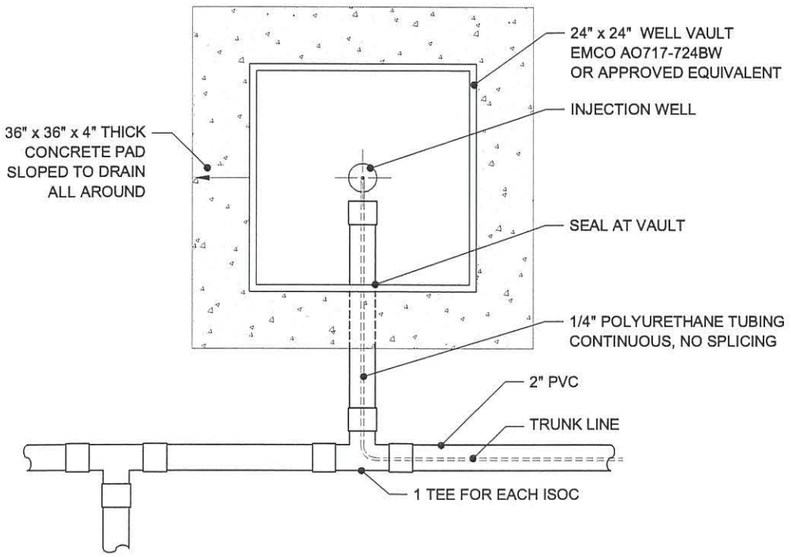
The use of dissolved oxygen in hydrocarbon-contaminated groundwater to enhance natural attenuation of hydrocarbons such as MTBE and BTEX has been growing as a remediation technology since the mid-1990s. Conventional sparging technologies typically waste most of their delivered oxygen. Sparging bubbles make preferential flow paths and rise to the top of the groundwater table, escaping before they have a chance to dissolve and be utilized by naturally occurring hydrocarbon-degrading micro-organisms. Other in-situ technologies generate oxygen for a short period of time but are inadequate in aquifers with high ferrous iron, moderate BOD, and/or high concentrations of hydrocarbon constituents. iSOC® is a proven bioremediation technology that delivers high concentrations of dissolved oxygen into the aquifer. Very low O&M costs allow the iSOC® technology to be deployed in all types of remediation projects and site conditions.

TYPICAL GAS CONCENTRATIONS (ppm)

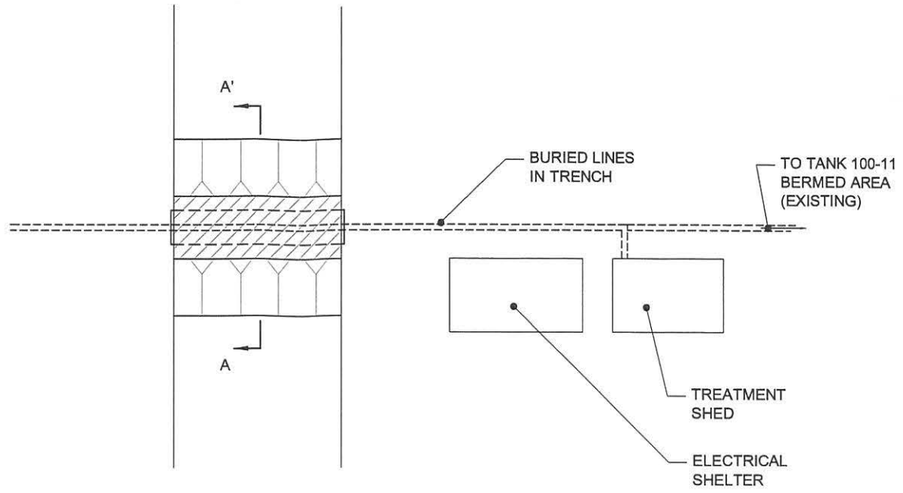
GAS TYPE	WATER COLUMN DEPTH (ft/m)				
	5'/1.5	10'/3	15'/4.6	20'/6.1	50'/15.2
Oxygen	42	55	62	69	111
Methane	22	30	33	37	59
Propane	66	88	99	110	175
Hydrogen	2	2	3	3	5
Ethane	57	75	85	95	150

USING OTHER GASES WITH iSOC®

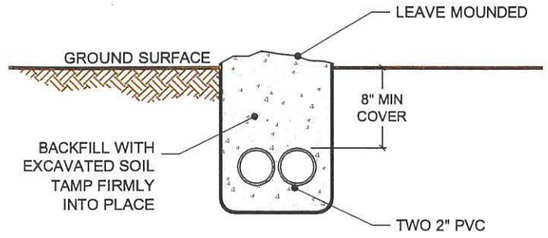
Consultants may need to use gases other than oxygen in their remediation approach. For example, hydrogen, methane, or propane may be used for remediation of chlorinated solvents and perchlorate. iSOC® will transfer these gases into the groundwater as effectively as it transfers oxygen, as shown above.



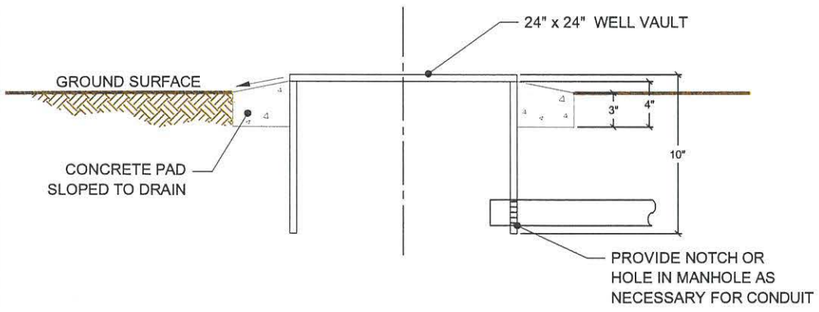
TYPICAL INJECTION WELL
PIPING LAYOUT



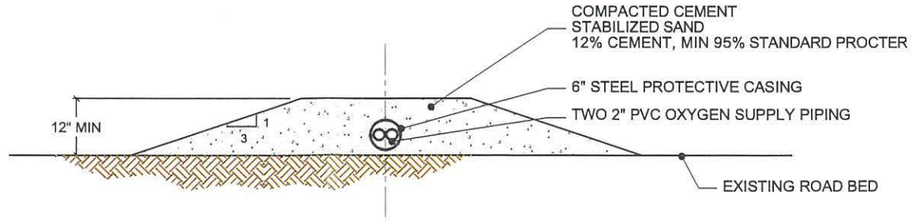
ROAD CROSSING LAYOUT



TYPICAL TRENCH SECTION



WELL VAULT
SIDE VIEW

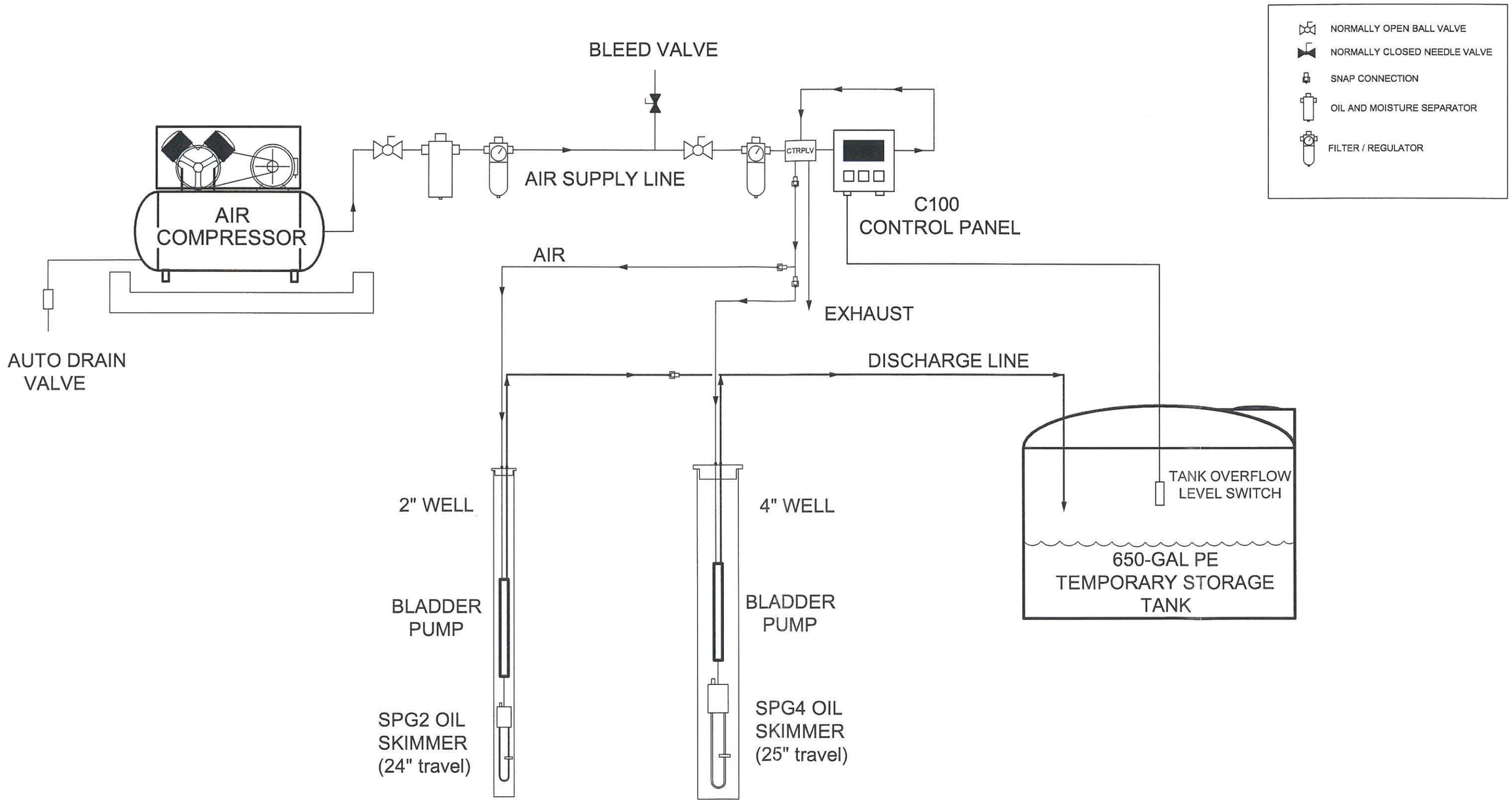


A - A' ROAD CROSSING SECTION

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: MTBE Oxygenation System Injection Well Piping and Details			
Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS			
Client: KMLT			
Scale: NOT TO SCALE	Drawn by: SJF	Date: 1-23-07	
	Chk'd by: BJ	Date: 1-23-07	
Project No.: 25009090	File Name: Injection Well Piping and Details.dwg	Attachment: 2A-5	

File: K:\ELM\2500 ...nder Morgan Remediation.05\Dwgs\Acad\RAP\Attach 2A-5 - MTBE Oxygenation System Injection Piping and Details.dwg Layout: Layout1 User: Susan Forrest Plotted: Jan 24, 2007 - 4:36p



URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Alkylate Recovery System Piping & Instrumentation Diagram**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
NOT TO SCALE	DH / SJF	1-23-07	25009090	Alkylate Recovery System P&ID.dwg	2A-6
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009090 ter Morgan Remediation\05\Dwgs\Acad\RAP\Attach 2A-6 - Alkylate Recovery System P&ID.dwg Layout: Layout1 User: Susan Forrest Plotted: Jan 24, 2007 - 4:36pm

Attachment 2A-7

iSOC® Product Information

iSOC® YOUR ULTIMATE MANAGED ATTENUATION TOOL



iSOC® UPDATES

iSOC® has become a very popular bioremediation tool for remediating a wide range of contaminants, including recalcitrant compounds in groundwater and saturated porous media. iSOC® has already been used at hundreds of sites for effective hydrocarbon remediation, but we are continuing to improve and extend the technology.

A New Application of iSOC® Technology: Chlorinated Sites

Recently, iSOC® technology has been applied to sites contaminated with chlorinated hydrocarbons using oxygen and other gases to treat chlorinated sites under both anaerobic and aerobic conditions. Our website has been updated to reflect these bioremediation alternatives and various processes and soon our microcosm studies will provide more information to optimize delivery of combinations of gases to best stimulate the biological degradation of harmful substances.

A Micro-sized Control Panel

iSOC® is often used in individual wells with a small access box covering the well. While this set-up is cost-efficient and convenient, requiring no major site disruption or costly installation, the size of the access box is very limiting. Using innovative technology originally developed by NASA and successfully proven on our other Gas inFusion devices, we developed a small gas flow control device to sit in the top of the iSOC® unit. The result is a much simpler and easier installation that benefits the consultant and site owner both.

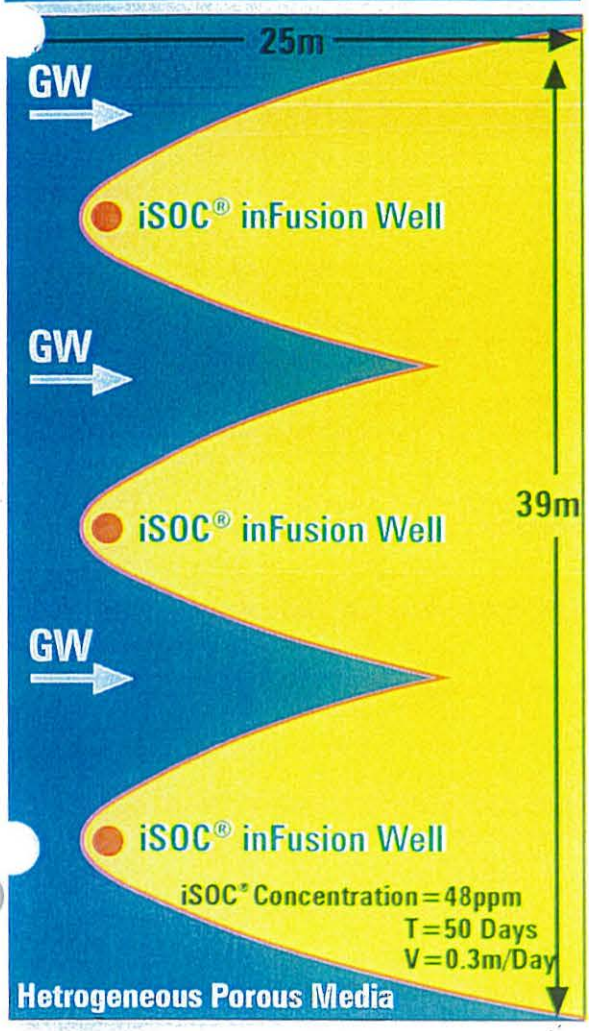


iSOC® AND BIOREMEDIATION ENHANCEMENT

iSOC® is an ingenious gas delivery system based on inVenture's patented Gas inFusion technology - a unique method of infusing supersaturated levels of dissolved gas into liquids. At the heart of iSOC®, the proprietary structured polymer mass transfer device is filled with micro-porous hollow fiber that provides an enormous surface area for mass transfer - in excess of 7000 m^2/m^3. It is hydrophobic and therefore excludes water. Maintaining gas pressure less than the surrounding liquid pressure ensures that ultra efficient mass transfer takes place without sparging.

In an aerobic bioremediation application, the iSOC® supersaturates the monitoring well with low decay dissolved oxygen (DO), typically 40-200 PPM depending on depth in groundwater. A natural convection current and a designed release bubble from the top of the iSOC® fills the well with a uniform DO curtain. The supersaturated DO curtain of water disperses around the well into the adjacent groundwater and enhanced bioremediation removes organics through natural attenuation. Placement of injection wells depends on site-specific conditions. The system is installed in a few hours and easily moved from well to well to optimize performance and remediation strategies.

iSOC® CONES OF INFLUENCE BASED ON FEMLAB MODEL



iSOC® REMEDIATION APPROACH

- Create an oxygen barrier at the leading edge of the contaminant plume to avoid boundary litigation and to protect off-site receptors.
- Reduce contamination levels by source treatment with supersaturated oxygen at the heart of the plume.
- Achieve rapid, localized remediation of low-level contamination and hot spots in existing monitoring wells.
- Accelerate site closure through natural attenuation as a primary remediation strategy or as a polisher.
- Lowest annual O&M cost of any passive enhancement technology.

HYDROCARBONS AND iSOC®

The use of dissolved oxygen in hydrocarbon contaminated groundwater to enhance natural attenuation of hydrocarbons such as MTBE and BTEX has been growing as a remediation technology since the mid-1990s. Conventional sparging technologies typically waste most of their delivered oxygen. Sparging bubbles make preferential flow paths and rise to the top of the groundwater table, escaping before they have a chance to dissolve and be utilized by naturally occurring hydrocarbon-degrading micro-organisms. Other in-situ technologies generate oxygen for a short period of time but are inadequate in aquifers with high ferrous iron, moderate BOD, and/or high concentrations of hydrocarbon constituents. iSOC® is a proven bioremediation technology that delivers high concentrations of dissolved oxygen into the aquifer. Very low O&M costs allow the iSOC® technology to be deployed in all types of remediation projects and site conditions.

iSOC® RADIUS OF INFLUENCE

Case studies and field measurements have shown the typical iSOC® radius of influence to be 10 feet (3 m) to 20 feet (6 m) laterally from the infusion well and many more feet in the direction of groundwater flow. Flowing groundwater and molecular diffusion transport the dissolved gas (e.g. oxygen, alkane, hydrogen) to the saturated porous media. The higher the concentration in the infusion well, the further the transport of the gas and the greater the influence. The influence is best measured by biological parameters, as the measure of dissolved gases at a distance from the infusion well is often inconclusive.

TYPICAL GAS CONCENTRATIONS (ppm)

GAS TYPE	WATER COLUMN DEPTH (ft/m)				
	5'/1.5	10'/3	15'/4.6	20'/6.1	50'/15.2
Oxygen	42	55	62	69	111
Methane	22	30	33	37	59
Propane	66	88	99	110	175
Hydrogen	2	2	3	3	5
Ethane	57	75	85	95	150

USING OTHER GASES WITH iSOC®

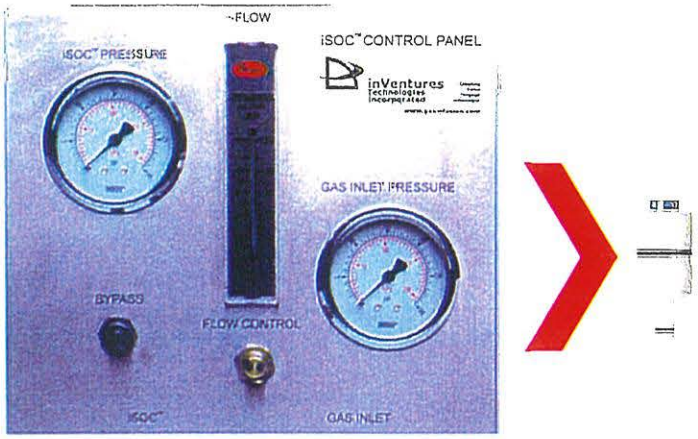
Consultants may need to use gases other than oxygen in their remediation approach. For example, hydrogen, methane, or propane may be used for remediation of chlorinated solvents and perchlorate. iSOC® will transfer these gases into the groundwater as effectively as it transfers oxygen, as shown above.

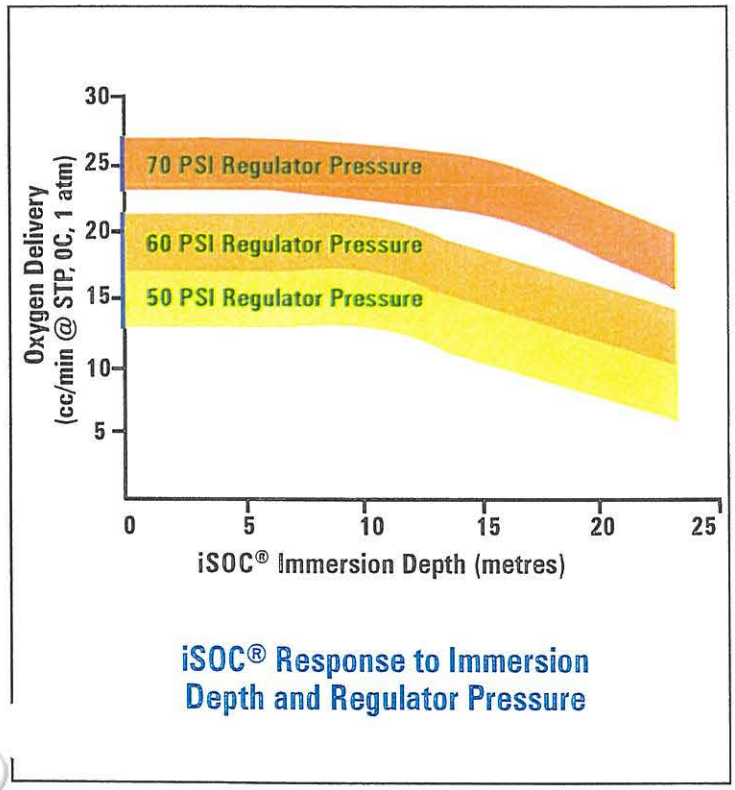
iSOC® ADVANTAGES

- Infuses 4 to 10 times more DO than any competitive technology.
- Delivers 40 to 200 PPM DO depending on iSOC® depth.
- Installs in existing 2-inch (50mm) monitoring wells.
- Application not limited by iron fouling under most conditions.
- Connects to standard gas cylinder.
- No power requirements, off-gases, pumps, or hazardous by-products.
- Small, simple, efficient, predictable, easy to use, & very low O&M.

MICRO-SIZING THE iSOC® CONTROL PANEL

In an effort to make the iSOC® System as easy to deploy as possible, the iSOC® Control Panel which determined the gas flow to the iSOC® and its structured polymer mass transfer device has been micro-sized. It now sits within the top of the iSOC® device and automatically controls the gas flow depending on groundwater depth and pressure regulator setting. All the installer has to do is set the pressure on the two-stage regulator. The iSOC® is simply attached to the tubing from the iSOC® Distribution Header and lowered into the well. There is no longer any need to house and mount a bulky control panel. The micro-sized flow controller is based upon valve control technology initially developed in the NASA Space program and currently used on other Gas inFusion Technology applications.





iSOC® Response to Immersion Depth and Regulator Pressure

MICRO-FLOW CONTROLLER

The built-in flow controller delivers a range of oxygen flow to the mass transfer device within the iSOC® depending on the immersion depth in groundwater and the pressure regulator setting. For immersion depths of less than 60 feet (18.3 m) of water, it is recommended that the oxygen regulator be set at 50 psi (3.4 bar). This will result in an average of 15 standard cc/min of oxygen delivered to the groundwater by the iSOC®. For greater depths, the regulator setting should be adjusted such that it is a minimum of 25 psi (1.7 bar) above the head pressure of the water.

WHERE HAS iSOC® BEEN USED?

The iSOC® technology has been used at hundreds of sites in the US, Canada, UK, Europe and Africa. It is currently being piloted on sites in Australasia and Japan. The technology has been deployed to bioremediate a range of hydrocarbons and other chemicals using direct aerobic, cometabolic, and anaerobic degradation methods.

iSOC® YOUR ULTIMATE MANAGED ATTENUATION TOOL



iSOC® DISTRIBUTION HEADER

Each order is supplied with a distribution header. Multiple port distribution headers are available. The size ordered is determined by the number of iSOC® units being run from each regulator. The distribution header can be directly mounted onto the gas regulator. The header is supplied with an on/off valve for each iSOC® unit such that the gas bottles can be changed without pulling the iSOC® from the well. For further detail go to www.isocinfo.com - Installation and Design - Installation Procedures.

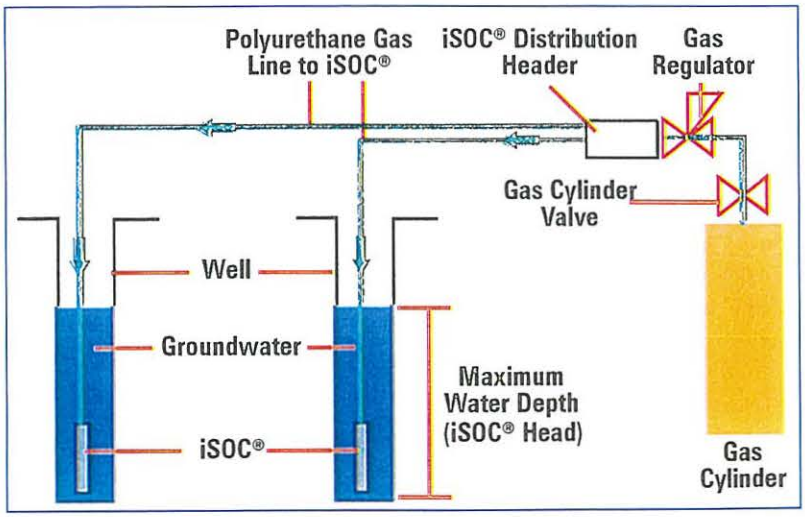
iSOC® QUALITY CONSTRUCTION

iSOC® is constructed of high quality SS316 stainless steel using the latest manufacturing equipment and a proprietary structured polymer mass transfer device. iSOC® is 1.62" (41 mm) in diameter and 12.65" (321 mm) long with a barb connector for 0.17" (4 mm) ID polyurethane tubing. The housings for the pressure and flow control unit and the drain plug are made from nylon. iSOC® has a lifting ring for connecting to a suspension line for insertion in 2" (50 mm) or larger monitoring wells.

CHLORINATED SOLVENTS AND iSOC®

The iSOC® Gas inFusion system is used to effectively remediate chlorinated solvent contaminated groundwater. Where tetrachloroethene (PCE) is the main contaminant of concern, a two-stage sequential bioremediation approach is used to first degrade PCE to trichloroethene (TCE) by reductive dechlorination, followed by aerobic cometabolic oxidation of TCE and other daughter products such as DCE and vinyl chloride. Alkane gas delivered by iSOC® stimulates the anaerobic process. iSOC®s are used to deliver oxygen and additional alkane gas to achieve aerobic cometabolic treatment of the daughter products. The aerobic process can be applied independently to TCE, DCE and VC sites and is not subject to stall due to competing electron acceptors or limited availability of necessary anaerobic microorganisms. Several alternative bioremediation approaches can also be implemented with iSOC®s including direct aerobic treatment of vinyl chloride and reductive dechlorination of chlorinated solvents by direct hydrogen delivery.

SYSTEM SET-UP



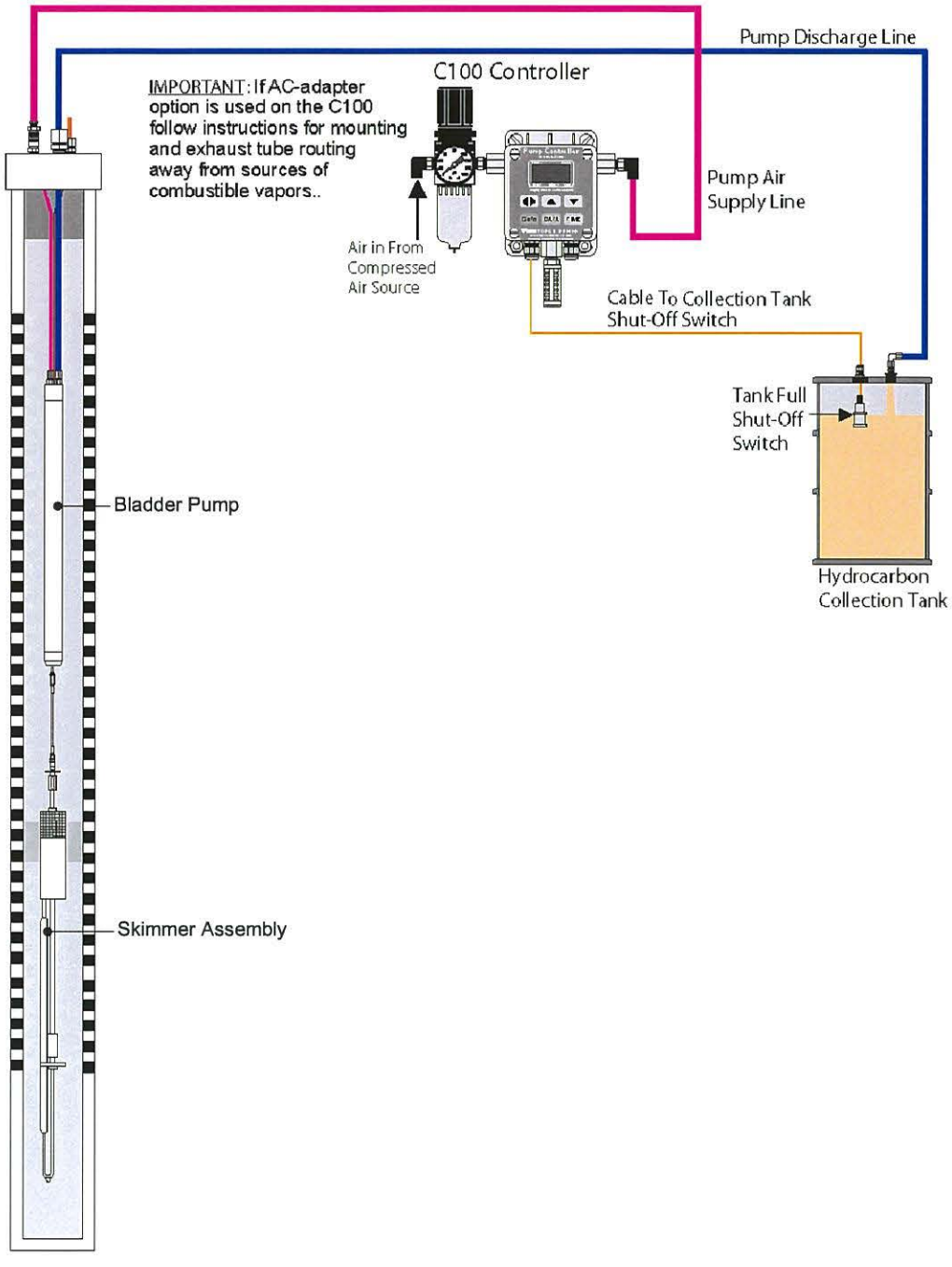
iSOC® COSTS

The iSOC® groundwater remediation technology is the leading and most cost effective solution in the marketplace today. Speak with your local iSOC® Sales Representative for system pricing. Your nearest Sales Representative can be found at www.isocinfo.com

C100 Pump Controller with Bladder Pump and Skimmer

Single Pump Installation

The drawing below shows a single pump being controlled by a single controller



URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale: AS SHOWN	Drawn by: KPL / SJF	Date: 1-23-07	
	Chk'd by: RP	Date: 1-23-07	

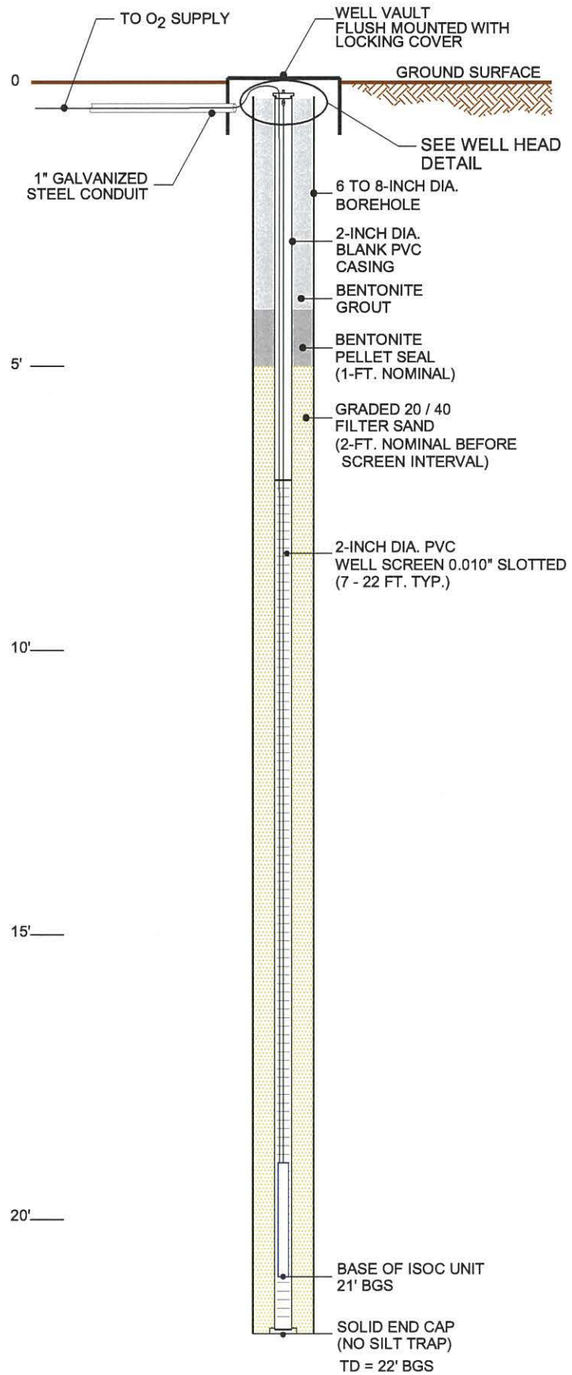
Title: **Vendor Schematic for Typical Alkylate Recovery Well with Skimmer Pump**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

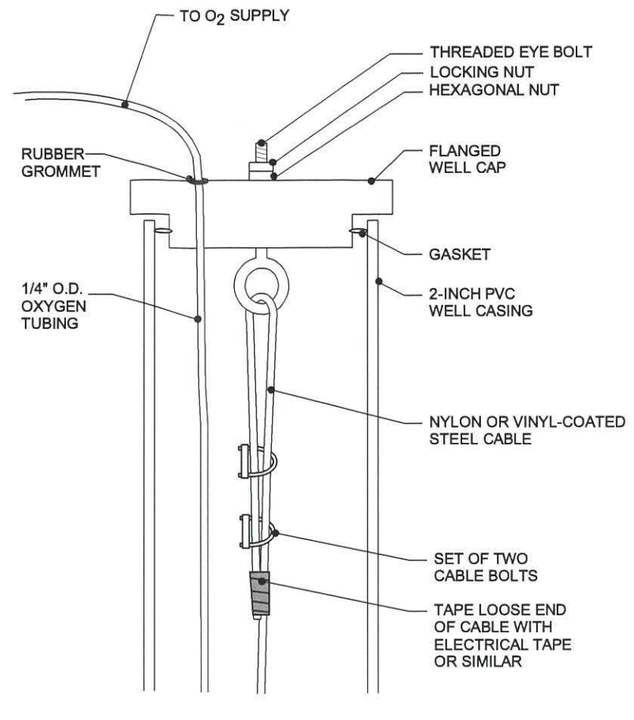
Client: KMLT

Project No.:	File Name:	Attachment:
25009090	Typical Recovery Well Design with pump.dwg	2B-1

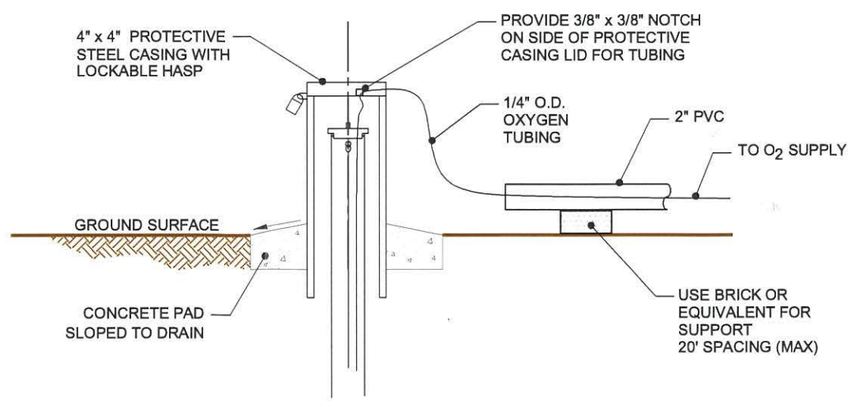
File: K:\ELM\25009090 Morgan Remediation.05\Dwgs\Acad\RAP\Attach 2B-1 - Typical Recovery Well Design with pump.dwg Layout1 User: Susan Forrest Plotted: Jan 25, 2007 - 1:25pm



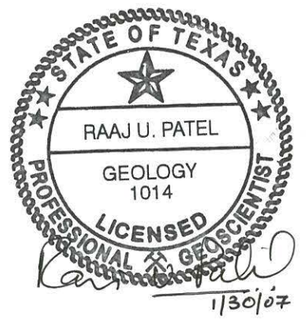
TYPICAL INJECTION WELL
BELOW GRADE INSTALLATION



TYPICAL INJECTION WELL
HEAD DETAIL



TYPICAL INJECTION WELL
ABOVE GRADE INSTALLATION
(INSIDE TANK BERM)



URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale: NOT TO SCALE	Drawn by: SJF	Date: 1-23-07	
	Chk'd by: BJ	Date: 1-23-07	

Title: **MTBE Oxygenation System Typical Injection Well and Oxygen Supply Area**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Attachment:
25009090	Typical Well Injection and Detail.dwg	**2B-2**

File: K:\ELM\25009090\Under Morgan Remediation\05\Dwgs\Acad\RAP\Attach 2B-2 - MTBE Oxygenation System Typical Well.dwg Layout: Layout1 User: Susan Forrest Plotted: Jan 25, 2007 - 1:25pm

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that will be used to determine if reasonable progress is being made by the response action in a timely manner. Use these measures to document effectiveness of the response action in the RAER.

Performance of the alkylate removal system will be monitored by measuring the alkylate thickness in the recovery wells and adjacent wells, and by measuring the rate of alkylate recovery (Attachment 3A-1).

Performance of the oxygenation system will be monitored by sampling observation wells for DO and MTBE (Attachment 3A-2).

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: Alkylate Recovery System

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
Skimmer set too low in the well	Groundwater/alkylate interface above the skimmer	X		Periodic gauging groundwater/alkylate levels in recovery wells and repositioning the skimmer when necessary.
Inadequate air pressure at pumps	Pumps not operational	X		Periodic checking pressure gauges to assure proper air pressure is delivered to the pumps, and that the air compressor is operational.

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: MTBE Passive Oxygenation System

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
DO rates are not increasing	Leak in oxygen line	X		Periodic checking of oxygen levels in groundwater and checking pressure in oxygen line.
MTBE degradation not occurring as expected	Additional nutrients (i.e. phosphorus and nitrogen) needed			Periodically analyze groundwater for nutrients and add to wells when needed

Monitoring and Sampling	RAP Worksheet 3.1	Page 1 of 2
Associated Information: Attachment 3A	ID No.: 30573	Report Date: January 26, 2007

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Surface Soil							
Subsurface Soil							
Groundwater	Alkylate		Interface Probe	MW-12, RW-1, and DG-3.		Gauging with interface probe	Monthly
	TPH C6-C12		Low Flow Groundwater Sampling	MW-12, MW-14, and MW-15.		TPH via Texas Method TX 1005	Semi-annually
	MTBE		Low Flow Groundwater Sampling	MW-10A MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-18.		MTBE via SW 846 EPA Method 8260	Semi-annually
Surface water							

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

Sediment							
Air							
Other Media (specify)							

Explain the reasons for the above-listed monitoring and sampling plan.

Alkylate has a very low solubility. Once recovery has been accomplished as indicated by minimal measurable thickness, the response action will be complete. Alkylate levels in the recovery wells (RW-1, MW-12, and DG-3) will monitored to determine the completion of the response action (Figure 4A-1). TPH will be monitored in wells MW-12, MW-14, and MW-15 to demonstrate that dissolved phase component remains below commercial industrial PCLs.

Semi-annual monitoring of MW-10A, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-18 will be conducted as part of the MTBE plume remediation, which is expected to continue for longer than the alkylate removal (Figure 4A-2). MTBE will be monitored to assure that the concentrations in the selected wells remain below appropriate PCLs (0.73 mg/l – commercial/industrial PCLs for containment areas, and 0.24 mg/l – residential PCLs for downgradient property lines).

Operation and Maintenance	RAP Worksheet 3.2 Page 1 of 2	
	ID No.: 30573	Report Date: January 26, 2007

Use this worksheet to describe the operation and maintenance (O&M) activities for each response action. In situations where the response action consists of more than one major component, for clarity one worksheet can be completed for each major component.

Response Action Name/Designation: Alkylate Recovery System
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

System performance will be monitored on a monthly basis. The monitoring activities include documenting the volume of alkylate recovered, confirming that the air pressure for the pumps is at the designed level, and confirming that the air compressor is operational. Periodically alkylate thickness will be measured in MW-12, RW-1 and DG-3. Groundwater/alkylate levels will also be checked to ensure that the skimmer is situated at the appropriate depth.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The primary consideration is to ensure that the skimmer is set at the appropriate level within the well. Periodic measurement of the alkylate/water interface will confirm that the skimmer is set at the correct depth.

The air pressure for operating the removal pump needs to be at the proper setting to evacuate the skimmed alkylate. The pressure will be checked at the pressure regulator and gauge adjacent to the control panel.

List the routine tasks required to operate the response action.

- Measure alkylate and groundwater elevations
- Check pressure gauges
- Measure accumulated alkylate volume

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Operation and maintenance described in the preceding sections will be generally performed on a monthly basis.

Response Action Name/Designation: MTBE Passive Oxygenation System
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

System performance will be monitored on a weekly basis. The monitoring activities will include documenting the volume of oxygen in each oxygen cylinder, checking the pressure gauges, and visually inspecting the iSOC manifold, oxygenation wells, changeover panel, and oxygen gas six-packs.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The primary consideration is to ensure that the oxygen lines are not leaking and that oxygen is being delivered to the 24 iSOCs. The system will be inspected weekly to determine whether sufficient oxygen is being delivered to the wells. If a leak or drop in pressure is detected, the system will be closely inspected to determine the cause of the problem and it will be repaired.

List the routine tasks required to operate the response action.

- Check oxygen pressure at the changeover panel
- Visually inspect oxygenation wells, cylinders, manifold, and changeover panel
- Periodically sample observation wells for DO and MTBE

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

Operation and maintenance described in the preceding sections will be generally performed on a weekly basis.



Note: Well locations were surveyed by Gulette and Associates, Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas
South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Alkylate Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- MTBE Pilot Test Well Location (UG-1)
- Monitoring Points for the Alkylate Recovery

RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

0 40 80 160
APPROXIMATE SCALE IN FEET

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF	1-23-07
	Chk'd by:	Date:
	RP	1-23-07

Title: **Alkylate Recovery System Monitoring and Sampling Points**

Project: NORTH PLANT
RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Attachment:
25009090	Monitoring and Sampling Points.dwg	3A-1

File: K:\ELM\25009090\Kinder Morgan Remediation\05\Dwgs\Acad\RAP\Attach 3A-1 - Alkylate Recovery System Monitoring and Sampling Points.dwg Layout: 11x17 User: susan forrest Plotted: Jan 23, 2007 - 3:08pm



Note: Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- Monitoring Points for the MTBE Remediation System
- Oxygenation Well Location (OW-1)
- Aboveground Transport Line
- Underground Transport Line

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

0 40 80 160
APPROXIMATE SCALE IN FEET

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF	1-23-07
	Chk'd by:	Date:
	RP	1-23-07

Title: **MTBE Oxygenation System Monitoring and Sampling Points**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Attachment:
25009090	Monitoring and Sampling Points.dwg	3A-2

File: K:\ELM\25009090 Morgan Remediation 05\Dwgs\Acad\RAP\Attach 3A-2 - MTBE Oxygenation System Monitoring and Sampling Points.dwg Layout: 11x17 User: susan forrest Plotted: Jan 23, 2007 - 3:09pm

Confirmation Sampling Plan	RAP Worksheet 4.0	Page 1 of 2
Associated Information: Attachment 4A	ID No.: 30573	Report Date: January 26, 2007

List the COCs and other parameters that will be sampled to confirm completion of the response action. Illustrate the monitoring or sampling locations in Attachment 4A. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided. If needed, describe the sample collection and handling methods, if not previously provided, in Appendix 6.

Media	COC[1]	Other parameter (specify)	Sampling Method	Sampling points[2]	Depth/height (ft.)	Analytical Method	Sampling Frequency
Surface Soil							
Subsurface Soil							
Groundwater	Alkylate		Interface Probe	MW-12, RW-1, and DG-3.	Gauging with interface probe	Gauging with interface probe	Monthly
	Alkylate		Low Flow Groundwater Sampling	MW-12, MW-14, and MW-15.	TPH via Texas Method TX 1005	TPH via Texas Method TX 1005	Semi-annually
Groundwater	MTBE		Low Flow Groundwater Sampling	MW-10A MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, and MW-18.	MTBE via SW 846 EPA Method 8260	MTBE via SW 846 EPA Method 8260	Semi-annually
Sediment							
Air							
Other media (specify)							

[1] Specify either a specific COC or type of COC (such as VOCs, metals).
[2] Specify the sampling point to the degree it is known, (for example, MW-1, or near former boring #2).

Explain the reasons for the above-listed sampling plan. Discuss statistical or geostatistical methodology(ies) which will be applied, if any, in the data collection process. Discuss any assumptions made in the statistical/geostatistical assessment, and how they will be met.

When both the rate of alkylate recovery and the measurable thickness in recovery wells become minimal (less than 1/10th inch) for two consecutive quarters, the TCEQ will be notified and the system will be deactived. The recovery wells will be monitored quarterly for two quarters to verify that alkylate does not reappear (see Attachment 4A). Please note that the alkylate occurs in a very small portion of a larger MTBE plume. The MTBE plume remediation is expected to continue for longer than the alkylate recovery is needed.

When an MTBE concentration in the eight observation wells meets the applicable groundwater PCLS, The TCEQ will be notified and the oxygenation system will be deactivated. The observation wells will be monitored for two consecutive quarters to verify that MTBE does not reappear.



Note: Well locations were surveyed by Gulette and Associates, Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Alkylate Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- MTBE Pilot Test Well Location (UG-1)
- Monitoring Points for the Alkylate Recovery

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
1/30/07

0 40 80 160
APPROXIMATE SCALE IN FEET

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **Alkylate Recovery System Confirmation Sampling Points**

Project: NORTH PLANT RAP KM LIQUIDS TERMINALS, L.P. GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	1-23-07	25009090	Confirmation Sampling Points.dwg	4A-1
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009090_Kinder Morgan Remediation.05\Dwgs\Acad\RAP\Attach 4A-1 - Alkylate Recovery System Confirmation Sampling Points.dwg Layout: 11x17 User: susan.forrest Plotted: Jan 23, 2007 - 3:11pm



Note: Well locations were surveyed by Gullett and Associates, Inc. Houston, Texas, March 1, 2006.

Source:

HGAC photography taken February 2004
Coordinates in NAD 83 State Plane Texas South Central Zone, feet

LEGEND

- MTBE Groundwater Plume Boundary
- Permanent Monitoring Well Location (MW-12)
- Alkylate Recovery Well Location (RW-1)
- Monitoring Points for the MTBE Remediation System
- Oxygenation Well Location (OW-1)
- Aboveground Transport Line
- Underground Transport Line

0 40 80 160

APPROXIMATE SCALE IN FEET

RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST
STATE OF TEXAS
1/30/07

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Title: **MTBE Oxygenation System Confirmation Sampling Points**

Project: NORTH PLANT RAP
KM LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF	1-23-07	25009090	Confirmation Sampling Points.dwg	4A-2
	Chk'd by: RP	Date: 1-23-07			

File: K:\ELM\25009090\er Morgan Remediation 05\Dwgs\Acad\RAP\Attach 4A-2 - MTBE Oxygenation System Confirmation Sampl ts.dwg Layout: 11x17 User: susan forrest Plotted: Jan 23, 2007 - 3:13pm

Post-Response Action Care	RAP Worksheet 5.0 Page 1 of 1	
Associated Information: Attachments 5A-5C	ID No.: 30573	Report date: January 26, 2007

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) _____ years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

N/A

What is the foreseeable land use during the post-response action care period? _____

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

N/A

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

N/A

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? ____ Yes ___ No
If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies _____
Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? $ _____

What is the total estimated cost for a third party to perform PRAC activities? $ _____

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

N/A

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___ Yes ___ No
If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

Implementation Schedule	RAP Worksheet 6.0	Page 1 of 1
	ID No.: 30573	Report Date: January 26, 2007

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	**Start**	**Finish**	**Duration**
Install and operate alkylate removal skimmer system	January 2006	December 2007	2 year (estimated maximum)
Post-removal interface probe measurements	January 2008	June 2008	2 quarters
Install and operate MTBE oxygenation system	January 2007	January 2010	3 years
Post –response MTBE monitoring	January 2010	June 2010	2 quarters

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	**Submittal date**
Response Action Effectiveness Report (RAER)	
RAER submittal number 1	180 days after completion of response action (alkylate and MTBE response actions will be combined)
RAER submittal number 2	N/A
RAER submittal number 3	N/A
Response Action Completion Report (RACR)	
Post-Response Action Care Report (PRACR)	
PRACR submittal number 1	
PRACR submittal number 2	
PRACR submittal number 3	

APPENDIX 1

References

References

Response Action Plan Addendum

- ARCADIS, 2005. Response Action Plan – North Plant Tank Farm, Kinder Morgan Liquids Terminals, LP., Galena Park, Texas, March 31, 2005.

- Texas Risk Reduction Rules, 30 Texas Administrative Code (TAC), Chapter 335, Subchapter S.

- URS, 2006. Affected Property Assessment Report – North Plant Tank Farm Addendum, Alkylate Assessment Report, Kinder Morgan Liquids Terminals, L.P., Galena Park, Texas, April 21, 2006.

- URS, 2006. Response Action Plan Addendum – Alkylate Recovery System, North Plant, Kinder Morgan Liquids Terminal, L.P., Galena Park, Texas, May 5, 2006.

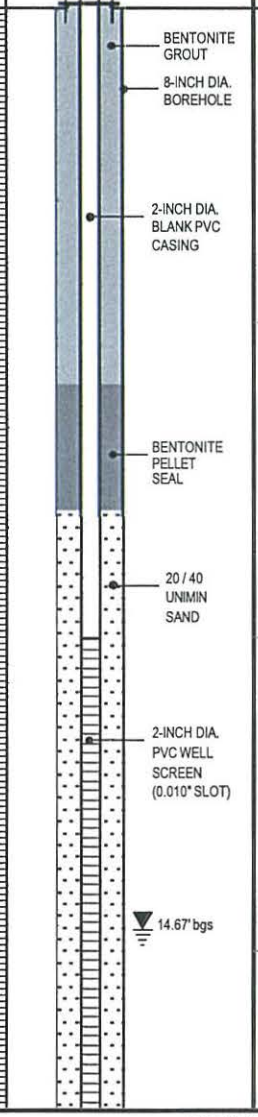
- April 10 & 11, 2001, Environmental Transport and Fate Alkylates, Workshop of the Increased Use of Ethanol and Alkylates in Automotive Fuels in California, Lawrence Livermore National Laboratory, Oakland, California.

APPENDIX 2

Well Logs

LOG OF SOIL BORING: **MW-18**

CLIENT: Kinder Morgan
JOB No.: 25009091 DATE: November 17, 2005
SITE: North Plant Tank 100-11
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow-Stem Auger
COORDINATES: N: 709860.093 E: 3198108.917
RIG TYPE: D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: Ivan / Rochester
INITIAL GROUNDWATER DEPTH: 17.5' btoc TOTAL DEPTH OF BORING: 30'
LOGGED BY: J. Andrews DRILLING STARTED: 1135
DRILLING COMPLETED: 1445 WELL INSTALLED: Monitor Well
CONDITION: -



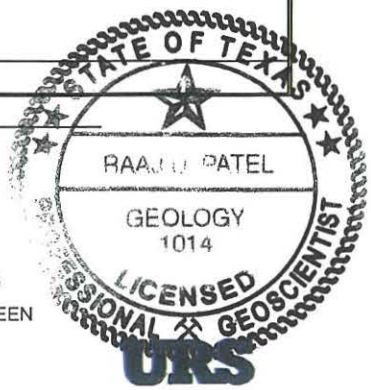
DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
					PID MALFUNCTION	CL		Dark olive gray (5Y,3/2) silty CLAY, medium stiff, root structure, moist, no odor
						SM		Olive gray (5Y,5/2) silty fine SAND, dry, very dense, no odor, root structure
						CL		Brown (10YR,4/3) very sandy CLAY, fine grained, very stiff , no odor, root structure, dry
5	CB	60/60				SC		Strong brown (7.5YR,5/6) clayey fine SAND, medium dense, no odor, moist
								- No Recovery (7' - 10' bgs)
10	CB	60/24				SM		Light gray (7.5YR,7/1) silty fine SAND, loose, damp, no odor - increase in clay content at 11.5' bgs - No Recovery (11' - 15' bgs) - color becomes yellowish-brown (10YR,5/4), loose, wet
15	CB	60/24						

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
HSA	HOLLOW-STEM AUGER
PP	POCKET PENETROMETER READING
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
12	SACKS OF 80 lbs CEMENT
15	GALLONS OF GROUT USED
1	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)
20	GALLONS OF PURGED WATER



LOG OF SOIL BORING: MW-18 (CONT'D)

CLIENT: Kinder Morgan
JOB No.: 25009091 DATE: November 17, 2005
SITE: North Plant Tank 100-11
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow-Stem Auger
COORDINATES: N: 709860.093 E: 3198108.917
RIG TYPE: D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: Ivan / Rochester
INITIAL GROUNDWATER DEPTH: 17.5' btoc TOTAL DEPTH OF BORING: 30'
LOGGED BY: J. Andrews DRILLING STARTED: 1135
DRILLING COMPLETED: 1445 WELL INSTALLED: Monitor Well
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	20/40 UNIMIN SAND; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	CB	60/24						- No Recovery (17' - 20' bgs)
							SP		Yellowish-brown (10YR,5/4) fine SAND, poorly graded, loose, wet, slight odor
25		CB	60/36						- No Recovery (18' - 25' bgs)
	BOTTOM CAP; BENTONITE PELLET SEAL						CL		Light brownish-gray (2.5Y,6/2) very sandy CLAY, stiff, wet, no odor, orange mottling - siderite from 25' to 27' bgs - sand content decreases with depth
30		CB	60/60						Borehole terminated at 30 feet below ground surface. Monitoring well installed inside borehole.

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
HSA	HOLLOW-STEM AUGER
PP	POCKET PENETROMETER READING
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
12	SACKS OF 80 lbs CEMENT
15	GALLONS OF GROUT USED
1	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)
20	GALLONS OF PURGED WATER

STATE OF TEXAS RAAJ PATEL GEOLOGY 1014 LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-1

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1545
DRILLING COMPLETED: 1700 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	2'x2' CONC PAD; 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						1			Very dark gray (10YR,3/1) silty CLAY - mottled light bluish-gray, yellowish-red, and very dark gray - slight odor, medium stiff - some black mottling
5		SS	60/60				20	CL		- color becomes light olive brown (2.5Y,5/3) - color becomes light gray (5Y,7/2) - slighty moist, medium stiff - odor - color becomes strong brown (7.5YR,5/6)
							193			- strong odor - color becomes pale olive (5Y,6/3) - odor, medium plasticity
10		SS	60/60				459			
							514	ML		Yellowish-red (5YR,4/6) clayey SILT - odor, some calcareous nodules
								CH		CLAY, stiff, odor
15		SS	60/60				300			No Recovery
							24	CL		silty CLAY, very moist

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-1 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1545
DRILLING COMPLETED: 1700 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
								CL		
								ML		clayey SILT, wet
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)							CL		silty CLAY, slight odor
20		SS	60/48				112	SM		Light gray (GLEY1,7/10Y) silty very fine SAND, wet
	GRADED FILTER SAND 20/40	SS	24/24				11			- no odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING

N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF SOIL BORING: **RW-2 / OW-2**

CLIENT: KM Liquids Terminals, L.P.
JOB No.: 25009091 DATE: November 16, 2005
SITE: North Plant Tank 100-11
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 11-inch MONITOR WELL DIA.: 4-inch
DRILLING METHOD: Hollow-Stem Auger
COORDINATES: N: 710059.588 E: 3198738.327
RIG TYPE: D-50
GROUND SURFACE ELEV.: 23.45' MSL TOP OF CASING ELEV.: 26.35' MSL
DRILLER: Mack / Ivan / Rochester / Manuel
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 25'
LOGGED BY: J. Andrews DRILLING STARTED: 1350
DRILLING COMPLETED: 1500 WELL INSTALLED: Recovery Well
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	30.75 INCH STICK-UP WITH LOCKING PROTECTIVE COVER; BENTONITE GROUT; 11-INCH DIA. BOREHOLE					2	FILL		FILL - Olive gray (5Y,4/2) silty CLAY, stiff, moist, slight odor
						2	CL		Olive gray (5Y,4/2) silty CLAY, medium stiff, moist, slight odor, scarce ferrous nodules
	4-INCH DIA. BLANK PVC CASING					12			
						12			
5		CB	60/60			38			- calcareous zone at 5' bgs
						321			- color becomes brown (5.5YR,4/2)
	BENTONITE PELLET SEAL					321			
						343			- increase in fine sand content at 7.5' bgs
	20 / 40 UNIMIN SAND					343			- calcareous zone at 9' bgs
10		CB	60/60			454			- scarce manganese nodules
	4-INCH DIA. PVC WELL SCREEN (0.010" SLOT)					339	SC		Brown (2.5 YR,5/4) clayey fine SAND, slight odor, loose, damp
	12' bgs					339	CL		Strong brown (2.5YR,4/6) silty CLAY, blocky, damp, stiff, slight odor
									- No Recovery (12.5' - 15' bgs)
15		CB	60/30			248	SC		Light yellowish-brown (2.5Y,6/3) clayey fine SAND, wet, slight odor, loose
						248	SP		Light olive gray (5Y,6/2) fine SAND, poorly graded, loose, wet, slight odor
						51			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
HSA	HOLLOW-STEM AUGER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
MSL	MEAN SEA LEVEL
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

7	SACKS OF 50 LBS SAND
10	SACKS OF 80 lbs CEMENT
12	GALLONS OF GROUT USED
1	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)
40	GALLONS OF PURGED WATER

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF SOIL BORING: RW-2 / OW-2 (CONT'D)

CLIENT: KM Liquids Terminals, L.P.
JOB No.: 25009091 DATE: November 16, 2005
SITE: North Plant Tank 100-11
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 11-inch MONITOR WELL DIA.: 4-inch
DRILLING METHOD: Hollow-Stem Auger
COORDINATES: N: 710059.588 E: 3198738.327
RIG TYPE: D-50
GROUND SURFACE ELEV.: 23.45' MSL TOP OF CASING ELEV.: 26.35' MSL
DRILLER: Mack / Ivan / Rochester / Manuel
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 25'
LOGGED BY: J. Andrews DRILLING STARTED: 1350
DRILLING COMPLETED: 1500 WELL INSTALLED: Recovery Well
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	20 / 40 UNIMIN SAND; 4-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	CB	60/36			51 51 18	SP		
25	BOTTOM CAP	CB	60/36						Borehole terminated at 25 feet below ground surface. Recovery well installed inside borehole.
30									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
HSA	HOLLOW-STEM AUGER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
MSL	MEAN SEA LEVEL
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

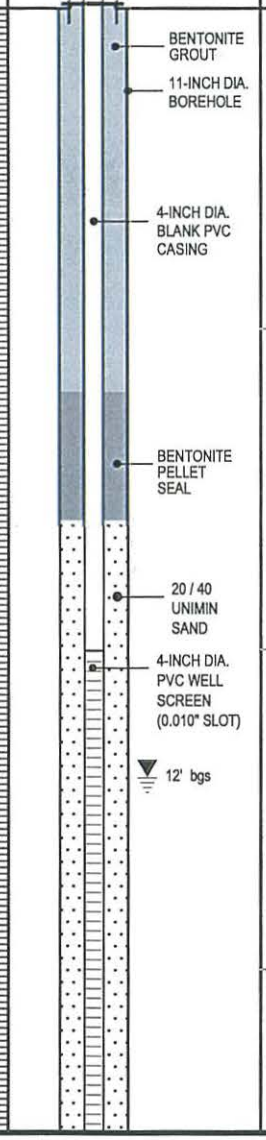
7	SACKS OF 50 LBS SAND
10	SACKS OF 80 lbs CEMENT
12	GALLONS OF GROUT USED
1	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)
40	GALLONS OF PURGED WATER

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
PROFESSIONAL GEOSCIENTIST
LICENSED

URS

LOG OF SOIL BORING: **RW-1 / OW-3**

CLIENT: KM Liquids Terminals, L.P.
JOB No.: 25009091 DATE: November 16, 2005
SITE: North Plant Tank 100-11
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 11-inch MONITOR WELL DIA.: 4-inch
DRILLING METHOD: Hollow-Stem Auger
COORDINATES: N: 710031.427 E: 3198765.284
RIG TYPE: D-50
GROUND SURFACE ELEV.: 23.67' MSL TOP OF CASING ELEV.: 26.64' MSL
DRILLER: Mack / Ivan / Rochester / Manuel
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 25'
LOGGED BY: J. Andrews DRILLING STARTED: 0930
DRILLING COMPLETED: 1230 WELL INSTALLED: Recovery Well
CONDITION: -
PAGE: 1 OF 2



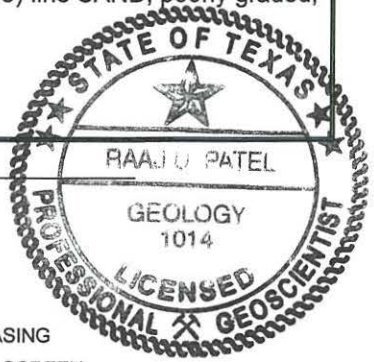
DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
					24	FILL		FILL - Dark gray (2.5Y,4/1) silty CLAY, medium stiff, few shell hash, few fine sand layers, no odors, moist
					24			
					105	CL		Dark gray (2.5Y,4/1) silty CLAY, medium stiff, moist, ferrous nodules, thin mottling, scarce root structure
					105			
5	CB	60/60			2			- color becomes brown (5YR,4/4)
					450			- fine sand content at 6' bgs
					450			- calcareous nodules and zone from 7' to 9' bgs
					464			- very slight odor, stiff, moist
					464			- No Recovery (9' - 10' bgs)
10	CB	60/48						
					233	SC		Light yellowish brown (2.5Y,6/4) clayey fine SAND, damp, loose, slight odor, wet
					233			- No Recovery (12' - 15' bgs)
15	CB	60/24			464	SP		Yellowish brown (10YR,5/8) fine SAND, poorly graded, wet, loose, slight odor

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
HSA	HOLLOW-STEM AUGER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
MSL	MEAN SEA LEVEL
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

17	SACKS OF 50 LBS SAND
11	SACKS OF 80 lbs CEMENT
25	GALLONS OF GROUT USED
100	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)
55	GALLONS OF PURGED WATER



URS

LOG OF SOIL BORING: **RW-1 / OW-3 (CONT'D)**

CLIENT: KM Liquids Terminals, L.P.
JOB No.: 25009091 DATE: November 16, 2005
SITE: North Plant Tank 100-11
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 11-inch MONITOR WELL DIA.: 4-inch
DRILLING METHOD: Hollow-Stem Auger
COORDINATES: N: 710031.427 E: 3198765.284
RIG TYPE: D-50
GROUND SURFACE ELEV.: 23.67' MSL TOP OF CASING ELEV.: 26.64' MSL
DRILLER: Mack / Ivan / Rochester / Manuel
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 25'
LOGGED BY: J. Andrews DRILLING STARTED: 0930
DRILLING COMPLETED: 1230 WELL INSTALLED: Recovery Well
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	20 / 40 UNIMIN SAND; 4-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	CB	60/12			434 434 456 456	SP		- No Recovery (16' - 20' bgs) - color becomes pale brown (10YR,6/3) at 20' bgs
25	BOTTOM CAP	CB	60/60			88			Borehole terminated at 25 feet below ground surface. Recovery well installed inside borehole.
30									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
HSA	HOLLOW-STEM AUGER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
MSL	MEAN SEA LEVEL
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

17	SACKS OF 50 LBS SAND
11	SACKS OF 80 lbs CEMENT
25	GALLONS OF GROUT USED
100	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)
55	GALLONS OF PURGED WATER

STATE OF TEXAS
RAAJ[illegible] PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-4

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 15' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1330
DRILLING COMPLETED: 1505 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	2'x2' CONC PAD, 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						3	CL		Mottled brown (7.5YR,4/2) and yellowish-red (5YR,4/6) silty CLAY - slight odor - some black mottling - color becomes light olive brown (2.5Y,5/4) - becoming less silty
5		SS	60/60				16			- color becomes yellowish-brown (10YR,5/4)
								ML		Yellowish-red (5YR,4/6) clayey SILT, odor
							141	CL		silty CLAY - odor, some black mottling - strong odor - calcareous nodule (1" dia.) - color becomes olive brown (2.5Y,4/3)
10		SS	60/60				505			- moist No Recovery
							158	CL		- moist, slight odor - some calcareous nodules
15		SS	60/48				234	SM		Light yellowish-brown (10YR,6/4) silty fine SAND, slight odor No Recovery
							-	SM		

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-4 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH:15' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1330
DRILLING COMPLETED: 1505 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40; WELL CAP	SS	60/36				15	SM		- 3" thick yellowish-red clay layer, stiff - color becomes yellowish-brown (10YR,5/4) - wet, slight odor - color becomes strong brown (7.5YR,5/6) - wet, slight odor - 1" thick light greenish-gray (GLEY1, 7/10GY) silty clay layer
		SS	24/24				3			
25										Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ U PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-5**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 18' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1005
DRILLING COMPLETED: 1130 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	2'x2' CONC PAD; 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						1	CL		Dark grayish-brown (2.5Y,4/2) silty CLAY, some fine sand - some reddish-brown mottling, strong odor - becoming less silty - coal like substance
5		SS	60/60				58			- color becomes strong brown (7.5YR,4/6) - some calcareous nodules - some fine sand - odor
							556			
								CH		CLAY, stiff
10		SS	60/58				548	CL		silty CLAY, increase in fine sand
							460	ML		Reddish-brown (2.5YR,4/4) very clayey SILT - odor
								CL		silty CLAY, medium stiff, odor
15		SS	60/58				181			No Recovery
							-	SM		

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-5 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 18' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1005
DRILLING COMPLETED: 1130 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/48				11	SM		Yellowish-brown (10YR,5/6) silty SAND, moist - odor - wet - color becomes light gray (10YR,7/1)
		SS	24/24				34			- color becomes yellowish-brown (10YR,5/6) - odor, wet - some clay nodules
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING

N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

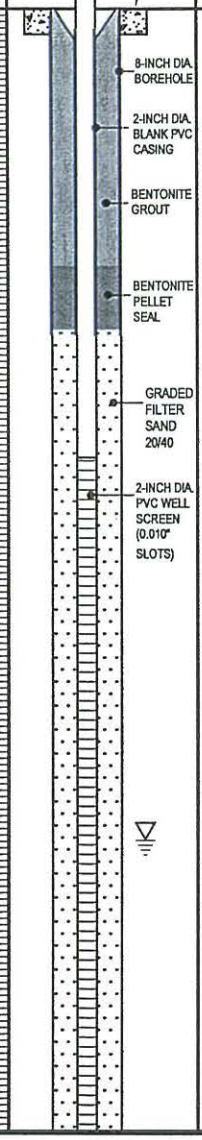
8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAVI C. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-6**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 13, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0910
DRILLING COMPLETED: 1120 WELL INSTALLED: 6-13-06
CONDITION: -
PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	LITHOLOGIC DESCRIPTION
						79	CL	Dark grayish-brown (2.5Y,4/2) silty CLAY - some dark gray mottling, odor - color becomes olive brown (2.5Y,4/6), odor - color becomes strong brown (7.5YR,5/6)
5	SS	60/60				82		
						137	ML	clayey SILT - dry, slight odor - some calcareous nodules - color becomes yellowish-red (5YR,4/6) - color becomes mottled brownish-yellow and light bluish-gray - becoming sandy, strong odor - becoming less clayey - color becomes yellowish-brown (10YR,5/6) - very moist
10	SS	60/60				341		
						-		No Recovery
15	SS	60/24				287	SM	silty SAND, wet, slight odor, some clay pockets - color becomes gray (10YR,6/1), slight odor
								No Recovery - color becomes brown (7.5YR,5/4), wet
						13	SM	

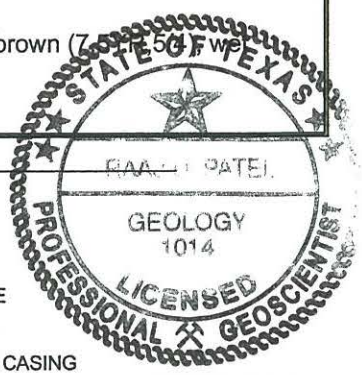
SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING

N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)



URS

LOG OF OXYGENATION WELL: OW-6 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 13, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0910
DRILLING COMPLETED: 1120 WELL INSTALLED: 6-13-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/48				7	SM		- slight odor
	GRADED FILTER SAND 20/40									- slight odor
		SS	24/24				91			- wet, slight odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING

N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

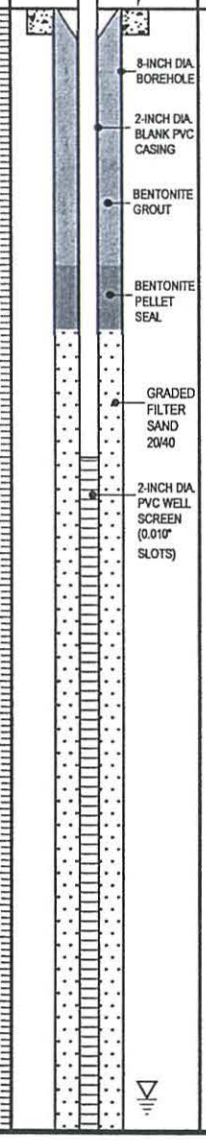
8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
PROFESSIONAL GEOSCIENTIST
LICENSED

URS

LOG OF OXYGENATION WELL: **OW-7**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1030
DRILLING COMPLETED: 1155 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 1 OF 2



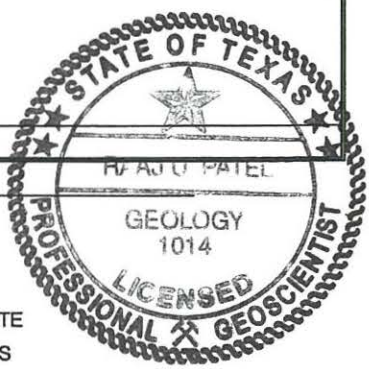
DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
						4	CL		Very dark gray (10YR,3/1) silty CLAY - some dark gray (2.5Y,4/1) mottling - slight odor
5	SS	60/60				11			- color becomes very dark grayish-brown (2.5Y,3/2) - some calcareous nodules - color becomes yellowish-red (5YR,4/6) - slight odor
						15	ML		clayey SILT - some greenish-gray (GLEY1,6/5G) mottling
10	SS	60/60				544	CL		silty CLAY - moist, slight odor - odor
						-			No Recovery
							ML		clayey SILT - odor - some calcareous nodules
15	SS	60/36				184	CL		Red (2.5YR,4/8) silty CLAY, some calcareous nodules
						-			No Recovery
							SM		

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)



URS

LOG OF OXYGENATION WELL: OW-7 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1030
DRILLING COMPLETED: 1155 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40; WELL CAP	SS	60/36				6	SM		Mottled light bluish-gray and tan (2.5Y,7/1) silty SAND, fine grained, wet, slight odor - color becomes light yellowish-brown (10YR,6/4) - slight odor
		SS	24/24				6			Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ U PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-8**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0800
DRILLING COMPLETED: 1015 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	2'x2' CONC PAD, 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						44	CL		Very dark grayish-brown (10YR,3/2) silty CLAY, odor - some caliche pockets - color becomes yellowish-red (5YR,4/6) - odor, some mottling - color becomes olive brown (2.5YR,4/4) - color becomes brown (7.5YR,4/4), odor
5		SS	60/60				66			
							555	ML		Brown (7.5YR,4/4) clayey SILT, odor, some calcareous pockets
								CL		Yellowish-red (5YR,5/8) silty CLAY, odor, moist - some fine sand
								CH		Red (2.5YR,4/6) CLAY, stiff, odor, some calcareous nodules
10		SS	60/60				572			
							-			No Recovery
	▽							CL		Red (2.5YR,4/6) silty CLAY
								SM		Light bluish-gray (GLEY2) silty SAND, with brown (7.5YR,5/4) mottling, wet - color becomes strong brown (7.5YR,5/8), odor, black hydrocarbon
15		SS	60/30				245			
							-			No Recovery
								SM		- color becomes yellowish-brown (10YR,5/6)

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-8 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 12, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0800
DRILLING COMPLETED: 1015 WELL INSTALLED: 6-12-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/36				6	SM		- wet - slight odor
	GRADED FILTER SAND 20/40	SS	24/24				8			- wet - slight odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
PARAG PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-9**

CLIENT: Kinder Morgan Liquids Terminal, LLC | JOB No.: 25009090 | DATE: June 9, 2006

SITE: North Plant | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8-inch | MONITOR WELL DIA.: 2-inch

DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel | COORDINATES: N: - E: -

RIG TYPE: Truck-mounted D-50 | GROUND SURFACE ELEV. : - | TOP OF CASING ELEV.:-

DRILLER: M. Moya | INITIAL GROUNDWATER DEPTH:13' bgs | TOTAL DEPTH OF BORING: 22' bgs

LOGGED BY: F. Devore | DRILLING STARTED: 1445 | DRILLING COMPLETED: 1600 | WELL INSTALLED: 6-9-06

CONDITION: - | PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	2'x2' CONC PAD; 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						10	CL		Very dark gray (7.5YR,3/2) silty CLAY with olive brown (2.5YR,4/3) mottling - slight odor
5		SS	60/60				19			- color becomes yellowish-red (5YR,4/6) - odor - some calcareous nodules
							466			- increase in silt
10		SS	60/60				499			- moist, some light bluish-gray fine sand pockets - strong odor
										No Recovery
	▽						515	CL		- some light bluish-gray fine sand pockets - moist - wet at 13' bgs - black hydrocarbon staining, increase in silt
15		SS	60/36				495	SM		Dark yellowish-brown (10YR,4/6) silty SAND - strong odor No Recovery
							8	SM		- wet - decrease in silt

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — RAA... PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-9 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1445
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/48				7	SM		- slight odor
								CH		Red (2.5YR,4/6) CLAY, stiff, some bluish-gray mottling
	GRADED FILTER SAND 20/40	SS	24/24				5	SM		Dark yellowish-brown (10YR,4/6) silty SAND - slight odor, wet
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-10**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 12.5' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1305
DRILLING COMPLETED: 1430 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	2'x2' CONC PAD, 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0	ML		Dark brown (7.5YR,3/2) clayey SILT, no odor, some rocks
								CL		Olive brown (2.5Y,4/6) silty CLAY, medium stiff, plastic, no odor
5		SS	60/60				9			- increase in silt - color becomes strong brown (7.5YR,4/6) - color becomes yellowish-red (5YR,4/6) - no odor
							386	ML		Grayish-brown (2.5Y,5/2) clayey SILT, odor
								CL		Yellowish-red (5YR,4/6) silty CLAY with calcareous nodules - strong odor - slightly moist
10		SS	60/60				386			
							-			No Recovery
								SM		Strong brown (7.5YR,4/6) silty SAND, fine grained, wet - some hydrocarbon (black) - small light bluish-gray pockets of color - strong odor
15		SS	60/30				392			No Recovery
							7	SM		- color becomes brown (7.5YR,5/4) - wet, odor

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAA[illegible] PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-10 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH:12.5' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1305
DRILLING COMPLETED: 1430 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/42				1	SM		- color becomes strong brown (7.5YR,5/8) - wet
	GRADED FILTER SAND 20/40	SS	24/24				104			- odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

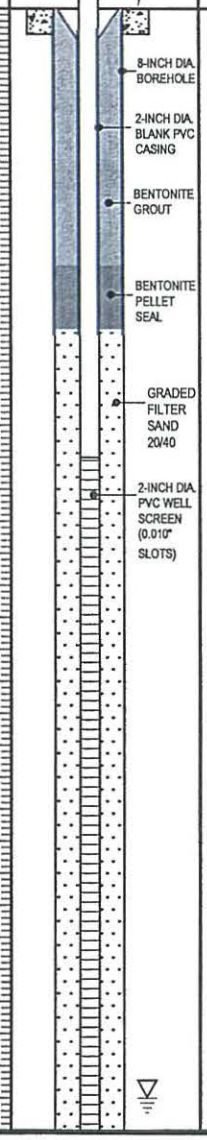
8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAJIV PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-11**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH:17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0800
DRILLING COMPLETED: 1930 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
							ML		Brown (7.5YR,4/2) clayey SILT
						0	CL		Mottled light bluish-gray and yellowish-red (5YR,5/8) silty CLAY - increase in stiffness
5	SS	60/60				0	ML		Yellowish-red (5YR,4/8) clayey SILT, no odor
						0	CL		Yellowish-red (5YR,5/6) silty CLAY - slight odor - very stiff - becoming siltier - thin layer of calcareous material
						1	ML		clayey SILT
10	SS	60/60				2	CL		very silty CLAY - odor - calcareous nodules - some small light bluish-gray sand pockets
15	SS	60/60				2			No Recovery - increase in sand pockets
						5	SM		Light bluish-gray silty SAND, odor, moist - wet at 17' bgs

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ U PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-11** **(CONT'D)**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 9, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0800
DRILLING COMPLETED: 1930 WELL INSTALLED: 6-9-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40; WELL CAP	SS	60/42				30	SM		No Recovery - wet
		SS	24/24				103			- color becomes brown (7.5YR,5/4)
25										Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
PRAFUL PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-12**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 8, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH:17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1345
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-8-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	2'x2' CONC PAD; 3' STICK-UP; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0	CL		silty CLAY, some fine sand - mottled with light grayish-blue and reddish-brown - slight odor, medium stiff - increase in silt - moist
5		SS	60/60				1	SM		Yellowish-red (5YR,4/6) silty SAND
							1	CL		Yellowish-red (5YR,4/6) silty CLAY - increase in silt - moist - calcareous nodules
10		SS	60/60				1			- some fine sand pockets - color becomes strong brown (7.5YR,5/6) mottled with light bluish-gray - color becomes red (2.5YR,4/6)
							1			- slight odor
								CH		CLAY, stiff
15		SS	60/60				2	CL		silty CLAY with light bluish-gray fine sand - slight odor, moist
	▽						4			- wet at 17' bgs

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	N/A	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SS	SPLIT-SPOON SAMPLER	▼	STATIC WATER LEVEL
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — RAAJ J. PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-12** **(CONT'D)**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 8, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1345
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-8-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA PVC WELL SCREEN (0.010" SLOTS)	SS	60/60				2	CL		
								ML		Light bluish-gray clayey SILT
								SM		Light bluish-gray silty fine SAND, wet - some clay pockets and some yellow discoloration
	GRADED FILTER SAND 20/40	SS	24/24				0			
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — PAUL PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-13

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17.5' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1450
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0			Dark brown (7.5YR,3/2) silty CLAY
										- color becomes yellowish-brown (10YR,5/4)
										- color becomes strong brown (7.5YR,5/8) with gray (7.5YR,6/1) mottling
5		SS	60/60				0	CL		- color becomes yellowish-red (5YR,4/6)
							0			- slightly moist - slight odor - some medium sized grains
										- becoming sandy - some caliche
10		SS	60/60				0			- some caliche nodules, very silty
							0			
								CH		- some calcareous nodules
15		SS	60/60				1			No Recovery
	▽						0	CH		- wet at 17.5' bgs

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	N/A	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER		
SS	SPLIT-SPOON SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER	▼	STATIC WATER LEVEL
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — RAAJ[illegible] PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-13 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.:-
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH:17.5' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1450
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/48				1	SM		Gray (7.5Y,6/1) sandy SILT - color becomes strong brown (7.5YR,5/6) - no odor - clay pockets
	GRADED FILTER SAND 20/40	SS	24/24				2	ML		Mottled gray and strong brown clayey SILT - wet - slight odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
PRAAJIT PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-14**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 8, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 20' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1045
DRILLING COMPLETED: 1315 WELL INSTALLED: 6-8-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0	CL		Very dark gray (5YR,3/1) very silty CLAY, some roots, no odor - becoming less silty - color becomes olive brown (2.5Y,4/3) - color becomes light olive brown (2.5YR,5/4)
5		SS	60/60				0			
							0	ML		Gray (5Y,6/1) very clayey SILT, some oxidation - color becomes yellowish-red (5YR,4/6)
10		SS	60/60				1			- no odor - moist - some calcareous nodules
							1			- light bluish-gray mottling - some silt and fine sand pockets - moist
15		SS	60/60				2	CH		CLAY, very stiff
							2	ML		clayey SILT - slight odor

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS · RAAJU PATEL · GEOLOGY 1014 · PROFESSIONAL GEOSCIENTIST · LICENSED

URS

LOG OF OXYGENATION WELL: OW-14 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 8, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 20' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1045
DRILLING COMPLETED: 1315 WELL INSTALLED: 6-8-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
								ML		
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/48				2	CH		CLAY, stiff - some light bluish-gray sand pockets - wet at 20' bgs
	GRADED FILTER SAND 20/40	SS	24/24				1	SM		Light bluish-gray (GLEY2,7/10B) silty SAND - no odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-15**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 11' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1110
DRILLING COMPLETED: 1400 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT						0	ML		Very dark gray (5YR,3/1) clayey SILT
								CL		- color becomes yellowish-brown (10YR,5/6)
5	BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)	SS	60/60				0	ML		Yellowish-red (5YR,4/6) clayey SILT - some caliche - no odor
10	▽	SS	60/60				0	SM		Yellowish-red (5YR,5/8) sandy SILT, slightly moist No Recovery - wet at 11' bgs - color becomes strong brown (7.5YR,5/6)
							0	SM		- color becomes yellowish-red (5YR,5/8) - color becomes light greenish-gray (GLEY1,7/10Y) - color becomes yellowish-red (5YR,5/8)
15		SS	60/48				0			- no odor, moist No Recovery

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — RAAJU PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-15 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 11' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1110
DRILLING COMPLETED: 1400 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/36				0	SM		- color becomes strong brown (7.5YR,5/6) - becoming sandier - no odor, wet - some stiff clay nodules
		SS	24/24				0	SM		Strong brown (7.5YR,5/6) silty SAND - slight odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — BARRY PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-16**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0920
DRILLING COMPLETED: 1100 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)							ML		Very dark brown (10YR,2/2) clayey SILT with some roots, no odor
							0	CL		Strong brown (7.5,4/6) silty CLAY, stiff, no odor - gray silt pockets
5		SS	60/60				0			- becoming sandy, caliche nodules
							1	ML		Strong brown (7.5YR,3/3) clayey SILT - less clayey - no odor
10		SS	60/60				0			
	∇						1	SM		Strong brown (7.5YR,3/3) sandy SILT - slight odor - saturated at 13' bgs
15		SS	60/60				0			- stiff clay nodules, hydrocarbon residue No Recovery

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
∇	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS ★ GEOLOGY 1014 ★ LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-16 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0920
DRILLING COMPLETED: 1100 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/24				0	SM		- one clay pocket
		SS	24/24				9			- no odor
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	N/A	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER		
SS	SPLIT-SPOON SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER	▼	STATIC WATER LEVEL
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
HAARU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-17**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0955
DRILLING COMPLETED: 1115 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0	CL		Very dark gray (5YR,3/1) very silty CLAY, medium stiff, no odor - silt pockets - color becoming yellowish-red (5YR,5/8), no odor
5		SS	60/56				0			
							0	ML		Reddish-brown (5YR,5/6) clayey SILT with rocks
10		SS	60/60				0			sandy SILT - no odor - saturated at 12' bgs
	▽						0	SM		
15		SS	60/60				0			
							0			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
BAALU PATEL
GEOLOGY
1014
LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-17 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0955
DRILLING COMPLETED: 1115 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/48				0	SM		
								CH		Red (2.5YR,4/6) CLAY, very stiff, some light gray mottling
								CL		Gray (7.5YR,6/1) silty CLAY, very stiff
		SS	24/24				0			
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-18**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 15' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0745
DRILLING COMPLETED: 0900 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0	CL		Brown (7.5YR,4/2) silty CLAY, some roots, medium stiff, no odor
										- becoming sandy
5		SS	60/60				0			
							0	ML		Light brownish-gray (10YR,6/2) clayey SILT, no odor
										- color becoming yellowish-red (5YR,5/8)
										- some laminations - pockets of dark gray clayey silt - becoming sandy
10		SS	60/60				0			
							0	SM		Strong brown (7.5YR,5/6) sandy SILT
										- moist
15	▽	SS	60/48				0			- saturated at 15' bgs
							1			- slight odor

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — RAAJ[illegible] PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-18 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 7, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 15' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0745
DRILLING COMPLETED: 0900 WELL INSTALLED: 6-7-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/56				49	SM		- increase in sand
		SS	24/24				57	CH		Reddish-brown (2.5YR,4/6) CLAY, stiff - some caliche
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-19**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1300
DRILLING COMPLETED: 1430 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						0	CL		Very dark gray (7.5YR,3/1) silty CLAY medium stiff, no odor
								ML		clayey SILT
								CL		silty CLAY - no odor
5		SS	60/58				0			
							0	ML		Reddish-yellow (7.5YR,6/6) clayey SILT - very little clay, no odor
10		SS	60/60				0			- color becoming red (2.5YR,4/8), no odor, slightly moist
							0	SM		Strong brown (7.5YR,5/6) sandy SILT - no odor - very moist - color becomes red (2.5R,4/8) - increase in silt - saturated at 14' bgs
15	▽	SS	60/60				0			
							0			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
PAAN D PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-19 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1300
DRILLING COMPLETED: 1430 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/58				0	SM		
								CH		Yellowish-red (5YR,4/6) CLAY, stiff
		SS	24/24				2	SM		Strong brown (7.5YR,5/6) silty SAND - no odor, wet
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
[illegible] PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-20**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0750
DRILLING COMPLETED: 0900 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						6	CL		Very dark grayish-brown (10YR,3/2) silty CLAY, medium stiff, no odor
										- some red (10R,4/8) mottling
5		SS	60/60				4			- color becomes red (2.5R,4/8) - increase in silt
							1	ML		Red (2.5YR,4/8) clayey SILT, with some light gray mottling
										- slightly sandy, no odor
10		SS	60/60				6			No Recovery
							3	SM		Strong brown (7.5YR,5/6) sandy SILT - moist
										- some light gray fine sand pockets
15		SS	60/54				1			No Recovery
	▽									- saturated at 17' bgs

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-20 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 17' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0750
DRILLING COMPLETED: 0900 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/48				2	SM		- grading into a silty fine sand
		SS	24/24				1	SC		Gray (7.5YR,6/1) clayey fine SAND - no odor, wet
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ U. PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-21**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 6, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 15' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1445
DRILLING COMPLETED: 1630 WELL INSTALLED: 6-6-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)						1	ML		Brown (10YR,4/3) clayey SILT, some roots, no odor
								CL		Brown (10YR,4/3) silty CLAY, stiff, no odor
5		SS	60/60				0			
							0	ML		Yellowish-red (5YR,4/6) clayey SILT - no odor
10		SS	60/60				0			- becoming sandy
							0	SM		Yellowish-red (5YR,5/6) sandy SILT, with small pockets of clay - no odor - moist
15	▽	SS	60/60				0			- saturated at 15' bgs - wet
							0			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	N/A	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SS	SPLIT-SPOON SAMPLER	▼	STATIC WATER LEVEL
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ U PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-21 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC | JOB No.: 25009090 | DATE: June 6, 2006

SITE: North Plant | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8-inch | MONITOR WELL DIA.: 2-inch

DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel | COORDINATES: N: - E: -

RIG TYPE: Truck-mounted D-50 | GROUND SURFACE ELEV.: - | TOP OF CASING ELEV.: -

DRILLER: M. Moya | INITIAL GROUNDWATER DEPTH: 15' bgs | TOTAL DEPTH OF BORING: 22' bgs

LOGGED BY: F. Devore | DRILLING STARTED: 1445 | DRILLING COMPLETED: 1630 | WELL INSTALLED: 6-6-06

CONDITION: - | PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/60				18	SM		- becoming silty fine sand
		SS	24/24				23			- wet
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

9	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

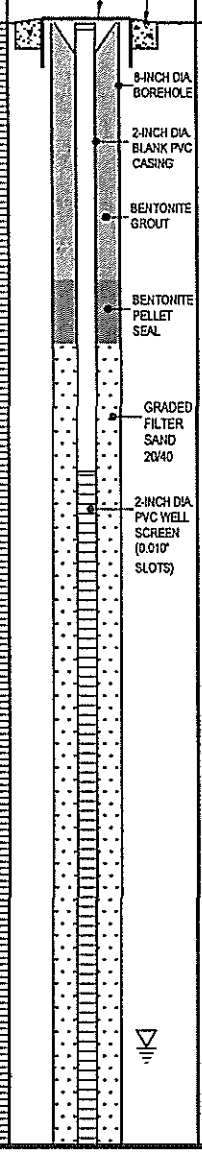
STATE OF TEXAS — RAAJU U. PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-22**

CLIENT: Kinder Morgan Liquids Terminal, LLC	JOB No.: 25009090 DATE: June 5, 2006
SITE: North Plant	LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel	COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50	GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: 16' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1245	DRILLING COMPLETED: 1400 WELL INSTALLED: 6-5-06
CONDITION: -	PAGE: 1 OF 2

WELL DIAGRAM



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
						6	CL		Dark reddish-brown (5YR,3/2) silty CLAY, mottled, stiff, some roots - color becomes red (2.5YR,4/8) with gray (10YR,6/1) mottling - no odor - becoming sandy
5	SS	60/60				5			
						6	ML		Red (2.5YR,4/8) clayey SILT, no odor
							ML		Strong brown (7.5YR,5/6) SILT, slightly sandy, no odor - grading into a silty fine sand
10	SS	60/60				7			
						6	SM		Strong brown (7.5YR,5/6) silty fine SAND - slightly moist - some clay pockets
15	SS	60/60				4	CH		- clay layer, stiff, very moist
						10	SM		- saturated at 16' bgs - no odor

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJ D PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-22 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 5, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 16' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1245
DRILLING COMPLETED: 1400 WELL INSTALLED: 6-5-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/58				11	SM		
		SS	24/24				40	CH		Strong brown (7.5YR,5/6) CLAY, high plasticity - small sand pockets, odor - some black mottling
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
BAALU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-23**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 5, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1420
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-5-06
CONDITION: -
PAGE: 1 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	3'x3' CONC PAD; 2'x2' WELL VAULT									Roots / Grass
	8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT						3	CL		Dark yellowish-brown (10YR,3/6) silty CLAY, stiff, no odor - color becomes red (2.5YR,4/8) with reddish-gray (2.5YR,5/1) mottling, medium stiff
5	BENTONITE PELLET SEAL	SS	60/56				5			
	GRADED FILTER SAND 20/40						4	ML		Red (2.5YR,4/6) clayey SILT, very clayey - decrease in clay and becoming sandy
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS)									Red (2.5YR,4/6) silty fine SAND with reddish-gray (2.5YR,5/1) mottling
10		SS	60/60				7			- very moist
							53	SM		
	▽									- saturated at 14' bgs
15		SS	60/60				27			- wet - slight odor
							117			

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS — RAJU PATEL — GEOLOGY 1014 — LICENSED PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-23 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 5, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: F. Devore DRILLING STARTED: 1420
DRILLING COMPLETED: 1600 WELL INSTALLED: 6-5-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40	SS	60/60				69	SM		- odor
		SS	24/24				174			
	WELL CAP									Boring terminated at 22 feet below ground surface. Monitoring well installed inside borehole.
25										
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

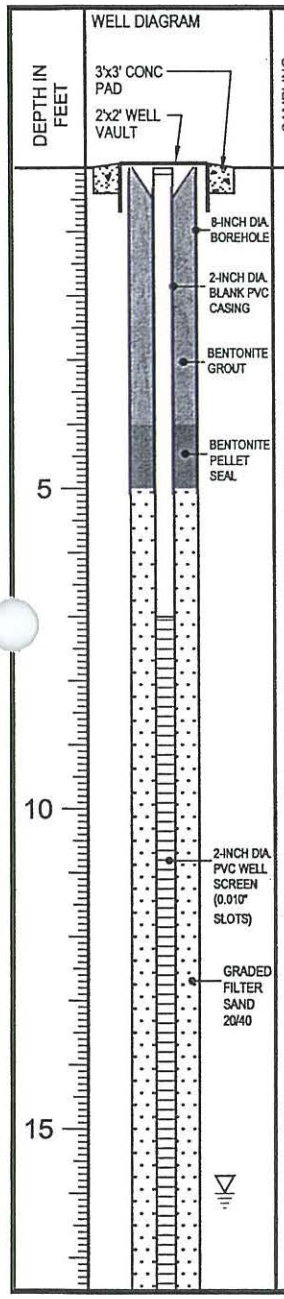
8	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJIV PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: **OW-24**

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 5, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV. : - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 16' bgs TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0900
DRILLING COMPLETED: 1135 WELL INSTALLED: 6-5-06
CONDITION: -



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
									No Recovery
						3	CL		Very dark gray (2.5Y,3/1) very silty CLAY with roots - color becomes light olive brown (2.5Y,5/4), less silty, no odor, stiff
							ML		Yellowish-red (5YR,4/6) clayey SILT
5	SS	60/56				3	SC		Red (2.5YR,4/8) clayey SAND, fine grained, very little clay - increase in clay - pockets of fine sand with no clay - small amount of roots - slight odor
						14			
10	SS	60/60				38			
						12	SM		Strong brown (7.5YR,5/6) silty fine SAND, moist
15	SS	60/60				16			- color becomes reddish-yellow (7.5Y,6/6), slight odor - saturated at 16' bgs - color becomes strong brown (7.5YR,5/6), wet, slight odor

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

13	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
RAAJU PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

LOG OF OXYGENATION WELL: OW-24 (CONT'D)

CLIENT: Kinder Morgan Liquids Terminal, LLC
JOB No.: 25009090 DATE: June 5, 2006
SITE: North Plant
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hollow Stem Auger, 5-foot Split Barrel
COORDINATES: N: - E: -
RIG TYPE: Truck-mounted D-50
GROUND SURFACE ELEV.: - TOP OF CASING ELEV.: -
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 16' bgs TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: F. Devore DRILLING STARTED: 0900
DRILLING COMPLETED: 1135 WELL INSTALLED: 6-5-06
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID SCREENING (ppm)	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA PVC WELL SCREEN (0.010" SLOTS); GRADED FILTER SAND 20/40; WELL CAP	SS	60/60				11	SM		- moist
							6	CL		- very stiff clay lense
							6	SM		
25		SS	60/60					CL		Red (2.5YR,4/6) CLAY, stiff, slight odor
										Boring terminated at 25 feet below ground surface. Monitoring well installed inside borehole.
30										

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER
CB	CORE BARREL SAMPLER
SS	SPLIT-SPOON SAMPLER
GP	GEOPROBE SAMPLER
PP	POCKET PENETROMETER
BGS	BELOW GROUND SURFACE
BTOC	BELOW TOP OF CASING
N/A	NOT APPLICABLE or NOT AVAILABLE
▽	INITIAL WATER LEVEL DURING DRILLING
▼	STATIC WATER LEVEL

MATERIAL USED:

13	SACKS OF 50 LBS SAND
-	SACKS OF 80 LBS CEMENT
7	GALLONS OF GROUT USED
-	SACKS OF POWDERED BENTONITE
1/2	POUNDS OF BENTONITE PELLETS
10	FEET OF 2 INCH PVC BLANK CASING
15	FEET OF 2 INCH PVC SLOTTED SCREEN (0.010" SLOTS)

STATE OF TEXAS
[illegible] PATEL
GEOLOGY
1014
LICENSED
PROFESSIONAL GEOSCIENTIST

URS

APPENDIX 3

Studies and Tests Documentation

URS

APPENDIX 3 Studies and Tests Documentation

MTBE Pilot Test

URS proposed the use of high-efficiency, *in situ*, passive oxygenation to stimulate biodegradation of an MTBE groundwater plume at the KM Liquids Terminals (KMLT) facility in Galena Park, Texas. URS planned and designed the pilot test with five test wells, one existing well for oxygenation and four new observation wells (Figure 1-3). An additional existing well was also used for periodic cross-gradient evaluations. The pilot test was done within the MTBE plume, and inside the containment of Tank 100-11 at the North Plant facility.

The four test wells were installed in January 2006. After well installation, the *in situ* groundwater remediation system was installed. The system consisted of an oxygen "emitter", oxygen supply cylinders, an oxygen regulator, and associated tubing and tubing housing. The oxygen emitter, installed in RW2, was an iSOC® unit, a passive, high-dissolution efficiency, oxygenation system developed by Inventure, Inc. that passively delivers *in situ* oxygen to groundwater. Passive oxygenation in this case means that oxygen is dissolved by groundwater's contact with a large static oxygen surface within the emitter, rather than by any sparging or other turbulent dissolution process. A temporary building, outside the containment of Tank 100-11, housed oxygen cylinders to supply the iSOC®. Oxygen was supplied to well RW-2, via ¼-inch polyurethane tubing contained in a protective 2-inch schedule 80 PVC pipe installed from the building to the well within Tank 100-11 containment.

The pilot test started on January 19, 2006, and was periodically monitored and inspected every week. All wells were periodically gauged, field analyzed for groundwater dissolved oxygen (DO), and samples collected and analyzed for MTBE. The pilot test results are discussed below along with the data and graphs demonstrating the successful outcome of this pilot test. The pilot test was originally planned for only two months, January to March 2006. Good initial test results led to a decision by Kinder Morgan and URS to continue the test to gather additional data to confirm the results and aid full-scale design. After four months, the last samples were collected on May 4, 2006, and the pilot test was terminated.

Pilot Test Results

During groundwater sampling events, field parameters (pH, specific conductance, temperature, DO, and oxidation reduction potential [ORP]) were measured prior to collection of groundwater samples from the pilot study wells using low-flow sampling techniques. Groundwater samples were then collected and submitted to the project analytical laboratories for analysis of MTBE. The field and analytical results are summarized in Figure A3-1 (DO Results) and Figure A3-2 (MTBE results).

Figure A3-1 includes a table and graph of the DO results obtained during the pilot test in the oxygenation well (RW2), upgradient well (UG1), downgradient wells (DG1 and DG2), and the cross-gradient wells (DG3 and MW-12). As shown in Figure A3-1, the DO concentration in RW2 (well with the iSOC®) increased significantly within the first week, and was sustained throughout the test, as would be expected. The downgradient and cross-gradient wells showed significant increases in the

DO concentrations (about six to ten fold) after the first month of the test, except at the February 2006 sampling event. During the February 27, 2006 sampling event, free-phase alkylate was detected in well RW2. When the low-flow sampling pump was activated, alkylate coated the probe of the flow-through cell, resulting in erroneously low readings for DO during the sampling event. Precautions were taken in subsequent sampling events to eliminate this interference.

Note the very high DO that the system creates over time. This supersaturation of oxygen in groundwater is possible because:

- the system is passive, in that flow is not turbulent past the emitter,
- the emitter has an enormous relative surface area,
- no turbulent sparging of air or oxygen occurs,
- the oxygenation occurs at depth under pressure in the groundwater, and
- the oxygen is a pure technical-grade oxygen rather than air.

The system stays supersaturated because of the passive, essentially non-turbulent nature of the groundwater flow in the surrounding soils. This is evidenced by the very high measured DO in downgradient wells, derived solely from the oxygen dissolved at RW2. This high saturation means that the system is more efficient than sparging for oxygen delivery and the passive nature eliminates volatilization via sparging off-gas. Oxygen initially was low in the wells, in the range of 1 ppm or less, but with the introduction of oxygen in well RW2, highly oxic conditions were created in the groundwater in RW2, and over time, in the downgradient and upgradient wells (Figure A3-1).

Figure A3-2 shows the MTBE analytical results for the pilot study. The RW2 MTBE concentration at the beginning of the test was 3,000 ug/l. Initial MTBE concentrations were highly variable from well to well, ranging from 5,470 to 1,340 ppb. Over time, the MTBE concentrations decline in RW2 and most of the other wells. The greater variability with the MTBE concentrations is probably due to the influx of extant MTBE concentrations from upgradient of the pilot area and each well. Only DG2 does not show a clear decline in MTBE concentrations over the Pilot study period. DG1, DG3, and, of course, RW2 shows a steady decrease in MTBE. These responses generally correspond to timing of these wells oxygenation and the DO concentrations achieved, taking in to account that new MTBE concentrations are moving downgradient to these wells from areas upgradient of the wells and Pilot test area. DG2 and UG1, the putative most downgradient well and upgradient well show different patterns. DG2 initially declines in MTBE as the oxygen increases. MTBE then spikes up at the last reading, probably due to an influx of higher concentrations of MTBE in groundwater from upgradient. UG1 DO concentrations are slow to increase and MTBE concentrations increase for the first several months of the study. Then, MTBE concentrations UG1 begin to decline, probably from an increasing DO but possibly from continued flow of MTBE concentrations down towards RW2. RW2 MTBE concentrations decline, but based on its DO status, not as much as downgradient wells DG1 and DG3. This smaller decline is possibly explained by the movement of higher MTBE concentration groundwater down from UG1 (Figure A3-2).

An evaluation of the groundwater surface data suggests that DG2 is not directly downgradient of RW2; but that DG3 is more likely the more direct distant downgradient well, possibly explaining why DG3 results are better than DG2 results. DG1 is so near RW2, that it is impacted early and consistently by oxygen from RW2, explaining its excellent results.

RW2 Oxygenation Well – The oxygen emitter well DO increased rapidly as would be expected and was greater than 34 ppm DO within 1 week of start up. From that point, DO in RW2 continued to increase at every measurement and at the last measurement was at its highest during the study and, as expected since it was the emitter well, was consistently the highest of all the wells in the pilot system at each measuring time and at the end of the study. As noted above, MTBE declined steadily but less than the downgradient wells, DG1 and DG3.

Downgradient Wells - The levels of DO in all the downgradient wells increased over time and at the termination of the study were at their highest DO during the study. DG1 ended up with a higher DO than the DG2, DG3 and UG1, and had a higher DO for the last two measurements than the other DG wells, which makes sense since it is closest to RW2. DG2 had similar readings as DG1 except that the last two measurements were lower than the corresponding DG1 measurements. DG1 was at least partially upgradient from DG2. Initially both wells were expected to have low DO, and they did. As DO moves down to DG1 from RG2, it travels with MTBE, and interacts with the reduced soils as well supporting MTBE degradation, consuming most of the DO (and some MTBE). This initially limits the oxygen available to show up in other wells. As more oxygen is added and advects downgradient or diffuses upgradient, MTBE decreases more near the emitter, and more oxygen makes it further downgradient, showing up at increasing concentrations in the downgradient wells. In general the data fit this well. Both DG2 and DG3 appear to be downgradient of RW2 and to some extent DG1, based on field groundwater surface measurements in the pilot system. DG2 and DG3 generally trail DG1 in DO concentrations at any time, corresponding to their relative distances from RW2, and generally track DG1's decrease in MTBE but at a delayed pace (Figure A3-2).

Upgradient Well – UG1's elevated DO toward the end of the pilot study seems anomalous but could be expected. Due to the high DO created with this system and the slow movement of groundwater in general in this setting, diffusion could cause DO to reach the upgradient well. UG1 trails most other wells in achieving a marked increase in DO and behaves similarly to the most distant putative downgradient well, DG3. Clearly DO is getting slowly upgradient to UG1, because there is no other source of supersaturated DO such as is seen at the end of the pilot study. This actually bodes well for the full-scale system because it indicates that DO will increase throughout the plume not just near the emitter wells.

MTBE Degradation

The oxic conditions created in the pilot study were intended to enhance MTBE biodegradation activities. As depicted in Figure A3-2, the MTBE concentrations were reduced to 1420 ug/l after two weeks of test operations, and continued dropping to 935 ug/l, after four months at the end of the test (over 65% reduction in MTBE concentrations). It should be noted that "new" MTBE is flowing downgradient into the pilot system so that MTBE concentrations would not be expected to reach non-detect in this 4-month pilot test. MTBE concentrations also declined in test wells, UG1 (from highest 9200 to 2570 ug/l), DG1 (from 1340 ug/l to 104 ug/l), DG2 (5,470 to 2530), and DG3 (2890 to 440 ug/l). This indicates that as oxic conditions extend down and marginally upgradient from the emitter well, MTBE concentrations go down. Because this is a passive oxygenation system, simple sparging volatilization is eliminated as a removal mechanism. A decline of MTBE in each well correlates with an increase in DO in that well. In addition, the pattern of DO concentrations appearing in downgradient wells and the decreases in MTBE concentrations over time, fit a pattern of DO extending gradually downgradient from the emitter and successively initiating biodegradation of MTBE.

Attached are photographs showing array of wells for the Pilot Test and introduction of oxygen in the remediation well RW2. Some additional lessons learned or indicated by this pilot study are:

1. The groundwater flow direction in the area of the pilot study and probably the remainder of the larger plume was somewhat different than had been suggested by the evaluation of the prior consultant on this project.
2. Groundwater flow is now believed to be much faster in the plume than the prior consultants estimate, but still slow enough to allow DO concentrations to move upgradient.

Conclusions:

The pilot test indicates that passive oxygenation in the MTBE plume promoted the removal of MTBE. This indicates that the plume can be bioremediated if adequate oxygen and coverage in the plume are achieved. The pilot test did not include additions of nutrient such as phosphorus and fixed nutrient-nitrogen. In the full-scale process, if the natural soils and groundwater do not contain these nutrients small amounts may need to be added to the oxygenation wells or other wells in the plume to sustain the biodegradation. This can be determined by the progress of the full-scale system. Nutrients can be readily and inexpensively analyzed for and then added to the wells, again in a passive manner, as needed, if needed.

Based on the premise that passive oxygenation would promote MTBE removal by bioremediation, the pilot study appears very successful. The additions of oxygen had the anticipated effect over the 4 months of the pilot study. The study indicates that a large-scale system should be effective, over a reasonable time, at promoting biodegradation of the MTBE plume. An added benefit of such as system is that it will promote the degradation of almost any non-MTBE organic (i.e. hydrocarbon) co-contaminant in the groundwater in that area. The downside is that, if there are other organic contaminants, their degradation will consume oxygen as well and possibly lengthen the time needed to treat the MTBE. The largest costs of a full-scale system are primarily in the equipment purchase and system installation, with no blowers or pumps to consume electricity or mechanically fail. Another added benefit of this system is that the oxygen emitters should last for years, typically have had little fouling, can be readily cleaned, and can be used at other locations when their initial deployment at this location is completed.



Photograph depicting Pilot Test Monitoring Well Network.

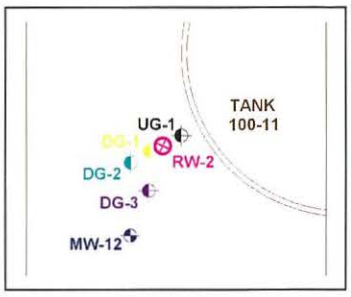


Oxygen being delivered via ¼-inch tubing to the iSOC installed in remediation well RW2.

Figure A3-1

Dissolved Oxygen Results
MTBE Oxygenation Pilot Test
KMLT – North Plant, Galena Park, Texas

Date	Dissolved Oxygen (mg/L)					
	UG1	RW2	DG1	DG2	DG3	MW12
1/19/2002		1.3	1.7	1.2	1.6	0.6
1/26/2002	2.1	34.3	1.8	2.0	1.4	
2/26/2002	0.4	40.8	1.0	4.2	0.5	
4/5/2002	11.9	45.2	21.3	13.6	9.3	11.7
5/3/2002	33.8	46.3	31.2	29.8	21.8	18.0



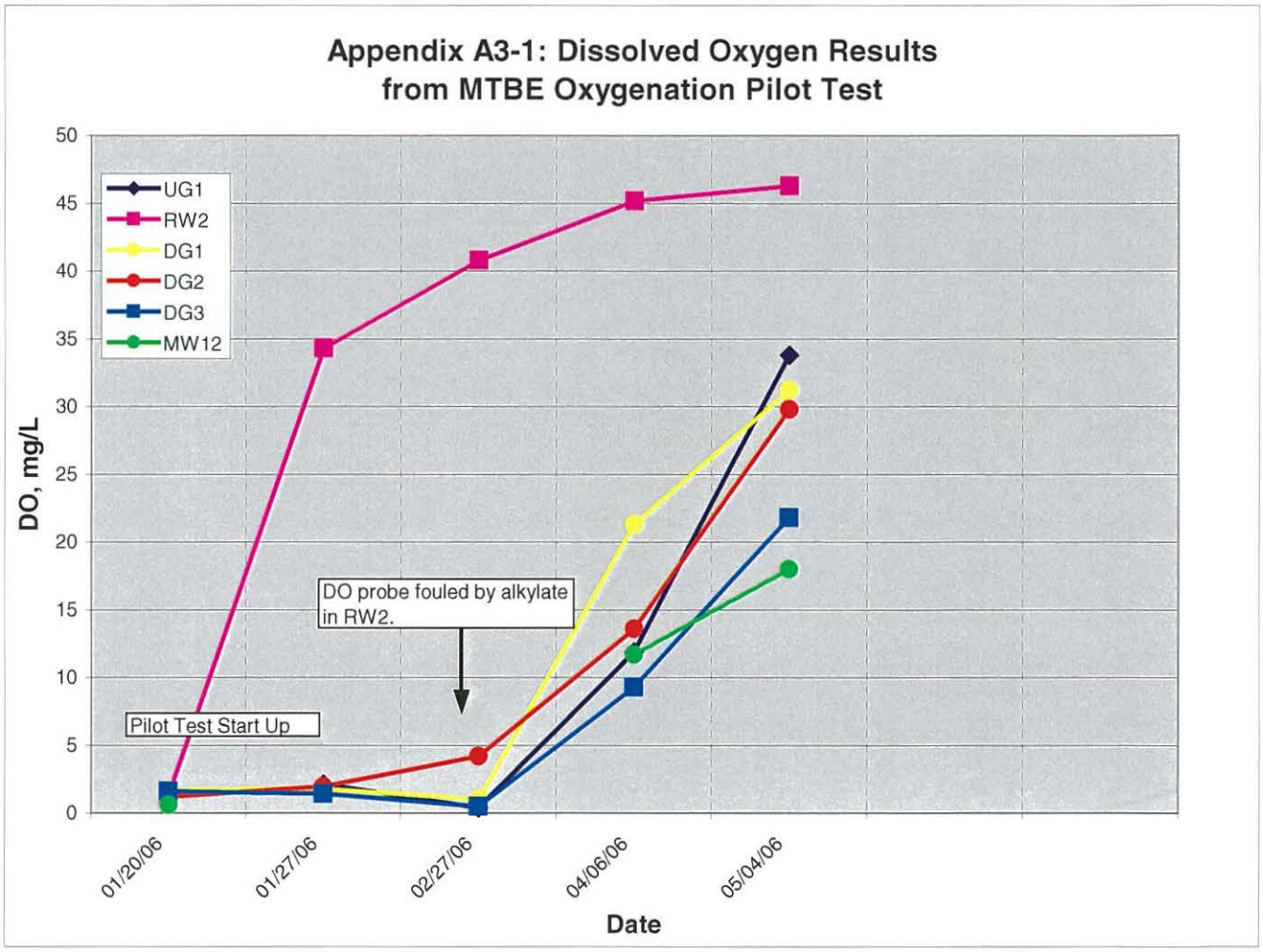
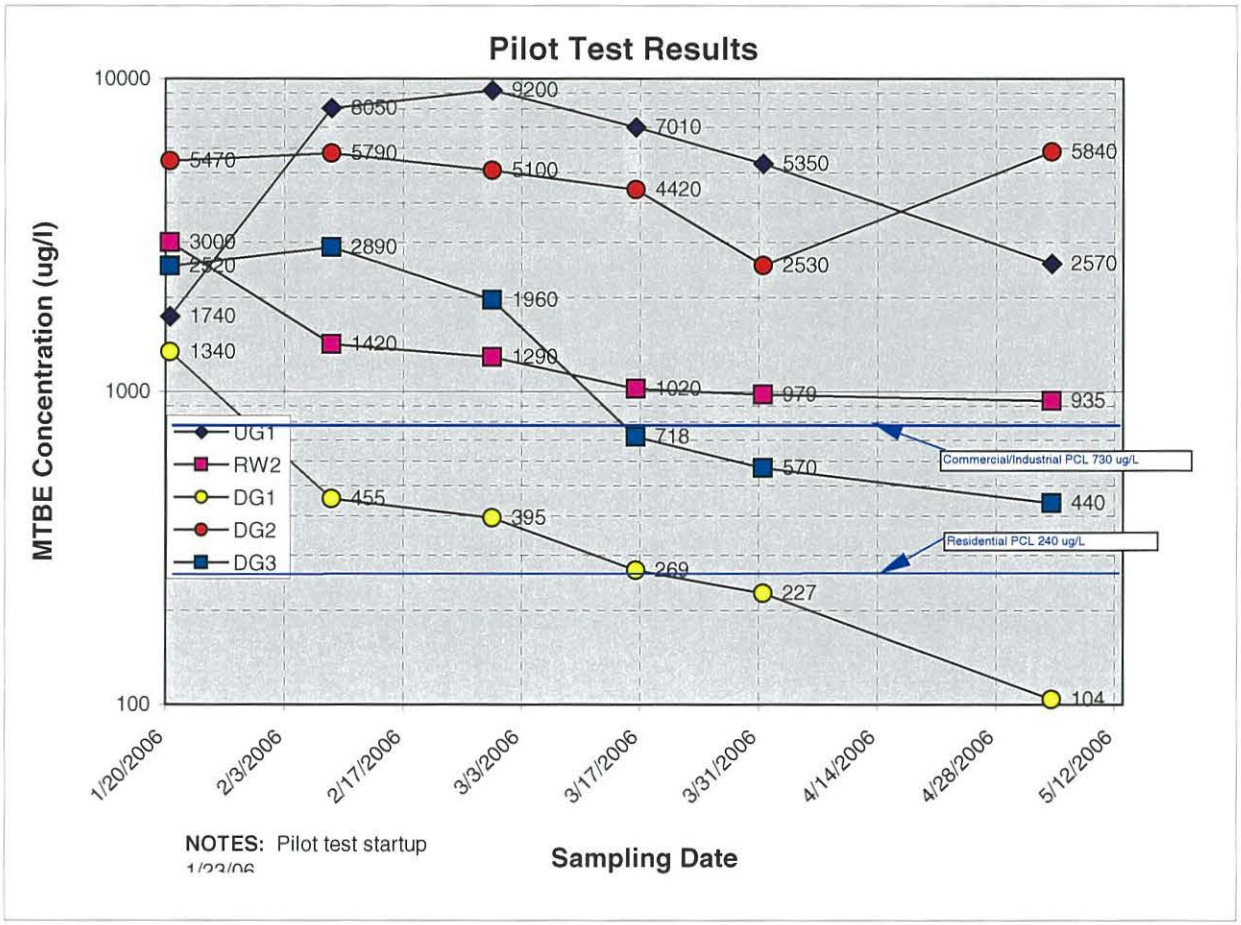


Figure A3-2

MTBE Results
MTBE Oxygenation Pilot Test
KMLT North Plant, Galena Park, Texas

Date	MTBE Concentration (ug/L)					
	UG1	RW2	DG1	DG2	DG3	MW12
11/20/2001						28400
11/30/2001		6080				
1/19/2002	1740	3000	1340	5470	2520	18200
2/7/2002	8050	1420	455	5790	2890	
2/26/2002	9200	1290	395	5100	1960	
3/15/2002	7010	1020	269	4420	718	
3/30/2002	5350	979	227	2530	570	15300
5/3/2002	2570	935	104	5840	440	18700



Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Stephanie Bergeron Perdue, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 10, 2018

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval of

- *Draft Revised Response Action Plan for TCI Plant,* dated January 15, 2018.
- *Draft Revised Response Action Plan, East Plant Gate 6 Area to the 2014 RAP,* dated March 5, 2018
- *Draft Response Action Plan, Old Pump House (OPH) No. 5 Area of Concern, (East Plant),* dated March 28, 2018;

Kinder Morgan Liquids Terminals, LLC - Galena Park;
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054;
EPA ID No. TXD026481523;
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced Response Action Plans (RAPs) received by the Remediation Division on January 24, March 6, and April 2, 2018, respectively. Based on the TCEQ review, the Draft RAPs fulfill the requirements of 30 Texas Administrative Code (TAC) §350.94. The TCEQ hereby approves Draft RAP with the following conditions:

- Within one-hundred-twenty (120) days from the date of this letter please submit the above referenced Response Action Plans (RAPs) as part of a Class 3 Permit Modification application. The Modification to the Permit shall incorporate proposed response actions for the OPH No. 5 Area of Concern, East Plant Gate 6 Area, and the TCI Plant, and any other areas at the Galena Park site in which the response action will take more than 3 years to complete. Please submit an original and three copies of the Class 3 Permit Modification application to the IHW Permits Section at mail code MC130.
- The TCEQ recommends that the Implementation Schedule for the submittal of proof of institutional controls (ICs) in the form of deed notice be consistent between RAPs. For example, proof of filing be submitted within 120 days of RAP approval in accordance with 30 TAC §350.33.
- Since the CP Attachment A maps for the final draft permit will be in black and white the TCEQ recommends that the designated monitoring well location for point-of-exposure well, attenuation monitoring, etc., have a different symbol so the different well can be easily distinguished from one another.
- Revise the deed Notice language in Appendix 4 of the RAPs to include the following information as required by 30 TAC §350.111 and per TCEQ Guidance RG-366/TRRP 16 *Institutional Controls under TRRP*:

- A metes and bounds description of the portion(s) of the affected property to which the IC applies;
- A plat map clearly demarcating the portion(s) of the affected property to which the IC applies. The map must contain a north arrow, a correlating map scale, and a legend identifying any used symbols or abbreviations;
- Both the metes and bounds and plat map need to be certified by a registered professional land surveyor or registered by the Texas Bard of Professional Surveying attesting to the accuracy of the descriptions.
- A list of constituents of concern for each environmental media that contain concentrations above their respective protective concentration levels (PCLs).
- A description of any monitoring and maintenance requirements of the physical controls and/or ICs, or compliance with health and safety plans.
- The TCEQ Program and identifier number which should be SWR No. 30573.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the plan.

Questions concerning this letter should be directed to me at (512) 239-2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MH/bk

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Revised Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc.) SWR30573
check one: __ Initial submittal for this on-site property X Subsequent submittal for this on-site property
Report date: September 2018 TCEQ Region No.: 12

TCEQ Program (check one)

- [X] Corrective Action (Mail Code 127)
- [ ] Voluntary Cleanup Program (Mail Code 221)
- [ ] RPR Section (Mail Code 137)
- [ ] Superfund PRP Lead (Mail Code 143)
- [ ] Municipal Solid Waste Permits (Mail Code 124)

On-Site Property Information

On-Site Property Name: Texmark Chemicals, Inc.
Street no. 900 Pre dir: __ Street name Clinton Street type: Drive Post dir: ____
City: Galena Park County: Harris County Code: 101 Zip: 77547
Nearest street intersection or location description: Holland Avenue

Latitude: Degrees, Minutes, Seconds ~~OR Decimal Degrees~~ (circle one) North 29°43'54.57"N
Longitude: Degrees, Minutes, Seconds ~~OR Decimal Degrees~~ (circle one) West 95°13'43.14"W

Off-Site Affected Property Information

Off-Site Affected Property Name: Not Applicable
Physical Address:
Street no. _____ Pre dir: __ Street name _____ Street type: ____ Post dir: _____
City: _____ County: _____ County Code: ____ Zip: _____

[X] Check if no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: KM Liquids Terminals LLC
Contact Person: Mr. Johnny Kennedy, P.G. Title: Remediation Manager
Mailing Address: 1500 Clinton Drive
City: Galena Park State: TX Zip: 77547
E-mail address Johnny_Kennedy@kindermorgan.com
Phone: (713) 654-6035 Fax: (713) 654-6020

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person _____ Name, print: Johnny Kennedy Date: 8/31/2018

Professional Signatures and Seals

Professional Geoscientist

William P. Gagnon, P.G.	Texas License No.: 2367	2/28/2019
Professional Geoscientist	**Geoscientist License number**	**Expiration date**
WP Gagnon	8/30/2018	
Signature	**Date**	
(281) 675-1755	(281) 646-2401	william.gagnon@aecom.com
Telephone number	**FAX number**	**E-mail**

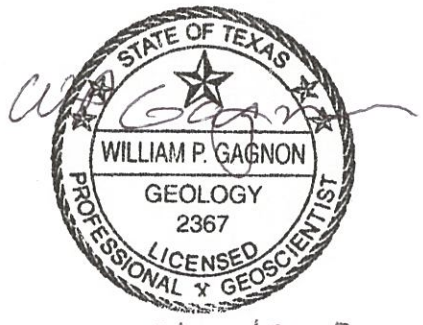
Professional Engineer

Professional Engineer	**P.E. License number**	**Expiration date**
Signature	Date	
Telephone number	**FAX number**	**E-mail**

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)
For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



8/30/2018

Revised RAP Executive Summary	ID No.: 30573
	Report Date: September 2018

Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and Protective Concentration Level Exceedance (PCLE) zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

Background

The Texmark Chemicals, Inc. (TCI) facility is located at 900 Clinton Drive in Galena Park, Texas (Site), approximately one-quarter mile north of the Houston Ship Channel. TCI specializes in contract manufacturing commercial grade and high purity cyclopentadiene (CPD), dicyclopentadiene (DCDP), and derivatives of these compounds. The property is bounded by the CenterPoint Energy (CNP) right-of-way (ROW) to the west, Clinton Drive to the north, and KM Liquids Terminals (Kinder Morgan) properties to the east and south. Although TCI owns and operates the facility, Kinder Morgan will implement the response action activities at the Site.

This Revised Response Action Plan (RAP) was developed by AECOM for the TCI facility to present additional data collected and response actions following the Texas Commission on Environmental Quality (TCEQ) approval of the Revised RAP dated January 28, 2008 (2008 Revised RAP) and to revise the remedial strategies proposed therein based on these new data. A summary of significant reports submitted to the TCEQ for the TCI facility is presented below.

Report – TCEQ Submittal Date		Approved by TCEQ
April 2001	RCRA Facility Investigation (RFI)	NA
January 2006	Affected Property Assessment Report (APAR)	July 2006
December 2006	Response Action Plan (RAP)	February 2007
January 2008	Revised RAP	June 2008
February 2011	Class V Injection Permit Request	March 2011
January 2018	Draft Revised RAP	April 2018

Some of the information presented in the 2008 Revised RAP is summarized here to provide context for the new data. References for this Revised RAP are included in **Appendix 1.**

Kinder Morgan is currently preparing a Class 3 Permit Modification Application to modify the existing Kinder Morgan Galena Park Hazardous Waste Permit/Compliance Plan 50054 (Permit), ISWR No. 30573 to include on-going corrective action including that being conducted at the TCI facility. As such, the TCI facility will be subject to the reporting requirements of the Hazardous Waste/Compliance Plan CP-50054.

TCEQ-Approved 2008 Revised RAP Summary

The 2008 Revised RAP summarized the soil excavation and verification sampling conducted for the areas identified in the 2006 RAP, and proposed a plume management zone (PMZ) for the site; however, after further assessment and changing site conditions, a PMZ is no longer a viable response action. A Site Location Map is included as **Attachment 1A-1**. Listed below are the TCEQ-approved response actions for soil and groundwater at the TCI facility.

PT-8 Area Soil – No Further Action (NFA) was proposed in the 2008 Revised RAP and approved by the TCEQ in their June 26, 2008 RAP approval letter for the PT-8 Area.

Revised RAP Executive Summary	ID No.: 30573
	Report Date: September 2018

Former Tank 28 Area Soil – The arsenic impacted soil protective concentration level exceedance (PCLE) zones and groundwater impacted with benzene, toluene, ethylbenzene and xylenes (BTEX), arsenic, and styrene beneath the former Tank 28 Area was proposed to be managed under a PMZ.

Other Plant Operational Areas Soil – As summarized in the 2008 Revised RAP, approximately 22,260 cubic yards of soil and debris were removed from the northwestern portion of the Site in 2003 to 2004. The excavation was backfilled with clean imported material. The soil response actions for these areas focused on addressing the $^{GW}Soil_{Ing}$ pathway and $^{Air}Soil_{Inh\text{-}V}$ pathway. Air monitoring was proposed for two locations with exceedance of the $^{Air}Soil_{Inh\text{-}V}$ Protective Concentration Level (PCL) and the remaining $^{GW}Soil_{Ing}$ PCLE zones were to be managed under a Remedy Standard B using a ground water PMZ. The $^{Tot}Soil_{Comb}$ PCLs were not exceeded for surface soil.

Groundwater – The proposed response action for the ground water PCLE zone was a PMZ under Remedy Standard B. The PMZ was to utilize a monitoring program consisting of a network of monitoring wells considered to be attenuation monitoring points (AMPs) and point of exposure (POE) wells. Ground water concentrations from AMP wells would be compared to site-specific attenuation action levels (AALs) to confirm the plume concentration levels remained protective of downgradient receptors at the POE. Ground water concentrations would also be monitored to verify plume stability and that COC leaching from soils covered by the PMZ were contributing to increased contaminant mass in the ground water. At two locations with $^{Air}GW_{Inh\text{-}V}$ exceedances of benzene, the response action would include a demonstration to evaluate worker safety.

Activities Since Revised RAP

Following approval of the 2008 Revised RAP, monitoring wells POE-1, POE-3, AMP-1, and AMP-2 were installed in September 2008 and sampled in October 2008. The analytical results indicated that POE-1 and POE-2 exceeded the applicable PCLs. As a result, an access agreement was obtained with CenterPoint Energy (CNP) and several monitoring wells were installed hydraulically downgradient in the ROW property and hydraulically downgradient of POE-1 and POE-3. However, CNP denied Kinder Morgan's request to include the down gradient wells in the proposed PMZ, as CNP does not allow land use restrictions to be placed on their property and the ROW wells are no longer utilized. Since the proposed PMZ was not an option, Kinder Morgan conducted additional assessment activities, conducted a source area reduction pilot test, and conducted additional aquifer testing at the facility.

In February 2011, Kinder Morgan requested and received a Class V Injection Permit through the TCEQ Underground Injection Control (UIC) Permits Team to inject RegenOx at three direct probe injection points and evaluate the ability of the amendment to oxidize the dissolved phase benzene in the ground water as measured in downgradient observation points. The results indicated that although there was some initial decrease in benzene concentrations, there was no decreasing trend over the monitoring period and a full-scale implementation of the technology was not pursued further. A request to close the Class V injection permit and a memorandum documenting the injection pilot test is included in **Appendix 3**.

Subsequent site conceptual model studies showed that three predominant groundwater migration pathways exist beneath the TCI property in the affected uppermost groundwater bearing unit (SCF/UNTU); the northern groundwater migration pathway, central migration pathway and southern migration pathway **(Attachment 1A-6**). The migration pathways are defined by variations in lithology, aquifer characteristics, hydraulic properties, and groundwater flow direction. Each of the migration pathways generally flows in a westerly or southwesterly direction toward Panther Creek.

Since the PMZ was now not a viable option, Kinder Morgan revised the remedial strategy for the TCI facility to that of on-site capture and containment. Previously installed POE-1 and POE-3 were converted to recovery wells and the system was expanded in 2011 with the installation of recovery wells RW-1 through RW-5. In 2012 recovery wells RW-7 through RW-9 and monitoring well MW-18 were installed, and in 2013 recovery well RW-6 and monitoring wells MW-19, MW-20, and MW-21 wells were installed. The current

recovery system consisting of 13 recovery wells has been operational since 2011. Copies of the boring logs are included in **Appendix 2**.

The recovery system consists of thirteen recovery wells, effluent piping, a 650-gallon holding tank and transfer pump along the western TCI property boundary. Ten recovery wells, RW-1 thru RW-3, RW-6 thru RW-9, POE-1, MW-09TCI, and MW-21 are utilized to capture the affected ground water along the northern groundwater migration pathway. Three recovery wells, RW-4, RW-5, and POE-3 are utilized to capture affected ground water of the southern and central groundwater migration pathways (**Attachment 1A-6**). The 13 recovery wells are collectively providing adequate and effective containment and recovery of affected groundwater along the western TCI property boundary and preventing off-site migration, as demonstrated by a cone of depression around the downgradient recovery wells near the western property boundary. Since activation of the system, over 3.2 million gallons of groundwater have been recovered as of June 30, 2017 at an average rate of 0.77 gallons per minute (gpm) or 1,109 gallons per day (gpd).

The groundwater recovery system components are inspected at least weekly to ensure the system is operating as designed, and TCI plant personnel report any identified or potential problems to Kinder Morgan between scheduled inspections. Problems that affect the system's performance include recovery line and component clogging and fouling. An analysis of general water chemistry parameters indicated elevated levels of sodium, sulfate, and bicarbonate may be promoting the precipitation of calcium, manganese carbonates, and silica into the system, and thermal expansion and sagging of the high-density polyethylene (HDPE) effluent line appears to promote blockage and variable recovery rates. Kinder Morgan intends to replace the HDPE effluent line and ancillary discharge lines from each recovery well with fiberglass re-enforced epoxy piping in 2018.

Shallow groundwater generally flows toward the west and southwest across the Site toward Panther Creek. A cone of depression is maintained around the recovery wells. **Attachment 1A-2** shows the groundwater flow across the Site in December 2010 prior to implementing the hydraulic control by groundwater containment and recovery system. **Attachments 1A-3** (February 2013) **and 1A-4** (May 2017) show the groundwater flow after implementing the hydraulic control by groundwater containment and recovery system.

2018 Revised RAP

The response actions proposed in this Revised RAP are 1) continue the on-site containment and capture of impacted ground water utilizing the constructed recovery system, 2) implement a monitoring program of select site monitoring wells to verify plume stability and no increasing concentration trends due to leaching of soil COCs to the ground water, and 3) utilize institutional controls to restrict shallow ground water usage and document the use of occupational inhalation criteria as Risk Based Exposure Levels (RBELs)

Former Tank 28 Area Soil – An arsenic-impacted soil PCLE zone exists beneath the former Tank 28 Area. Shallow groundwater beneath the former Tank 28 area that has historically, or could potentially, be impacted by leaching of arsenic at concentrations exceeding groundwater ingestion ($^{GW}GW_{ing}$) PCLs, will be managed using the groundwater monitoring program, on-site containment and capture of impacted ground water, and an institutional control restricting groundwater usage.

Plant Operational Areas Soil – The proposed soil response actions for these areas focuses on addressing the $^{GW}Soil_{Ing}$ pathway and $^{Air}Soil_{Inh\text{-}V}$ pathway. The $^{Tot}Soil_{Comb}$ PCLs were not exceeded for surface soil. The $^{GW}Soil_{Ing}$ pathway will be addressed by managing groundwater that may potentially come in contact with COCs from soil in the form of leachate. This objective will be achieved using the groundwater monitoring program, on-site containment and capture of impacted ground water, and an institutional control restricting groundwater usage. This addresses and manages the contaminant pathways to minimize on-site exposure and off-site migration. Ground water monitoring will be utilized to verify there are no increasing COC concentration trends.

Revised RAP Executive Summary	ID No.: 30573
	Report Date: September 2018

The $^{Air}Soil_{Inh-V}$ pathway will be addressed through a site-specific risk evaluation. In accordance with Texas Administrative Code (TAC) §350.74(b), a Tier 2 $^{Air}Soil_{Inh-V}$ PCL was calculated for the benzene soil to air exposure pathway to demonstrate compliance with worker safety air exposure levels. The PCL was calculated using the Occupational Safety and Health Administration (OSHA) Permissible Exposure Level (PEL) for benzene in place of the Texas Risk Reduction Program (TRRP) RBEL. The soil benzene concentrations in borings 2-2 and 2-4a are well below the calculated Tier 2 PCL of 24,300 milligrams per kilogram (mg/kg) and are therefore protective of worker safety air exposure levels. As a result, Kinder Morgan requests NFA for this pathway once the proposed institutional control has been filed. The Tier 2 PCL calculation spreadsheet (30 TAC 350.71-350.79) for the soil to air inhalation pathway is provided as **Table 3-1** in **Appendix 3.**

Groundwater – Based on the evaluation of historical sampling results, groundwater has exceeded the TCEQ TRRP Tier 1 groundwater to air $^{Air}GW_{Inh-V}$ PCL for benzene as presented in 2008 Revised RAP. In accordance with TAC §350.74(b), a TCEQ TRRP Tier 2 groundwater to air ($^{Air}GW_{Inh-V}$) PCL) was calculated for benzene to ensure worker safety air exposure levels using the OSHA PEL for benzene in lieu of the TRRP RBEL in the Tier 2 calculations. The reported groundwater benzene concentrations for MW-10TCI and MW-12TCI were well below the calculated Tier 2 PCL of 6,700 milligrams per liter (mg/L), and are therefore protective of worker safety air exposure levels. The calculated Tier 2 $^{Air}GW_{Inh-V}$ PCL is also greater than the benzene water solubility of 1,770 mg/L, indicating the worker safety air exposure level is unlikely to be exceeded under the current site conditions. Since no ground water concentrations are even close to the calculated Tier 2 $^{Air}GW_{Inh-V}$ PCL, Kinder Morgan requests NFA for this pathway once the proposed institutional control has been filed. The Tier 2 PCL calculation spreadsheet for the Tier 2 groundwater to air inhalation pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3.**

The hydraulic control (recovery) implemented at the site, in conjunction with the proposed institutional control (deed recordation), and groundwater monitoring program can effectively prevent human and ecologic exposure to affected groundwater beneath the site and prevent the PCLE zone from off-site migration.

What is the selected remedy standard for this affected property? ___ A ___X___ B

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Surface soil	Arsenic			X			
Subsurface	Benzene, toluene, and ethylbenzene			X			
Groundwater	Selectively benzene, toluene, ethylbenzene, and xylenes (BTEX),			X			

Revised RAP Executive Summary	ID No.: 30573
	Report Date: September 2018

This Revised RAP is being submitted to revise the remedial strategy proposed in the TCEQ-approved 2008 Revised RAP for affected groundwater. Since the 2008 Revised RAP approval in June 2008, additional data have been collected and evaluated, and changes in site conditions identified. These changes in site conditions warrant revision of remedial strategy from previous PMZ approach to a more vigorous hydraulic control by groundwater containment and recovery to prevent potential exposure or migration to affected groundwater beyond the property boundaries.

	arsenic, and styrene						
Air	benzene						

a) *Surface soil – arsenic-affected soil at the former Tank 28 area will be managed using a ground water monitoring program, institutional control restricting ground water usage, and ground water containment and capture to prevent off-site migration.*
b) *Subsurface soil – benzene, toluene, and ethylbenzene in the Plant Operational Area will be managed using a regular ground water monitoring program, institutional control restricting ground water usage, and ground water containment and capture to prevent off-site migration.*
c) *Ground water – BTEX, arsenic, and styrene will be managed by containment and capture to prevent off-site migration. Regular monitoring will demonstrate plume stability and an institutional control will restrict ground water usage.*
d) *Air – Tier 2 PCLs using OSHA PELs for TRRP RBELs show site COC concentrations are protective of worker safety. An institutional control documenting the occupational inhalation criteria to be filed.*

Is there a media that contains a PCLE zone that is not addressed in this RAP? Yes ____ X No ____
If yes, provide justification for not addressing the PCLE zone in this RAP.

Not Applicable

On-site land use: [ ] Residential [X] Commercial/Industrial
Off-site land use: [ ] Residential [X] Commercial/Industrial (check all that apply)

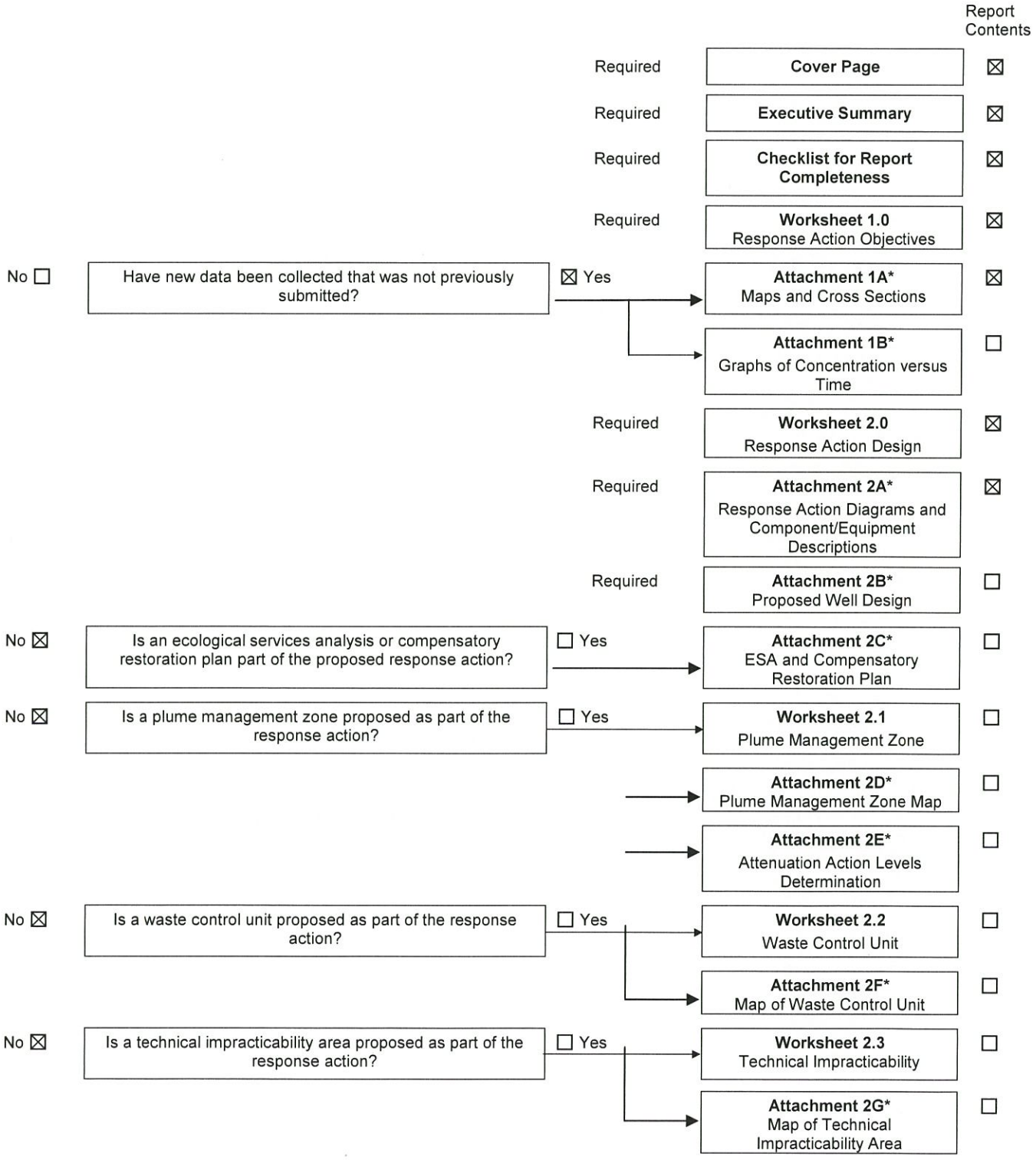
Is this a re-submittal or revision of a previous RAP? X Yes ___ No
If yes, explain why the RAP is being revised or resubmitted.

Were all the appropriate notifications made in accordance with §350.55? ___ Yes X No
If no, explain why notifications were not made:

Not Applicable, as affected groundwater is being captured and contained along the western property line of the TCI facility and no response action is necessary for the off-site property.

Checklist for Report Completeness	ID No.: 30573
	Report Date: September 2018

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.



Checklist for Report Completeness	ID No.: 30573
	Report Date: September 2018

				Report Contents
No ☐	Is the response action a remedy standard B?	☒ Yes →	**Worksheet 2.4** Institutional Controls	☒
		Required	**Worksheet 3.0** Performance Measures and Potential Problems	☒
		Required	**Worksheet 3.1** Monitoring and Sampling	☒
		Required	**Attachment 3A*** Map of Monitoring and Sampling Points	☒
		Required	**Worksheet 3.2** Operation and Maintenance	☒
		Required	**Worksheet 4.0** Confirmation Sampling Plan	☒
		Required	**Attachment 4A*** Map of Confirmation Sampling Points	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Worksheet 5.0** Post Response Action Care	☒
		→	**Attachment 5A*** Map of PRAC Monitoring and Sampling Points	☐
		→	**Attachment 5B*** PRAC Costs	☐
No ☒	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes →	**Attachment 5C*** Small Business Affidavit	☐
		Required	**Worksheet 6.0** Implementation Schedule	☒
		Required	**Appendix 1*** References	☒
No ☐	Was any data collected that was not previously reported?	☒ Yes →	**Appendix 2*** Data Tables and Boring Logs	☒
No ☐	Were any studies or tests conducted?	☒ Yes →	**Appendix 3*** Studies and Tests Documentation	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Appendix 4*** Proposed Institutional Controls	☒
No ☒	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes →	**Appendix 5*** Landowner Concurrence	☐
No ☒	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes →	**Appendix 6*** Sampling Procedures	☐
No ☒	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☒	Was approval received from the TCEQ regarding the use of different rules to address a media?	☐ Yes →	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Response Action Objectives

List the environmental media to which this applies Surface soil and subsurface soil
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Previous site assessments identified several areas at the TCI facility where soil PCLE zones were present. These areas include the former PT-8 Area, former Tank 28 Area, and other Plant Operational Areas.

PT-8 Area Soil – A NFA was proposed and granted by the TCEQ for the PT-8 Area.

Former Tank 28 Area Soil – The arsenic impacted soil PCLE zones and groundwater beneath the former Tank 28 Area was proposed to be managed under a PMZ; however, based on additional assessment information, successful on-site groundwater hydraulic control by containment and recovery has been implemented. Therefore, a PMZ is no longer proposed for the Site. Chemicals of Concern (COCs) leached from impacted soils, if any, are proposed to be managed by on-site hydraulic control by groundwater containment and recovery. The groundwater recovery system is further described in subsequent sections.

Other Plant Operational Areas Soil – Benzene concentrations in soil exceeding the $^{GW}Soil_{Ing}$ PCL at a number of locations within the operational areas of the facility. The response actions for the plant operational areas soils were to be managed under the previously proposed PMZ; however, based on additional assessment information, successful on-site hydraulic control by groundwater containment and recovery has been implemented. The groundwater recovery system is further described in subsequent sections.

Two soil locations (boring 2-2 at 12 to 14 ft bgs and boring 2-4a at 9 to 10 ft bgs) exceeded soil to air inhalation, $^{Air}Soil_{Inh\text{-}V}$, PCL for benzene at concentrations of 157 mg/kg and 261 mg/kg, respectively, when evaluated during the 2004 APAR. In accordance with TAC §350.74(b), a Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated for benzene for the soil to air exposure pathway ($^{Air}Soil_{Inh\text{-}V}$) to demonstrate compliance with worker safety air exposure levels by using the OSHA PEL for benzene in place of the TRRP RBEL. The soil benzene concentrations for borings 2-2 and 2-4a are below the calculated Tier 2 PCL of 24,300 mg/kg and therefore protective of worker safety air exposure levels. A NFA is currently proposed for these two locations. The Tier 2 PCL calculation spreadsheet for the $^{Air}Soil_{Inh\text{-}V}$ pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3.** References are included as **Appendix 1.**

Groundwater – Following the TCEQ approval of the 2008 Revised RAP in June 2008, groundwater monitoring wells POE-1, POE-2, AMP-1, and AMP-2 were installed in September 2008 and sampled in October 2008. The analytical results indicated that POE-1 and POE-2 exceeded the applicable PCLs. As a result, the wells located in the CNP ROW property and hydraulically downgradient of POE-1 and POE-2, were installed and sampled. However, CNP denied Kinder Morgan's request to include the down gradient wells in the proposed PMZ CNP does not allow land use restrictions to be placed on their property and the ROW wells are no longer utilized. Since the request was denied, the wells were no longer sampled. Since the proposed PMZ was not an option, Kinder Morgan revised the remedial strategy and implemented on-site hydraulic control by a groundwater containment and recovery system.

The system is located in the downgradient direction along the western TCI property boundary to contain and recover affected groundwater and to prevent off-site migration. This response action was implemented in 2011 and remains active. Logistical problems slowed the progress of the recovery wells and recovery system installation such as the active property being owned by TCI, the large excavation in the northwest

portion of the TCI facility, construction of a new main building on the excavation backfill material, railroad crossing right-or-way permits, and hand-digging of many of the wells. The recovery system was initiated as a pilot test in 2008 with the installation of recovery wells POE-1 and POE-3 and monitoring wells AMP-1, and AMP-2. The system was expanded in 2011 with the installation of recovery wells RW-1 through RW-5, in 2012 with the installation of recovery wells RW-7 through RW-9 and monitoring well MW-18, in 2013 with the installation of recovery well RW-6 and monitoring wells MW-19, and MW-20, and finally, completing the system in 2013 with the installation of recovery well MW-21. The 13 recovery well system has been fully operational since. Several of the recovery wells located in the northern array were hand-installed into the backfill material.

Site Conceptual Model studies indicate that three predominant groundwater migration pathways exist beneath the TCI property in the affected uppermost groundwater bearing unit (SCF/UNTU); the northern groundwater migration pathway, central migration pathway and southern migration pathway **(Attachment 1A-6**). The migration pathways are defined by variations in lithology, aquifer characteristics, hydraulic properties, and groundwater flow direction. Each of the migration pathways generally flows in a westerly or southwesterly direction toward Panther Creek.

The groundwater recovery system is installed in the downgradient direction along the western TCI property boundary to contain and recover affected groundwater and to prevent off-site migration. This response action was implemented in 2011 and remains active. Logistical problems slowed the progress of the recovery wells and recovery system installation such as the active property being owned by TCI, the large excavation in the northwest portion of the TCI facility, construction of a new main building on the excavation backfill material, railroad crossing right-or-way permits, and hand-digging of many of the wells. The present-day recovery system was initiated as a pilot test in 2008 with the installation of monitoring wells POE-1, POE-3, AMP-1, and AMP-2. POE-1 and POE-3 were later converted to recovery wells. The system was expanded in 2011 with the installation of recovery wells RW-1 through RW-5, in 2012 with the installation of recovery wells RW-7 through RW-9 and monitoring well MW-18, and in 2013 with the installation of recovery well RW-6 and monitoring wells MW-19 and MW-20, and recovery well MW-21. The 13 recovery well system has been fully operational since 2011. Several of the recovery wells located in the northern array were hand-installed into the backfill material. Copies of the boring logs are included in **Appendix 2**.

The recovery system consists of thirteen recovery wells, effluent piping, a 650-gallon holding tank and transfer pump along the western TCI property boundary. Ten recovery wells, RW-1 thru RW-3, RW-6 thru RW-9, POE-1, MW-09TCI, and MW-21 are utilized to capture the affected ground water along the northern groundwater migration pathway. Three recovery wells, RW-4, RW-5, and POE-3 are utilized to capture affected ground water of the southern and central groundwater migration pathways (**Attachment 1A-6**). The 13 recovery wells are collectively providing adequate and effective containment and recovery of affected groundwater along the western TCI property boundary and preventing off-site migration, as demonstrated by cone of depression around the downgradient recovery wells near the western property boundary. Since activation of the system, over 3.2 million gallons of groundwater have been recovered as of June 30, 2017 at an average rate of 0.77 gpm or 1,109 gpd.

The groundwater recovery system components are inspected at least weekly to ensure the system is operating as designed, and TCI plant personnel report any identified or potential problems to Kinder Morgan between scheduled inspections. Problems that affect the system's performance include recovery line and component clogging and fouling. An analysis of general water chemistry parameters indicated elevated levels of sodium, sulfate, and bicarbonate may be promoting the precipitation of calcium, manganese carbonates, and silica into the system, and thermal expansion and sagging of the high-density polyethylene (HDPE) effluent line appears to promote blockage and variable recovery rates. Kinder Morgan intends to replace the HDPE effluent line and ancillary discharge lines from each recovery well with fiberglass re-enforced epoxy piping in 2018.

Shallow groundwater generally flows toward the west and southwest across the Site toward Panther Creek.

A cone of depression is maintained around the recovery wells. **Attachment 1A-2** shows the groundwater flow across the Site in December 2010 prior to implementing the hydraulic control by groundwater containment and recovery system. **Attachments 1A-3** (February 2013) and **1A-4** (May 2017) show the groundwater flow after implementing the hydraulic control by groundwater containment and recovery system.

Based on the evaluation of historical sampling results, groundwater from certain monitoring wells has exceeded the TCEQ TRRP Tier 1 groundwater to air $^{Air}GW_{Inh\text{-}V}$ PCL for benzene as presented in the 2008 Revised RAP. In accordance with TAC §350.74(b), a TCEQ TRRP Tier 2 groundwater to air PCL ($^{Air}GW_{Inh\text{-}V}$ PCL) was calculated for benzene for the groundwater to air pathway to ensure worker safety air exposure levels using the OSHA PEL for benzene in lieu of the TRRP RBEL in the Tier 2 calculations. The reported groundwater benzene concentrations for MW-10TCI and MW-12TCI were lower than the calculated Tier 2 PCL of 6,700 mg/L, and are protective of worker safety air exposure levels. The calculated Tier 2 $^{Air}GW_{Inh\text{-}V}$ PCL is also greater than the benzene water solubility of 1,770 mg/L, indicating the worker safety air exposure level is unlikely to be exceeded under the current site conditions. Based on these conditions, a NFA is proposed for the groundwater to air pathway in the vicinity of MW-10TCI and MW-12 TCI. The Tier 2 PCL calculation spreadsheet for the Tier 2 groundwater to air inhalation pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3.**

The hydraulic control (recovery) implemented at the site, in conjunction with the proposed institutional control (deed recordation) can effectively prevent human and ecologic exposure to affected groundwater beneath the site and prevent the PCLE zone from off-site migration.

The COCs within the central and southern groundwater migration pathways are captured and recovered from the three wells along the southern recovery well array.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

No active remediation will be performed for soil. Therefore, no COCs will be handled, treated, or disposed.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

N/A

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

N/A – Physical controls are not proposed as a soil response action. However, certain COCs in soil will be addressed in the groundwater response action which is an -on-site groundwater capture and recovery system.

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

The soil PCLE zone within the plant operational areas has been identified based on concentrations of COCs exceeding $^{GW}Soil_{Ing}$ PCLs.

Therefore, Kinder Morgan has revised the remedial strategy and implemented an on-site groundwater containment and recovery system in the downgradient direction at the western property boundary of the TCI facility to contain and recover affected groundwater and to prevent off-site migration.

Response Action Objectives

List the environmental media to which this applies Groundwater
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

Following the TCEQ approval of the 2008 Revised RAP in June 2008, groundwater monitoring wells POE-1, POE-2, AMP-1, and AMP-2 were installed in September 2008 and sampled in October 2008. The analytical results indicated that POE-1 and POE-2 exceeded the applicable PCLs. As a result, the wells located in the CNP ROW property and hydraulically downgradient of POE-1 and POE-2, were installed and sampled. However, CNP denied Kinder Morgan's request to include the down gradient wells in the proposed PMZ as CNP does not allow land use restrictions to be placed on their property and the ROW wells are no longer utilized. Since the proposed PMZ was not an option, Kinder Morgan revised the remedial strategy and implemented on-site hydraulic control by a groundwater containment and recovery system.

Studies indicate that three predominant groundwater migration pathways exist on the TCI property in the SCF/UNTU; the northern groundwater migration pathway, central migration pathway and southern migration pathway. The migration pathways are defined by variations in lithology, aquifer characteristics, hydraulic properties, groundwater flow direction, and the influence of the hydraulic control system of the SCF/UNTU. Groundwater in the three migration pathways generally flows in a westerly or southwesterly direction toward Panther Creek, located within the CP property. Each pathway is managed by the active hydraulic groundwater control and recovery system, comprised of 13 recovery wells located along the western TCI property boundary. COCs within the northern groundwater migration pathway are captured and recovered from the ten recovery wells (RW-1 through RW-3, RW-6 through RW-9, POE-1, MW-09TCI, and MW-21) along the northern recovery well array. COCs within the central and southern groundwater migration pathways are captured and recovered from the three recovery wells (RW-4, RW-5, and POE-3) along the southern recovery well array (**Attachment 1A-6**).

Recovery wells RW-1 through RW-5 were installed in March and April 2011 and RW-6 through RW-9 were installed in November 2012. MW-21 was installed in December 2013 and converted to a new recovery well in June 2014. Schematics of the groundwater recovery system are shown on **Attachment 2A-1, 2A-2, and 2A-3. Appendix 2** provides the boring logs and monitoring well construction diagrams for these wells.

Since activation of the groundwater containment and recovery system, over 3.2 million gallons of groundwater have been recovered as of June 30, 2017 at an average rate of 0.77 gpm or 1,109 gpd. The 13 recovery wells are collectively providing adequate and effective containment and recovery of affected groundwater. This is demonstrated by groundwater gauging measurements that indicate a cone of depression around the northern and southern recovery well arrays.

The effectiveness of recovery system can be demonstrated in comparing a groundwater potentiometric map prior to system activation to a groundwater potentiometric map after system activation. Note the westerly and southwesterly groundwater gradient of the December 2010 gradient map of **Attachment 1A-2** to the February 2013 gradient map of **Attachment 1A-3** and May 2017 gradient map of **Attachment 1A-4.** With the system, a distinct cone of depression around both the northern well array and southern well array is evident. This indicates effectiveness of the system in capturing the groundwater. The recovery system is containing and capturing groundwater and COCs at the property line as designed.

The groundwater recovery and the monitoring wells at the Site were sampled periodically from late 2008 until late 2013. The analytical data are summarized in **Table 2-1** in **Appendix 2** and historical benzene concentrations are summarized on the benzene concentration map of **Attachment 1A-5**. Benzene exceedances are present in the groundwater recovery wells but the groundwater is being contained and recovered. Although the shallow groundwater beneath the TCI property has no beneficial use, groundwater analytical data indicates benzene exceedances of the groundwater ingestion ($^{GW}GW_{ing}$) pathway.

Based on the evaluation of historical sampling results, groundwater from certain monitoring wells have exceeded the TCEQ TRRP Tier 1 groundwater to air $^{Air}GW_{Inh-V}$ PCL for benzene as presented in 2008 Revised RAP. In accordance with TAC §350.74(b), a TCEQ TRRP Tier 2 groundwater to air PCL ($^{Air}GW_{Inh-V}$ PCL) was calculated for benzene for the groundwater to air pathway to ensure worker safety air exposure levels using the OSHA PEL for benzene in lieu of the TRRP RBEL in the Tier 2 calculations. The reported groundwater benzene concentrations for MW-10TCI and MW-12TCI were lower than the calculated Tier 2 PCL of 6,700 mg/L, and are protective of worker safety air exposure levels. The calculated Tier 2 $^{Air}GW_{Inh-V}$ PCL is also greater than the benzene water solubility of 1,770 mg/L, indicating the worker safety air exposure level is unlikely to be exceeded under the current site conditions. Based on these conditions, a NFA is proposed for the groundwater to air pathway in the vicinity of MW-10TCI and MW-12 TCI. The Tier 2 PCL calculation spreadsheet for the Tier 2 groundwater to air inhalation pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3.**

In addition to hydraulic control (recovery) in operation at the site, an institutional control (deed Notification) is also proposed to restrict the use of groundwater beneath the Site. These controls can effectively prevent human and ecologic exposure to affected groundwater and prevent the PCLE zone from off-site migration.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

Groundwater, along with the COCs, recovered during operation of the groundwater recovery system is managed by transferring the recovered groundwater via a discharge pipeline to the Kinder Morgan wastewater collection system. The discharge pipeline is located in the Kinder Morgan Galena Park Central Plant area where it is temporarily stored and then transferred via pipeline to an off-site third-party permitted commercial wastewater treatment facility **(Attachment 2A-1 and 2A-2)**. Groundwater recovery system components are inspected at least weekly to ensure the system is operating correctly and there are no leaks. On-site TCI plant personnel report potential problems to Kinder Morgan between scheduled inspections. The recovery line within the Kinder Morgan Galena Park Central Plant was upgraded from carbon steel with high performance low maintenance reinforced fiberglass plastic (FRP) pipe in 2015 to improve performance and minimize leaks. Scheduled for 2018, Kinder Morgan also plans to replace the existing high-density polyethylene (HDPE) and carbon steel groundwater recovery piping from the TCI facility to the FRP recovery piping in the Central Plant.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

The groundwater response action objective is to contain and prevent off-site migration of affected groundwater using a hydraulic control system along the western property boundary of the TCI facility. To achieve that objective, Kinder Morgan installed a groundwater recovery system in 2011 and expanded the system in 2012.

As summarized in the 2008 Revised RAP, approximately 22,260 cubic yards of soil and debris were removed from the northwestern portion of the Site in 2003 to 2004. The excavation was backfilled with clean imported material. Groundwater containment and recovery wells RW-1 through RW- 3 and RW-6 through RW-9 were installed in 2011 and 2012 into the backfill material along the northwestern TCI property boundary to control westerly off-site groundwater migration. Because of the heterogeneous characteristics of the backfill materials, the recoveries, although effective, can be erratic and recovery equipment fouling requires continued maintenance. Although not installed into the backfill materials, groundwater containment and recovery wells MW-09TCI (2012) and MW-21 (2013) were installed and connected to the recovery system. Copies of the soil boring logs are provided in **Appendix 2.**

The groundwater recovery system has been operational since December 2011 and provides groundwater capture at the property boundary. Groundwater monitoring and gauging at the site have demonstrated effectiveness of the recovery system in containing and recovering the groundwater COCs. Kinder Morgan intends to maintain the hydraulic control system in place until the COC concentrations are below their appropriate PCLs along the western property boundary. Following this, Kinder Morgan will notify the TCEQ of its intent to discontinue operation of the recovery wells. The recovery system is currently being inspected weekly to confirm the system is operating as intended. Semiannual gauging is being conducted to confirm that a cone of depression is being maintained at the property boundary, and the system is effectively containing and recovering groundwater from off-site migration.

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies: Sandy Channel Fill (SCF)/Upper Naturally Transmissive Unit (UNTU)

Repeat this section for each groundwater-bearing unit for which a different response action is proposed.

Groundwater classification ____ 1 __X__ 2 ___ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? ___ Yes __X__ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? ___Yes ___No

If yes, complete the appropriate portions of this report.
If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

The groundwater containment and recovery system along the western property boundary is constructed to create a groundwater cone of depression and capture COC-containing groundwater prior to off-site migration. This recovery system is sufficient and effective in preventing COC from migrating beyond the existing boundary of the groundwater PCLE zone.

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh-V}$) is exceeded.

Based on the evaluation of historical groundwater and ambient air monitoring results, certain groundwater monitoring wells had exceeded the TCEQ TRRP Tier 1 groundwater to air $^{Air}GW_{Inh-V}$ PCL for benzene as presented in 2008 Revised RAP. In accordance with TAC §350.74(b), a Tier 2 groundwater to air PCL ($^{Air}GW_{Inh-V}$ PCL was calculated for benzene for the groundwater to air pathway to ensure worker safety air exposure levels by using the OSHA PEL for benzene in lieu of the TRRP RBEL in the Tier 2 calculations. The reported groundwater benzene concentrations for MW-10TCI and MW-12TCI were lower than the calculated Tier 2 PCL of 6,700 mg/L, and are protective of worker safety air exposure levels. The calculated Tier 2 $^{Air}GW_{Inh-V}$ PCL is also greater than the benzene water solubility of 1,770 mg/L, indicating the worker safety air exposure level is unlikely to be exceeded under the current site conditions. Based on these conditions, a NFA is proposed for the groundwater to air pathway in the vicinity of MW-10TCI and MW-12TCI. The Tier 2 PCL calculation spreadsheet for the Tier 2 groundwater to air inhalation pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3**.

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

There are no on-site surface water bodies. The nearest surface water body is Panther Creek located approximately 200 feet west of the Site. Since the installation and activation of the recovery system in December 2011, the affected groundwater has been effectively contained within the TCI property boundary as demonstrated by the cone of depression around the recovery system recovery containment wells. As a result, there is little likelihood that the COC-containing groundwater will migrate off-site and discharge to the surface water body of Panther Creek.

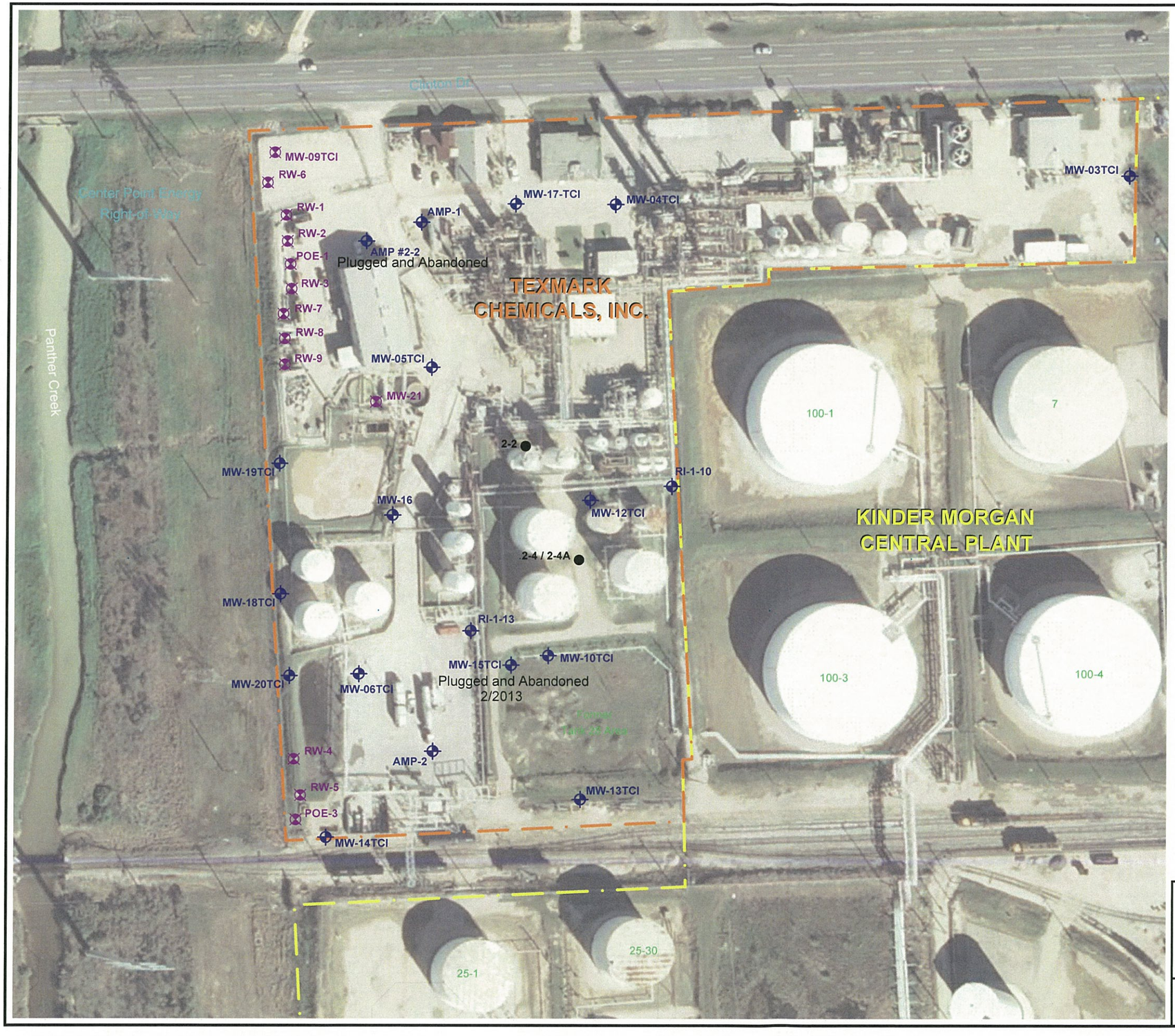
Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

Deed recordation to be implemented at the site will prohibit the use of groundwater, which will not only limit any potential human exposure to the groundwater, but also limit ecological receptor exposures to groundwater PCLE zone. The active groundwater containment and recovery system along the western property boundary effectively intercepts and contains affected groundwater at the property line, preventing it from off-site migration. Furthermore, TCI is an industrial facility and would not have a reason to recover shallow groundwater for human consumption or industrial purposes and the TCI facility is connected to the public water supply system.

Attachment 1A

Maps and Cross Sections

Attachment 1A-1 – Site Location Map
Attachment 1A-2 – Potentiometric Surface Map December 2010
Attachment 1A-3 – Potentiometric Surface Map February 2010
Attachment 1A-4 – Potentiometric Surface Map May 2017
Attachment 1A-5 – Groundwater Concentration Map for Benzene
Attachment 1A-6 – Sand Thickness Map



NORTH

0 50 100 200

APPROXIMATE SCALE IN FEET

LEGEND

- KMLT PROPERTY LINE
- TEXMARK PROPERTY LINE
- MONITOR WELL
- RECOVERY WELL
- SOIL BORING (Arcadis 2006 APAR)

Source:

2012 HGAC Ortho-Digital Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

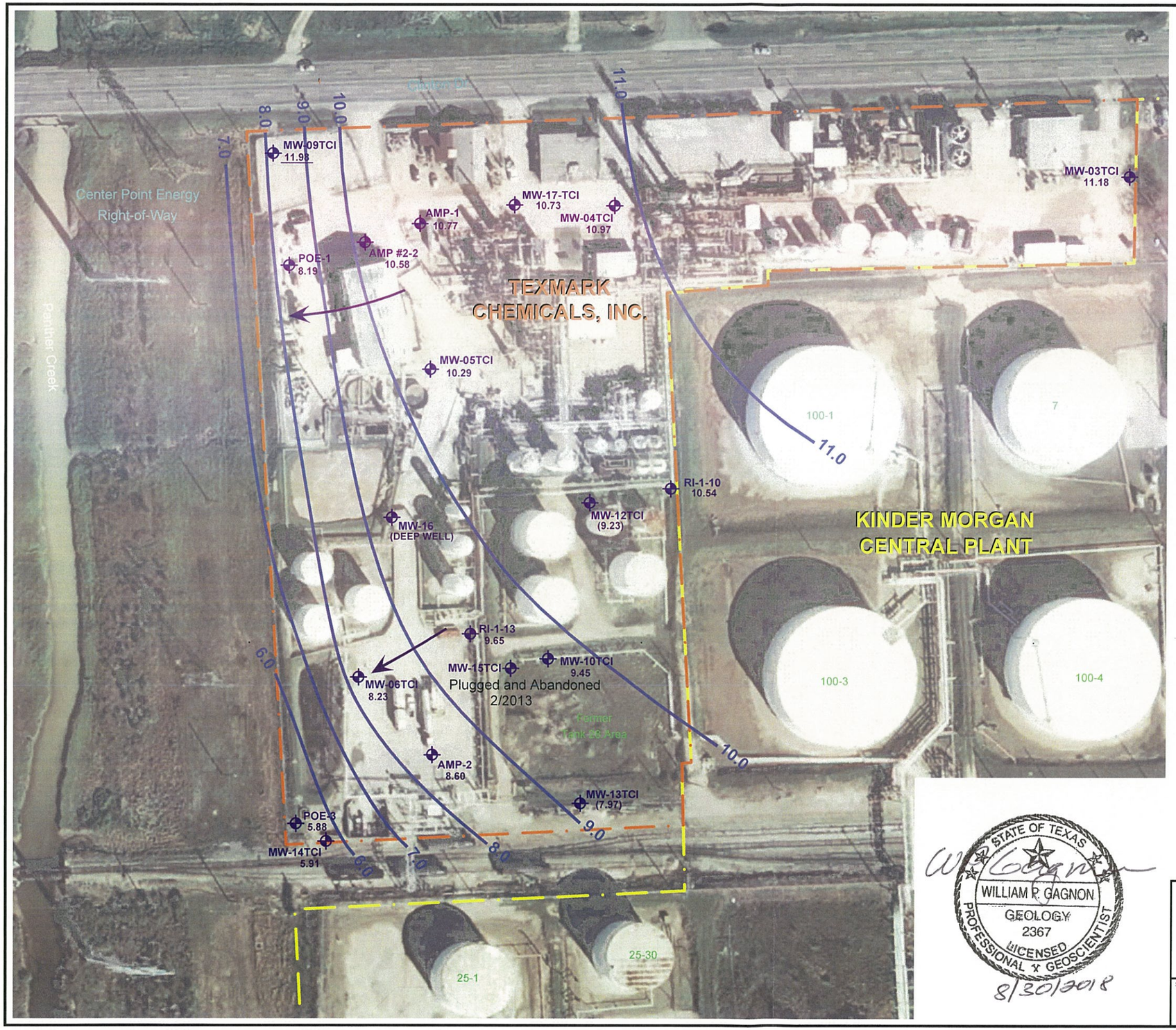
AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Title: **Site Location Map**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	8-7-2017	60530215	Site Location Map.dwg	1A-1
	Chk'd by: WG	Date: 8-7-2017			



NORTH

0 50 100 200

APPROXIMATE SCALE IN FEET

LEGEND

- KMLT PROPERTY LINE
- TEXMARK PROPERTY LINE
- MONITOR WELL
- 10.0 - GROUNDWATER CONTOUR - 1 FT INTERVAL
- GROUNDWATER FLOW DIRECTION
- 10.00 - GROUNDWATER ELEVATION
- 11.98 - ELEVATION NOT USED IN CONTOURING DUE TO INCONSISTENCY WITH NEARBY ELEVATIONS
- (5.21) - ELEVATION NOT USED IN CONTOURING DUE TO WELL SCREENED IN A NON-TRANSMISSIVE ZONE

Note: Surveyed elevation data based on benchmark CM#3 with an elevation of 16.83 ft. MSL.

STATE OF TEXAS
WILLIAM P. GAGNON
GEOLOGY
2367
LICENSED
PROFESSIONAL GEOSCIENTIST

8/30/2018

Source:
2012 HGAC Ortho-Digital Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

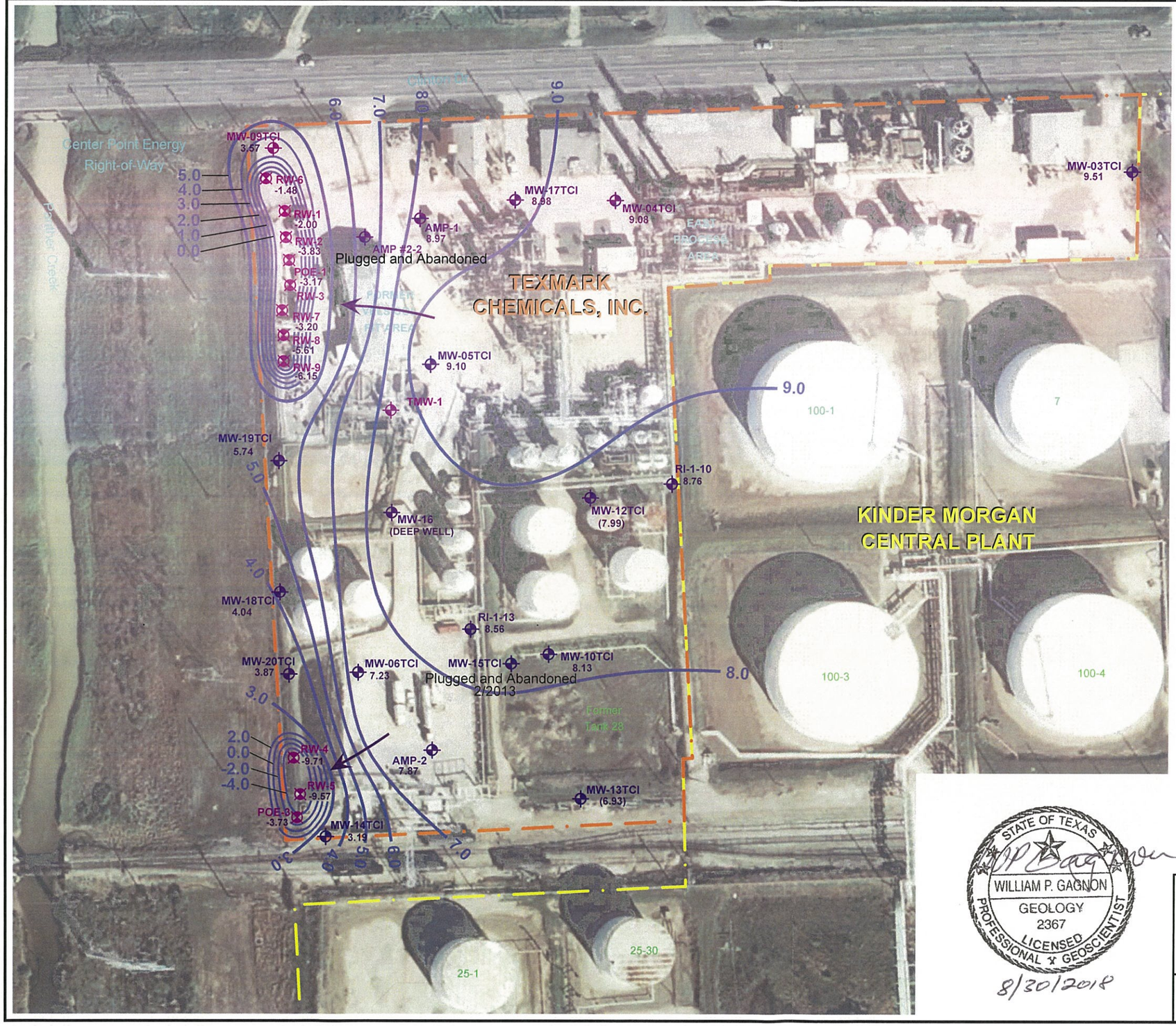
Title: **Potentiometric Surface Map December 2010**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	8-7-2017	60530215	Potentiometric Surface Map Dec 2010.dwg	1A-2
	Chk'd by: WG	Date: 8-7-2017			

File: P:\...\MXP2\...\Potentiometric Surface Map - Dec 2010.dwg Layout: Layout1 User: forbesm Plotted: Aug 07, 2018 - 1:33pm



NORTH

0 50 100 200

APPROXIMATE SCALE IN FEET

LEGEND

- KMLT PROPERTY LINE
- TEXMARK PROPERTY LINE
- MONITOR WELL
- RECOVERY WELL
- 10.0 - GROUNDWATER CONTOUR - 1 FT INTERVAL
- GROUNDWATER FLOW DIRECTION
- 10.00 - GROUNDWATER ELEVATION
- (5.21) - ELEVATION NOT USED IN CONTOURING DUE TO WELL SCREENED IN A NON-TRANSMISSIVE ZONE

Note: Surveyed elevation data based on benchmark CM#3 with an elevation of 16.83 ft. MSL.

STATE OF TEXAS
WILLIAM P. GAGNON
GEOLOGY
2367
LICENSED
PROFESSIONAL GEOSCIENTIST
8/30/2018

Source:
2012 HGAC Ortho-Digital Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

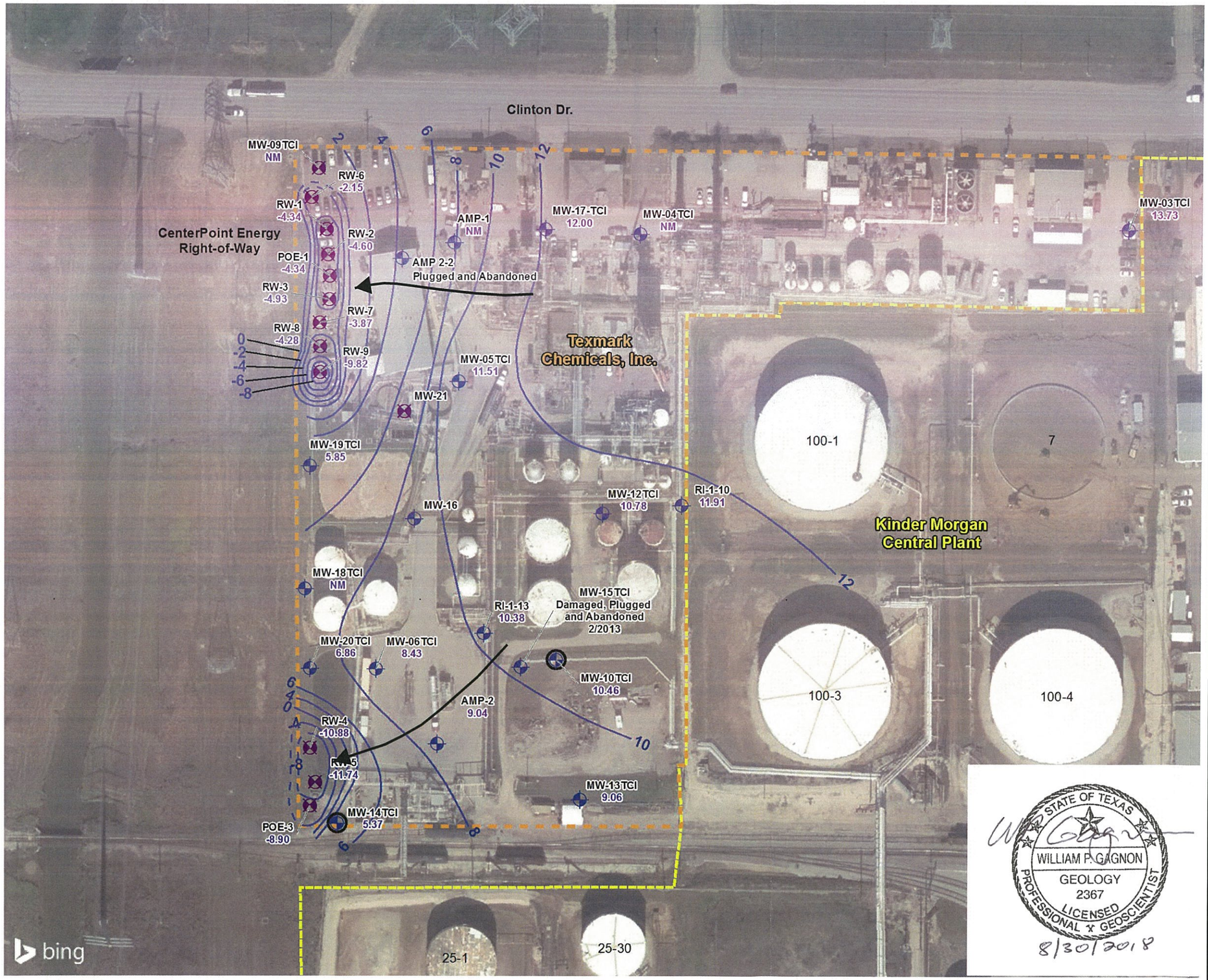
Title: **Potentiometric Surface Map February 2013**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	8-7-2017	60530215	Potentiometric Surface Map Feb 2013.dwg	1A-3
	Chk'd by: WG	Date: 8-7-2017			

File: P:\...\Kinder Morgan\60530215 KM 2017 Gnrl Prm\Wrk\320-60 or Graphics\Texmark 3SF Attach 1A-3 - Potentiometric Surface Map Feb 2013.mxd Layout: Layout1 User: tpeters Plotted: Aug 07, 2018 - 1:13pm



Legend

- Texmark Property Line
- KMLT Property Line
- Monitor Well
- Recovery Well
- Oxygenation Well
- 13.73 Groundwater Elevation (feet, MSL)
- Groundwater Flow Direction
- 10 Groundwater Contour (Dashed Where Inferred) 2' or 4' Contour Interval

N

0 50 100 Feet

STATE OF TEXAS
WILLIAM P. GAGNON
GEOLOGY
2367
LICENSED
PROFESSIONAL GEOSCIENTIST
8/30/2018

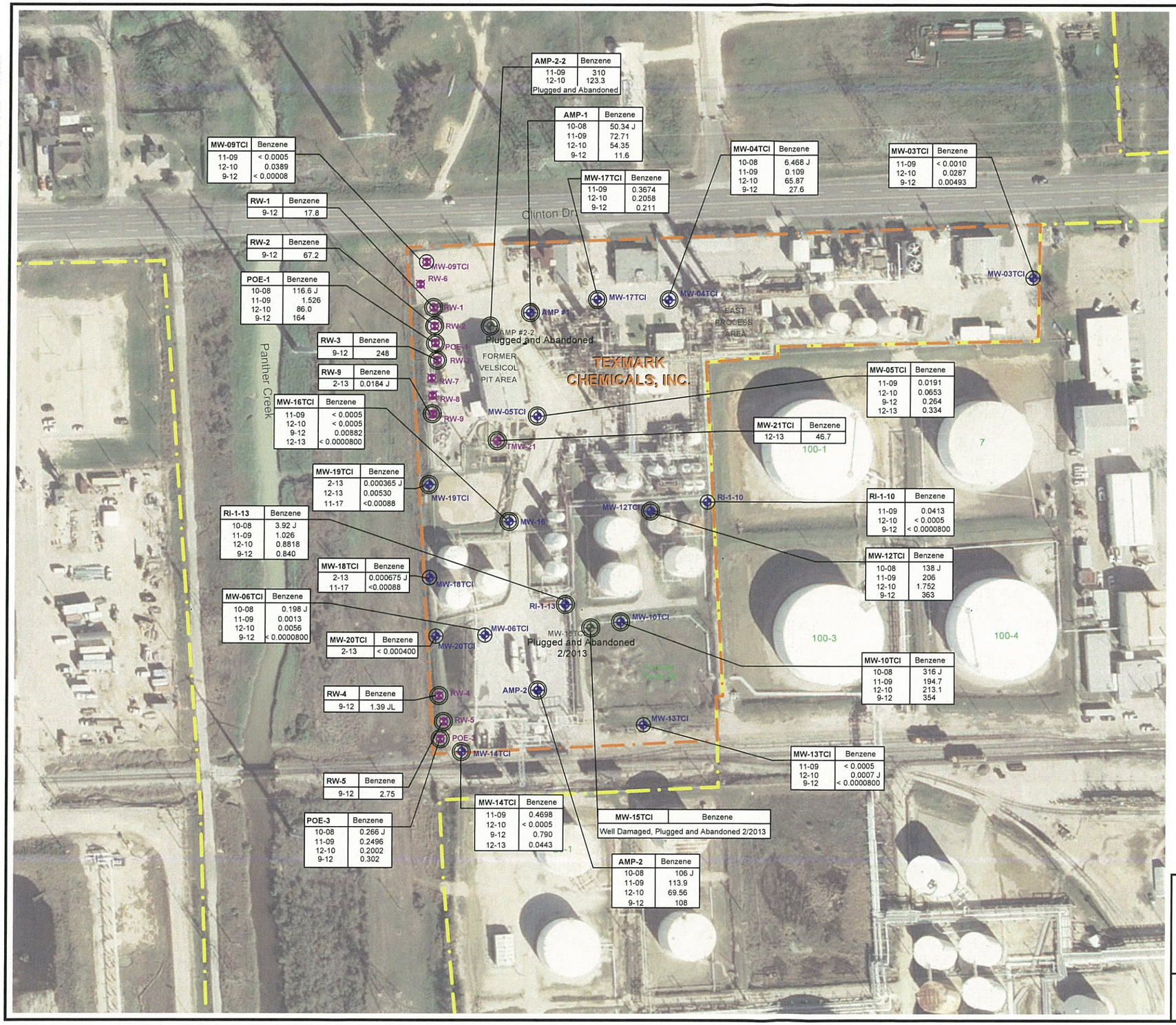
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400
FAX: 281-646-2401

Title: **Potentiometric Surface Map - May 2017**

Project: **Revised RAP Texmark Facility Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	NEF	8/10/2018	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Attachment:
	WG	8/10/2018	60530215 / TBD / 1A-4

Document Path: P:_ENVP2\JOBS2\Kinder Morgan\60530215 KM 2017 Galena Park\900-Work\920-GIS or Graphics\Texmark\RAP\Revised RAP\Attach 1A-4 - GWE_May2017_Texmark.mxd



MW-09TCI	Benzene
11-09	< 0.0005
12-10	0.0389
9-12	< 0.00008

RW-1	Benzene
9-12	17.8

RW-2	Benzene
9-12	67.2

POE-1	Benzene
10-08	116.6 J
11-09	1.526
12-10	86.0
9-12	164

RW-3	Benzene
9-12	248

RW-9	Benzene
2-13	0.0184 J

MW-16TCI	Benzene
11-09	< 0.0005
12-10	< 0.0005
9-12	0.00882
12-13	< 0.0000800

MW-19TCI	Benzene
2-13	0.000365 J
12-13	0.00530
11-17	<0.00088

RI-1-13	Benzene
10-08	3.92 J
11-09	1.026
12-10	0.8818
9-12	0.840

MW-18TCI	Benzene
2-13	0.000675 J
11-17	<0.00088

MW-06TCI	Benzene
10-08	0.198 J
11-09	0.0013
12-10	0.0056
9-12	< 0.0000800

MW-20TCI	Benzene
2-13	< 0.000400

RW-4	Benzene
9-12	1.39 JL

RW-5	Benzene
9-12	2.75

POE-3	Benzene
10-08	0.266 J
11-09	0.2496
12-10	0.2002
9-12	0.302

MW-14TCI	Benzene
11-09	0.4698
12-10	< 0.0005
9-12	0.790
12-13	0.0443

MW-15TCI	Benzene
Well Damaged, Plugged and Abandoned 2/2013	

AMP-2	Benzene
10-08	106 J
11-09	113.9
12-10	69.56
9-12	108

AMP-2-2	Benzene
11-09	310
12-10	123.3
Plugged and Abandoned	

AMP-1	Benzene
10-08	50.34 J
11-09	72.71
12-10	54.35
9-12	11.6

MW-17TCI	Benzene
11-09	0.3674
12-10	0.2058
9-12	0.211

MW-04TCI	Benzene
10-08	6.468 J
11-09	0.109
12-10	65.87
9-12	27.6

MW-03TCI	Benzene
11-09	< 0.0010
12-10	0.0287
9-12	0.00493

MW-05TCI	Benzene
11-09	0.0191
12-10	0.0653
9-12	0.264
12-13	0.334

MW-21TCI	Benzene
12-13	46.7

RI-1-10	Benzene
11-09	0.0413
12-10	< 0.0005
9-12	< 0.0000800

MW-12TCI	Benzene
10-08	138 J
11-09	206
12-10	1.752
9-12	363

MW-10TCI	Benzene
10-08	316 J
11-09	194.7
12-10	213.1
9-12	354

MW-13TCI	Benzene
11-09	< 0.0005
12-10	0.0007 J
9-12	< 0.0000800

NORTH

0 80 140 280

APPROXIMATE SCALE IN FEET

LEGEND

- KMLT PROPERTY LINE
- TEXMARK PROPERTY LINE
- MONITOR WELL
- RECOVERY WELL
- WELL PLUGGED AND ABANDONED
- WELLS BELOW THE PCL Tier 1 C/I $^{GW}GW_{Ing}$ PCL (0.005 mg/L)
- WELLS ABOVE THE PCL (Wells exceed the Tier 1 C/I $^{GW}GW_{Ing}$ PCL, 0.005 mg/L)

Notes:

Results are reported in milligrams per liter (mg/L).
NS = Not Sampled ·
C/I = Commercial / Industrial
Benzene results shown are last time location sampled.

Source:
HGAC digital ortho imagery 2012
Coordinates in NAD 83 Texas State Plane South Central Zone, feet

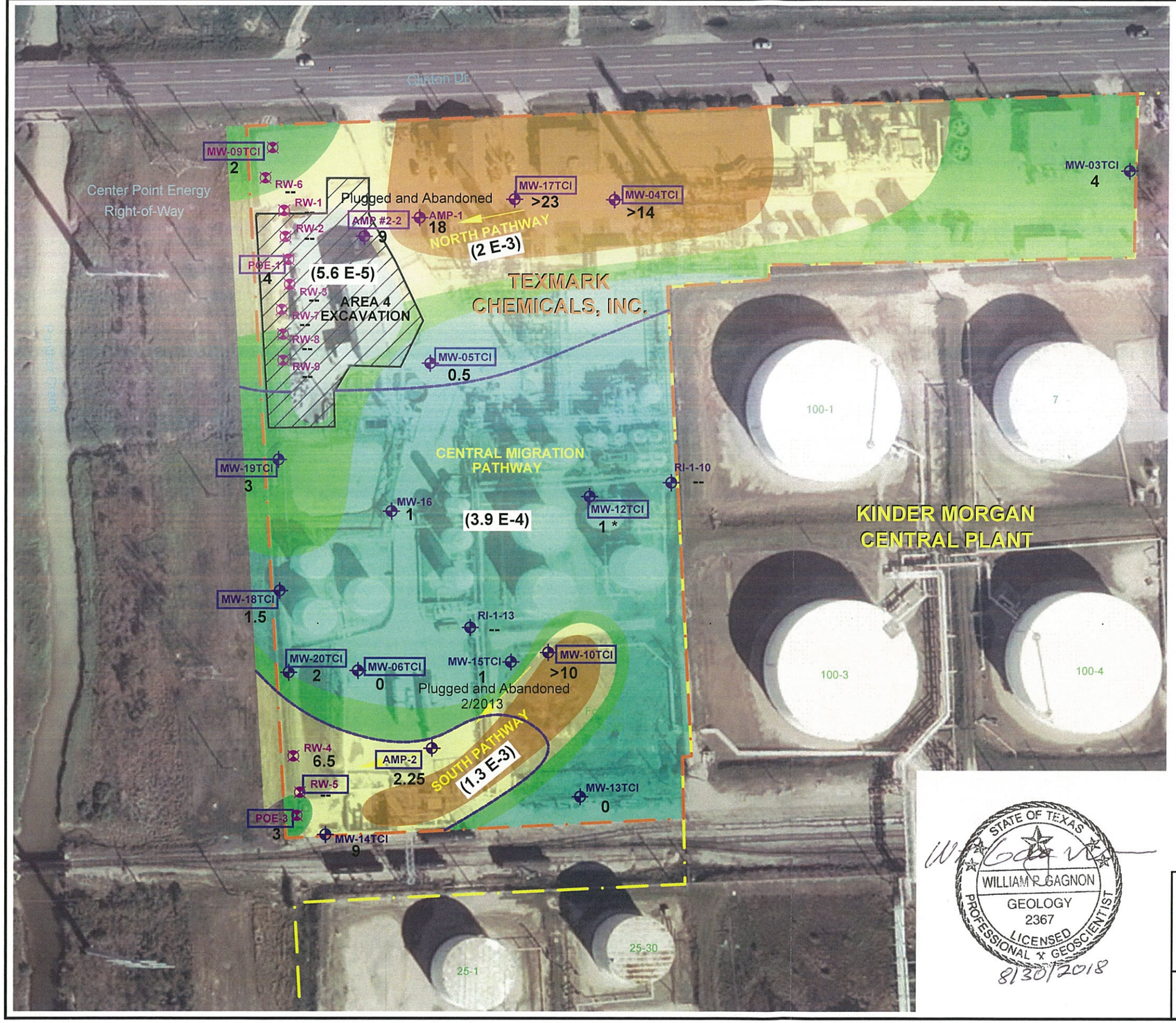
AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Title: **Groundwater Concentration Map for Benzene**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	8-7-2017	60530215	GW Concentration Map for Benzene.dwg	1A-5
	Chk'd by: WG	Date: 8-7-2017			



NORTH

0 50 100 200

APPROXIMATE SCALE IN FEET

LEGEND

- KMLT PROPERTY LINE
- HYDRAULIC CONDUCTIVITY BOUNDARIES
- TEXMARK PROPERTY LINE
- MONITOR WELL
- RECOVERY WELL
- APPROXIMATE EXCAVATION OF AREA 4
- PATHWAY
- **6.5** - SAND THICKNESS IN FEET
- * - ESTIMATED SAND THICKNESS BASED ON BORING LOG
- -- - NO RECORDED LITHOLOGY AVAILABLE
- **(1.3 E-4)** - HYDRAULIC CONDUCTIVITY VALUE, CM/SEC
- MW-12TCI - AQUIFER TEST LOCATION

SAND THICKNESS

- > 10'
- 5' - 10'
- 2' - 5'
- 0 - 2'
- 0 - EXCAVATED AREA 4

Source:

2012 HGAC Ortho-Digital Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

STATE OF TEXAS
WILLIAM R. GAGNON
GEOLOGY
2367
LICENSED
PROFESSIONAL GEOSCIENTIST
8/30/2018

AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Title: **Sand Thickness Map**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	SJF/NEF	8-7-2017	60530215	Sand Thickness Map.dwg	1A-6
	Chk'd by: WG	Date: 8-7-2017			

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Surface and subsurface soil
List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

The soil at PT-8 Area (Surface and Subsurface Soil) and Tank 28 Area were addressed following the response actions proposed in the previously submitted RAPs and the results were submitted in the 2008 Revised RAP (URS, 2008). As a result, NFA was approved by the TCEQ for the PT-8 Area. The arsenic impacted soil PCLE zones and groundwater beneath the former Tank 28 was proposed to be managed under a PMZ; however, based on additional assessment information, successful on-site groundwater hydraulic control by containment and recovery has been implemented. Therefore, a PMZ is no longer proposed for the Site. COCs leached from impacted soils, if any, will be managed by on-site hydraulic control by groundwater containment and recovery.

The soil within the operational areas of the facility exceeding the $^{GW}Soil_{Ing}$ PCL for benzene will be addressed collectively through the hydraulic control (recovery system) and institutional control (deed recordation).

In addition, soil locations boring 2-2 and boring 2-4a exceeded the soil to air inhalation, $^{Air}Soil_{Inh\text{-}V}$, PCL for benzene at concentrations of 157 mg/kg and 261 mg/kg, respectively, when evaluated during the 2004 APAR. In accordance with TAC §350.74(b), a Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated for benzene for the soil to air exposure pathway to demonstrate compliance with worker safety air exposure levels by using the OSHA PEL for benzene in lieu of the TRRP RBEL. The soil benzene concentrations for these borings are below the calculated Tier 2 PCL of 24,300 mg/kg and are protective of worker safety air exposure levels. NFA is proposed for this scenario. The Tier 2 PCL calculation spreadsheet for the soil to air inhalation pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3.**

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

The Tank 28 soil PCLE zones were addressed in September 2007 through the permanent removal, by excavation, of lead, BTEX, and TPH-affected soils. Arsenic detections in the Tank 28 area exceeded only the $^{GW}Soil_{Ing}$ PCL, and the exceedance areas not removed during excavation will be managed collectively through the hydraulic control containment and recovery system and institutional control (deed notification). BTEX concentrations in soil beneath the former Tank 28 footprint exceeding the $^{GW}Soil_{Ing}$ PCL were excavated to 15-feet bgs, or to the groundwater interface.

Results of the verification sample at the PT-8 area indicated the PCLE zone is no longer present and NFA was approved for this area. Therefore, no other treatment system will be utilized for soils at the site.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already	Anticipated application date
N/A			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

A Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated for benzene for the soil-to-air exposure pathway to demonstrate compliance with worker safety air exposure level at two soil locations (boring 2-2 and boring 2-4a) exceeding the $^{Air}Soil_{Inh\text{-}V}$ PCL. The Tier 2 $^{Air}Soil_{Inh\text{-}V}$ PCL was calculated by using the OSHA PEL for benzene in place of the TRRP RBEL. The soil benzene concentrations for boring 2-2 and 2-4a are below the calculated Tier 2 PCL of 24,300 mg/kg and are protective of worker safety air exposure levels. NFA is proposed for these two locations. The Tier 2 PCL calculation spreadsheet for the soil-to-air inhalation pathway is provided as **Tables 3-1 through 3-5** in **Appendix 3.**

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: Groundwater

List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

The response actions for groundwater consist of hydraulic control by groundwater containment and recovery, and institutional control (deed notification). These response actions were selected in response to changes in groundwater PCLE zone identified during implementation of TCEQ-approved 2008 Revised RAP. Following the TCEQ approval of the 2008 Revised RAP in June 2008, groundwater monitoring wells POE-1, POE-2, AMP-1, and AMP-2 were installed in September 2008 and sampled in October 2008. The analytical results indicated that POE-1 and POE-2 exceeded the applicable PCLs. As a result, the wells located in the CNP ROW property and hydraulically downgradient of POE-1scf and POE-2, were installed and sampled. However, CNP denied Kinder Morgan's request to include the down gradient wells in the proposed PMZ as CNP does not allow land use restrictions to be placed on their property and the ROW wells are no longer utilized. Since the proposed PMZ was not an option, Kinder Morgan revised the remedial strategy and implemented on-site hydraulic control by a groundwater containment and recovery system.

To provide immediate on-site containment and recovery of affected groundwater, Kinder Morgan elected to revise the 2008 remedial strategy from a PMZ to hydraulic control along the western property boundary of the TCI facility. The revised response action objective is to prevent the groundwater PCLE zone from expanding beyond the downgradient property boundary.

Prior to installation of the groundwater recovery system in December 2011, Kinder Morgan evaluated multiple locations for the recovery wells. An aquifer test was conducted to determine the hydraulic conductivity across the Site and a Site Conceptual Model (SCM) was developed. The aquifer test data is presented in **Appendix 3**. The results of these data indicate that three distinct groundwater flow patterns exist across the Site and are controlled by hydraulic conductivity based on the occurrence of groundwater transmissive zones (SCF and UNTU) as illustrated in **Attachment 1A-6**. Three distinct groundwater migration pathways were observed (northern, central, and southern areas). These studies provided information to design an optimal groundwater recovery system that provides complete containment of the affected groundwater. Based on the studies, a recovery system was constructed along the western property line of the TCI facility and began operation in December 2011. Studies indicated that groundwater could migrate off-site in the northern and southern areas of the Site, but not the central area of the Site due to lateral lithological permeability limitations.

The hydraulic control/recovery system currently consists of 13 recovery wells. Ten of the recovery wells (RW-1 thru RW-3, RW-6 thru RW-9, POE-1, MW-09TCI, and MW-21) capture and recover groundwater from the northern groundwater migration pathway. The remaining three recovery wells (RW-4, RW-5, and POE-3) capture and recover groundwater in the central and southern migration pathways. The current groundwater recovery system operates continuously to ensure groundwater containment and recovery. Downhole pumps, energized by site-provided pressurized atmospheric air, cycle (discharge water) when a sufficient volume of water enters the well. Groundwater from each well is pumped to an on-site 650-gallon above ground polyurethane tank for temporary storage. When the polyurethane tank approaches capacity, the recovered groundwater is then pumped via a booster pump to an above ground steel tank located on the KMLT Central Plant Area prior to off site management. Since activation of the groundwater containment and recovery system in December 2011, over 33.3 million gallons of groundwater have been recovered as of July 2017 at an average rate of 0.77 gpm or 1,109 gpd. Schematics of the groundwater recovery system are shown on **Attachment 2A-1** through **Attachment 2A-3**. The 13 recovery wells are collectively providing effective containment of affected groundwater at the western property line.

The effectiveness of the recovery system can be demonstrated in comparing a groundwater potentiometric map prior to system activation to the groundwater potentiometric maps after system activation. Note the westerly and southwesterly groundwater gradient of the December 2010 gradient map of **Attachment 1A-2** to the February 2013 gradient map of **Attachment 1A-3** and May 2017 gradient map of **Attachment 1A-4. Attachments 1A-2 and 1A-3** present the groundwater gradient following system activation and depict a distinct cone of depression around both the northern well array and southern well array. This indicates the effectiveness of the system in capturing the groundwater. The recovery system is containing and capturing groundwater at the property line as designed.

Based on historical results, two wells MW-10TCI and MW-12TCI had exceeded the groundwater to air $^{Air}GW_{Inh\text{-}V}$ PCL for benzene as presented in 2008 Revised RAP. In accordance with TAC §350.74(b), a Tier 2 $^{Air}GW_{Inh\text{-}V}$ PCL was calculated for benzene for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels. The OSHA PEL for benzene was used in place of the TRRP RBEL in the Tier 2 calculations. The Tier 2 PCL calculation spreadsheet for the groundwater to air inhalation pathway is provided as **Tables 3-1 through 5** in **Appendix 3**. As shown in the table, the groundwater benzene concentrations for MW-10TCI and MW-12TCI are below the calculated Tier 2 PCL of 6,700 mg/L and are therefore protective of worker safety air exposure levels. It should be noted that the calculated Tier 2 $^{Air}GW_{Inh\text{-}V}$ PCL is greater than the benzene water solubility of 1,770 mg/L, indicating the worker safety air exposure level is unlikely to be exceeded at any conceivable

benzene groundwater concentration under the current site conditions. Oxygenation units are operating in MW-10TCI and MW-12TCI to enhance the natural degradation of the groundwater benzene. Therefore, NFA is proposed for this exposure pathway for groundwater in the vicinity of MW-10TCI and MW-12TCI.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

The current groundwater recovery system operates continuously with the exception of temporary shutdowns for equipment repair or replacement. Downhole pumps, energized by site-provided pressurized atmospheric air, cycle (discharge water) when a sufficient volume of water enters the well. Groundwater from each well is pumped to a 650-gallon on site above ground polyurethane tank for temporary storage. When the polyurethane tank is near capacity, the recovered groundwater is then pumped via a booster pump to an above ground steel tank (Tank 3-10) located on the Kinder Morgan Central Plant Area prior to off site management at a permitted facility. Schematics of the groundwater recovery system are shown on **Attachment 2A-1** through **Attachment 2A-3**.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
N/A			

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

The following studies were performed to support the development of the Revised RAP:

- Calculations of Tier 2 PCL for benzene groundwater-to-air inhalation pathway.
- Aquifer tests.
- Site Conceptual Model development.

Based on historical results, two wells MW-10TCI and MW-12TCI had exceeded the groundwater to air $^{Air}GW_{Inh\text{-}V}$ PCL for benzene as presented in 2008 Revised RAP. In accordance with TAC §350.74(b), a Tier 2 $^{Air}GW_{Inh\text{-}V}$ PCL was calculated for benzene for the groundwater to air exposure pathway to demonstrate compliance with worker safety air exposure levels. The OSHA PEL for benzene was used in place of the TRRP RBEL in the Tier 2 calculations. The Tier 2 PCL calculation spreadsheet for the groundwater to air inhalation pathway is provided as **Table 3-1 through 3-5** in **Appendix 3**. As shown in the table, the groundwater benzene concentrations for MW-10TCI and MW-12TCI are below the calculated Tier 2 PCL of 6,700 mg/L and are therefore protective of worker safety air exposure levels. It should be noted that the calculated Tier 2 $^{Air}GW_{Inh\text{-}V}$ PCL is greater than the benzene water solubility of 1,770 mg/L, indicating the worker safety air exposure level is unlikely to be exceeded at any conceivable benzene groundwater concentration under the current site conditions. iSOC® systems (monitored

oxygen injection) have been installed in MW-10TCI, and MW-14TCI to facilitate biodegradation in the source and downgradient areas and to further minimize the potential of off-site COC migration.

On-site aquifer tests were performed on selected wells in March 2010 and were comprised of both single- and multiple-well yield pumping tests, and slug tests to obtain the hydrogeologic characteristics of the SCF/UNTU. The aquifer tests provided a design basis for the groundwater recovery system. Based on the tests, the site-wide hydraulic conductivity ranges from $1.6x10^{-5}$ centimeters per second (cm/sec) to $4.3x10^{-3}$ cm/sec. The storage coefficient in the northern and southern recovery areas is $1.05x10^{-3}$ and $4.04x10^{-4}$, respectively. The linear velocity for the Site, assuming and effective porosity of 15% ranges from 12 to 193 feet per year (ft/yr). Based on these test results, a class 2 groundwater resource was determined for the Site. The aquifer test results are summarized on **Table 2-2** in **Appendix 2**.

Studies indicate that three predominant groundwater migration pathways exist on the TCI property in the affected uppermost groundwater bearing unit (SCF/UNTU); the northern groundwater migration pathway, central migration pathway and southern migration pathway **(Attachment 1A-6**). The migration pathways are defined by variations in lithology, aquifer characteristics, hydraulic properties, groundwater flow direction, and the influence of the hydraulic control system of the SCF/UNTU. The groundwater in the migration pathways generally flows in a westerly or southwesterly direction toward Panther Creek and each is managed by the active hydraulic groundwater control and recovery system. COCs within the northern groundwater migration pathway are captured and recovered from the ten recovery wells along the northern recovery well array while COCs within the central and southern groundwater migration pathways are captured and recovered from the three wells along the southern recovery well array.

The hydraulic control by groundwater recovery system currently consists of 13 recovery wells located in the downgradient location along the western TCI property boundary. Ten recovery wells, RW-1 thru RW-3, RW-6 thru RW-9, POE-1, MW-09TCI, and MW-21 are located along the northern groundwater migration pathway. Recovery wells, RW-4, RW-5, and POE-3 are located along the southern and central groundwater migration pathways. The 13 recovery wells are collectively providing adequate and effective containment and recovery of affected groundwater along the western TCI property boundary and preventing off-site migration, as demonstrated by cone of depression around the downgradient recovery wells near the western property boundary. Since activation of the system, over 3.2 million gallons of groundwater have been recovered as of June 30, 2017 at an average rate of 0.77 gpm or 1,109 gpd.

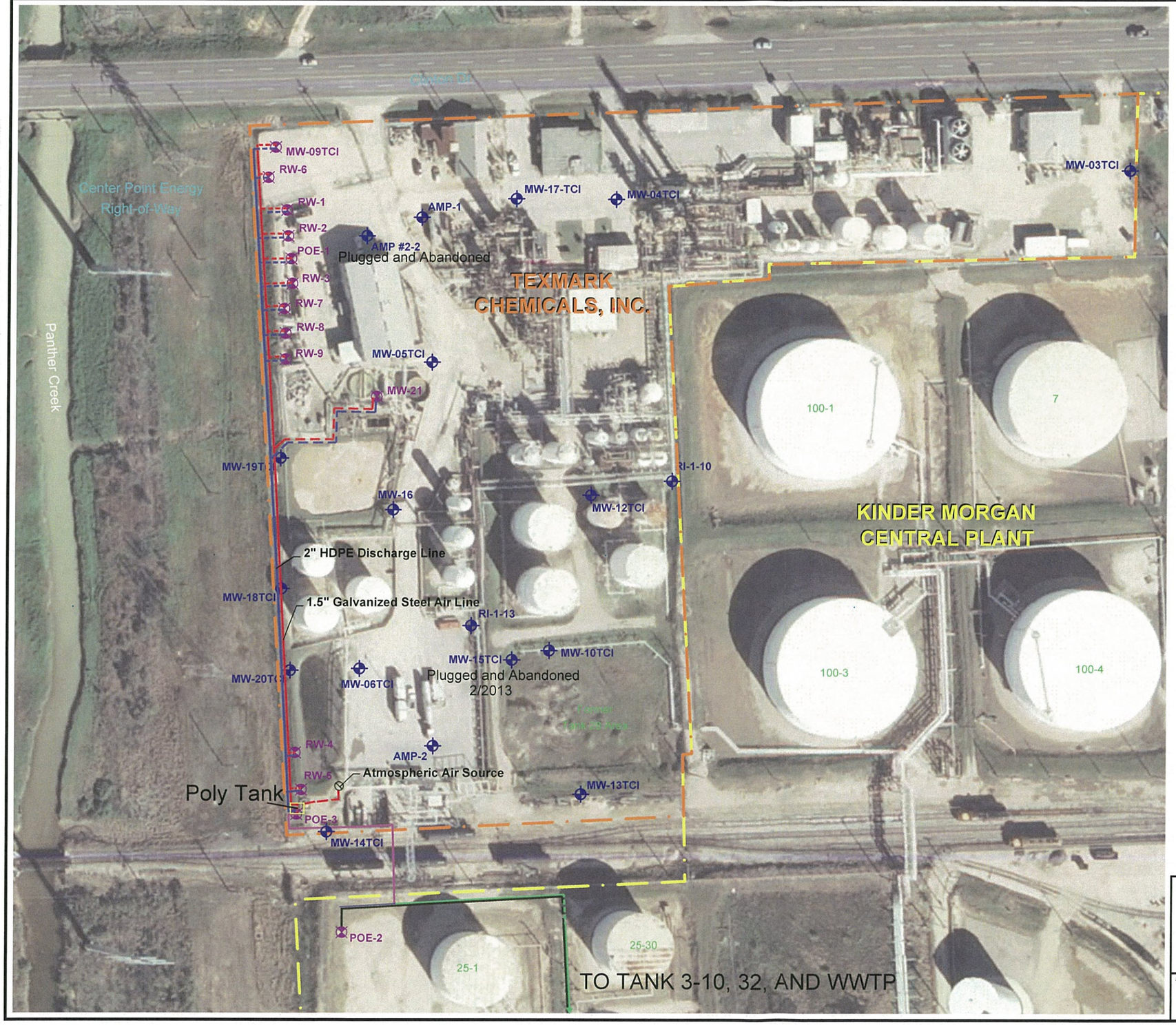
Attachment 2A

Response Action Diagrams and Component/Equipment Descriptions

Attachment 2A-1 – Groundwater Containment and Recovery System Layout

Attachment 2A-2 – Piping and Instrumentation Diagram

Attachment 2A-3 – As-Build Texmark Central Plant Detail Pipe Connection



NORTH

0 50 100 200

APPROXIMATE SCALE IN FEET

LEGEND

- KMLT PROPERTY LINE
- TEXMARK PROPERTY LINE
- MONITOR WELL
- RECOVERY WELL
- HDPE DISCHARGE LINE
- CARBON STEEL DISCHARGE LINE (TO BE REPLACED WITH FIBERGLASS REINFORCED PLASTIC (FRP) RECOVERY LINE IN 2018)
- KINDER MORGAN NITROGEN SUPPLY LINE (TO BE REPLACED WITH FRP RECOVERY LINE IN 2018)
- FRP RECOVERY LINE
- TEXMARK ATMOSPHERIC AIR LINE
- BURIED
- TEXMARK ATMOSPHERIC AIR CONNECTION LOCATION

Source:
2012 HGAC Ortho-Digital Aerial Imagery
NAD 83 Texas State Plane, South Central Zone, feet

AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Title: **Groundwater Containment and Recovery System Layout**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

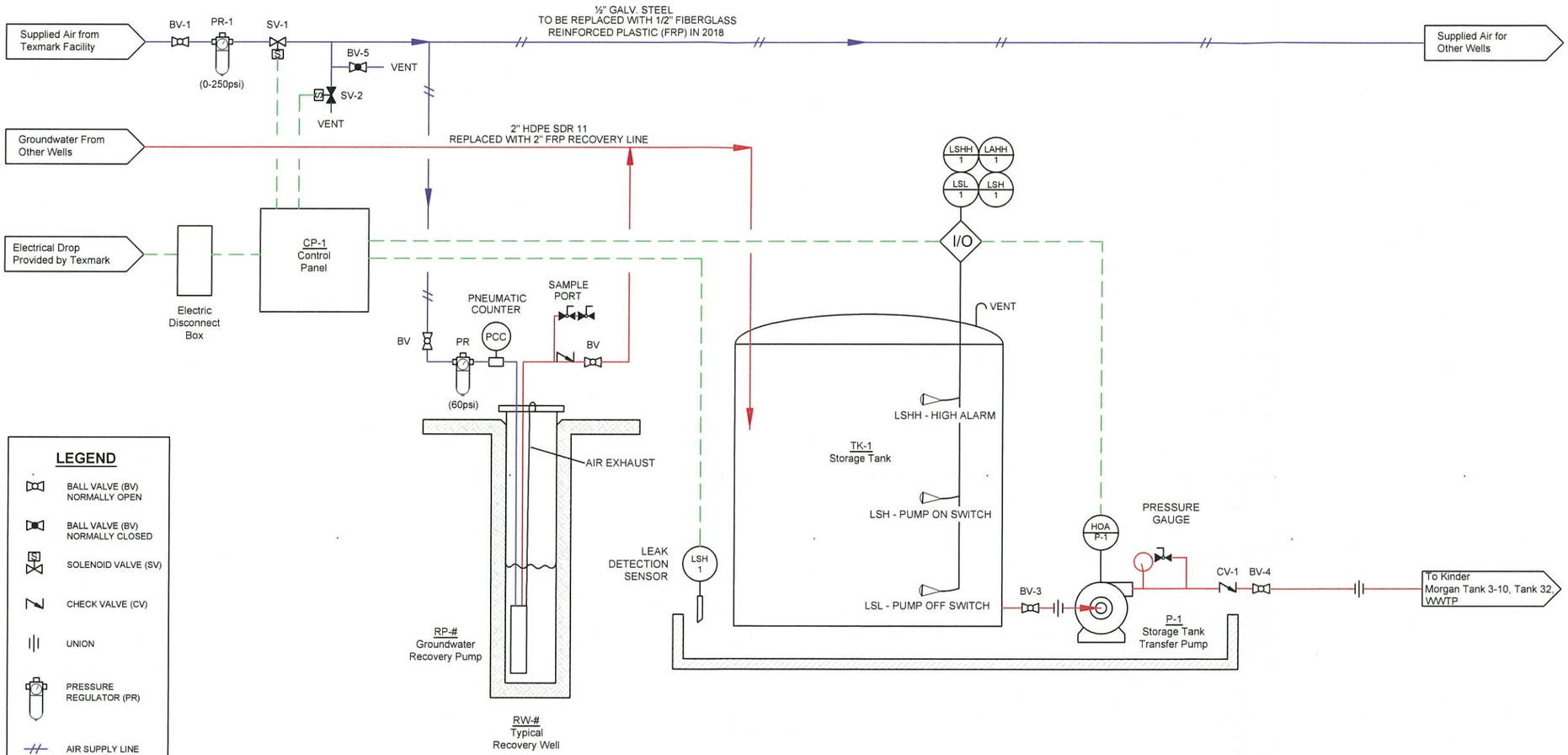
Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	7-25-2017	60530215	Texmark_Piping.dwg	2A-1
	Chk'd by: WG/JC	Date: 7-25-2017			

RP-1
Groundwater Recovery Pump
QED AP-2
2" Bottom Inlet Suction
2.0 Max GPM

TK-1
Storage Tank
Baillif Enterprises
64" Dia. X 50" Height
625 gal Capactiy
(10.5' W X 10.5' L X 24" H
Secondary Containment)

P-1
Transfer Pump
Goulds NPE 1ST2D0E2
3/4 hp



LEGEND

- BALL VALVE (BV) NORMALLY OPEN
- BALL VALVE (BV) NORMALLY CLOSED
- SOLENOID VALVE (SV)
- CHECK VALVE (CV)
- UNION
- PRESSURE REGULATOR (PR)
- AIR SUPPLY LINE
- CONTROL LINE ELECTRICAL
- WATER RECOVERY

AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

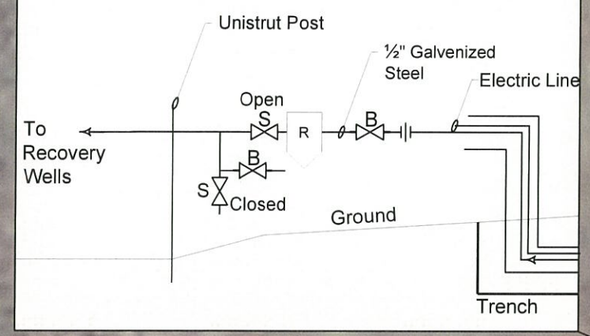
Title: **Piping and Instrumentation Diagram**

Project: REVISED RAP
TEXMARK FACILITY
GALENA PARK, TEXAS

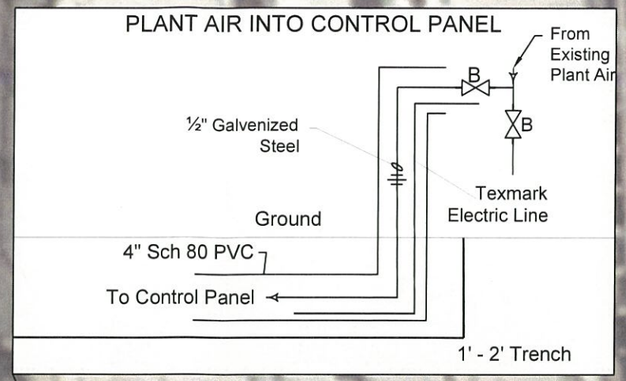
Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	7-27-2017	60530215	Piping and Instrumentation Diagram.dwg	**2A-2**
	Chk'd by: WG	Date: 7-27-2017			

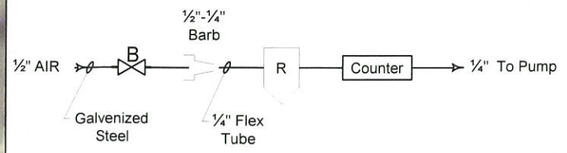
PLANT AIR OUT FROM CONTROL PANEL



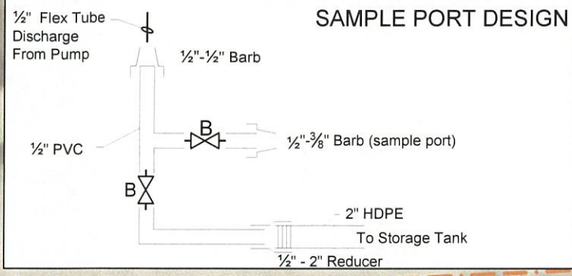
PLANT AIR INTO CONTROL PANEL



AIR CONNECTION TO WELL

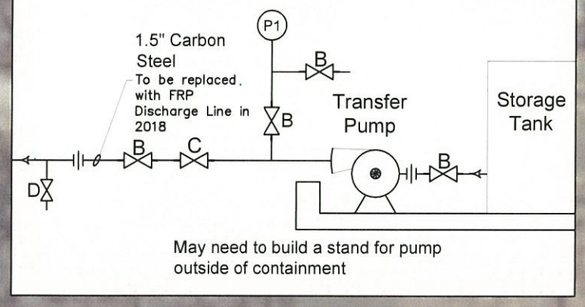


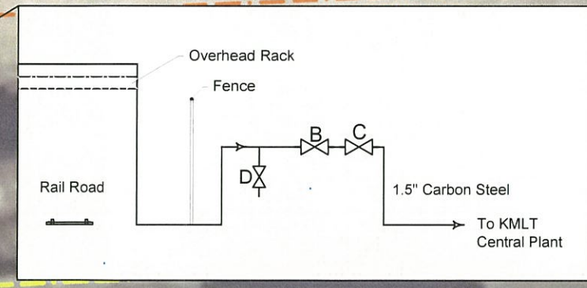
SAMPLE PORT DESIGN



1.5" CARBON STEEL DISCHARGE

TO BE REPLACED WITH FRP DISCHARGE LINE IN 2018





RECOVERD WATER FLOW

RW4

RW5

POE-3

POE-2

TEXMARK CHEMICALS, INC.

KINDER MORGAN CENTRAL PLANT

Trench/Protective Piping (Traffic Area)

NORTH

0 35 70

APPROXIMATE SCALE IN FEET

LEGEND

- TEXMARK PROPERTY LINE
- HDPE DISCHARGE LINE (TO BE REPLACED WITH FIBERGLASS REINFORCED PLASTIC RECOVERY LINE (FRP) IN 2018)
- CARBON STEEL DISCHARGE LINE (TO BE REPLACED WITH FRP RECOVERY LINE IN 2018)
- TEXMARK ATMOSPHERIC AIR LINE
- FIBERGLASS REINFORCED PLASTIC (FRP)
- RECOVERY WELL LOCATION
- 650 GALLON POLY TANK AND BOOSTER PUMP
- TEXMARK ATMOSPHERIC AIR CONNECTION LOCATION
- B - BALL VALVE
- C - CHECK VALVE
- D - BALL VALVE DRAIN
- S - SOLENOID VALVE
- BURIED
- PI - PRESSURE GAUGE
- FIT - FLOW INDICATOR TRANSMITTER
- R - REGULATOR
- UNION

Source:

HGAC Digital Imagery 2010
NAD 83 Texas State Plane, South Central Zone, US Foot

AECOM
19219 KATY FREEWAY SUITE 100
HOUSTON, TEXAS 77094
PH: (281) 646-2400
FAX: (281) 646-2401

Title: **As-Built Texmark-Central Plant Detail Pipe Connections**

Project: REVISED RAP TEXMARK FACILITY GALENA PARK, TEXAS

Client: KM LIQUIDS TERMINALS LLC

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
AS SHOWN	NEF	7-27-2017	60530215	Texmark-Central Plant Detail Pipe Connections.dwg	2A-3
	Chk'd by: WG	Date: 7-27-2017			

Institutional Control Associated Information: Appendices 4	RAP Worksheet 2.4 ID No.: 30573	Page 1 of 1 Report Date: September 2018

Complete this worksheet if an institutional control will be used as part of the response action. Include a draft of the proposed institutional controls in **Appendix 4**. Provide a list of landowners from whom landowner concurrence will be requested, as necessary, in Appendix 5.
Specify the property for which this applies. Texmark Chemicals, Inc.
Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[1]				Property Ownership		Anticipated Filing Date[2]
	Deed Notice	Restrictive Covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))	X						Within 180 days of Revised RAP approval.
Document use of physical or institutional control under Remedy Standard B §350.31(g))	X						Within 180 days of Revised RAP approval.
Document notice of on-going long term response action (§350.31(h))	X						Within 180 days of revised RAP approval.
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))	X						Within 180 days of Revised RAP approval.
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(l))							
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							

[1] Check the required for the proposed response action.
[2] Specify date or amount of time after RAP approval.

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that will be used to determine if reasonable progress is being made by the response action in a timely manner. Use these measures to document effectiveness of the response action in the RAER.

Groundwater

Former Tank 28 Area
The arsenic-impacted soils and groundwater were identified beneath the former Tank 28 Area. COCs leached from impacted soils, if any, will be managed by the groundwater containment and recovery system. As specified in the 2008 Revised RAP, groundwater samples from selected wells in the former Tank 28 area will be sampled. Kinder Morgan will sample monitoring well MW-10TCI and downgradient wells AMP-2 and RW-5 for BTEX, arsenic, and styrene analysis as shown on **Attachment 3A-1** and summarized in **Worksheet 3.1**.

Other Plant Operational Areas Soil – Benzene concentrations in soil exceeded the $^{GW}Soil_{Ing}$ PCL at a number of locations within the operational areas of the facility. The response actions for the plant operational areas soils were to be managed under the proposed PMZ; however, based on additional assessment information, successful on-site hydraulic control by groundwater containment and recovery has been implemented.

The response action is on-site groundwater containment and recovery along the downgradient western TCI property boundary. A recovery system consisting of 13 recovery wells was installed along the western property line and activated beginning in December 2011. Since then, groundwater containment and capture has been established and maintained at the property line as demonstrated by a groundwater cone of depression around the recovery wells. Kinder Morgan intends to maintain the hydraulic control system in place until a point when the COC concentrations are below their appropriate PCLs along the property boundary.

To ensure that groundwater capture in the area is occurring as planned, the recovery wells and recovery system are inspected weekly by Kinder Morgan personnel and observed daily by TCI plant operators to ensure proper system operation. Pump discharge cycle rates are measured quarterly and discharge rates and discharge rate performances are monitored weekly. Repairs and maintenance are performed when required. Monitor wells presented on **Attachment 3A-1** will be gauged semiannually to ensure adequate hydraulic gradient and that a cone of depression is maintained. Strategic well locations, RW-3, RW-5, MW-04TCI, MW-10TCI, MW-12TCI, MW-18TCI, MW-19TCI, and AMP-2 as shown on **Attachment 3A-1,** will be sampled and analyzed for select COCs on an annual basis to confirm the effectiveness of the recovery system. The COCs to be analyzed at the sampling strategic locations are summarized on **Worksheet 3-1** and the well locations are shown on **Attachment 3A-1**.

Active groundwater recovery, semiannual well gauging, inspections and maintenance, and annual sampling for recovery wells will continue until sufficient data have been collected to demonstrate that the recovery wells are controlling and systematically removing the groundwater benzene concentrations at the property boundary until the concentrations remain below the benzene PCL. Following this, Kinder Morgan will notify the TCEQ of its intent to discontinue operation of the recovery wells and include annual monitoring of selected wells.

Potential Problems

Complete the table for the response action. When the response action consists of several components, or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: Groundwater Recovery System

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
Pneumatic pump failure.	Temporary loss of containment of potentially affected groundwater.		X	Weekly inspection of pumps and counter readings to calculate weekly discharge rates would mitigate the potential problem from having a long-term impact to the CNP ROW. 24-hour/day on site TCI workers report any system malfunctions to Kinder Morgan. Deactivate system and immediately repair and restore system operation.
Recovery System piping or connection failure.	Release of potentially affected groundwater to the environment.		X	Weekly inspection, maintenance, and upgrade/repair/replacement of equipment components related to the recovery system will help insure proper operation and performance and mitigate a release to the environment. 24-hour/day on site TCI workers report any system malfunctions to Kinder Morgan. Deactivate system and immediately repair and restore system operation.
Temporary system shut down during hurricane evacuation.	Potential temporary loss of groundwater containment		X	Restore system operation as conditions permit.
Short term system shutdown.	Potential temporary loss of groundwater containment		X	Impact would be minimal/non-existent due to low groundwater flow rates.

Monitoring and Sampling Associated Information: Attachment 3A	RAP Worksheet 3.1	Page 1 of 2
	ID No.: 30573	Report Date: September 2018

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Groundwater	Arsenic BTEX Styrene		Low-flow (Monitoring wells) Grab (Recovery well)	MW-10TCI MW-12TCI MW-18TCI MW-19TCI RW-5 AMP-2	SCF/UNTU groundwater-bearing unit	SW-846 8260 and 6010	Annual monitoring
	Benzene		Low-flow (Monitoring well) Grab (Recovery well)	MW-04TCI RW-3	SCF/UNTU groundwater-bearing unit	SW-846 8260	Annual monitoring
					SCF/UNTU groundwater-bearing unit	SW-846 8260	Annual monitoring
Groundwater		Water elevation	Interface probe	All monitor and recovery wells	SCF/UNTU groundwater-bearing unit	Depth to water measurements	Semiannual gauging
		Flow rate and system integrity	Weekly Inspections and daily observance.	13 recovery wells	SCF/UNTU groundwater-bearing unit	Inspection, maintenance, and flow measurements	Weekly
Surface Soil							
Subsurface Soil							
Air	Not applicable unless annual the groundwater sampling indicates that COCs exceed the site-specific Tier 2 $^{Air}GW_{ing\text{-}V}$ PCLs						
Other Media (specify)							

Explain the reasons for the above-listed monitoring and sampling plan.

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

Groundwater:

The response action is on-site groundwater containment and recovery along the downgradient western TCI property boundary. A recovery system consisting of 13 recovery wells was installed along the western property line and activated beginning in December 2011. Since then, groundwater containment and capture has been established at the western property boundary as demonstrated by groundwater gauging. KMLT intends to maintain the hydraulic control system in place until a point when the COC concentrations are below their appropriate PCLs along the property boundary.

To ensure that groundwater capture in the area is occurring as planned, the recovery wells and recovery system are inspected weekly by Kinder Morgan personnel and observed daily by TCI plant operators to ensure proper system operation. Pump discharge cycle rates are measured quarterly and discharge rates and discharge rate performances are monitored weekly. Repairs and maintenance are performed when required. Monitor wells presented on **Attachment 3A-1** will be gauged semiannually to ensure adequate hydraulic gradient and that a cone of depression is maintained around the recovery wells. Strategic well locations, RW-3, RW-5, MW-04TCI, MW-10TCI, MW-12TCI, MW-18TCI, MW-19TCI, and AMP-2 as shown on **Attachment 3A-1,** will be sampled and analyzed for select COCs on an annual basis to confirm the effectiveness of the recovery system. The COCs to be analyzed at the strategic sampling locations are summarized on **Worksheet 3-1** and the well locations are shown on **Attachment 3A-1**. The COC sampling list is consistent with the Revised 2008 RAP.

As specified in the 2008 Revised RAP, groundwater samples from selected wells in the former Tank 28 area and downgradient wells will be analyzed for BTEX, arsenic, and styrene and include wells RW-5, MW-10TCI, MW-12TCI, MW-18TCI, MW-19TCI, and AMP-2. Wells in the northern portion of the TCI facility, RW-3 and MW-04TCI, will be analyzed for benzene, as specified in the Revised 2008 RAP. The sampling points are shown on **Attachment 3A-1** and summarized in **Worksheet 3.1.**

Active groundwater recovery, weekly inspections and maintenance, semiannual well gauging, and annual sampling of the recovery wells will continue until sufficient data have been collected to demonstrate that the recovery wells are controlling and systematically removing the groundwater benzene concentrations until the concentrations remain below the benzene PCL. Following this, Kinder Morgan will notify the TCEQ of its intent to discontinue operation of the recovery wells and include annual monitoring of selected wells. The list of wells selected for semiannual sampling may be modified based on the performance of the groundwater containment and recovery system, and the semiannual analytical results. The TCEQ will be notified of any such changes.

Sampling Strategy

A summary of the groundwater sampling plan is presented in **Worksheet 3.1** and the locations of the sampling wells are shown on **Attachment 3A-1**.

As specified in the 2008 Revised RAP, benzene was the only COC identified in the northern portion of the site. Since the submittal of the 2008 Revised RAP, additional wells were installed and confirmed those findings. The highest benzene concentrations were detected in monitoring wells AMP 2-2 (now plugged and abandoned) and MW-04TCI. To monitor benzene concentrations in the northern portion of the site, monitoring wells MW-04TCI and downgradient recovery well RW-3, will be sampled for benzene on an annual basis as noted in **Worksheet 3.1**.

Located in the former Tank 28 Area, monitoring wells MW-10TCI and MW-12 TCI exhibit the highest groundwater concentrations of arsenic, benzene, and styrene; exceeding their respective PCLs. BTEX, arsenic, and styrene will be sampled annually in those wells and downgradient wells AMP-2, MW-18TCI, MW-19TCI, and RW-5 to monitor the stability of the plume and constituents near and downgradient of the source area.

Monitor wells MW-18TCI and MW-19TCI are located within the low transmissivity central groundwater migration pathway along the downgradient western property boundary of the TCI facility **(Attachment 1A-6)**. Although groundwater exceedances have not been observed here, annual sampling for BTEX, arsenic, and styrene will be conducted to monitor the westerly groundwater flow in the central portion of the TCI facility (**Attachment 1A-5**).

Attachment 3A

Map of Monitoring and Sampling Points

Attachment 3A-1 – Map of Monitoring and Sampling Points



Legend

- Texmark Property Line
- KMLT Property Line
- Monitor Well
- Recovery Well
- RAP Sampling Points

Notes:

1. All wells on this map will be gauged semiannually
2. Wells highlighted in pink will be sampled annually

N

0 50 100
Feet

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400
FAX: 281-646-2401

Title: **Map of Monitoring and Sampling Points**

Project: **Revised RAP Texmark Facility Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	NEF	8/10/2018	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Attachment:
	WG	8/10/2018	60530215	TBD	3A-1

Document Path: P:\ ENVP2\JOBS2\Kinder Morgan\60530215 KM 2017 Galena Park\900-Work\920-GIS or Graphics\Texmark\RAP\Revised RAP\Attach 3A-1 - RAP Sampling Points.mxd

Operation and Maintenance	RAP Worksheet 3.2	Page 1 of 1
	ID No.: 30573	Report Date: September 2018

Use this worksheet to describe the operation and maintenance (O&M) activities for each response action. In situations where the response action consists of more than one major component, for clarity one worksheet can be completed for each major component.

Response Action Name/Designation: Recovery System
List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

To ensure proper system operation, the recovery wells and recovery system are inspected weekly by Kinder Morgan personnel and observed daily by TCI plant operators. Pump discharge cycle rates are measured quarterly and discharge rates and discharge rate performances are monitored weekly. System upgrades such as component replacement and line flushing/cleaning are performed on an as needed basis to maintain or improve system performance. Kinder Morgan is planning to replace the existing high-density polyethylene (HDPE) groundwater recovery piping with high performance low maintenance fiberglass reinforced plastic groundwater recovery piping in 2018.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The primary consideration is to ensure that the pneumatic pumps remain operational and the actuation levels of the pump remain set at a depth to create adequate drawdown in the wells to promote groundwater capture. Obtaining weekly counter readings will confirm adequate groundwater volumes are being recovered by the system to maintain COC capture and a cone of depression around the recovery wells. Other key operating parameters include inspecting air supply connections, gauges, and lines for pneumatic pump operation and discharge lines and connections for recovered water.

List the routine tasks required to operate the response action.

A Weekly Inspection Form has been developed to document proper system functionality. The weekly inspections include:

- Note and record counter (cycles) readings;
- Check for leaks and malfunctions in recovery well vaults, groundwater recovery lines, and 650-gallon polyurethane tank components, including overflow alarm and float, pump, and repair; and,
- Check atmospheric air supply pressure at regulator and adjust if necessary.

Additionally, the iSOC units in monitoring wells MW-10TCI and MW-14TCI are inspected weekly to ensure an adequate oxygen supply is available and components are functioning properly.

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

The routine tasks required to maintain the response action include:

- Routinely replace lines/fittings/piping, as needed;
- Troubleshoot pumps for fouling and/flush groundwater recovery piping if the counter readings show decreasing recovery trends;
- Pump removal and maintenance and cleaning as needed; and,
- System recovery line flushing/cleaning to ensure adequate flow of recovered water.

Confirmation Sampling Plan	RAP Worksheet 4.0	Page 1 of 1
Associated Information: Attachment 4A	ID No.: 30573	Report Date: September 2018

List the COCs and other parameters that will be sampled to confirm completion of the response action. Illustrate the monitoring or sampling locations in Attachment 4A. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided. If needed, describe the sample collection and handling methods, if not previously provided, in Appendix 6.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling Frequency[5]
Groundwater	Arsenic BTEX Styrene		Low-flow (Monitoring wells) Grab (Recovery well)	MW-10TCI MW-12TCI MW-18TCI MW-19TCI RW-5 AMP-2	SCF/UNTU groundwater-bearing unit	SW-846 8260 and 6010	Annual monitoring
	Benzene		Low-flow (Monitoring well) Grab (Recovery well)	MW-04TCI RW-3	SCF/UNTU groundwater-bearing unit	SW-846 8260	Annual monitoring
					SCF/UNTU groundwater-bearing unit	SW-846 8260	Annual monitoring
Surface Soil							
Subsurface Soil							

Explain the reasons for the above-listed sampling plan. Discuss statistical or geostatistical methodology(ies) which will be applied, if any, in the data collection process. Discuss any assumptions made in the statistical/geostatistical assessment, and how they will be met.

N/A – NFA has been approved by the TCEQ per 2008 Revised RAP (URS, 2008) for the soil PCLE zones. The remaining subsurface soil below 15 ft bgs at Tank 28 and other plant area concerning soil to groundwater pathway is addressed by the hydraulic control and institutional control.

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) 30 Years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

What is the foreseeable land use during the post-response action care period? Industrial

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

The Site facility will continue to operate as a chemical manufacturing plant in the foreseeable future. The site is surrounded by petrochemical plants along the Houston ship Channel, undesirable for future residential development. A deed notice restricting the land use to industrial will be filed in the county property records. The deed notice will also document that groundwater within the PCLE zone should not be produced for potable use. Weekly inspection and maintenance will ensure and maintain the integrity of the hydraulic control system. Ongoing operation of the facility is not anticipated to interfere with the monitoring program or pose a threat to human health or the environment since the COC concentrations in soils and groundwater are protective of human health and the environment through the soil-to air and groundwater-to-air exposure pathways. Proposed deed notice language is included in **Appendix 4**.

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

Post-response action care (PRAC) activities will consist of the following:

1. Perform weekly inspection and maintenance of the recovery system to ensure proper system functioning and collect groundwater recovery volume data.
2. Perform semiannual groundwater gauging activities to verify capture.
3. Perform annual groundwater monitoring at select sampling points (**Attachment 3A-1**) for COCs specified in **Worksheet 3.1**.
4. Assess the effectiveness of the hydraulic control, taking into account updated well recoveries, groundwater flow, gradient, and concentration data obtained from the weekly measurements, semiannual gauging, and annual sampling events, to determine whether any revisions to the groundwater recovery system and monitoring program (e.g., addition/removal of COCs or wells to be monitored, or increased/decreased sampling frequency) are recommended.
5. Verify that institutional controls remain effective (e.g., groundwater and property land use restriction).
6. Provide recommendations regarding any issues observed in items 1 to 5 and need to be addressed, including considerations of additional response actions, if necessary.
7. Kinder Morgan anticipates that the TCI facility will be included as a modification to the existing Galena Park Hazardous Waste Permit No. HW-50054 ISWR No. 30573 (Permit) during 2019. As such, the TCI facility will be subject to the reporting requirements of the Hazardous Waste/Compliance Plan CP-50054.

If, in the future, data supports the concept of increasing or decreasing the frequency of any of these activities, a revised schedule will be proposed to TCEQ for approval at that time.

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? X Yes ____ No

If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies N/A (financial assurance is not required per 30 TAC §350.33 (f)(4)(F)(ii)(III))

Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? $ N/A

What is the total estimated cost for a third party to perform PRAC activities? $ N/A

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

N/A

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___ Yes X No
If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	**Start**	**Finish**	**Duration**
File Institutional Control (Deed Notice for groundwater and Land Use restrictions)	Upon TCEQ approval of Revised RAP	Within 180 days of TCEQ approval of Revised RAP	180 days

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	**Submittal date**
Kinder Morgan anticipates that reporting will be included in the requirements specified in the Modified Hazardous Waste Permit for the Galena Park Terminal, Permit No. 50054	Corrective Action reporting is currently on a semiannual basis, in January and July. It is anticipated that annual reporting will be conducted following the approval of the Class 3 Permit of the Galena Park Hazardous Waste Permit Modification.

Appendix 1

References

Appendix 1

References

AECOM Draft Revised Response Action Plan 2018

ARCADIS, 2001. Screening Level Ecological Risk Assessment.

ARCADIS, 2006. Affected Property Assessment Report – Texmark, Kinder Morgan Liquids Terminals LLC, Galena Park, Texas, January 23, 2006.

TestAmerica Laboratories, Inc. Analytical Data collected by AECOM on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 600-61802- 1. June 30, 2017.

TestAmerica Laboratories, Inc. Analytical Data collected by URS Corporation on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 600-84195- 1. December 24, 2013.

TestAmerica Laboratories, Inc. Analytical Data collected by URS Corporation on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 600-68603- 1. February 26, 2013.

TestAmerica Laboratories, Inc. Analytical Data collected by URS Corporation on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 600-61802- 1. October 17, 2012.

Texas Commission on Environmental Quality (TCEQ). Approval of Revised Response Action Plan. KM Liquids Terminals LLC, Galena Park, Texas. June 26, 2008.

TCEQ. 2007. Approval of Response Action Plan. KM Liquids Terminals LLC, Galena Park, Texas

TCEQ. 2006. Approval of Affected Property Assessment Report. KM Liquids Terminals LLC, Galena Park, Texas

Texas Risk Reduction Rules, 30 Texas Administrative Code (TAC), Chapter 335, Subchapter 5.

URS, 2008. Revised Response Action Plan - Texmark Chemicals, Inc., Kinder Morgan Liquids Terminals LLC, Galena Park, Texas, June 2008

URS Corporation, 2006. Response Action Plan – Texmark Chemicals, Inc., Kinder Morgan Liquids Terminals LLC, Galena Park, Texas, December 22, 2006.

Xenco Laboratories. Analytical Data collected by URS Corporation on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 313944. October 14, 2008.

Xenco Laboratories. Analytical Data collected by URS Corporation on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 353093 and 353245 – December 7, 2009.

Xenco Laboratories. Analytical Data collected by URS Corporation on behalf of Kinder Morgan Liquids Terminals LLC. Laboratory Job Number 399334 - December 13, 2010.

Appendix 2

Boring Logs, Laboratory Reports, and Data Summary Tables

Boring Logs

POE-1	RW-8
POE-3	RW-9
AMP-1	MW-3
AMP-2	MW-4
AMP-2-2 (P&A)	MW-5
MW-18	MW-6
MW-19	MW-9
MW-20	MW-10
MW-21	MW-10R-TCI
RW-1	MW-11TCI
RW-2	MW-12TCI
RW-3	MW-13TCI
RW-4	MW-14TCI
RW-5	MW-15TCI (P&A)
RW-6	MW-16TCI
RW-7	MW-17-TCI

Laboratory Reports

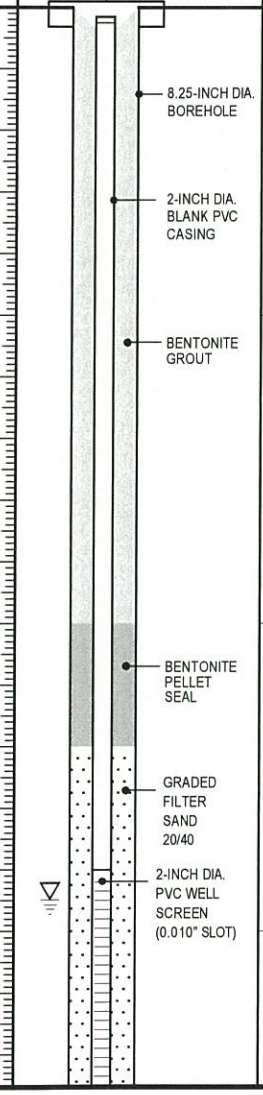
Xenco Analytical Report No. 313944, October 14, 2008
Test America Analytical Report No. 600-61802-1, October 17, 2012
Test America Analytical Report No. 600-68603-1, February 26, 2013
Test America Analytical Report No. 600-84195-1, December 24, 2013

Data Summary Tables

Table 2-1 – Groundwater Analytical Summary Table
Table 2-2 – Aquifer Test Results, March 2010

LOG OF SOIL BORING: **POE-1**

CLIENT: KMLT
JOB No.: 25012333 DATE: September 24, 2008
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13832977.91 E: 3165108.81
RIG TYPE: Diedrich
GROUND SURFACE ELEV.: 18.9' TOP OF CASING ELEV.: 18.66'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14.5' bgs TOTAL DEPTH OF BORING: 27' bgs
LOGGED BY: A. Waddail DRILLING STARTED: 1630(9-24-08) DRILLING COMPLETED: 1100(9-29-08) WELL INSTALLED: 9-29-08
CONDITION: -
PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	HA	60/60				FILL		Caliche Gravel Base
5					0 0.2 0	CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs
	HA	60/60			0.1 0.2 0			- gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized)
10					8.3 303			- black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
	HA	60/60			1928	ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15					2142	CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
	SB	60/43				SC		Gray clayey SAND, slightly wet to wet

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **POE-1** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25012333 DATE: September 24, 2008
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832977.91 E: 3165108.81
RIG TYPE: Diedrich
GROUND SURFACE ELEV.: 18.9' TOP OF CASING ELEV.: 18.66'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14.5' bgs TOTAL DEPTH OF BORING: 27' bgs
LOGGED BY: A. Waddail DRILLING STARTED: 1630(9-24-08) DRILLING COMPLETED: 1100(9-29-08) WELL INSTALLED: 9-29-08
CONDITION: -
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20						2988	SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs - no recovery
		SB	60/12						
25						130.6			- 2" thick clayey sand layer, wet at 25' bgs
						4.0			- slightly sandy, very stiff, plastic, moist as above from 25' to 17' bgs - 3" thick sand seam with gravel, moist at 25.5' bgs
	WELL CAP	SB	24/21				CL		
30									Boring terminated at 27 feet below ground surface.
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **POE-3**

CLIENT: KMLT | JOB No.: 25012333 | DATE: September 24, 2008

SITE: Texmark Chemicals | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8.25-inch | MONITOR WELL DIA.: 2-inch

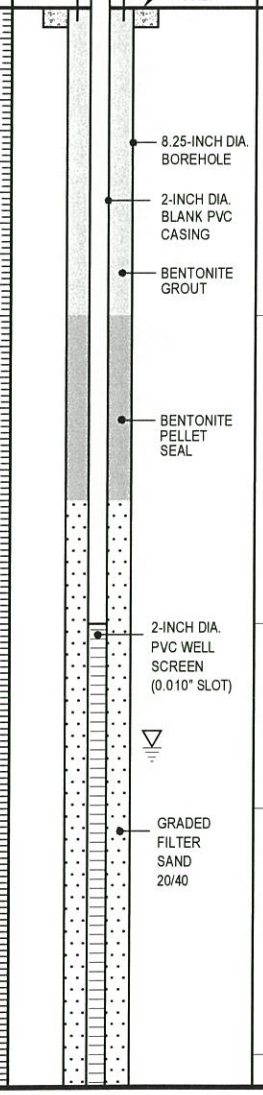
DRILLING METHOD: Hand Auger and Split-Barrel HSA | TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832418.62 | E: 3165118.77

RIG TYPE: Diedrich | GROUND SURFACE ELEV.: 9.91' | TOP OF CASING ELEV.: 13.10'

DRILLER: M. Moya | INITIAL GROUNDWATER DEPTH: 12' bgs | TOTAL DEPTH OF BORING: 20' bgs

LOGGED BY: A. Waddail | DRILLING STARTED: 1000(9-24-08) | DRILLING COMPLETED: 1030(9-26-08) | WELL INSTALLED: 9-26-08

CONDITION: Grassy Area | PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	HA	60/60			0 0 0	ML		Dark brown clayey SILT, slight plastic, medium stiff to hard, slightly moist, minor gravel and roots
					0 0 0.2	CL		Dark brown silty CLAY, plastic, medium soft, moist, minor gravel and iron oxide laminations - very moist at 5' bgs - wet at 6' bgs (perched - possibly connected to adjacent sump)
	HA	60/60			1.2 2.5 2.1 4.7			- becomes dark gray, slight sandy, very fine grained sand, medium soft to stiff, very moist wet, plastic
10	HA	60/60			34.5 32.7			- some iron laminations
					43.0	SC		Gray clayey silty SAND, slightly plastic, medium soft to medium stiff, very moist to wet, grading to
					25.0	CL		- brownish-orange clayey layer - silty clay from 13' to 14' bsg
15	SB	48/36			9.8 5.3	SC		- back to a clayey silty sand
					1.9 3.2	CL		Orangish-brown sandy silty CLAY with light gray mottling, plastic, stiff, moist to wet - calcareous, sand sized to gravel sized calcium carbonate, very moist at 17' bgs

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **POE-3** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25012333
DATE: September 24, 2008
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13832418.62
E: 3165118.77
RIG TYPE: Diedrich
GROUND SURFACE ELEV.: 9.91'
TOP OF CASING ELEV.: 13.10'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 12' bgs
TOTAL DEPTH OF BORING: 20' bgs
LOGGED BY: A. Waddail
DRILLING STARTED: 1000(9-24-08)
DRILLING COMPLETED: 1030(9-26-08)
WELL INSTALLED: 9-26-08
CONDITION: Grassy Area
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
							CL		
		SB	36/36			3.2 1.8	CH		Orange and light gray CLAY, very stiff to hard, plastic, slightly calcareous with depth
20	WELL CAP								Boring terminated at 20 feet below ground surface.
25									
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **AMP-1**

CLIENT: KMLT | JOB No.: 25012333 | DATE: September 26, 2008

SITE: Texmark Chemicals | LOCATION: Galena Park, Texas

DRILLING CONTRACTOR: ADS (Advanced Drilling Systems) | BOREHOLE DIA.: 8.25-inch | MONITOR WELL DIA.: 2-inch

DRILLING METHOD: Hand Auger and Split-Barrel HSA | TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13833019.12 E: 3165240.99

RIG TYPE: Diedrich | GROUND SURFACE ELEV.: 20.8' | TOP OF CASING ELEV.: 20.43'

DRILLER: M. Moya | INITIAL GROUNDWATER DEPTH: 14' bgs | TOTAL DEPTH OF BORING: 25' bgs

LOGGED BY: A. Waddail | DRILLING STARTED: 1450 | DRILLING COMPLETED: - | WELL INSTALLED: 9-26-08

CONDITION: Gravel - 1st Location Hit Sewerline - moved over 2' | PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	FLUSH MOUNTED LOCKING PROTECTIVE COVER; 2'x2' CONC. PAD					4.7	CL		Brown silty CLAY, slightly sandy increasing with depth, slightly plastic, very stiff, minor calcareous content, slightly moist to dry - becomes dark gray at 1' bgs
	8.25-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	HA	60/60			6.8	SC		Brown silty clayey SAND, soft, non-plastic, slightly moist, slight gravel content
5						3.7			
		HA	60/60			63.6	SC/ CL		Gray clayey SAND / sandy CLAY, soft, slightly plastic to plastic - wet (perched) at 6' bgs
10	BENTONITE PELLET SEAL					336			- becomes orangish-brown at 10' bgs
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	SB	60/47			144.5	ML/ CL		Orangish-brown clayey SILT / silty CLAY, slightly plastic, medium soft to stiff, moist
							SC		Gray clayey SAND, medium soft, slightly to non-plastic wet, odor
							CL		Orangish-brown silty CLAY, very stiff, moist - becomes sandy at 14.9' bgs
15	GRADED FILTER SAND 20/40					151.4	SC/ CL		Alternating layers of brown clayey SAND and sandy CLAY, stiff to soft, plastic to non-plastic, wet, between 0.5' and 1' thick - black discoloration at 17' bgs
		SB	60/58						

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **AMP-1** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25012333
DATE: September 26, 2008
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13833019.12
E: 3165240.99
RIG TYPE: Diedrich
GROUND SURFACE ELEV.: 20.8'
TOP OF CASING ELEV.: 20.43'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs
TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: A. Waddail
DRILLING STARTED: 1450
DRILLING COMPLETED: -
WELL INSTALLED: 9-26-08
CONDITION: Gravel - 1st Location Hit Sewerline - moved over 2'
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20						384	SC/ CL		- ferrous concretions at 18.5' bgs
						190	SC		Gray clayey SAND, soft, slightly plastic, wet
25	WELL CAP	SB	60/60			539	CL		Light gray and orange mottled silty CLAY, very stiff to hard, slightly plastic, moist - slightly sandy at 23' and at 24' bgs - wet at 24' bgs
30									Boring terminated at 25 feet below ground surface.
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **AMP-2**

CLIENT: KMLT
JOB No.: 25012333
DATE: September 24, 2008
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: 5' Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832519.19
E: 3165262.87
RIG TYPE: Power Probe (Direct Push)
GROUND SURFACE ELEV.: 12.60'
TOP OF CASING ELEV.: 12.35'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 11'3" bgs
TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: A. Waddail
DRILLING STARTED: 1130
DRILLING COMPLETED: 1345
WELL INSTALLED: 9-24-08
CONDITION: Concrete
PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	FLUSH MOUNTED LOCKING PROTECTIVE COVER; 2'x2' CONC. PAD					6.8			Concrete underlain by gravel base
	8.25-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	SB	60/34			0.5			Dark brown silty CLAY, black laminations, medium stiff, plastic, moist, slight odor - calcareous with wood and gravel from 3.5' to 4' bgs - becomes brown, stiff at 4' bgs - calcareous (gravel sized calcareous nodules) and some iron laminations at 5' bgs
5						0.5			
	BENTONITE PELLET SEAL	SB	60/27			2.6			- becomes sandy, brown with dark gray mottling, fine grained, medium soft, plastic, very moist, black root/fibrous material from 8' to 9' bgs
	GRADED FILTER SAND 20/40						CL		- becomes silty, orangish-brown and light gray mottled, calcareous, stiff, plastic, moist, black root/fibrous material at 9' bgs
10	▽					57.6			- becomes very sandy, light brown with orange mottling, slightly plastic, stiff to very stiff, moist, calcareous, iron concretions at 10' bgs - wet calcareous gravel seams at 11.25', 12', and 13.5' bgs
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	SB	60/60			31.5			
15						96.2			- becomes very silty, bright orange and light gray mottled at 15' bgs
		SB	60/60						

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **AMP-2** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25012333 DATE: September 24, 2008
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: 5' Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832519.19 E: 3165262.87
RIG TYPE: Power Probe (Direct Push)
GROUND SURFACE ELEV.: 12.60' TOP OF CASING ELEV.: 12.35'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 11'3" bgs TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: A. Waddail DRILLING STARTED: 1130
DRILLING COMPLETED: 1345 WELL INSTALLED: 9-24-08
CONDITION: Concrete
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	WELL CAP	SB	24/24			24.2 0.4	CL CH		- becomes reddish-orange gravelly, calcareous weathered clay, wet at 20' bgs Reddish-orange and light gray mottled CLAY, slightly calcareous, hard, plastic, moist
25									Boring terminated at 22 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **AMP-2-2**

CLIENT: KMLT
JOB No.: 25012333
DATE: November 11, 2009
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: 5' Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13833003.30
E: 3165191.00
RIG TYPE: Diedrich
GROUND SURFACE ELEV.: 20.0'
TOP OF CASING ELEV.: 20.0'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs
TOTAL DEPTH OF BORING: 30' bgs
LOGGED BY: R. Kommajosyula
DRILLING STARTED: 1115
DRILLING COMPLETED: 1300
WELL INSTALLED: 11-11-09
CONDITION: North of Office Building
PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	FLUSH MOUNTED LOCKING PROTECTIVE COVER; 2'x2' CONC. PAD								FILL - Stabilized materiall
	8.25-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	WK	-				CH		Dark brown CLAY, medium soft, high plasticity - clay mixed with cobbles
5						48			
		WK	-			54.5	CL		Light brown silty CLAY, stiff, high plasticity - iron and calcareous concretions are abundant from 8-10' bgs
10	BENTONITE PELLET SEAL					265			
	GRADED FILTER SAND 20/40	SB	60/54			227	SC		Dark brown clayey SAND, stiff, medium plasticity - saturated at 13' bgs
15						1210			Gray CLAY, soft, high plasticity
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	SB	60/46				CH		- turning silts and fine sands at 17' bgs

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	RSD	RELATIVE SITE DATUM
CB	CORE BARREL SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
SB	SPLIT-BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
HA	HAND AUGER	▼	STATIC WATER LEVEL
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **AMP-2-2** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25012333
DATE: November 11, 2009
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: 5' Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13833003.30
E: 3165191.00
RIG TYPE: Diedrich
GROUND SURFACE ELEV.: 20.0'
TOP OF CASING ELEV.: 20.0'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs
TOTAL DEPTH OF BORING: 30' bgs
LOGGED BY: R. Kommajosyula
DRILLING STARTED: 1115
DRILLING COMPLETED: 1300
WELL INSTALLED: 11-11-09
CONDITION: North of Office Building
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)					637	CH		
						610	SP		Light brown silty SAND, medium dense, low plasticity
		SB	60/48			148	CH		Dark brown CLAY, very stiff, high plasticity
25						127	SC		Dark brown clayey SAND, soft, medium stiff
		SB	60/52			132	CH		Gray CLAY, stiff, high plasticity
30	WELL CAP					228			
									Boring terminated at 30 ft bgs.
35									

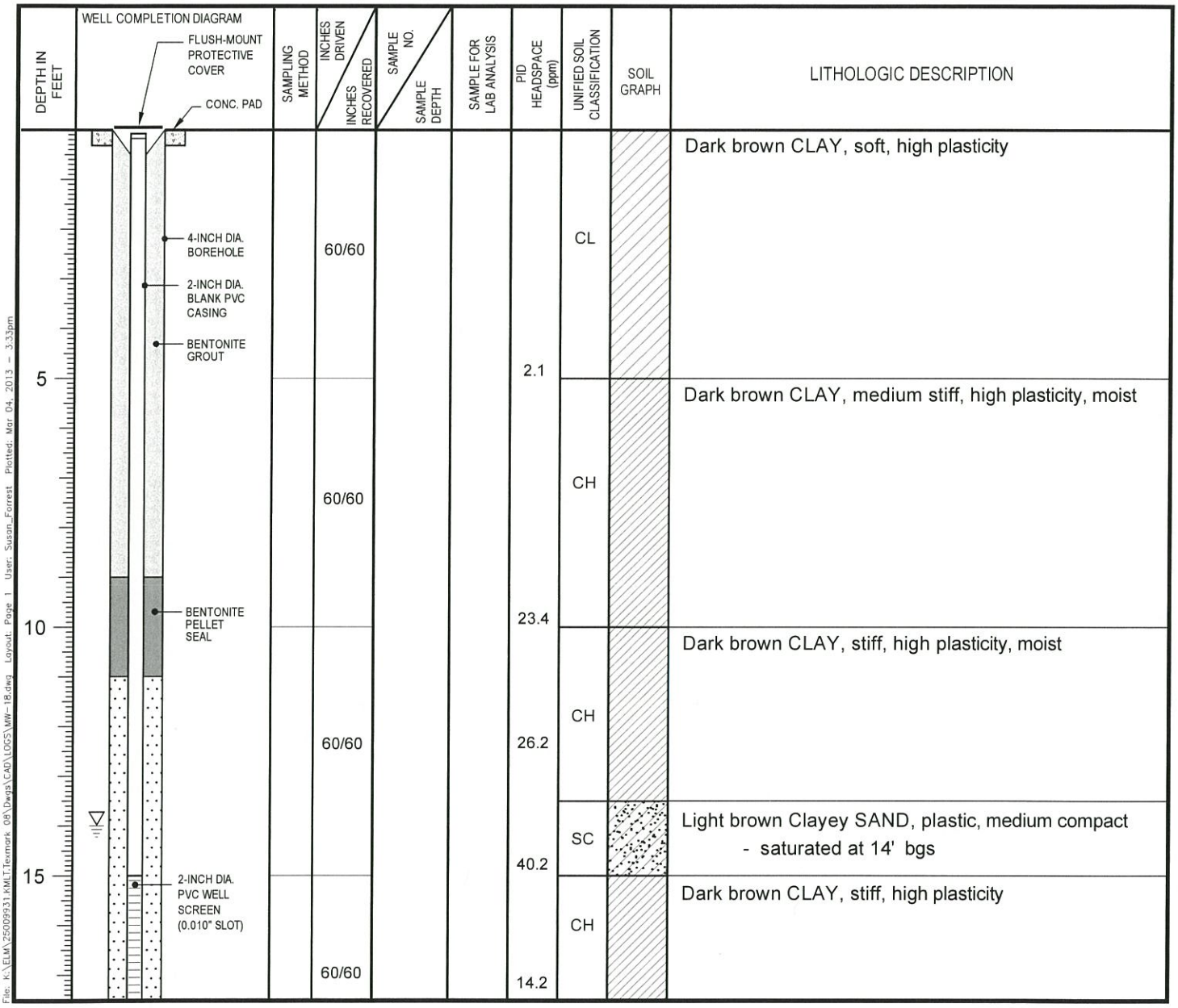
SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	RSD	RELATIVE SITE DATUM
CB	CORE BARREL SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
SB	SPLIT-BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
HA	HAND AUGER	▼	STATIC WATER LEVEL
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-18**

CLIENT: KMLT
JOB No.: 25014684
DATE: November 9, 2012
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 4-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger, 5' Split-Barrel
TX State Planes, South Central Zone COORDINATES: N: 13832646.17 E: 3165102.557
RIG TYPE: -
GROUND SURFACE ELEV.: 10.96'
TOP OF CASING ELEV.: 14.01'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs
TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula
DRILLING STARTED: 1330
DRILLING COMPLETED: 1800
WELL INSTALLED: Permanent
CONDITION: Sunny, 83°
PAGE: 1 OF 2



File: K:\ELM\25009931.KMLT.Texmark 08\Dwgs\CAD\LOGS\MW-18.dwg Layout: Page 1 User: Susan_Forrest Plotted: Mar 04, 2013 – 3:33pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-18** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25014684 DATE: November 9, 2012
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 4-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger, 5' Split-Barrel
TX State Planes, South Central Zone COORDINATES: N: 13832646.17 E: 3165102.557
RIG TYPE: -
GROUND SURFACE ELEV.: 10.96' TOP OF CASING ELEV.: 14.01'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 14' bgs TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 1330
DRILLING COMPLETED: 1800 WELL INSTALLED: Permanent
CONDITION: Sunny, 83°
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	GRADED FILTER SAND						CH		
						5.6	SC		Dark brown Clayey SAND, plastic, medium compact
			60/60			1.2	CH		Reddish-brown CLAY, stiff, high plasticity
25	WELL CAP					1.6			- very stiff at 25' bgs Boring terminated at 25 ft. below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-19**

CLIENT: KMLT	JOB No.: 25015234	DATE: February 11, 2013	
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: Advanced Drilling Systems (ADS)	BOREHOLE DIA.: 4.5-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger, 5' Split-Barrel	TX State Planes, South Central Zone COORDINATES: N: 13832777.68	E: 3165101.109	
RIG TYPE: -	GROUND SURFACE ELEV.: 13.94'	TOP OF CASING ELEV.: 13.70'	
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: 12' bgs	TOTAL DEPTH OF BORING: 25' bgs	
LOGGED BY: R. Kommajosyula DRILLING STARTED: 1030	DRILLING COMPLETED: 1430	WELL INSTALLED: Permanent	
CONDITION: Light wind, 64°		PAGE: 1 OF 2	

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	FLUSH-MOUNT PROTECTIVE COVER; CONC. PAD; 4.5-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING	HA	60/60			0	CL		Dark brown CLAY, soft, plastic, moist
5	BENTONITE GROUT; BENTONITE PELLET SEAL	HA	60/60			0			
10	GRADED FILTER SAND; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	HA	60/58			0			- plastic, medium stiff, moist
15		HA	60/60			0	SC		Dark brown Clayey SAND, plastic, medium stiff - saturated at 12' bgs - fine sands 12' to 13' bgs
						0	CL		Dark brown CLAY, plastic, medium stiff

File: K:\ELM\25009931.KMLT-Texmark 08\Dwgs\CAD\LOGS\MW-19.dwg Layout: Page 1 User: Susan_Forrest Plotted: Mar 04, 2013 - 3:34pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-19** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25015234 DATE: February 11, 2013
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: Advanced Drilling Systems (ADS)
BOREHOLE DIA.: 4.5-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger, 5' Split-Barrel
TX State Planes, South Central Zone COORDINATES: N: 13832777.68 E: 3165101.109
RIG TYPE: -
GROUND SURFACE ELEV.: 13.94' TOP OF CASING ELEV.: 13.70'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 12' bgs TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 1030
DRILLING COMPLETED: 1430 WELL INSTALLED: Permanent
CONDITION: Light wind, 64°
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20						0	CL		
		HA	60/60			0	CH		Reddish-brown CLAY, fat clay, stiff, high plasticity
25	WELL CAP					0			Boring terminated at 25 ft. below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-20**

CLIENT: KMLT	JOB No.: 25015234	DATE: February 12, 2013	
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: Advanced Drilling Systems (ADS)	BOREHOLE DIA.: 4.5-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger, 5' Split-Barrel	TX State Planes, South Central Zone COORDINATES: N: 13832563.76	E: 3165111.809	
RIG TYPE: -	GROUND SURFACE ELEV.: 12.29'	TOP OF CASING ELEV.: 12.12'	
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: 13' bgs	TOTAL DEPTH OF BORING: 25' bgs	
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0900	DRILLING COMPLETED: 1400	WELL INSTALLED: Permanent	
CONDITION: Sunny, 66°		PAGE: 1 OF 2	

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	FLUSH-MOUNT PROTECTIVE COVER; CONC. PAD; BENTONITE GROUT; BENTONITE PELLET SEAL; 4.5-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; GRADED FILTER SAND; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	HA	60/60			0	CL		Dark brown CLAY, moist, medium plasticity, medium stiff
5						0			
		HA	60/60			0			
10						0			- as above
		HA	60/60			3.0			- saturated at 13' bgs
15						2.1			
							CH		Reddish-brown CLAY, stiff, high plasticity
		HA	60/58			0			

File: K:\ELM\25009931.KMLT.Texmark 08\Dwgs\CAD\LOGS\MW-20.dwg Layout: Page 1 User: Susan_Forrest Plotted: Mar 04, 2013 – 3:36pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-20** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25015234
DATE: February 12, 2013
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: Advanced Drilling Systems (ADS)
BOREHOLE DIA.: 4.5-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger, 5' Split-Barrel
TX State Planes, South Central Zone COORDINATES: N: 13832563.76 E: 3165111.809
RIG TYPE: -
GROUND SURFACE ELEV.: 12.29'
TOP OF CASING ELEV.: 12.12'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 13' bgs
TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula
DRILLING STARTED: 0900
DRILLING COMPLETED: 1400
WELL INSTALLED: Permanent
CONDITION: Sunny, 66°
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	WELL CAP					0	CH		
							SM		Light brown Silty SAND, loose, low plasticity
		HA	60/59			0	CH		Reddish-brown CLAY, very stiff, high plasticity
25						0			
									Boring terminated at 25 ft. below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

URS

PROJECT NUMBER:

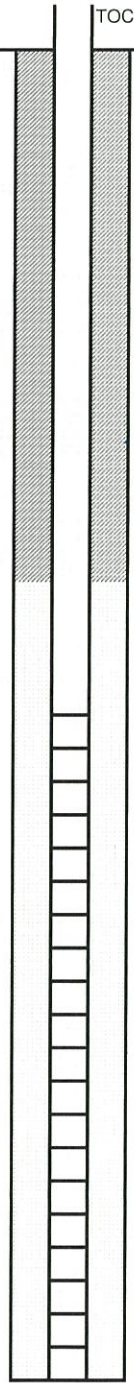
BORING NUMBER: **MW-21**

Sheet 1 of 1

SOIL BORING LOG

PROJECT :	Texmark Sentinel Well	ELEVATION :		DRILLING CONTRACTOR :	Alpine
LOCATION :	Texmark	START :	12/13/2013 9:00	DRILLING METHOD AND EQUIPMENT USED :	Hand Auger
LOGGER :	J. Andrews	END:	12/13/2013 14:00	WATER LEVEL / TOTAL DEPTH :	8.85ft btoc / 24.34ft btoc

IN DRIVEN / IN RECOVERED	SAMPLING METHOD	PID (ppm) core / headspace	PID (OBZ)	DEPTH (ft bgs)	Graphic Log	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
				_1_	CL	Dark Brown Silty CLAY with gravel, soft, odor, fill
				_2_		-light brown at 2ft
		4,000	0.1	_3_		
				_4_		
				_5_		
		3,010	0.2	_6_		-gray at 6ft
				_7_		
				_8_		-saturated at 7.5ft
				_9_	SM	Dark Gray Clayey Fine SAND, loose, with silt
		430	0.3	_10_		
				_11_		-Light Gray Silty Fine SAND, medium dense, with clay, product sheen at 10.5ft
			0.3	_12_		
				_13_	CL	Light Brown Very Sandy (fine sand) CLAY, some black staining
				_14_	SM	Light Gray Very Fine Silty SAND, with clay, medium dense, odor, similar to SM above
		91	0.1	_15_		
			0.2	_16_		
				_17_	CL	Light Gray Silty CLAY, mottled, hard with fine sand pockets
		115	0.3	_18_		
				_19_	CH	Light Gray CLAY stiff
				_20_		



Borehole Terminated at 20ft bgs.

LOG OF SOIL BORING: **RW-1**

CLIENT: KMLT	JOB No.: 25014675	DATE: April 14, 2011
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13833028.00	E: 3165106.14
RIG TYPE: Vac-Con Hydroexcavator	GROUND SURFACE ELEV.: 19.2'	TOP OF CASING ELEV.: 18.66'
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 1040	DRILLING COMPLETED: 1500	WELL INSTALLED: 3-3-11
COMMENTS: No samples were collected. Lithology from Well POE-1.		PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	STEEL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)						FILL		Caliche Gravel Base
5							CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized)
10									- black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
							ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15							CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
							SC		Gray clayey SAND, slightly wet to wet

Plot: G:\ENV\M\25009883\KML Texmark GRL\Dwg\CAD\LOGS\RW-1.dwg Layout: Page 1 User: Susan Forrest Plotted: Jan 25, 2013 - 1:37pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: RW-1 (CONT'D)

CLIENT: KMLT
JOB No.: 25014675
DATE: April 14, 2011
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13833028.00
E: 3165106.14
RIG TYPE: Vac-Con Hydroexcavator
GROUND SURFACE ELEV.: 19.2'
TOP OF CASING ELEV.: 18.66'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: -
TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula
DRILLING STARTED: 1040
DRILLING COMPLETED: 1500
WELL INSTALLED: 3-3-11
COMMENTS: No samples were collected. Lithology from Well POE-1.
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	GRADED FILTER SAND 20/40						SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
									No Recovery
25	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT) WELL CAP								Boring terminated at 25 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-2**

CLIENT: KMLT	JOB No.: 25014675	DATE: April 14, 2011
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13833001.73	E: 3165107.48
RIG TYPE: Vac-Con Hydroexcavator	GROUND SURFACE ELEV.: 18.9'	TOP OF CASING ELEV.: 18.40'
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0700	DRILLING COMPLETED: 1100	WELL INSTALLED: 3-4-11
COMMENTS: No samples were collected. Lithology from Well POE-1.		PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	STEEL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT						FILL		Caliche Gravel Base
5	BENTONITE PELLET SEAL						CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized)
10	GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)						CL		- black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
							ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15							CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
							SC		Gray clayey SAND, slightly wet to wet

File: K:\FLM\25009931 KMLT Temporal GW\Data\CAD\LOGS\RW-2.dwg Layout: Page 1 User: Susan Forrest Plotted: Jan 25, 2013 - 1:37pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-2** **(CONT'D)**

CLIENT: KMLT		JOB No.: 25014675	DATE: April 14, 2011
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)		BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13833001.73	E: 3165107.48
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.: 18.9'	TOP OF CASING ELEV.: 18.40'
DRILLER: M. Moya		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 0700	DRILLING COMPLETED: 1100	WELL INSTALLED: 3-4-11
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	GRADED FILTER SAND 20/40						SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
									No Recovery
25	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)								
	WELL CAP								Boring terminated at 25 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-3**

CLIENT: KMLT	JOB No.: 25014675	DATE: April 14, 2011
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832953.73	E: 3165111.92
RIG TYPE: Vac-Con Hydroexcavator	GROUND SURFACE ELEV.: 18.6'	TOP OF CASING ELEV.: 18.07'
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0800	DRILLING COMPLETED: 1000	WELL INSTALLED: 3-1-11
COMMENTS: No samples were collected. Lithology from Well POE-1.		PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	STEEL VAULT; 8-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT						FILL		Caliche Gravel Base
5	BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40						CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized)
10	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)						CL		- black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
							ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15							CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
							SC		Gray clayey SAND, slightly wet to wet

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-3** **(CONT'D)**

CLIENT: KMLT		JOB No.: 25014675	DATE: April 14, 2011
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)		BOREHOLE DIA.: 8-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832953.73	E: 3165111.92
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.: 18.6'	TOP OF CASING ELEV.: 18.07'
DRILLER: M. Moya		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 0800	DRILLING COMPLETED: 1000	WELL INSTALLED: 3-1-11
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	GRADED FILTER SAND 20/40						SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
						130.6			No Recovery
25	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT) WELL CAP								Boring terminated at 25 feet below ground surface.
30									
35									

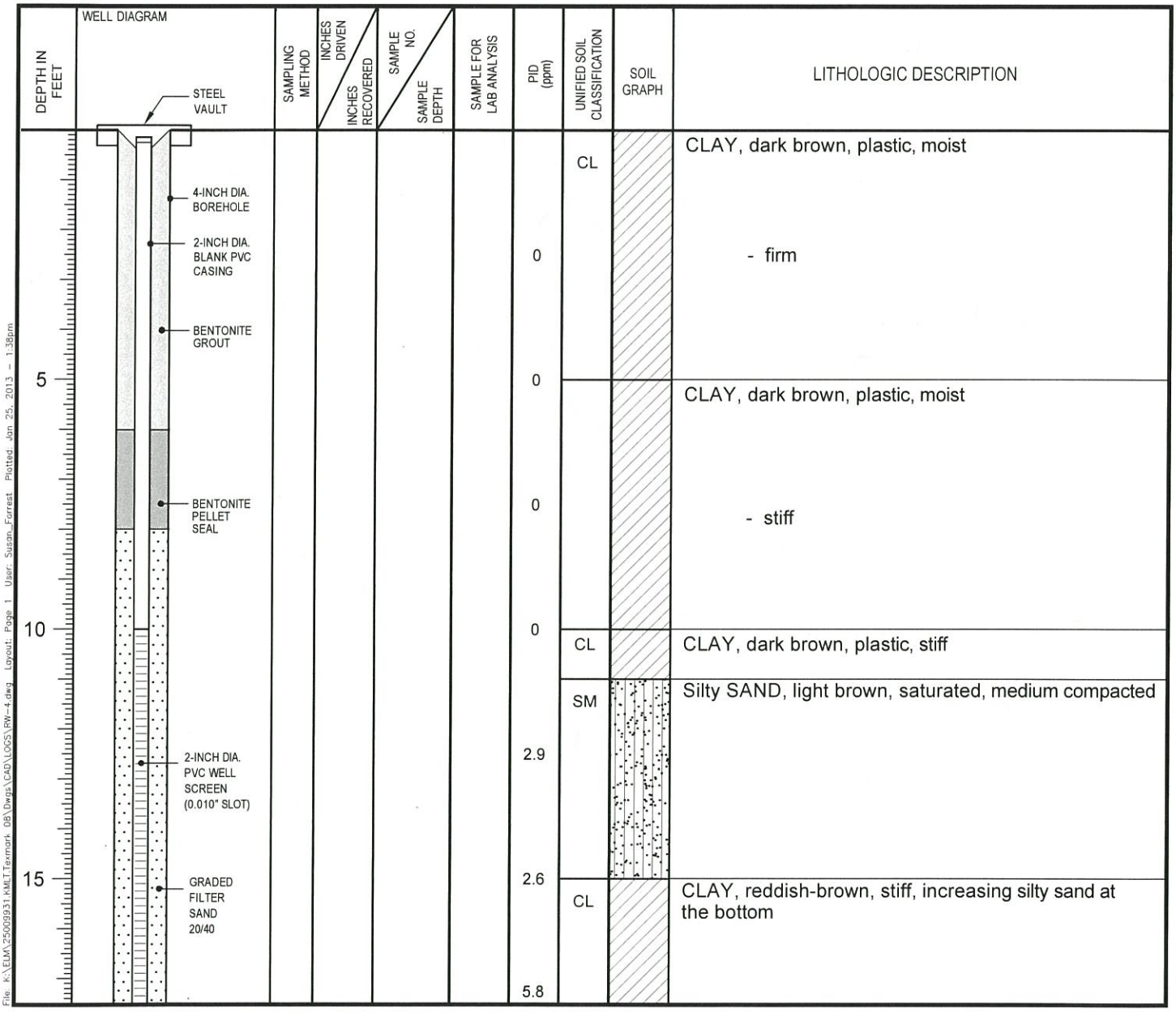
SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF WELL: **RW-4**

CLIENT: KMLT		JOB No.: 25004675	DATE: March 29, 2011
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)		BOREHOLE DIA.: 4-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger Tools		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832479.75	E: 3165116.56
RIG TYPE: Hand Auger		GROUND SURFACE ELEV. : 12.7'	TOP OF CASING ELEV.: 12.13'
DRILLER: Mario Moya		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula	DRILLING STARTED: 0930	DRILLING COMPLETED: 1430	WELL INSTALLED: 3-3-11
COMMENTS: -			PAGE: 1 OF 2



File: K:\ELM\25009931 KMLT Texmark 08\Dwgs\CAD\LOGS\RW-4.dwg Layout: Page 1 User: Susan_Forrest Plotted: Jun 25, 2013 – 1:38pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SS	SPLIT-SPOON SAMPLER		
HA	HAND AUGER	▼	STATIC WATER LEVEL
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF WELL: **RW-4** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25004675 DATE: March 29, 2011
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 4-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger Tools
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13832479.75 E: 3165116.56
RIG TYPE: Hand Auger
GROUND SURFACE ELEV.: 12.7' TOP OF CASING ELEV.: 12.13'
DRILLER: Mario Moya
INITIAL GROUNDWATER DEPTH: - TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0930
DRILLING COMPLETED: 1430 WELL INSTALLED: 3-3-11
COMMENTS: -
PAGE: 2 OF 2

DEPTH IN FEET		SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT); GRADED FILTER SAND 20/40					2.6	CL		
							SC		Clayey SAND, light brown, soft, plastic
						3.6	CH		CLAY, dark brown, very stiff, plastic
25	7" SUMP / BLANK SPACE AND WELL CAP					2.1			Boring terminated at 25 feet below ground surface.
30									

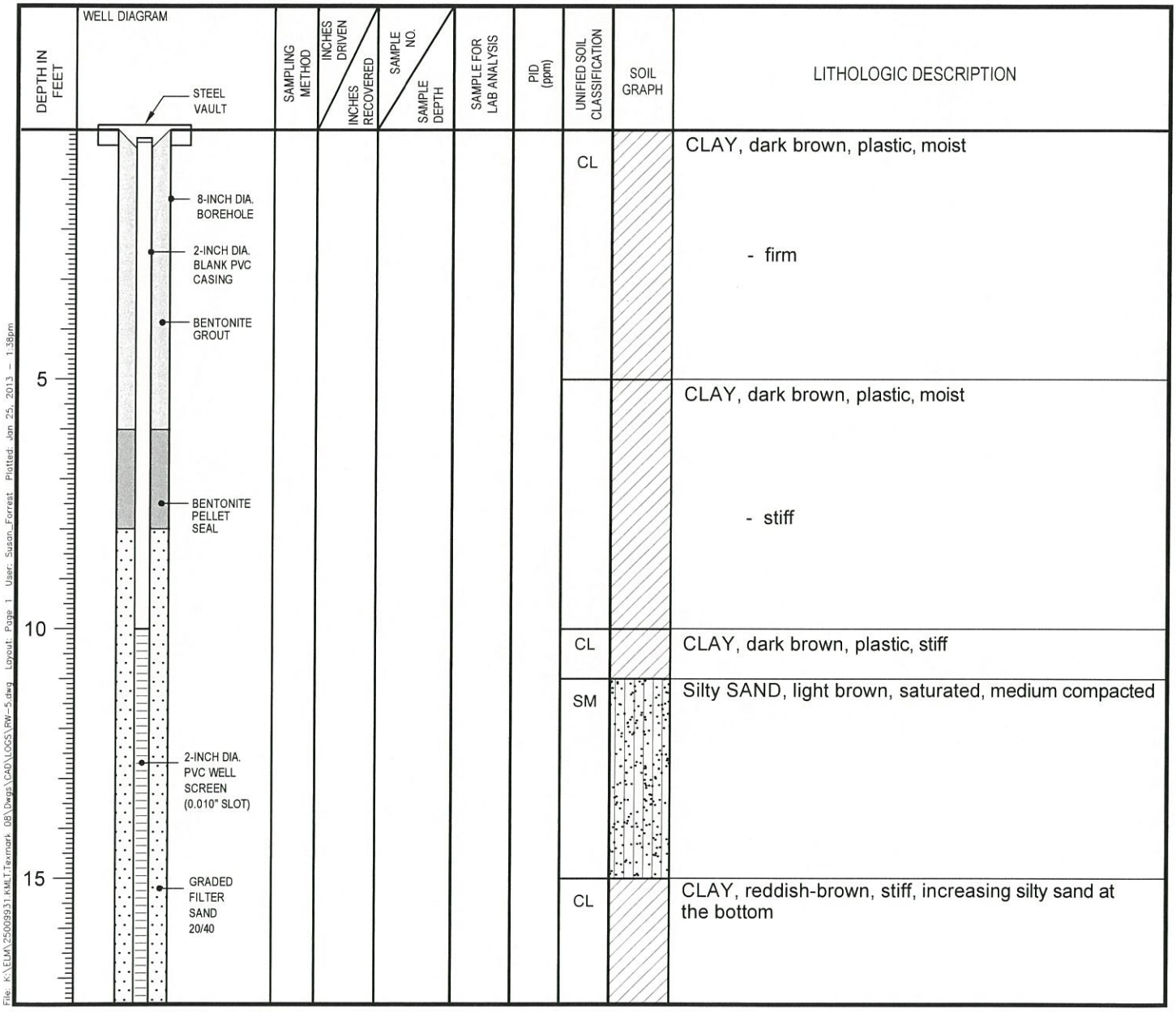
SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SS	SPLIT-SPOON SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF WELL: **RW-5**

CLIENT: KMLT
JOB No.: 25004675 DATE: April 14, 2011
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13832443.26 E: 3165123.26
RIG TYPE: Vac-Con Hydroexcavator
GROUND SURFACE ELEV. : 12.9' TOP OF CASING ELEV.: 12.30'
DRILLER: Mario Moya
INITIAL GROUNDWATER DEPTH: - TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0900
DRILLING COMPLETED: 1600 WELL INSTALLED: 3-2-11
COMMENTS: No samples were collected. Lithology from Well RW-4.
PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
						CL		CLAY, dark brown, plastic, moist - firm
								CLAY, dark brown, plastic, moist - stiff
						CL		CLAY, dark brown, plastic, stiff
						SM		Silty SAND, light brown, saturated, medium compacted
						CL		CLAY, reddish-brown, stiff, increasing silty sand at the bottom

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SS	SPLIT-SPOON SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

File: K:\ELM\25009931 KMLT\Texmark 08\Dwgs\CAD\LOGS\RW-5.dwg Layout: Page 1 User: Susan_Forrest Plotted: Jan 25, 2013 - 1:38pm

LOG OF WELL: **RW-5** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25004675 DATE: April 14, 2011
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8-inch MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation
TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832443.26 E: 3165123.26
RIG TYPE: Vac-Con Hydroexcavator
GROUND SURFACE ELEV. : 12.9' TOP OF CASING ELEV.: 12.30'
DRILLER: Mario Moya
INITIAL GROUNDWATER DEPTH: - TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0900
DRILLING COMPLETED: 1600 WELL INSTALLED: 3-2-11
COMMENTS: No samples were collected. Lithology from Well RW-4.
PAGE: 2 OF 2

DEPTH IN FEET		SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT); GRADED FILTER SAND 20/40						CL		
							SC		Clayey SAND, light brown, soft, plastic
							CH		CLAY, dark brown, very stiff, plastic
25	7" SUMP / BLANK SPACE AND WELL CAP								Boring terminated at 25 feet below ground surface.
30									

File: K:\ELM\25009931.KMLT Texmark '08\Dwgs\CAD\LOGS\RW-5.dwg Layout: Page 2 User: Susan_Forrest Plotted: Jan 25, 2013 – 1:38pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SS	SPLIT-SPOON SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
GP	GEOPROBE SAMPLER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **RW-6**

CLIENT: KMLT		JOB No.: 25015234	DATE: November 12, 2012
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima		BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 24' bgs
LOGGED BY: J. Andrews	DRILLING STARTED: 1110	DRILLING COMPLETED: 1300	WELL INSTALLED: 11-13-12
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
0	STEEL VAULT						FILL		Caliche Gravel Base
5	12-18-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT; BENTONITE PELLET SEAL; GRADED FILTER SAND 20/40; 2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)						CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized) - black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
10							ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15							CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
							SC		Gray clayey SAND, slightly wet to wet

File: K:\PROJECTS\2012\25015234 Kirby Terminal GRU\Drawings\CAD\LOGS\RW-6.dwg Layout: Page 1 User: Susan Forrest Plotted: Jan 25, 2013 - 1:39pm

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-6** **(CONT'D)**

CLIENT: KMLT		JOB No.: 25015234	DATE: November 12, 2012
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima		BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 24' bgs
LOGGED BY: J. Andrews	DRILLING STARTED: 1110	DRILLING COMPLETED: 1300	WELL INSTALLED: 11-13-12
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	GRADED FILTER SAND 20/40						SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)								No Recovery
25	WELL CAP								Boring terminated at 24 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

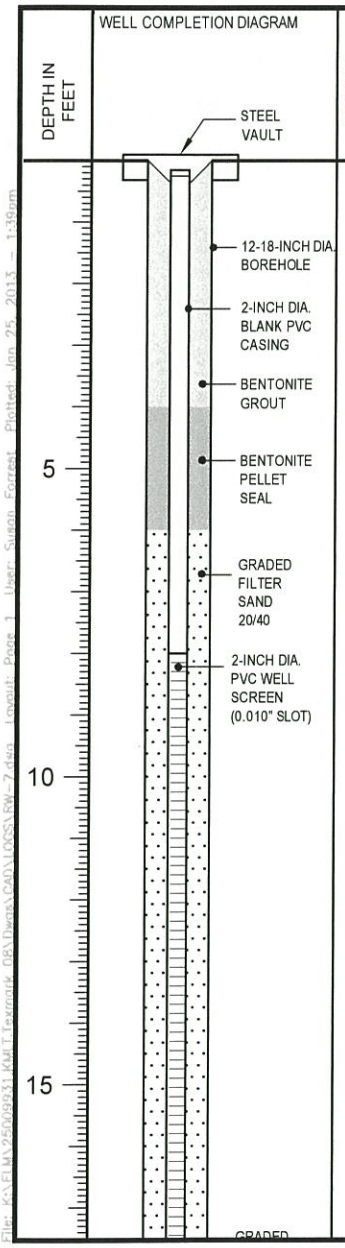
URS

LOG OF SOIL BORING: **RW-7**

CLIENT: KMLT	JOB No.: 25015234	DATE: November 13, 2012
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima	BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator	GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor	INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 23' bgs
LOGGED BY: J. Andrews DRILLING STARTED: 1145	DRILLING COMPLETED: 1405	WELL INSTALLED: 11-14-12

COMMENTS: No samples were collected. Lithology from Well POE-1.

PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
						FILL		Caliche Gravel Base
						CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized) - black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
						ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
						CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
						SC		Gray clayey SAND, slightly wet to wet

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-7** **(CONT'D)**

CLIENT: KMLT		JOB No.: 25015234	DATE: November 13, 2012
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima		BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 23' bgs
LOGGED BY: J. Andrews	DRILLING STARTED: 1145	DRILLING COMPLETED: 1405	WELL INSTALLED: 11-14-12
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	FILTER SAND 20/40						SC		
	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)						CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
									No Recovery
25	WELL CAP								Boring terminated at 23 feet below ground surface.
30									
35									

SAMPLER KEY:

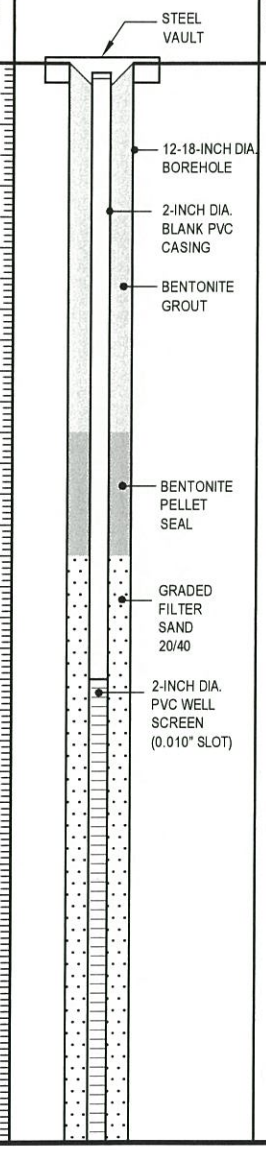
SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-8**

CLIENT: KMLT	JOB No.: 25015234	DATE: November 13, 2012
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima	BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator	GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor	INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: J. Andrews DRILLING STARTED: 0910	DRILLING COMPLETED: 1048	WELL INSTALLED: 11-14-12
COMMENTS: No samples were collected. Lithology from Well POE-1.		PAGE: 1 OF 2

WELL COMPLETION DIAGRAM



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
						FILL		Caliche Gravel Base
5						CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized) - black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
10						ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15						CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
						SC		Gray clayey SAND, slightly wet to wet

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

File: K:\FLM\25009931 KMLT Texmark 08\Dwgs\CAD\LOGS\RW-8.dwg Layout: Page 1 User: Susan Forrest Plotted: Jan 25, 2013 - 1:39pm

LOG OF SOIL BORING: **RW-8** **(CONT'D)**

CLIENT: KMLT		JOB No.: 25015234	DATE: November 13, 2012
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima		BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: J. Andrews	DRILLING STARTED: 0910	DRILLING COMPLETED: 1048	WELL INSTALLED: 11-14-12
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	GRADED FILTER SAND 20/40						SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
25	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)								No Recovery
	WELL CAP								Boring terminated at 25 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-9**

CLIENT: KMLT	JOB No.: 25015234	DATE: November 12, 2012	
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: Trex/Cima	BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hydroexcavation	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:	
RIG TYPE: Vac-Con Hydroexcavator	GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:	
DRILLER: M. Taylor	INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs	
LOGGED BY: J. Andrews	DRILLING STARTED: 1410	DRILLING COMPLETED: -	WELL INSTALLED: 11-16-12
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	STEEL VAULT 12-18-INCH DIA. BOREHOLE 2-INCH DIA. BLANK PVC CASING BENTONITE GROUT						FILL		Caliche Gravel Base
5							CL		Dark brown silty CLAY, plastic, medium stiff, moist - black laminations, some black fibrous material, oyster shells and gravel at 4.5' bgs - gravelly sandy clay, wet at 7' bgs - minor black laminations and ferrous concretions (coarse sand sized)
10									- black, odors, medium soft at 10' bgs - black layer, odor at 12' bgs
							ML		Gray clayey SILT, slightly sandy, medium stiff, slightly plastic, moist, some iron concretions
15	BENTONITE PELLET SEAL GRADED FILTER SAND 20/40						CL		Gray sandy CLAY, plastic, medium stiff to medium soft, slightly wet to wet - grading to
							SC		Gray clayey SAND, slightly wet to wet

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **RW-9** **(CONT'D)**

CLIENT: KMLT		JOB No.: 25015234	DATE: November 12, 2012
SITE: Texmark Chemicals		LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: Trex/Cima		BOREHOLE DIA.: 12 - 18 inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hydroexcavation		TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N:	E:
RIG TYPE: Vac-Con Hydroexcavator		GROUND SURFACE ELEV.:	TOP OF CASING ELEV.:
DRILLER: M. Taylor		INITIAL GROUNDWATER DEPTH: -	TOTAL DEPTH OF BORING: 25' bgs
LOGGED BY: J. Andrews	DRILLING STARTED: 1410	DRILLING COMPLETED: -	WELL INSTALLED: 11-16-12
COMMENTS: No samples were collected. Lithology from Well POE-1.			PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT); GRADED FILTER SAND 20/40						SC		
							CL		Gray and brownish-orange mottled silty CLAY with sand, stiff to very stiff, slightly plastic, moist - very silty, hard at 20' bgs - core barrel wet from 20' to 25' bgs
25	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT); WELL CAP								No Recovery Boring terminated at 25 feet below ground surface.
30									
35									

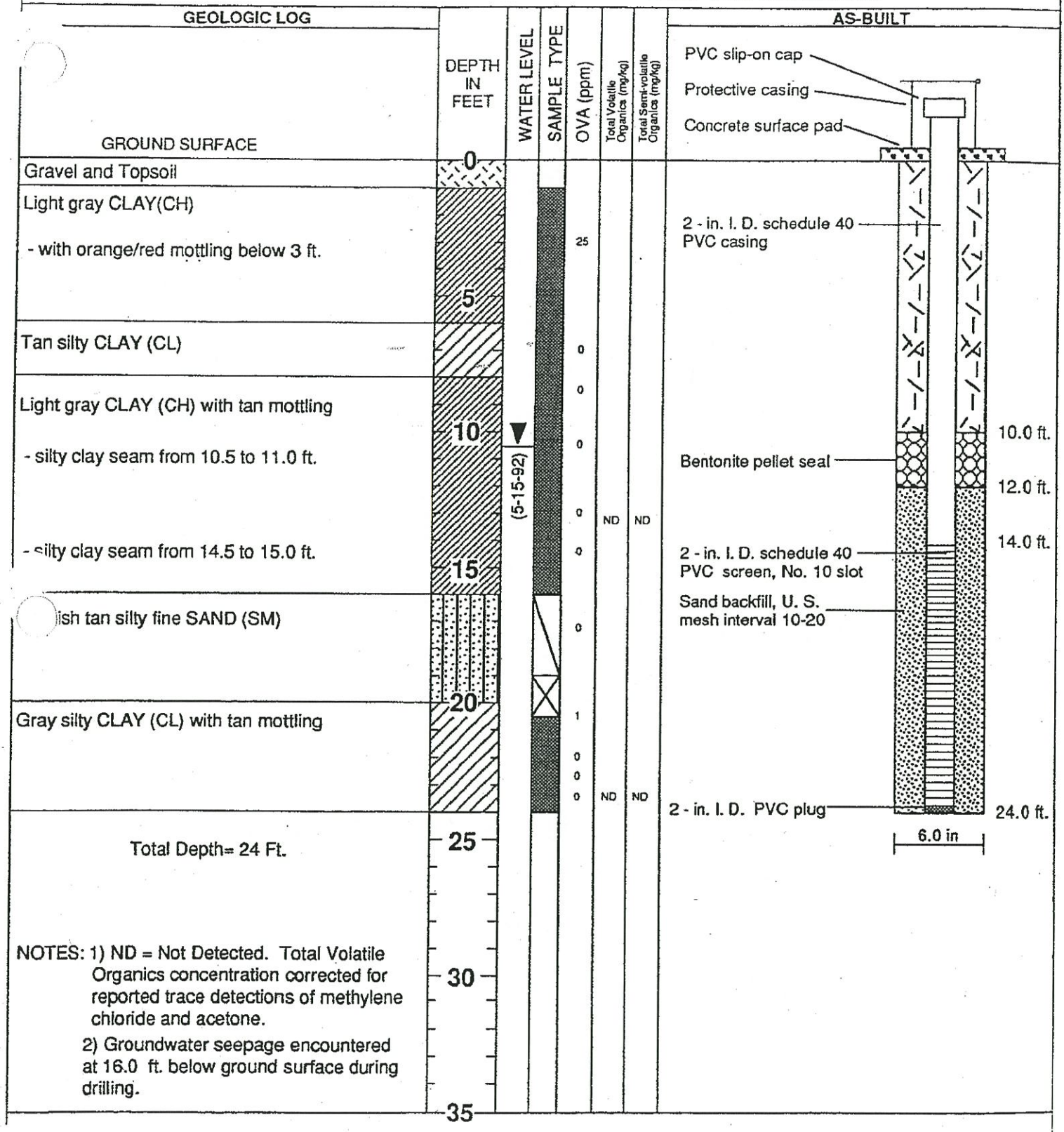
SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

GEOLOGIST: G. A. Cox
DRILLER: Fugro Company
DRILLING METHOD: Hollow Stem Auger

COMPLETION DATE: 3/31/92
GROUND SURFACE ELEV. 22.24 Ft. MSL
TOP OF CASING ELEV. 24.42 Ft. MSL
PLANT COORDINATES: NA



NOTES: 1) ND = Not Detected. Total Volatile Organics concentration corrected for reported trace detections of methylene chloride and acetone.
2) Groundwater seepage encountered at 16.0 ft. below ground surface during drilling.

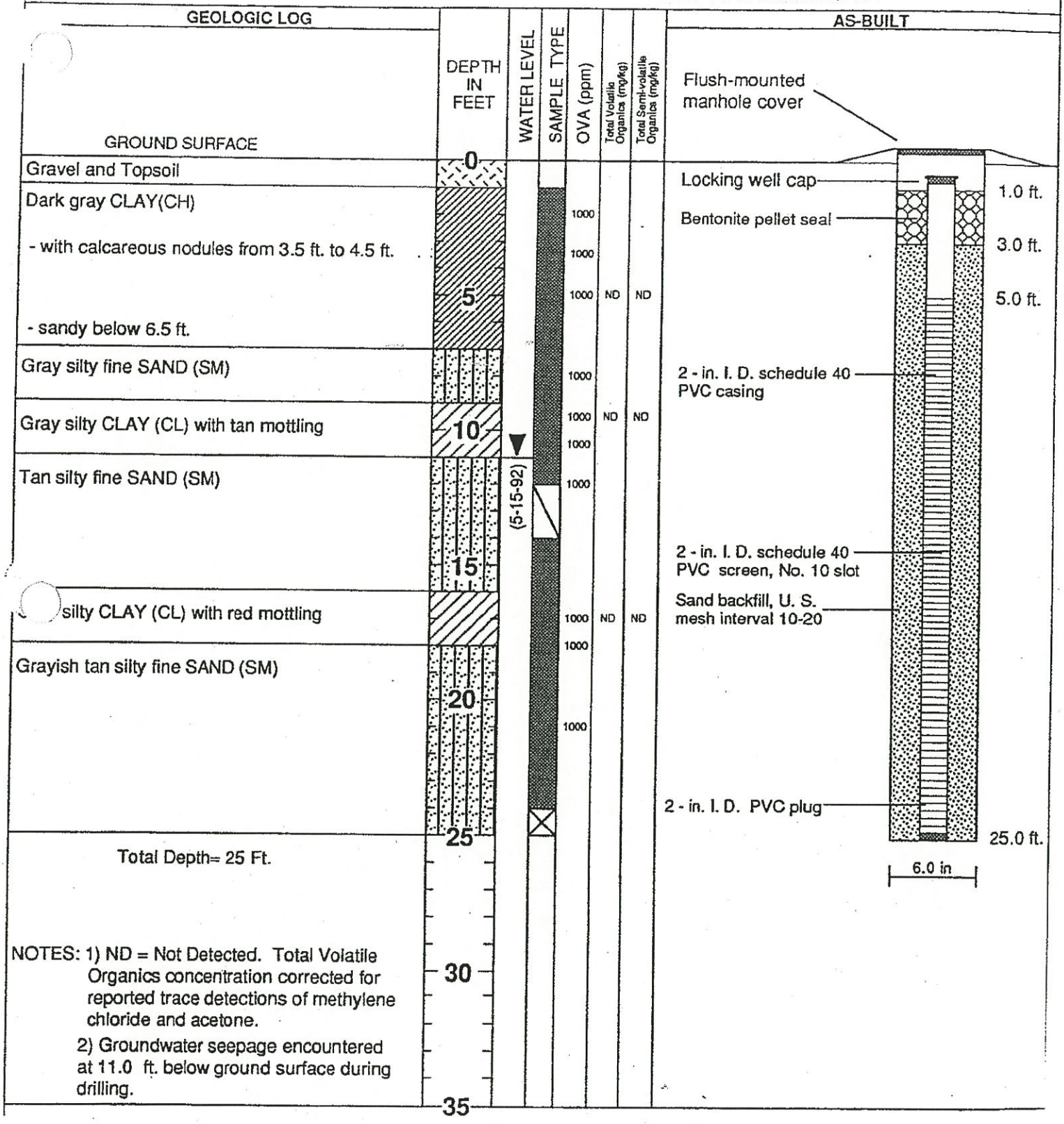
Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-3
American Texmark Inc. Facility
900 Clinton Dr.,Galena Park, Texas

GSI Job No. G-1299
Page 1 of 1
FIGURE 4

GEOLOGIST: G. A. Cox
DRILLER: Fugro Company
DRILLING METHOD: Hollow Stem Auger

COMPLETION DATE: 3/31/92
GROUND SURFACE ELEV. 22.11 Ft. MSL
TOP OF CASING ELEV. 21.72 Ft. MSL
PLANT COORDINATES: NA



NOTES: 1) ND = Not Detected. Total Volatile Organics concentration corrected for reported trace detections of methylene chloride and acetone.

2) Groundwater seepage encountered at 11.0 ft. below ground surface during drilling.

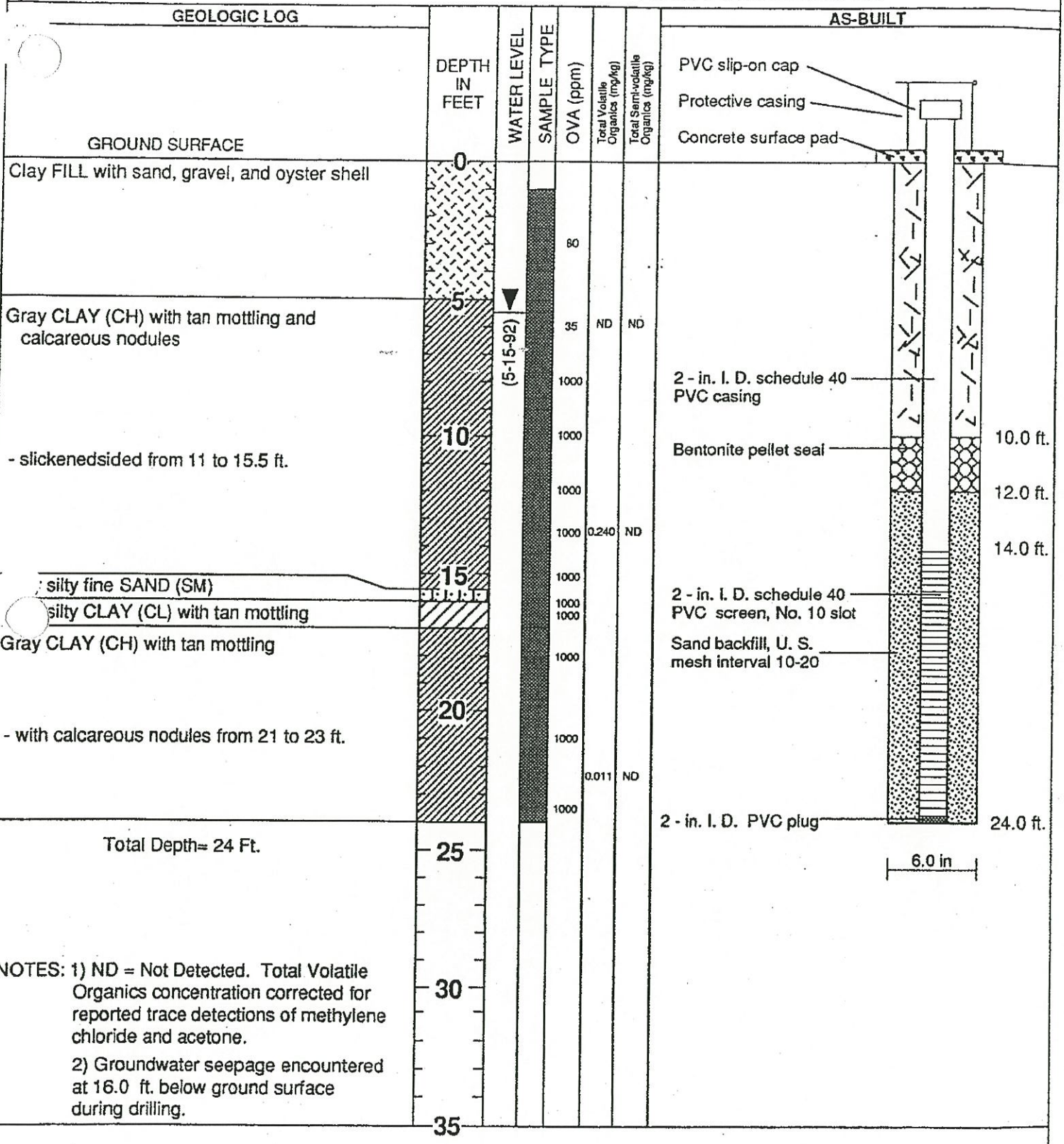
Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-4
American Texmark Inc. Facility
900 Clinton Dr.,Galena Park, Texas

GSI Job No. G-1299
Page 1 of 1
FIGURE 5

GEOLOGIST: G. A. Cox
DRILLER: Fugro Company
DRILLING METHOD: Hollow Stem Auger

COMPLETION DATE: 3/31/92
GROUND SURFACE ELEV. 15.97 Ft. MSL
TOP OF CASING ELEV. 18.41 Ft. MSL
PLANT COORDINATES: NA



NOTES: 1) ND = Not Detected. Total Volatile Organics concentration corrected for reported trace detections of methylene chloride and acetone.

2) Groundwater seepage encountered at 16.0 ft. below ground surface during drilling.

Groundwater Services, Inc.
Houston, Texas

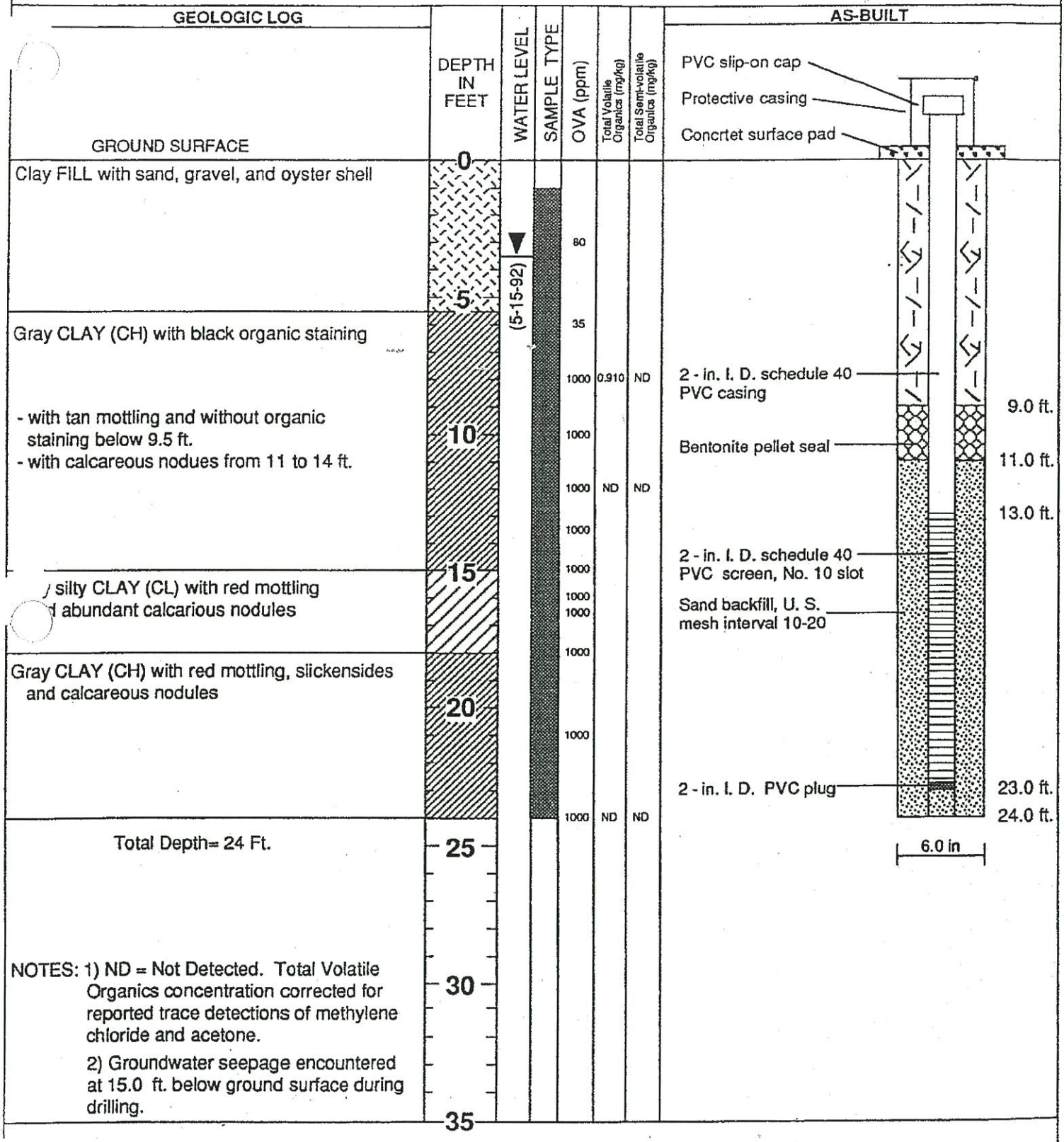
LOG & AS-BUILT DIAGRAM
MW-5

American Texmark Inc. Facility
900 Clinton Dr., Galena Park, Texas

GSI Job No. G-1299
Page 1 of 1
FIGURE 6

GEOLOGIST: G. A. Cox
DRILLER: Fugro Company
DRILLING METHOD: Hollow Stem Auger

COMPLETION DATE: 4/1/92
GROUND SURFACE ELEV. 10.55 Ft. MSL
TOP OF CASING ELEV. 12.07 Ft. MSL
PLANT COORDINATES: NA



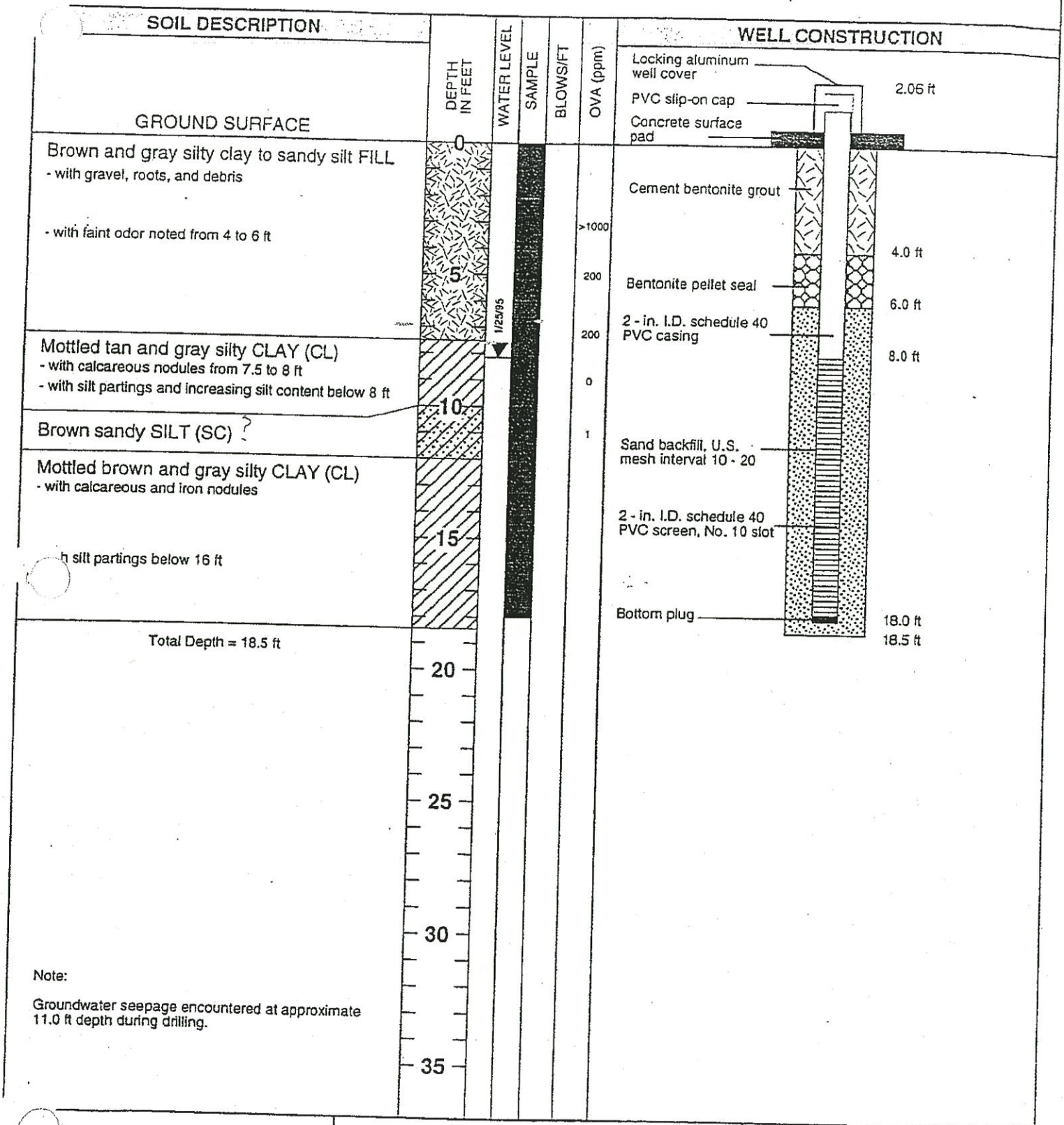
Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-6
American Texmark Inc. Facility
900 Clinton Dr.,Galena Park, Texas

GSI Job No. G-1299
Page 1 of 1
FIGURE 7

GEOLOGIST: K. Soders
DRILLER: Fugro Geosciences
DRILLING METHOD: Hollow Stem Auger

COMPLETION DATE: 1/20/95
GROUND SURFACE ELEV.: 15.87 ft. MSL



Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM

MW-9

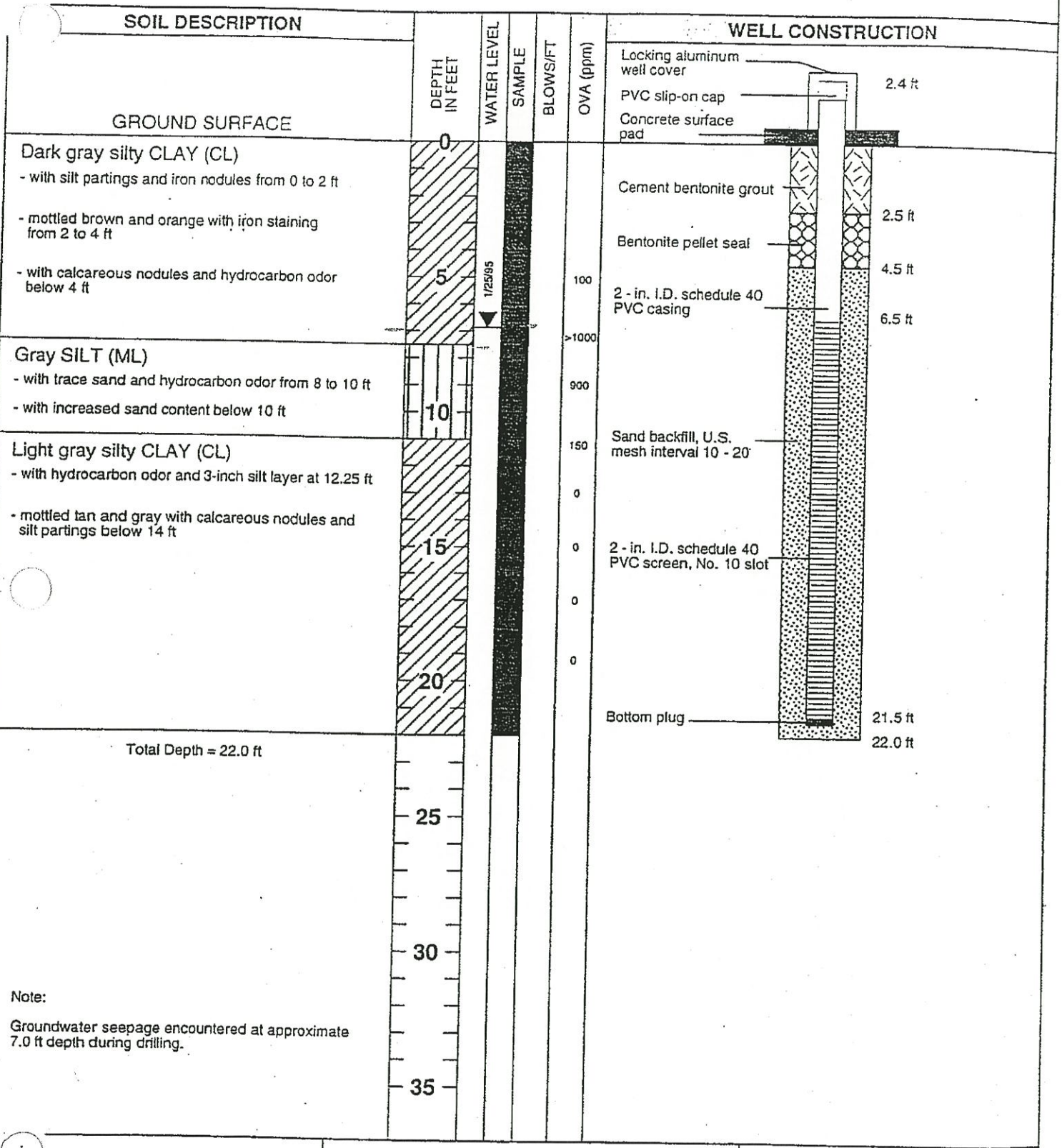
Texmark Chemicals, Inc.
Galena Park, Texas

GSI Job No. G-1642
Page 1 of 1
Issued: 4/5/95

FIGURE 7

GEOLOGIST: K. Soders
DRILLER: Fugro Geosciences
DRILLING METHOD: Hollow Stem Auger

COMPLETION DATE: 1/23/95
GROUND SURFACE ELEV.: 12.47 ft, MSL



Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM

MW-10

Texmark Chemicals, Inc.
Galena Park, Texas

GSI Job No. G-1642
Page 1 of 1
Issued: 4/5/95

FIGURE 8

LOG OF SOIL BORING: MW-10R-TCI

CLIENT: KMLT	JOB No.: 25012333	DATE: September 30, 2008
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8.25-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: Hand Auger and Split-Barrel HSA	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832582.44	E: 3165370.78
RIG TYPE: Diedrich	GROUND SURFACE ELEV.: 14.52'	TOP OF CASING ELEV.: 17.36'
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: none	TOTAL DEPTH OF BORING: 22' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0930	DRILLING COMPLETED: 1130	WELL INSTALLED: 9-30-08
CONDITION: Native Soil		PAGE: 1 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
	STICK-UP WITH LOCKING PROTECTIVE COVER; 2'x2' CONC. PAD; 8.25-INCH DIA. BOREHOLE; 2-INCH DIA. BLANK PVC CASING; BENTONITE GROUT	HA	60/54			5.5	CL		Dark brown CLAY, plastic, very stiff
5						24.5	SC		Light brown clayey SAND. medium plasticity, moist - increasing silts
	BENTONITE PELLET SEAL	HA	60/56			42	CL		Gray silty CLAY, wet, soft, low plasticity, perched water
10	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)					112 142	SM		Light gray silty SAND, medium stiff, wet
	GRADED FILTER SAND 20/40	SB	60/60			114			
15						164	SC		Dark brown clayey SAND, soft, plastic
		SB	60/58				CL		

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

LOG OF SOIL BORING: **MW-10R-TCI (CONT'D)**

CLIENT: KMLT	JOB No.: 25012333	DATE: September 30, 2008	
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas		
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8.25-inch	MONITOR WELL DIA.: 2-inch	
DRILLING METHOD: Hand Auger and Split-Barrel HSA	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13832582.44	E: 3165370.78	
RIG TYPE: Diedrich	GROUND SURFACE ELEV.: 14.52'	TOP OF CASING ELEV.: 17.36'	
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: none	TOTAL DEPTH OF BORING: 22' bgs	
LOGGED BY: R. Kommajosyula DRILLING STARTED: 0930	DRILLING COMPLETED: 1130	WELL INSTALLED: 9-30-08	
CONDITION: Native Soil		PAGE: 2 OF 2	

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	WELL CAP; BENTONITE CHIPS					192 198	CL		Dark gray CLAY, plastic, calcareous nodules, medium stiff
							SP		Light gray SAND, poorly graded, loose
25									Boring terminated at 22 feet below ground surface.
30									
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
CB	CORE BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
SB	SPLIT-BARREL SAMPLER	▼	STATIC WATER LEVEL
HA	HAND AUGER		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		
RSD	RELATIVE SITE DATUM		

URS

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
169172.SI.FW	MW-11TCI	SHEET _1_ OF _1_

SOIL BORING LOG

PROJECT : Kinder Morgan/ Texmark — LOCATION : north boundary

ELEVATION : — DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : — START : 5/14/02 — END : 5/14/02 — LOGGER : J. Suddath

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					Grass surface	
	4	1.5	DP-1	NA	0-4'- Silty Clay (CL-ML), dark grayish brown, slightly moist, firm, fiberous roots throughout, a few reddish orange faint mottles	*O.C. = 0.0ppm
5					4-8.5' - Lean Clay (CL), brown to reddish orange,	
	8	4	DP-2	NA	to (@6.5') gray with yellow brown and red orange mottling, moist, stiff, iron (black) and calcium carbonate (caliche) concretions/nodules 5.5-7.5', fiberous root traces to 6' diffuse	O.C. = 0.0ppm H.S. (4-6') = 1.2ppm
10					8.5-9.5' - Sandy Clay (CL), light pale brown with	- GW @ 10' (saturated)
	12	4	DP-3	NA	few faint yellowish brown mottles, moist, stiff diffuse	O.C. = 0.0ppm H.S. (8-10') = 0.3ppm
					9.5-18' - Silty Sand (SM) w/ a little clay mixed	
15					throughout (clayey sand), plae grayish brown to	O.C. = 0.0ppm
	16	3.5	DP-4	NA	bluish gray w/ caliche nodules @ 14' to medium gray, moist to wet, dense	H.S. (14-16') = 0.1ppm
	19	1.5	DP-5	NA		driller indicated material stiffen @ approx. 18'
20					Boring Terminated @ 19' bgs	
					note: drill bit had clay on/in teeth when tripped out of hole	note: no visible staining or odors on core
25						well set @ 18.5' 0.010" screen - 8-18' filter 16/30 - 6-19' seal (bentonite chips) - 2-6'
						O.C. = over core PID reading H.S. = PID headspace reading from ziploc baggie

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
169172.SI.FW	MW-11TCI	SHEET 1	OF 1

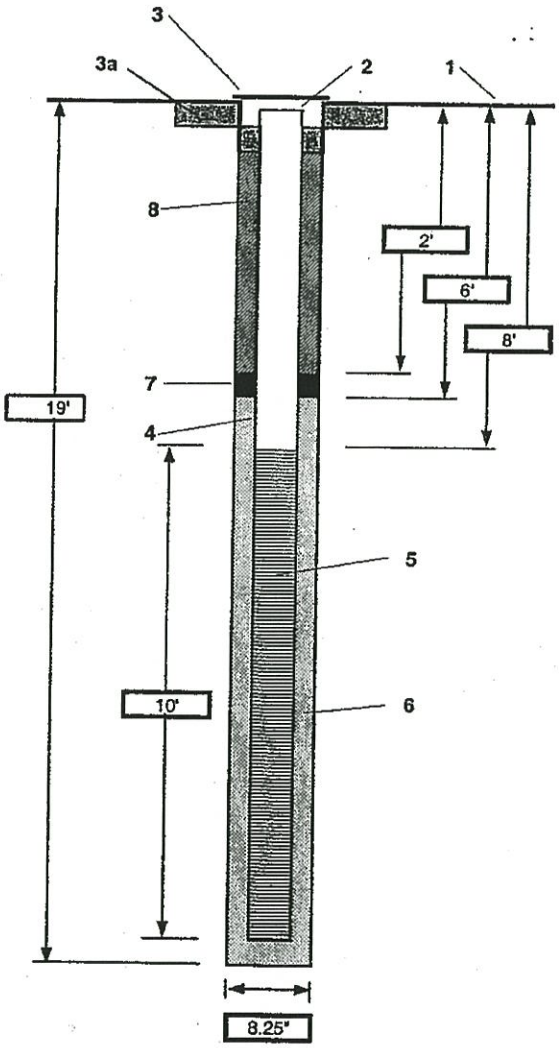
WELL COMPLETION DIAGRAM

PROJECT : Kinder Morgan/ Texmark LOCATION : north boundary

DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : START : 5/14/02 END : 5/14/02 LOGGER : J. Suddath



1- Ground elevation at well	
2- Top of casing elevation	
Measuring point & elevation	
3- Wellhead protection cover type	8" dia. with 12" collar
a) concrete pad dimensions	4'x4'x4"
4- Diam./type of well casing	2" - sch 40 PVC
5- Type/slot/size of screen	2" - sch 40 PVC/ 0.010" slot
6- Type screen filter	16/30 Colorado Silica
a) Quantity used	350 lbs
7- Type of seal	Bentonite chips
a) Quantity used	100 lbs
8- Grout	
a) Grout mix used	Type I Portland, bentonite, water
b) Method of placement	pour
Development method	surge, bail, and pump
Development time	2hrs. 20mins.
Estimated purge volume	50 gallons
Comments	Development on 5/31/02

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
169172.SI.FW	MW-12TCI	SHEET _1__ OF _1__

SOIL BORING LOG

PROJECT : Kinder Morgan/ Texmark — LOCATION : tank farm

ELEVATION : — DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : — START : 5/15/02 — END : 5/15/02 — LOGGER : J. Suddath

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					Grass surface	
	4	4	DP-1	NA	0-2'- Silty Clay (CL-ML), dark grayish brown, moist, stiff, a few fiberous root structures	O.C. = 0.0ppm H.S. (0-4') = 7.1ppm
5					2-8' - Lean Clay (CL), gray and orangish brown mottled, moist, stiff, a few calcuim nodules, possibly fine weathered shell fragments throughout	
	8	2.5	DP-2	NA	gradual	O.C. = 1.7ppm H.S. (4-8') = 13.0ppm
10	11	3	DP-3	NA	8-14' - Fat Clay (CL), dark gray with organish/ brown mottling throughout, moist, stiff to firm, moderate plasticity	O.C. = 276ppm H.S. (8-11') = 1151ppm
15	15	4	DP-4	NA	diffuse 14-19' - Sandy Clay (CL), bluish gray to light gray, caliche/calcium carbonate nodules concentrated @ 15 to 18', stiff, moist to slightly saturated, fine sand <30%	O.C. = 513ppm collect sample MW-12TCI-S14 driller indicates rods wet @ approx. 15' during 19-23' push-return - strong HC odor
	19	4	DP-5	NA	obscure	O.C. = 460ppm
20	23	4	DP-6	NA	19-23' - Clay w some fine sand (CL), light gray/ light bluish gray, a little faint yellowish brown mottling, stiff to very stiff, moist	O.C. = 1131ppm driller indicated material stiffen @ approx. 21 to 22'
25					Boring Terminated @ 23' bgs	H.S. (11-15') = 204ppm H.S. (15-19') = 2999+ppm H.S. (19-23') = 289ppm well set @ 21.5' 0.010" screen - 11-21' filter 16/30 - 9-22' seal (bentonite chips) - 4.6-9'

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
169172.SI.FW	MW-12TCI	SHEET 1	OF 1

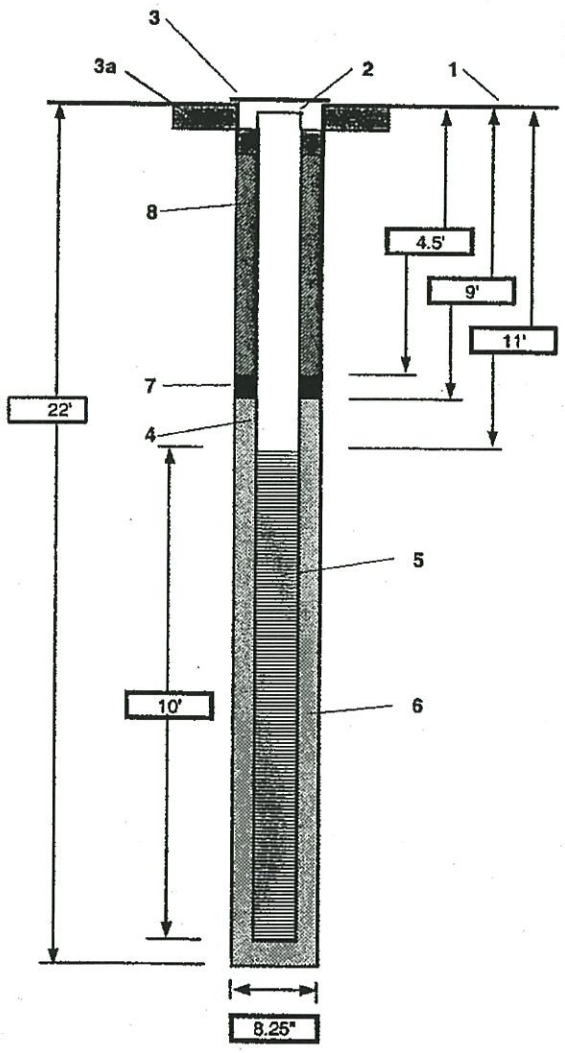
WELL COMPLETION DIAGRAM

PROJECT : Kinder Morgan/ Texmark LOCATION : tank farm

DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : START : 5/15/02 END : 5/15/02 LOGGER : J. Suddath



1- Ground elevation at well

2- Top of casing elevation

Measuring point & elevation

3- Wellhead protection cover type: 8" dia. with 12" collar

a) concrete pad dimensions: 4'x4'x4"

4- Diam./type of well casing: 2" - sch 40 PVC

5- Type/slot/size of screen: 2" - sch 40 PVC/ 0.010" slot

6- Type screen filter: 16/30 Colorado Silica

a) Quantity used: 425 lbs

7- Type of seal: Bentonite chips

a) Quantity used: 100 lbs

8- Grout

a) Grout mix used: Type I Portland, bentonite, water

b) Method of placement: pour

Development method: surge and bail

Development time: 1hr. 48mins.

Estimated purge volume: 50 gallons

Comments: Development on 5/31/02

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
169172.SI.FW	MW-13TCI	SHEET _1__ OF _1__

SOIL BORING LOG

PROJECT : Kinder Morgan/ Texmark — LOCATION : south boundary, south of tank 28

ELEVATION : — DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : — START : 5/14/02 — END : 5/14/02 — LOGGER : J. Suddath

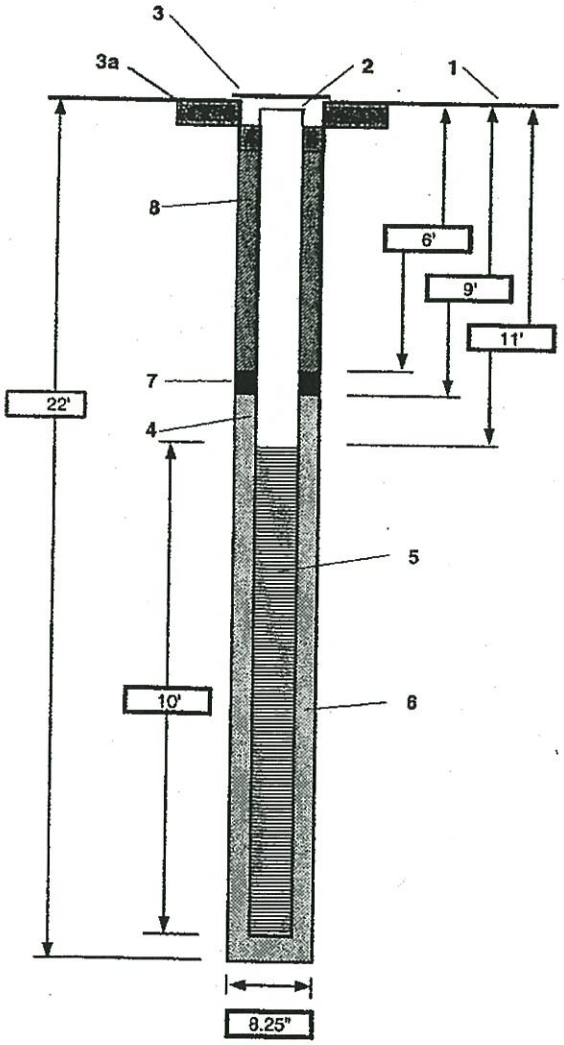
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					Grass surface	
	4	4	DP-1	NA	0-4.5'- Silty Clay (CL-ML), brownish gray to dark brownish gray, moist, stiff	H.S. = 10.1ppm
5					4.5-17.5' - Clay with silt (CL) and a few fine sandy	
	8	4	DP-2	NA	small vugs, orangish brown and gray mottled, moist, stiff, a few caliche nodules throughout	O.C. = 17.1ppm H.S.= 9.7ppm
10						
	12	4	DP-3	NA		O.C. = 48.6ppm
15						Strong HC odor
	16	3	DP-4	NA	diffuse	O.C. = 110ppm H.S. = 260ppm
					17.5-21.5' - Sandy (fine) Clay (CL), light greenish	collect sample MW-13TCI-S15 @ 15'
	19	2	DP-5	NA	gray and brown, moist to slightly saturated, fine sands <20% clear	O.C. = 64.6ppm H.S. = 291ppm
20					21.5-22' - Clay (CL), reddish brown with white	
	22	2	DP-6	NA	caliche mixed, very stiff, less moisture content then above interval	- HC odor not apparent
					Boring Terminated @ 22' bgs	well set @ 21.5'
25						0.010" screen - 11-21' filter 16/30 - 9-21' seal (bentonite chips) - 6-9'
						O.C. = over core PID reading H.S. = PID headspace reading from ziploc baggie

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
169172.SI.FW	MW-13TCI	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : Kinder Morgan/ Texmark
LOCATION : south boundary, south of tank 28
DRILLING CONTRACTOR : Alpine FS; Roger Miller
DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations
WATER LEVELS :
START : 5/14/02
END : 5/14/02
LOGGER : J. Suddath



1- Ground elevation at well

2- Top of casing elevation

Measuring point & elevation

3- Wellhead protection cover type: 8" dia. with 12" collar

a) concrete pad dimensions: 4'x4'x4"

4- Diam./type of well casing: 2" - sch 40 PVC

5- Type/slot/size of screen: 2" - sch 40 PVC/ 0.010" slot

6- Type screen filter: 16/30 Colorado Silica
a) Quantity used: 400 lbs

7- Type of seal: Bentonite chips
a) Quantity used: 50 lbs

8- Grout
a) Grout mix used: Type I Portland, bentonite, water
b) Method of placement: pour

Development method: surge and bail

Development time: 1 hr. 8mins.

Estimated purge volume: 18 gallons

Comments: Development on 5/31/02

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
169172.SI.FW	MW-14TCI	SHEET _1__ OF _1__

SOIL BORING LOG

PROJECT : Kinder Morgan/ Texmark — LOCATION : southwest boundary

ELEVATION : — DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : — START : 5/15/02 — END : 5/15/02 — LOGGER : J. Suddath

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					Grass surface	
					0-3' - Silty Clay (CL-ML), brown and reddish brown, moist, firm — diffuse	O.C. = 0.0ppm
	4	3	DP-1	NA	3-5' - Clay (CL), gray/greenish gray w/yellowish	H.S. - 0-4' = 9.5ppm
5					brown mottles, moist, stiff	0-2' sample collected @ 1'
					5-14' - Clayey Sand (SC), gray to bluish gray with	O.C. = 55ppm
					dark gray intermixed, moist to wet, medium dense,	H.S. (4-8') = 88.1ppm
	8	4	DP-2	NA	fine sand	4-6' sample collected @ 6'
10						
						O.C. = 18ppm
	12	4	DP-3	NA		H.S. (8-12') = 35.6ppm
						O.C. = 7.8ppm
15					14-16' - Sandy Clay (CL), gray to brownish gray	H.S. (12-16') = 25.1ppm
	16	2	DP-4	NA	with reddish brown mottling, moist, stiff	some (possible) brown staining
					16-20' - not observed, cuttings indicate brownish	intermittent 10-12'
					red clay (stiff) bottom 1' of augers	O.C. = 0.0ppm
						- driller indicates GW ~ 12' bgs
20	20	0	DP-5	NA		
					Boring Terminated @ 20' bgs	
					- borehole advanced to 21' to set well	well set @ 20.5'
						0.010" screen - 10-20'
25						filter 16/30 - 8-21'
						seal (bentonite chips) - 5.5-8'
						O.C. = over core PID reading
						H.S. = PID headspace reading from
						ziploc baggie

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
169172.SI.FW	MW-14TCI	SHEET 1	OF 1

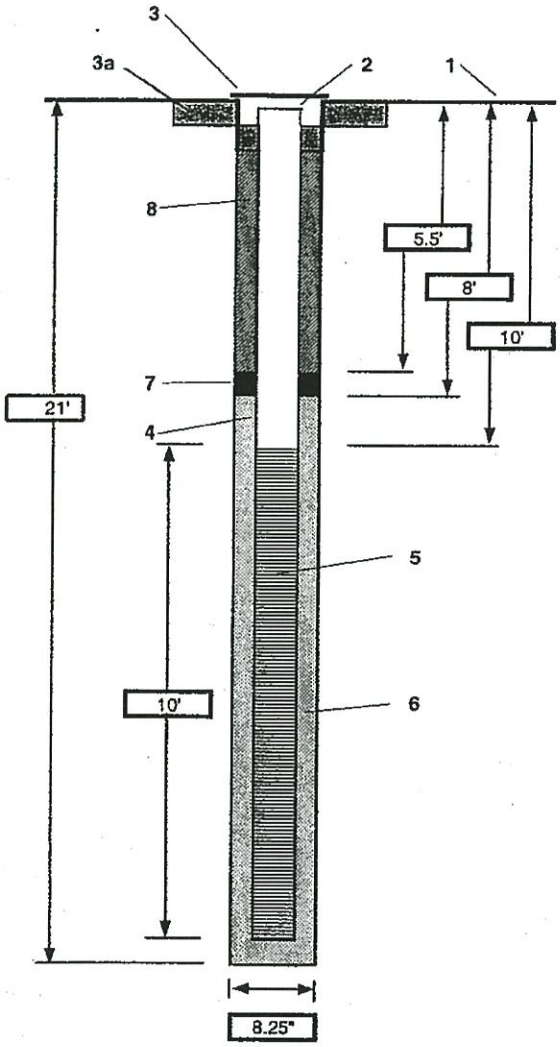
WELL COMPLETION DIAGRAM

PROJECT : Kinder Morgan/ Texmark LOCATION : southwest boundary

DRILLING CONTRACTOR : Alpine FS; Roger Miller

DRILLING METHOD AND EQUIPMENT USED : Direct Push sampling w' HSA well installations

WATER LEVELS : START : 5/15/02 END : 5/15/02 LOGGER : J. Suddath



1- Ground elevation at well	
2- Top of casing elevation	
Measuring point & elevation	
3- Wellhead protection cover type	8" dia. with 12" collar
a) concrete pad dimensions	4'x4'x4"
4- Diam./type of well casing	2" - sch 40 PVC
5- Type/slot/size of screen	2" - sch 40 PVC/ 0.010" slot
6- Type screen filter	16/30 Colorado Silica
a) Quantity used	450 lbs
7- Type of seal	Bentonite chips
a) Quantity used	100 lbs
8- Grout	
a) Grout mix used	Type I Portland, bentonite, water
b) Method of placement	pour

Development method	surge, bail, and pump
Development time	2hrs. 33mins.
Estimated purge volume	39 gallons

Comments Development on 5/31/02

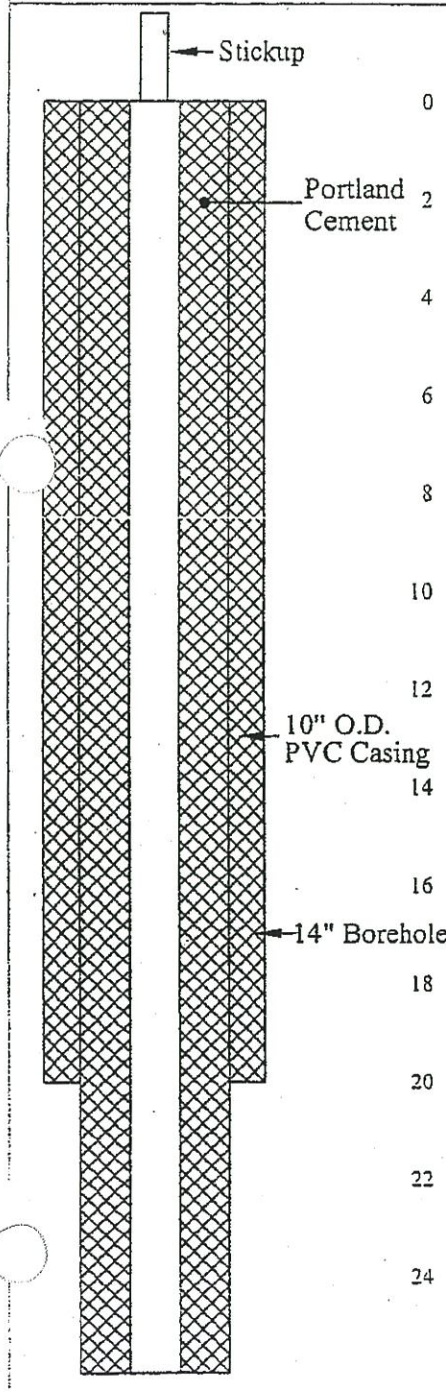
ARCADIS
Infrastructure, buildings, environment, communications

490 Westheimer, Suite 600
Houston, TX 77077
Tel: 281/497-6900 Fax: 281/497-7258

BORING LOG
MW-15TCI

Kinder Morgan
Galena Park, Texas

Logged By: K. DeSantis	Date Drilled: 8/26/03 & 8/27/03
Drilling Co.: Best Drilling	Drilling Method: Hollow Stem Augers
Driller: Sunny	Sample Method: Split Spoon
Project Number: HT000463.0010.0002	



Depth (ft)	Recovery	PID	Moisture Content	Laboratory Samples	Graphic	DESCRIPTION
0						
		12.0	M			Fill material- Silty Sandy Clay (CL) - Soft, moist
2	85%	77.0				Silty Clay (CL) - brown with gray mottling, moist, firm, no odor, trace caliche nodules
4		1690				Silty Clay (CL) - trace sand, brown with yellowish orange staining, moist, firm, HC odor
6	85%	2100				
8						Silty Sandy Clay (CL) - brown with light gray, odor, moist
10		133				More sandy silt in clay
12	85%					Silty Clay (CL) - brown with gray mottling, hard, moist
14		20.1	W			Clayey Sand (SC) - light gray, moist, soft, fine grained, 1' thick
16	85%	20.9				Silty Clay (CL) - light gray, trace iron staining, moist, firm Silty Clay (CL) - light olive gray, hard, moist, trace, sand, trace iron staining to 18'
18		15.9				
20		2.5	M			Silty Clay (CL) - moderate brown, gray, hard, moist Silty Clay (CL) - yellowish gray with mottled dark yellowish orange, moist, firm, no odor, trace caliche throughout
22	95%	2.5				
24		3.0				

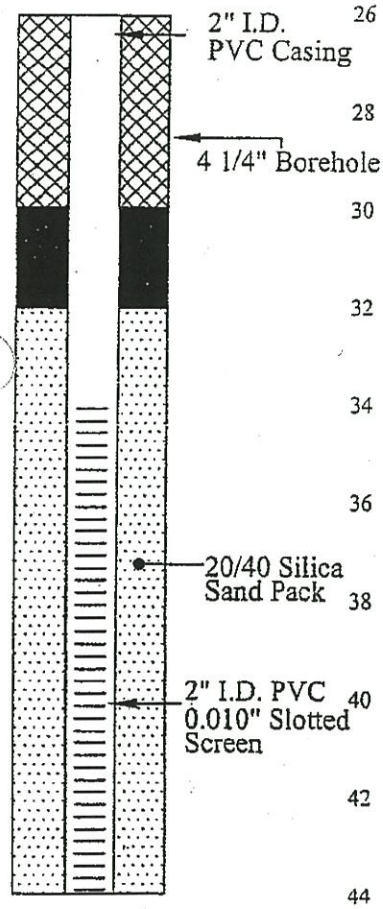
ARCADIS
Infrastructure, buildings, environment, communications

0 Westheimer, Suite 600
on, TX 77077
Tel: 281/497-6900 Fax: 281/497-7258

BORING LOG
MW-15TCI

Kinder Morgan
Galena Park, Texas

Logged By: K. DeSantis	Date Drilled: 8/26/03 & 8/27/03
Drilling Co.: Best Drilling	Drilling Method: Hollow Stem Augers
Driller: Sunny	Sample Method: Split Spoon
Project Number: HT000463.0010.0002	



Depth (ft)	Recovery	PID	Moisture Content	Laboratory Samples	Graphic	DESCRIPTION
26		3.0	M			
28	95%	3.0				abundant caliche in clay 5 to 6" thick
30		3.7				
32	95%	3.7				Clayey Silty Sand (SC) - light olive gray with light brown, fine grained, soft, moist
34		3.0				Clayey Silty Sand (SC) - light olive gray with less light brown, fine grained, soft, moist
36		3.8	W			Clayey Sand (SC) - very light gray with light brown mix, Saturated at 36', soft, no odor, large caliche nodules throughout
38	50%	4.0				
40		7.0				
42	75%	14.0				
44			M			Silty Sandy Clay (CL) - light gray, light brown mix, moist, becoming firm, very large cobble 3-4"
46						
48						
50						

Monitoring Well set at 44 ft
Screen(¾" 0.010" Slotted PVC): 44 - 34 ft
Riser (¾" PVC): 34 - Surface

Sand (20/40 Silica): 44 - 32 ft
Bentonite: 32 - 30 ft
Concrete: 3x3 Stick-up

ARCADIS
Infrastructure, buildings, environment, communications

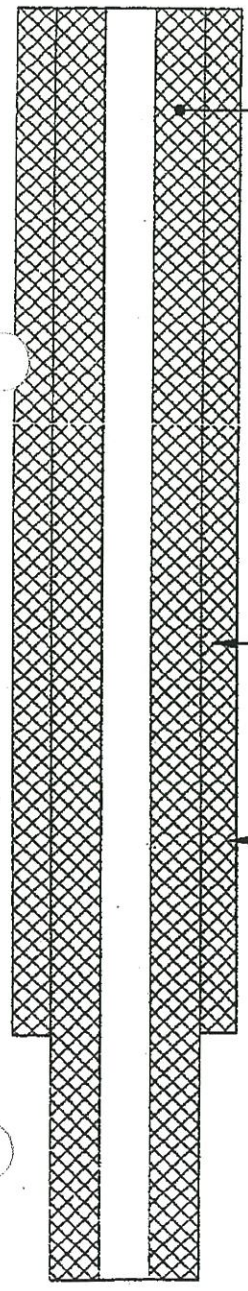
'90 Westheimer, Suite 600
ston, TX 77077
Tel: 281/497-6900 Fax: 281/497-7258

BORING LOG
MW-16TCI

Kinder Morgan
Galena Park, Texas

Logged By: K. DeSantis
Drilling Co.: Best Drilling
Driller: Sunny Tabola
Project Number: HT000463.0010.0002

Date Drilled: 11/6/03
Drilling Method: Hollow Stem Augers
Sample Method: Split Spoon



Depth (ft)	Recovery	PID	Moisture Content	Laboratory Samples	Graphic	DESCRIPTION
0		2.0	M			Fill material- Sand (SW) - tan brown, fine grained, with trace clay pockets, soft,
2	100%					Fill material - shell, rock
4		6.3				Silty Clay (CL) - olive gray, gray, brown mix, firm, moist
6		44.0				Silty Clay (CL) - gray, soft, moist, iron staining to 10'
8	100%	640				
10		218				Silty Clay (CL) - trace caliche
12	90%	885	W			Silty Clay (CL) - brown with light gray, moist, odor
14		37.0	M			Clayey Sand (SC) - light gray, soft, wet, very fine grained, odor
16		44.0				Silty Sandy Clay (CL) - brown with light gray, moist, odor
18	90%	23.0				Silty Clay (CL) - gray, firm, moist
20		7.0	M			Silty Clay (CL) - gray, firm, moist, caliche
22	90%	11.2				Silty Clay (CL) - gray with red mottling, rootlets, iron nodules, firm, moist
24		9.6				Clay (CH) - gray with moderate brown mottling, hard, rootlets, trace caliche

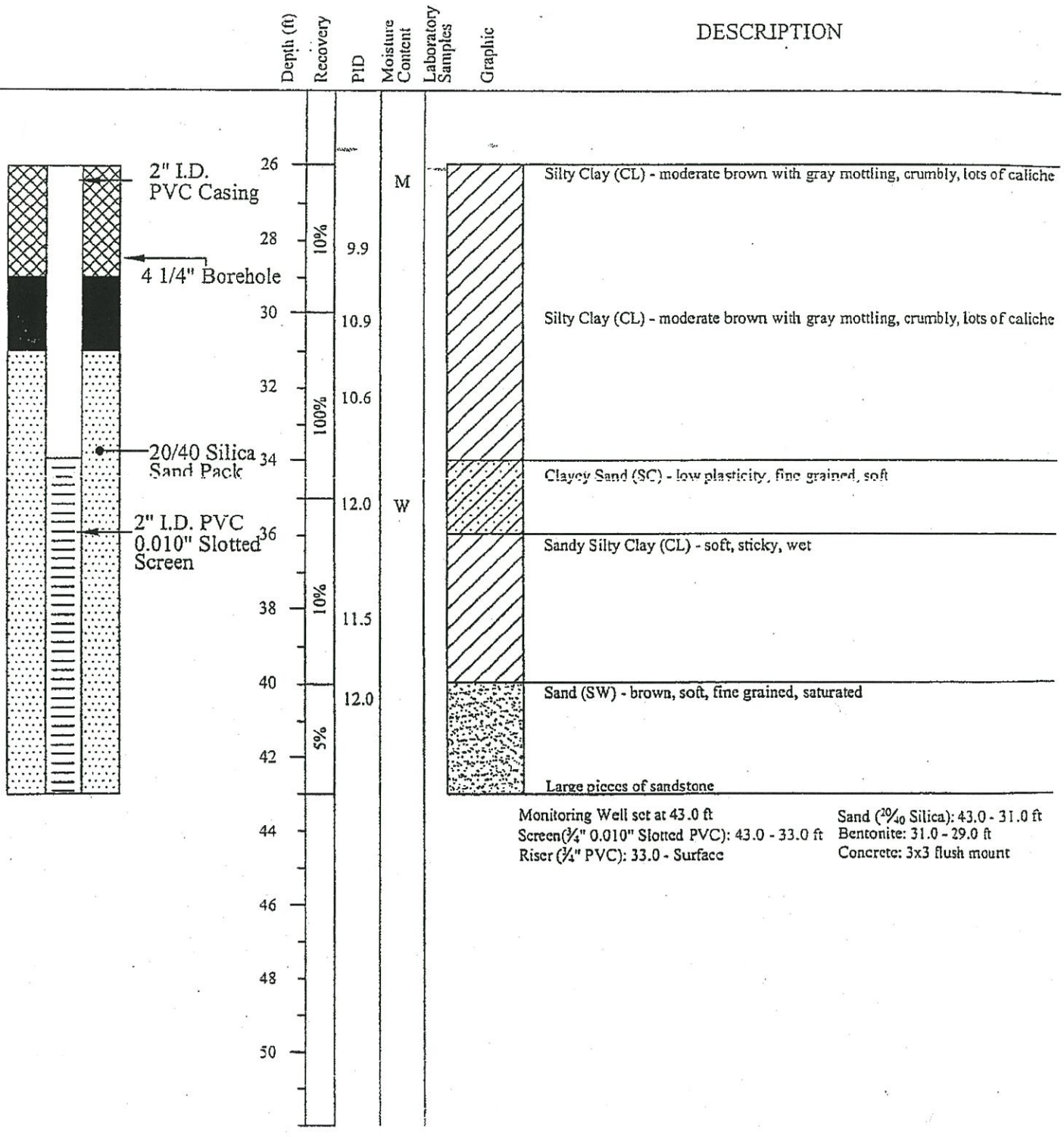
ARCADIS
Infrastructure, buildings, environment, communications

490 Westheimer, Suite 600
Houston, TX 77077
Tel: 281/497-6900 Fax: 281/497-7258

BORING LOG
MW-16TCI

Kinder Morgan
Galena Park, Texas

Logged By: K. DeSantis	Date Drilled: 11/7/05
Drilling Co.: Best Drilling	Drilling Method: Hollow Stem Augers
Driller: Sonny Tabola	Sample Method: Split Spoon
Project Number: HT000463.0010.0002	

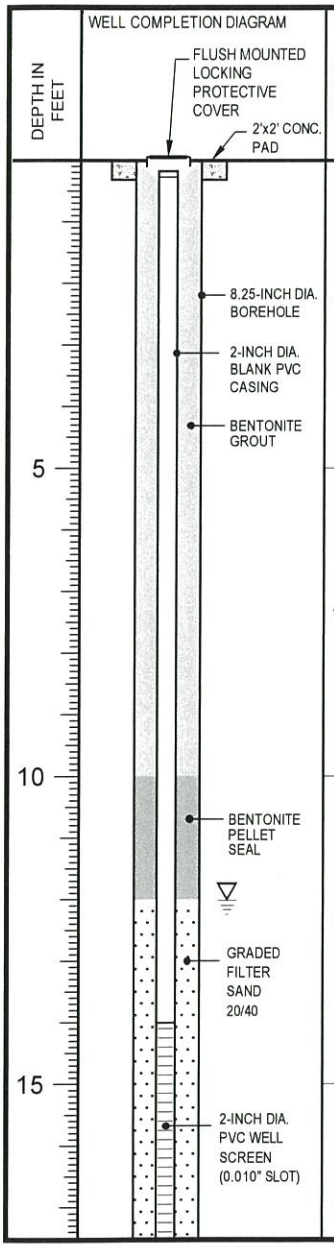


Monitoring Well set at 43.0 ft
Screen(¾" 0.010" Slotted PVC): 43.0 - 33.0 ft
Riser (¾" PVC): 33.0 - Surface

Sand (²⁰⁄₄₀ Silica): 43.0 - 31.0 ft
Bentonite: 31.0 - 29.0 ft
Concrete: 3x3 flush mount

LOG OF SOIL BORING: MW-17-TCI

CLIENT: KMLT	JOB No.: 25012333	DATE: November 16, 2009
SITE: Texmark Chemicals	LOCATION: Galena Park, Texas	
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)	BOREHOLE DIA.: 8.25-inch	MONITOR WELL DIA.: 2-inch
DRILLING METHOD: 5' Split-Barrel HSA	TX STATE PLANES, SOUTH CENTRAL ZONE COORDINATES: N: 13833033.84	E: 3165350.68
RIG TYPE: Power Probe (Direct Push)	GROUND SURFACE ELEV.: 23.26'	TOP OF CASING ELEV.: 23.11'
DRILLER: M. Moya	INITIAL GROUNDWATER DEPTH: 12' bgs	TOTAL DEPTH OF BORING: 30' bgs
LOGGED BY: R. Kommajosyula DRILLING STARTED: 1130	DRILLING COMPLETED: 1330	WELL INSTALLED: 11-16-09
CONDITION: 100 ft east of AMP-1		PAGE: 1 OF 2



DEPTH IN FEET	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
						PVMNT		4-inch thick asphalt PAVEMENT
	WK	-				CH		Dark brown CLAY, stiff, high plasticity, moist
	WK	-			1.7	SC		Tan to dark brown clayey SAND, stiff, medium - increasing fine sands at 8' bgs
	SB	60/58			4.6 1.1	SM CH		Light brown silty SAND, medium dense, low plasticity, moist Dark brown CLAY, stiff, light plasticity - saturated at 12' bgs
	SB	60/48			1.5 1.4	SP		Tan SAND, poorly graded, medium dense, non-plastic

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	RSD	RELATIVE SITE DATUM
CB	CORE BARREL SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
SB	SPLIT-BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
HA	HAND AUGER	▼	STATIC WATER LEVEL
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

LOG OF SOIL BORING: **MW-17-TCI** **(CONT'D)**

CLIENT: KMLT
JOB No.: 25012333
DATE: November 16, 2009
SITE: Texmark Chemicals
LOCATION: Galena Park, Texas
DRILLING CONTRACTOR: ADS (Advanced Drilling Systems)
BOREHOLE DIA.: 8.25-inch
MONITOR WELL DIA.: 2-inch
DRILLING METHOD: 5' Split-Barrel HSA
TX STATE PLANES, SOUTH CENTRAL ZONE
COORDINATES: N: 13833033.84
E: 3165350.68
RIG TYPE: Power Probe (Direct Push)
GROUND SURFACE ELEV.: 23.26'
TOP OF CASING ELEV.:23.11'
DRILLER: M. Moya
INITIAL GROUNDWATER DEPTH: 12' bgs
TOTAL DEPTH OF BORING: 30' bgs
LOGGED BY: R. Kommajosyula
DRILLING STARTED: 1130
DRILLING COMPLETED: 1330
WELL INSTALLED: 11-16-09
CONDITION: 100 ft east of AMP-1
PAGE: 2 OF 2

DEPTH IN FEET	WELL COMPLETION DIAGRAM	SAMPLING METHOD	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	SAMPLE FOR LAB ANALYSIS	PID HEADSPACE (ppm)	UNIFIED SOIL CLASSIFICATION	SOIL GRAPH	LITHOLOGIC DESCRIPTION
20	2-INCH DIA. PVC WELL SCREEN (0.010" SLOT)	SB	60/50			1.6 1.0	SP		
25	WELL CAP					1.4			
		SB	60/56			51.0	SM		Reddish brown silty SAND, dense, low plasticity
							SP		Tan SAND, poorly graded, medium dense, non-plastic
30						53.4			Boring terminated at 30 ft bgs.
35									

SAMPLER KEY:

SPT	STANDARD PENETRATION TEST SAMPLER	RSD	RELATIVE SITE DATUM
CB	CORE BARREL SAMPLER	NA	NOT APPLICABLE or NOT AVAILABLE
SB	SPLIT-BARREL SAMPLER	▽	INITIAL WATER LEVEL DURING DRILLING
HA	HAND AUGER	▼	STATIC WATER LEVEL
WK	WATER KNIFE		
PP	POCKET PENETROMETER		
BGS	BELOW GROUND SURFACE		
BTOC	BELOW TOP OF CASING		

URS

Analytical Report 313944

for

URS Corporation

Project Manager: Raaj Patel

Texmark

Texmark

14-OCT-08

E84880

4143 Greenbriar Dr., Stafford, TX 77477
Ph:(281) 240-4200 Fax:(281) 240-4280

Texas certification numbers:
Houston, TX T104704215 - Odessa/Midland, TX T104704215-08-TX

Florida certification numbers:
Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675
Norcross(Atlanta), GA E87429

South Carolina certification numbers:
Norcross(Atlanta), GA 98015

North Carolina certification numbers:
Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America
Midland - Corpus Christi - Atlanta

14-OCT-08

Project Manager: **Raaj Patel**
URS Corporation
9801 Westheimer
Suite 101
Houston, TX 77042

Reference: XENCO Report No: **313944**
Texmark
Project Address: Galena Park, TX

Raaj Patel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 313944. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 313944 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Carlos Castro
Managing Director, Texas

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY
Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 313944

URS Corporation, Houston, TX

Texmark

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-12 TCI	W	Oct-02-08 08:20		313944-001
MW-04 TCI	W	Oct-02-08 09:15		313944-002
RI-1-13	W	Oct-02-08 10:08		313944-003
MW-06 TCI	W	Oct-02-08 11:00		313944-004
POE # 1	W	Oct-02-08 11:40		313944-005
AMP # 1	W	Oct-02-08 13:10		313944-006
POE # 3	W	Oct-02-08 14:00		313944-007
AMP # 2	W	Oct-02-08 14:45		313944-008
MW-10 TCI	W	Oct-02-08 15:28		313944-009
MW-10 TCI (DUP)	W	Oct-02-08 15:30		313944-010
RI-1-10	W	Oct-03-08 09:45		313944-011
EB-01	W	Oct-03-08 10:05		313944-012
Trip Blank	W	Oct-02-08 00:00		313944-013

Sample Id: **MW-12 TCI** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-001** Date Collected: Oct-02-08 08:20 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 21:54 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.018	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-11-08 17:11 Analyst: KHM Date Prep: Oct-11-08 16:56 Tech: KHM
Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	138	0.005	12.5	0.0010	2.50	mg/L	D	2500
Ethylbenzene	100-41-4	0.193	0.005	0.050	0.0010	0.010	mg/L		10
Styrene	100-42-5	0.511	0.005	0.050	0.0010	0.010	mg/L		10
Toluene	108-88-3	50.3	0.005	2.50	0.0010	0.500	mg/L	D	500
o-Xylene	95-47-6	0.150	0.005	0.050	0.0010	0.010	mg/L		10
m,p-Xylenes	179601-23-	0.478	0.010	0.100	0.0020	0.020	mg/L		10

Sample Id: **MW-04 TCI** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-002** Date Collected: Oct-02-08 09:15 Date Received: Oct-03-08 15:35

Analytical Method: **BTEX by SW 8260B** % Moist: Prep Method: 5030B
Date Anal: Oct-14-08 10:58 Analyst: ZHO Date Prep: Oct-14-08 10:15 Tech: ZHO
Anal seq: 737074 Prep seq: 517388

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	6.468	0.0010	0.0500	0.0005	0.0250	mg/L	D	50

Sample Id: **RI-1-13** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-003** Date Collected: Oct-02-08 10:08 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 22:22 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.004	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-11-08 16:01 Analyst: KHM Date Prep: Oct-11-08 13:40 Tech: KHM
Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	3.92	0.005	0.250	0.0010	0.050	mg/L	D	50
Ethylbenzene	100-41-4	0.022	0.005	0.005	0.0010	0.001	mg/L		1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Toluene	108-88-3	0.016	0.005	0.005	0.0010	0.001	mg/L		1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L		1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L		1

Sample Id: **MW-06 TCI** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-004** Date Collected: Oct-02-08 11:00 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 22:40 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.002	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-11-08 16:23 Analyst: KHM Date Prep: Oct-11-08 13:42 Tech: KHM
Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	0.198	0.005	0.025	0.0010	0.005	mg/L	D	5
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Toluene	108-88-3	BRL	0.005	0.005	0.0010	0.001	mg/L		1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L		1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L		1

Sample Id: **POE # 1** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-005** Date Collected: Oct-02-08 11:40 Date Received: Oct-03-08 15:35

Analytical Method: **BTEX by SW 8260B** % Moist: Prep Method: 5030B
Date Anal: Oct-14-08 11:21 Analyst: ZHO Date Prep: Oct-14-08 10:17 Tech: ZHO
Anal seq: 737074 Prep seq: 517388

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	116.6	0.0010	1.000	0.0005	0.5000	mg/L	D	1000

Sample Id: **AMP # 1** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-006** Date Collected: Oct-02-08 13:10 Date Received: Oct-03-08 15:35

Analytical Method: **BTEX by SW 8260B** % Moist: Prep Method: 5030B
Date Anal: Oct-14-08 11:44 Analyst: ZHO Date Prep: Oct-14-08 10:19 Tech: ZHO
Anal seq: 737074 Prep seq: 517388

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	50.34	0.0010	0.2000	0.0005	0.1000	mg/L		200

Sample Id: **POE # 3** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-007** Date Collected: Oct-02-08 14:00 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 22:45 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.018	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-11-08 16:44 Analyst: KHM Date Prep: Oct-11-08 13:44 Tech: KHM
Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	0.266	0.005	0.025	0.0010	0.005	mg/L	D	5
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Toluene	108-88-3	BRL	0.005	0.005	0.0010	0.001	mg/L		1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L		1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L		1

Sample Id: **AMP # 2** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-008** Date Collected: Oct-02-08 14:45 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 22:50 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.007	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-10-08 20:13 Analyst: KHM Date Prep: Oct-10-08 16:37 Tech: KHM
Anal seq: 736944 Prep seq: 517312

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	106	0.005	12.5	0.0010	2.50	mg/L	D	2500
Ethylbenzene	100-41-4	0.760	0.005	0.050	0.0010	0.010	mg/L		10
Styrene	100-42-5	BRL	0.005	0.050	0.0010	0.010	mg/L		10
Toluene	108-88-3	2.49	0.005	0.500	0.0010	0.100	mg/L	D	100
o-Xylene	95-47-6	0.479	0.005	0.050	0.0010	0.010	mg/L		10
m,p-Xylenes	179601-23-	0.567	0.010	0.100	0.0020	0.020	mg/L		10

Sample Id: **MW-10 TCI** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-009** Date Collected: Oct-02-08 15:28 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 22:54 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.013	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-10-08 20:34 Analyst: KHM Date Prep: Oct-10-08 16:39 Tech: KHM
Anal seq: 736944 Prep seq: 517312

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	316	0.005	25.0	0.0010	5.00	mg/L	D	5000
Ethylbenzene	100-41-4	0.613	0.005	0.050	0.0010	0.010	mg/L		10
Styrene	100-42-5	0.988	0.005	0.050	0.0010	0.010	mg/L		10
Toluene	108-88-3	58.1	0.005	5.00	0.0010	1.00	mg/L	D	1000
o-Xylene	95-47-6	0.427	0.005	0.050	0.0010	0.010	mg/L		10
m,p-Xylenes	179601-23-	1.52	0.010	0.100	0.0020	0.020	mg/L		10

Sample Id: **MW-10 TCI (DUP)** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-010** Date Collected: Oct-02-08 15:30 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 22:59 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.014	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-10-08 20:55 Analyst: KHM Date Prep: Oct-10-08 16:41 Tech: KHM
Anal seq: 736944 Prep seq: 517312

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	301	0.005	25.0	0.0010	5.00	mg/L	D	5000
Ethylbenzene	100-41-4	0.684	0.005	0.050	0.0010	0.010	mg/L		10
Styrene	100-42-5	1.10	0.005	0.050	0.0010	0.010	mg/L		10
Toluene	108-88-3	54.6	0.005	5.00	0.0010	1.00	mg/L	D	1000
o-Xylene	95-47-6	0.470	0.005	0.050	0.0010	0.010	mg/L		10
m,p-Xylenes	179601-23-	1.67	0.010	0.100	0.0020	0.020	mg/L		10

Sample Id: **RI-1-10** Matrix: WATER Sample Depth:
Lab Sample Id: **313944-011** Date Collected: Oct-03-08 09:45 Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 23:04 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	0.017	0.002	0.002	0.0010	0.001	mg/L		1

Sample Id: **EB-01**	Matrix: WATER	Sample Depth:
Lab Sample Id: **313944-012**	Date Collected: Oct-03-08 10:05	Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A

Date Anal: Oct-10-08 23:08 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT

Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	BRL	0.002	0.002	0.0010	0.001	mg/L		1

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B

Date Anal: Oct-11-08 14:15 Analyst: KHM Date Prep: Oct-11-08 13:30 Tech: KHM

Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Toluene	108-88-3	BRL	0.005	0.005	0.0010	0.001	mg/L		1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L		1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L		1

Sample Id: **Trip Blank**	Matrix: WATER	Sample Depth:
Lab Sample Id: **313944-013**	Date Collected: Oct-02-08 00:00	Date Received: Oct-03-08 15:35

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B

Date Anal: Oct-11-08 15:40 Analyst: KHM Date Prep: Oct-11-08 13:38 Tech: KHM

Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L		1
Toluene	108-88-3	BRL	0.005	0.005	0.0010	0.001	mg/L		1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L		1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L		1

Sample Id: **517160-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **517160-1-BLK** Date Collected: Date Received: Oct-03-08 15:35

Analytical Method: **ICP-MS Metals by EPA 6020** % Moist: Prep Method: 3010A
Date Anal: Oct-10-08 21:44 Analyst: HAT Date Prep: Oct-10-08 10:35 Tech: HAT
Anal seq: 737052 Prep seq: 517160

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Arsenic	7440-38-2	BRL	0.002	0.002	0.0010	0.001	mg/L	U	1

Sample Id: **517312-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **517312-1-BLK** Date Collected: Date Received: Oct-03-08 15:35

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-10-08 12:22 Analyst: KHM Date Prep: Oct-10-08 10:08 Tech: KHM
Anal seq: 736944 Prep seq: 517312

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L	U	1

Sample Id: **517318-1-BLK** Matrix: WATER Sample Depth:
Lab Sample Id: **517318-1-BLK** Date Collected: Date Received: Oct-03-08 15:35

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B
Date Anal: Oct-11-08 13:53 Analyst: KHM Date Prep: Oct-11-08 11:48 Tech: KHM
Anal seq: 736953 Prep seq: 517318

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	0.003	0.005	0.005	0.0010	0.001	mg/L		1
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	0.001	0.005	0.005	0.0010	0.001	mg/L		1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L	U	1

Sample Id: **517382-1-BLK**	Matrix: WATER	Sample Depth:
Lab Sample Id: **517382-1-BLK**	Date Collected:	Date Received: Oct-03-08 15:35

Analytical Method: **VOAs by SW-846 8260** % Moist: Prep Method: 5030B

Date Anal: Oct-13-08 12:00 Analyst: KHM Date Prep: Oct-13-08 09:44 Tech: KHM

Anal seq: 737071 Prep seq: 517382

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Ethylbenzene	100-41-4	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Styrene	100-42-5	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
Toluene	108-88-3	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
o-Xylene	95-47-6	BRL	0.005	0.005	0.0010	0.001	mg/L	U	1
m,p-Xylenes	179601-23-	BRL	0.010	0.010	0.0020	0.002	mg/L	U	1

Sample Id: **517388-1-BLK**	Matrix: WATER	Sample Depth:
Lab Sample Id: **517388-1-BLK**	Date Collected:	Date Received: Oct-03-08 15:35

Analytical Method: **BTEX by SW 8260B** % Moist: Prep Method: 5030B

Date Anal: Oct-14-08 09:45 Analyst: ZHO Date Prep: Oct-14-08 07:23 Tech: ZHO

Anal seq: 737074 Prep seq: 517388

Parameter	CAS Number	Result	MQL UnAdj	MQL Adj	MDL UnAdj	SDL	Units	Flag	Dil
Benzene	71-43-2	BRL	0.0010	0.0010	0.0005	0.0005	mg/L	U	1

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : ICP-MS Metals by EPA 6020 Client : URS Corporation

Work Order #: 313944 Project ID: Texmark

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-06 TCI	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P
MW-10 TCI (DUP)	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P
POE # 3	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P
RI-1-13	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P
RI-1-10	Oct. 3, 2008	Oct. 3, 2008	Oct. 10, 2008	180	7	Oct.10, 2008	180	0	P
MW-10 TCI	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P
MW-12 TCI	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P
EB-01	Oct. 3, 2008	Oct. 3, 2008	Oct. 10, 2008	180	7	Oct.10, 2008	180	0	P
AMP # 2	Oct. 2, 2008	Oct. 3, 2008	Oct. 10, 2008	180	8	Oct.10, 2008	180	0	P

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : VOAs by SW-846 8260 Client : URS Corporation

Work Order #: 313944 Project ID: Texmark

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
Trip Blank	Oct. 2, 2008	Oct. 3, 2008				Oct.11, 2008	14	9	P
EB-01	Oct. 3, 2008	Oct. 3, 2008				Oct.11, 2008	14	8	P
MW-06 TCI	Oct. 2, 2008	Oct. 3, 2008				Oct.11, 2008	14	9	P
POE # 3	Oct. 2, 2008	Oct. 3, 2008				Oct.11, 2008	14	9	P
MW-12 TCI	Oct. 2, 2008	Oct. 3, 2008				Oct.11, 2008	14	9	P
RI-1-13	Oct. 2, 2008	Oct. 3, 2008				Oct.11, 2008	14	9	P
AMP # 2	Oct. 2, 2008	Oct. 3, 2008				Oct.10, 2008	14	8	P
MW-10 TCI (DUP)	Oct. 2, 2008	Oct. 3, 2008				Oct.10, 2008	14	8	P
MW-10 TCI	Oct. 2, 2008	Oct. 3, 2008				Oct.10, 2008	14	8	P

XENCO Laboratories

XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES

Analytical Method : BTEX by SW 8260B

Client : URS Corporation

Work Order #: 313944

Project ID: Texmark

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-04 TCI	Oct. 2, 2008	Oct. 3, 2008				Oct.14, 2008	14	12	P
POE # 1	Oct. 2, 2008	Oct. 3, 2008				Oct.14, 2008	14	12	P
AMP # 1	Oct. 2, 2008	Oct. 3, 2008				Oct.14, 2008	14	12	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL(PQL) and above the SQL(MDL).

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

* Outside XENCO'S scope of NELAC Accreditation

XENCO Laboratories

Analytical Log

Analytical Method:	VOAs by SW-846 8260	Batch #:	736944
Project Name:	Texmark	Project ID:	Texmark
Client Name:	URS Corporation	WO Number:	313944

Client Sample Id	Lab Sample Id	QC Types
AMP # 2	313944-008	SMP
MW-10 TCI	313944-009	SMP
MW-10 TCI (DUP)	313944-010	SMP
	313986-001 S	MS
	313986-001 SD	MSD
	517312-1-BKS	BKS
	517312-1-BLK	BLK

XENCO Laboratories

Analytical Log

Analytical Method:	VOAs by SW-846 8260	Batch #:	736953
Project Name:	Texmark	Project ID:	Texmark
Client Name:	URS Corporation	WO Number:	313944

Client Sample Id	Lab Sample Id	QC Types
AMP # 2 DL	313944-008	DL
EB-01	313944-012	SMP
MW-06 TCI	313944-004	SMP
MW-06 TCI DL	313944-004	DL
MW-10 TCI (DUP) DL	313944-010	DL
MW-10 TCI DL	313944-009	DL
MW-12 TCI	313944-001	SMP
MW-12 TCI DL	313944-001	DL
POE # 3	313944-007	SMP
POE # 3 DL	313944-007	DL
RI-1-13	313944-003	SMP
RI-1-13 DL	313944-003	DL
Trip Blank	313944-013	SMP
	313944-012 S	MS
	313944-012 SD	MSD
	517318-1-BKS	BKS
	517318-1-BLK	BLK

XENCO Laboratories

Analytical Log

Analytical Method:	ICP-MS Metals by EPA 6020	Batch #:	737052
Project Name:	Texmark	Project ID:	Texmark
Client Name:	URS Corporation	WO Number:	313944

Client Sample Id	Lab Sample Id	QC Types
AMP # 2	313944-008	SMP
EB-01	313944-012	SMP
MW-06 TCI	313944-004	SMP
MW-10 TCI	313944-009	SMP
MW-10 TCI (DUP)	313944-010	SMP
MW-12 TCI	313944-001	SMP
POE # 3	313944-007	SMP
RI-1-10	313944-011	SMP
RI-1-13	313944-003	SMP
	313944-001 D	MD
	313944-001 S	MS
	313944-001 SD	MSD
	313944-001 SDL	SDL
	517160-1-BKS	BKS
	517160-1-BLK	BLK

XENCO Laboratories

Analytical Log

Analytical Method:	VOAs by SW-846 8260	Batch #:	737071
Project Name:	Texmark	Project ID:	Texmark
Client Name:	URS Corporation	WO Number:	313944

Client Sample Id	Lab Sample Id	QC Types
AMP # 2 DL	313944-008	DL
MW-10 TCI (DUP) DL	313944-010	DL
MW-10 TCI DL	313944-009	DL
MW-12 TCI DL	313944-001	DL
	314124-005 S	MS
	314124-005 SD	MSD
	517382-1-BKS	BKS
	517382-1-BLK	BLK

XENCO Laboratories

Analytical Log

Analytical Method:	BTEX by SW 8260B	Batch #:	737074
Project Name:	Texmark	Project ID:	Texmark
Client Name:	URS Corporation	WO Number:	313944

Client Sample Id	Lab Sample Id	QC Types
AMP # 1	313944-006	SMP
MW-04 TCI	313944-002	SMP
MW-04 TCI DL	313944-002	DL
POE # 1	313944-005	SMP
POE # 1 DL	313944-005	DL
	313729-002 S	MS
	313729-002 SD	MSD
	517388-1-BKS	BKS
	517388-1-BLK	BLK

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 737074 **Sample:** 313729-002 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0489	0.0500	98	70-130	
Dibromofluoromethane	0.0463	0.0500	93	70-130	
1,2-Dichloroethane-D4	0.0450	0.0500	90	70-130	
Toluene-D8	0.0495	0.0500	99	70-130	

Lab Batch #: 737074 **Sample:** 313729-002 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0501	0.0500	100	70-130	
Dibromofluoromethane	0.0508	0.0500	102	70-130	
1,2-Dichloroethane-D4	0.0524	0.0500	105	70-130	
Toluene-D8	0.0482	0.0500	96	70-130	

Lab Batch #: 737074 **Sample:** 313944-002 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0463	0.0500	93	70-130	
Dibromofluoromethane	0.0476	0.0500	95	70-130	
1,2-Dichloroethane-D4	0.0465	0.0500	93	70-130	
Toluene-D8	0.0491	0.0500	98	70-130	

Lab Batch #: 737074 **Sample:** 313944-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0490	0.0500	98	70-130	
Dibromofluoromethane	0.0500	0.0500	100	70-130	
1,2-Dichloroethane-D4	0.0445	0.0500	89	70-130	
Toluene-D8	0.0488	0.0500	98	70-130	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 737074 **Sample:** 313944-005 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0476	0.0500	95	70-130	
Dibromofluoromethane	0.0462	0.0500	92	70-130	
1,2-Dichloroethane-D4	0.0471	0.0500	94	70-130	
Toluene-D8	0.0487	0.0500	97	70-130	

Lab Batch #: 737074 **Sample:** 313944-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0484	0.0500	97	70-130	
Dibromofluoromethane	0.0487	0.0500	97	70-130	
1,2-Dichloroethane-D4	0.0428	0.0500	86	70-130	
Toluene-D8	0.0484	0.0500	97	70-130	

Lab Batch #: 737074 **Sample:** 313944-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0470	0.0500	94	70-130	
Dibromofluoromethane	0.0495	0.0500	99	70-130	
1,2-Dichloroethane-D4	0.0451	0.0500	90	70-130	
Toluene-D8	0.0497	0.0500	99	70-130	

Lab Batch #: 737074 **Sample:** 517388-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0493	0.0500	99	70-130	
Dibromofluoromethane	0.0499	0.0500	100	70-130	
1,2-Dichloroethane-D4	0.0501	0.0500	100	70-130	
Toluene-D8	0.0499	0.0500	100	70-130	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 737074 **Sample:** 517388-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0488	0.0500	98	70-130	
Dibromofluoromethane	0.0483	0.0500	97	70-130	
1,2-Dichloroethane-D4	0.0499	0.0500	100	70-130	
Toluene-D8	0.0493	0.0500	99	70-130	

Lab Batch #: 736944 **Sample:** 313944-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0512	0.0500	102	86-115	
Dibromofluoromethane	0.0464	0.0500	93	86-118	
1,2-Dichloroethane-D4	0.0457	0.0500	91	80-120	
Toluene-D8	0.0509	0.0500	102	88-110	

Lab Batch #: 736944 **Sample:** 313944-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0536	0.0500	107	86-115	
Dibromofluoromethane	0.0446	0.0500	89	86-118	
1,2-Dichloroethane-D4	0.0458	0.0500	92	80-120	
Toluene-D8	0.0506	0.0500	101	88-110	

Lab Batch #: 736944 **Sample:** 313944-010 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0538	0.0500	108	86-115	
Dibromofluoromethane	0.0440	0.0500	88	86-118	
1,2-Dichloroethane-D4	0.0439	0.0500	88	80-120	
Toluene-D8	0.0505	0.0500	101	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 736944 **Sample:** 313986-001 S / MS **Batch:** 1 **Matrix:** Water

Units: ug/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	50.98	50.00	102	86-115	
Dibromofluoromethane	47.66	50.00	95	86-118	
1,2-Dichloroethane-D4	48.89	50.00	98	80-120	
Toluene-D8	48.91	50.00	98	88-110	

Lab Batch #: 736944 **Sample:** 313986-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: ug/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	49.56	50.00	99	86-115	
Dibromofluoromethane	47.81	50.00	96	86-118	
1,2-Dichloroethane-D4	47.91	50.00	96	80-120	
Toluene-D8	48.98	50.00	98	88-110	

Lab Batch #: 736944 **Sample:** 517312-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0494	0.0500	99	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0501	0.0500	100	80-120	
Toluene-D8	0.0488	0.0500	98	88-110	

Lab Batch #: 736944 **Sample:** 517312-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0514	0.0500	103	86-115	
Dibromofluoromethane	0.0492	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0509	0.0500	102	80-120	
Toluene-D8	0.0485	0.0500	97	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 736953 **Sample:** 313944-001 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0504	0.0500	101	86-115	
Dibromofluoromethane	0.0488	0.0500	98	86-118	
1,2-Dichloroethane-D4	0.0505	0.0500	101	80-120	
Toluene-D8	0.0485	0.0500	97	88-110	

Lab Batch #: 736953 **Sample:** 313944-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0514	0.0500	103	86-115	
Dibromofluoromethane	0.0461	0.0500	92	86-118	
1,2-Dichloroethane-D4	0.0465	0.0500	93	80-120	
Toluene-D8	0.0504	0.0500	101	88-110	

Lab Batch #: 736953 **Sample:** 313944-003 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0511	0.0500	102	86-115	
Dibromofluoromethane	0.0493	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0482	0.0500	96	88-110	

Lab Batch #: 736953 **Sample:** 313944-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0487	0.0500	97	86-115	
Dibromofluoromethane	0.0487	0.0500	97	86-118	
1,2-Dichloroethane-D4	0.0481	0.0500	96	80-120	
Toluene-D8	0.0495	0.0500	99	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 736953 **Sample:** 313944-004 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0492	0.0500	98	86-115	
Dibromofluoromethane	0.0478	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0487	0.0500	97	80-120	
Toluene-D8	0.0479	0.0500	96	88-110	

Lab Batch #: 736953 **Sample:** 313944-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0510	0.0500	102	86-115	
Dibromofluoromethane	0.0485	0.0500	97	86-118	
1,2-Dichloroethane-D4	0.0504	0.0500	101	80-120	
Toluene-D8	0.0479	0.0500	96	88-110	

Lab Batch #: 736953 **Sample:** 313944-007 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0497	0.0500	99	86-115	
Dibromofluoromethane	0.0482	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0487	0.0500	97	80-120	
Toluene-D8	0.0485	0.0500	97	88-110	

Lab Batch #: 736953 **Sample:** 313944-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0508	0.0500	102	86-115	
Dibromofluoromethane	0.0475	0.0500	95	86-118	
1,2-Dichloroethane-D4	0.0481	0.0500	96	80-120	
Toluene-D8	0.0485	0.0500	97	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 736953 **Sample:** 313944-008 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0508	0.0500	102	86-115	
Dibromofluoromethane	0.0464	0.0500	93	86-118	
1,2-Dichloroethane-D4	0.0488	0.0500	98	80-120	
Toluene-D8	0.0487	0.0500	97	88-110	

Lab Batch #: 736953 **Sample:** 313944-009 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0504	0.0500	101	86-115	
Dibromofluoromethane	0.0511	0.0500	102	86-118	
1,2-Dichloroethane-D4	0.0499	0.0500	100	80-120	
Toluene-D8	0.0485	0.0500	97	88-110	

Lab Batch #: 736953 **Sample:** 313944-010 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0515	0.0500	103	86-115	
Dibromofluoromethane	0.0504	0.0500	101	86-118	
1,2-Dichloroethane-D4	0.0541	0.0500	108	80-120	
Toluene-D8	0.0482	0.0500	96	88-110	

Lab Batch #: 736953 **Sample:** 313944-012 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0488	0.0500	98	86-115	
Dibromofluoromethane	0.0477	0.0500	95	86-118	
1,2-Dichloroethane-D4	0.0486	0.0500	97	80-120	
Toluene-D8	0.0486	0.0500	97	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 736953 **Sample:** 313944-012 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0508	0.0500	102	86-115	
Dibromofluoromethane	0.0494	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0521	0.0500	104	80-120	
Toluene-D8	0.0489	0.0500	98	88-110	

Lab Batch #: 736953 **Sample:** 313944-012 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0505	0.0500	101	86-115	
Dibromofluoromethane	0.0481	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0486	0.0500	97	80-120	
Toluene-D8	0.0490	0.0500	98	88-110	

Lab Batch #: 736953 **Sample:** 313944-013 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0493	0.0500	99	86-115	
Dibromofluoromethane	0.0497	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0497	0.0500	99	80-120	
Toluene-D8	0.0479	0.0500	96	88-110	

Lab Batch #: 736953 **Sample:** 517318-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0505	0.0500	101	86-115	
Dibromofluoromethane	0.0481	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0479	0.0500	96	80-120	
Toluene-D8	0.0481	0.0500	96	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 736953 **Sample:** 517318-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0490	0.0500	98	86-115	
Dibromofluoromethane	0.0473	0.0500	95	86-118	
1,2-Dichloroethane-D4	0.0508	0.0500	102	80-120	
Toluene-D8	0.0493	0.0500	99	88-110	

Lab Batch #: 737071 **Sample:** 313944-001 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0510	0.0500	102	86-115	
Dibromofluoromethane	0.0502	0.0500	100	86-118	
1,2-Dichloroethane-D4	0.0504	0.0500	101	80-120	
Toluene-D8	0.0480	0.0500	96	88-110	

Lab Batch #: 737071 **Sample:** 313944-008 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0505	0.0500	101	86-115	
Dibromofluoromethane	0.0495	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0510	0.0500	102	80-120	
Toluene-D8	0.0477	0.0500	95	88-110	

Lab Batch #: 737071 **Sample:** 313944-009 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0491	0.0500	98	86-115	
Dibromofluoromethane	0.0481	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0492	0.0500	98	80-120	
Toluene-D8	0.0487	0.0500	97	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 737071 **Sample:** 313944-010 / DL **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0505	0.0500	101	86-115	
Dibromofluoromethane	0.0482	0.0500	96	86-118	
1,2-Dichloroethane-D4	0.0482	0.0500	96	80-120	
Toluene-D8	0.0483	0.0500	97	88-110	

Lab Batch #: 737071 **Sample:** 314124-005 S / MS **Batch:** 1 **Matrix:** Water

Units: ug/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	50.58	50.00	101	86-115	
Dibromofluoromethane	48.56	50.00	97	86-118	
1,2-Dichloroethane-D4	46.67	50.00	93	80-120	
Toluene-D8	48.80	50.00	98	88-110	

Lab Batch #: 737071 **Sample:** 314124-005 SD / MSD **Batch:** 1 **Matrix:** Water

Units: ug/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	48.88	50.00	98	86-115	
Dibromofluoromethane	50.26	50.00	101	86-118	
1,2-Dichloroethane-D4	48.83	50.00	98	80-120	
Toluene-D8	48.86	50.00	98	88-110	

Lab Batch #: 737071 **Sample:** 517382-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0515	0.0500	103	86-115	
Dibromofluoromethane	0.0487	0.0500	97	86-118	
1,2-Dichloroethane-D4	0.0489	0.0500	98	80-120	
Toluene-D8	0.0491	0.0500	98	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Texmark

Work Orders : 313944,

Project ID: Texmark

Lab Batch #: 737071 **Sample:** 517382-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L

VOAs by SW-846 8260 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0493	0.0500	99	86-115	
Dibromofluoromethane	0.0493	0.0500	99	86-118	
1,2-Dichloroethane-D4	0.0502	0.0500	100	80-120	
Toluene-D8	0.0476	0.0500	95	88-110	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Texmark

Work Order #: 313944 **Project ID:** Texmark

Lab Batch #: 737074 **Sample:** 517388-1-BKS **Matrix:** Water
Date Analyzed: 10/14/2008 **Date Prepared:** 10/14/2008 **Analyst:** ZHO
Reporting Units: mg/L **Batch #:** 1

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
Benzene	<0.0010	0.1000	0.1013	101	66-142	

Lab Batch #: 737052 **Sample:** 517160-1-BKS **Matrix:** Water
Date Analyzed: 10/10/2008 **Date Prepared:** 10/10/2008 **Analyst:** HAT
Reporting Units: mg/L **Batch #:** 1

ICP-MS Metals by EPA 6020 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
Arsenic	<0.002	0.050	0.049	98	75-125	

Lab Batch #: 736944 **Sample:** 517312-1-BKS **Matrix:** Water
Date Analyzed: 10/10/2008 **Date Prepared:** 10/10/2008 **Analyst:** KHM
Reporting Units: mg/L **Batch #:** 1

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
Benzene	<0.005	0.050	0.048	96	66-142	
Ethylbenzene	<0.005	0.050	0.051	102	75-125	
Styrene	<0.005	0.050	0.052	104	75-125	
Toluene	<0.005	0.050	0.049	98	59-139	
o-Xylene	<0.005	0.050	0.053	106	75-125	
m,p-Xylenes	<0.010	0.100	0.104	104	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Texmark

Work Order #: 313944 **Project ID:** Texmark

Lab Batch #: 736953 **Sample:** 517318-1-BKS **Matrix:** Water
Date Analyzed: 10/11/2008 **Date Prepared:** 10/11/2008 **Analyst:** KHM
Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.005	0.050	0.047	94	66-142	
Ethylbenzene	<0.005	0.050	0.048	96	75-125	
Styrene	<0.005	0.050	0.050	100	75-125	
Toluene	<0.005	0.050	0.048	96	59-139	
o-Xylene	<0.005	0.050	0.049	98	75-125	
m,p-Xylenes	<0.010	0.100	0.097	97	75-125	

Lab Batch #: 737071 **Sample:** 517382-1-BKS **Matrix:** Water
Date Analyzed: 10/13/2008 **Date Prepared:** 10/13/2008 **Analyst:** KHM
Reporting Units: mg/L **Batch #:** 1 **BLANK /BLANK SPIKE RECOVERY STUDY**

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.005	0.050	0.048	96	66-142	
Ethylbenzene	<0.005	0.050	0.052	104	75-125	
Styrene	<0.005	0.050	0.053	106	75-125	
Toluene	<0.005	0.050	0.050	100	59-139	
o-Xylene	<0.005	0.050	0.052	104	75-125	
m,p-Xylenes	<0.010	0.100	0.103	103	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

Form 3 - MS / MSD Recoveries

Project Name: Texmark

Work Order # : 313944 **Project ID:** Texmark

Lab Batch ID: 737074 **QC- Sample ID:** 313729-002 S **Batch #:** 1 **Matrix:** Water
Date Analyzed: 10/14/2008 **Date Prepared:** 10/14/2008 **Analyst:** ZHO
Reporting Units: mg/L

BTEX by SW 8260B Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.0010	0.1000	0.1000	100	0.1000	0.0969	97	3	66-142	20	

Lab Batch ID: 737052 **QC- Sample ID:** 313944-001 S **Batch #:** 1 **Matrix:** Water
Date Analyzed: 10/10/2008 **Date Prepared:** 10/10/2008 **Analyst:** HAT
Reporting Units: mg/L

ICP-MS Metals by EPA 6020 Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Arsenic	0.018	0.050	0.059	82	0.050	0.055	74	10	75-125	25	X

Lab Batch ID: 736944 **QC- Sample ID:** 313986-001 S **Batch #:** 1 **Matrix:** Water
Date Analyzed: 10/10/2008 **Date Prepared:** 10/10/2008 **Analyst:** KHM
Reporting Units: ug/L

VOAs by SW-846 8260 Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<5.00	50.0	44.4	89	50.0	43.9	88	1	66-142	21	
Ethylbenzene	<5.00	50.0	50.1	100	50.0	49.1	98	2	75-125	20	
Styrene	<5.00	50.0	51.2	102	50.0	49.4	99	3	60-130	51	
Toluene	<5.00	50.0	47.3	95	50.0	46.3	93	2	59-139	21	
o-Xylene	<5.00	50.0	49.8	100	50.0	48.9	98	2	75-125	20	
m,p-Xylenes	<10.0	100	99.3	99	100	98.4	98	1	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Texmark

Work Order # : 313944 **Project ID:** Texmark

Lab Batch ID: 736953 **QC- Sample ID:** 313944-012 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 10/11/2008 **Date Prepared:** 10/11/2008 **Analyst:** KHM

Reporting Units: mg/L

VOAs by SW-846 8260 Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.005	0.050	0.042	84	0.050	0.041	82	2	66-142	21	
Ethylbenzene	<0.005	0.050	0.046	92	0.050	0.047	94	2	75-125	20	
Styrene	<0.005	0.050	0.048	96	0.050	0.048	96	0	75-125	51	
Toluene	<0.005	0.050	0.043	86	0.050	0.044	88	2	59-139	21	
o-Xylene	<0.005	0.050	0.046	92	0.050	0.048	96	4	75-125	20	
m,p-Xylenes	<0.010	0.100	0.091	91	0.100	0.093	93	2	75-125	20	

Lab Batch ID: 737071 **QC- Sample ID:** 314124-005 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 10/13/2008 **Date Prepared:** 10/13/2008 **Analyst:** KHM

Reporting Units: ug/L

VOAs by SW-846 8260 Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<5.00	50.0	49.1	98	50.0	49.4	99	1	66-142	21	
Ethylbenzene	<5.00	50.0	51.5	103	50.0	52.7	105	2	75-125	20	
Styrene	<5.00	50.0	52.0	104	50.0	52.8	106	2	60-130	51	
Toluene	<5.00	50.0	50.1	100	50.0	51.0	102	2	59-139	21	
o-Xylene	<5.00	50.0	53.1	106	50.0	53.8	108	2	75-125	20	
m,p-Xylenes	<10.0	100	104	104	100	106	106	2	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Sample Duplicate Recovery

Project Name: Texmark

Work Order #: 313944

Lab Batch #: 737052
Date Analyzed: 10/10/2008
QC- Sample ID: 313944-001 D
Reporting Units: mg/L

Date Prepared: 10/10/2008
Batch #: 1

Project ID: Texmark
Analyst: HAT
Matrix: Water

ICP-MS Metals by EPA 6020	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Arsenic	0.018	0.022	20	25	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

XENCO Laboratories

☐ 4141 Greenbriar Drive, Stafford, Tx 77477 281-589-0692
☐ 5332 Blackberry Drive, San Antonio, Tx 78238 210-509-3334
☐ 9701 Harry Hines Blvd., Dallas, Tx 75220 214-902-0300
☐ 12600 West I-20 East, Odessa, Tx 79765 432-563-1800
☐ 842 Cantwell, Corpus Christi, Tx 78408 361-884-0371

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

Serial #: 231179 Page 1 of 2

Company-City: URS Corporation - Houston
Phone: 713-914-6699
Lab Only: 313944-H
Proj Name-Location: Texmark - Galena Park, TX ☐ Previously done at XENCO
Project ID: Texmark
TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific. It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.
Proj State: AL, CO, FL, GA, LA, MS, NC, NJ, NM, OK, PA, SC, TN, TX, UT Other
Proj. Manager (PM): Raaj Patel
e-mail to PM and e-mail to: raaj-patel@urscorp.com
Fax to: 7133898404
Invoice to ☐ Accounting ☐ Inc. Invoice with Report ☐ Invoice must have a P.O or Bill to:
Quote/Pricing: P.O No: ☐ Call for P.O.
Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW
QAPP Per-Contract CLP AFCEE NAVY DOE DOD USACE OTHER:
Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)
LPST No.: ☐ Dry Basis
Sampler Name: Steven Horak Signature:

	Sample ID	Sampling Date	Time	Depth ft" In" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	VOCs BTEX-MTBE OXYG ETOH VOHs	8260 8021 602 624 524 TCLP/SPLP ( )	PAHs 8270 8270-SIM 8310	TPH: TX1005 8015B 8015Mod 8015DRO 8015GRO 8015ORO	SVOCs 8270 8270-SIM 625 TCLP\SPLP ( )	Metals: RCRA (4, 8, 11) Pb TCLP/SPLP ( ) Other:	Metals Method: 6010 6020 200.8 7470/245.1 7471	NORM Ra 226 228 Uranium	Asbestos PLM PCM	Pesticides 8081 608 TCLP\SPLP ( )	Herbicides 8151 615 TCLP\SPLP ( )	PCBS 8082 608	Metals 6010 Use SW-846 8260	TAT: Standard	TAT ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Samples (Surcharges will apply and are pre-approved)	Sample Clean-ups are pre-approved as needed	See contract for approved analyte list
1	MW-12TCI	10-02-08	0820	N/A	W		X	4	V,8	60	H,S													X	X	X				
2	MW-04TCI	10-02-08	0915		W																			X	X					
3	RI-1-13	10-02-08	1008		W																			X	X					
4	MW-06TCI	10-02-08	1100		W																			X	X					
5	POE#1	10-02-08	1140		W																			X	X					
6	AMP#1	10-02-08	1310		W																			X	X					
7	POE #3	10-02-08	1400		W																			X	X					
8	AMP #2	10-02-08	1445		W																			X	X					
9	MW-10TCI	10-02-08	1528		W																			X	X					
10	MW-10TCI(DUP)	10-02-08	1530		W																			X	X					

	Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1		10/03/08 1535		
2				
3			Lab: T. Ruy	10/03/08 15:35

Total Containers per COC: Cooler Temp:

Upon signings this COC you accept XENCO terms and Conditions unless otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be hold 30 days after final report is e-mailed unless hereby requested. Rush Charges are pre-approved.

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH (A), ZnAc&NaOH (Z), (Cool,<4C) (C), None (NA), See Label (L), Other (O) _____

Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (V), 1L (1), 500ml (5), Tedlar Bag (B), Wipe (W), Other _____ Cont. Type: Glass Amb (A), Glass Clear (C), Plastic (P), Other (O) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

XENCO Laboratories

☐ 4141 Greenbriar Drive, Stafford, Tx 77477 281-589-0692
☐ 5332 Blackberry Drive, San Antonio, Tx 78238 210-509-3334
☐ 9701 Harry Hines Blvd., Dallas, Tx 75220 214-902-0300
☐ 12600 West I-20 East, Odessa, Tx 79765 432-563-1800
☐ 842 Cantwell, Corpus Christi, Tx 78408 361-884-0371

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

Serial #: 231185 Page 2 of 2

Company-City: URS Corporation - Houston **Phone:** 713-914-6699

Lab Only: 313944-1

Proj Name-Location: Texmark - Galena Park, Tx ☐ Previously done at XENCO **Project ID:** Texmark

Proj State: AL, CO, FL, GA, LA, MS, NC, NJ, NM, OK, PA, SC, TN, TX, UT Other **Proj. Manager (PM):** Raaj-patel

e-mail to PM and e-mail to: raaj-patel@urscorp.com **Fax to:**

Invoice to ☐ Accounting ☐ Inc. Invoice with Report ☐ Invoice must have a P.O or Bill to:

Quote/Pricing: **P.O No:** ☐ Call for P.O.

Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW

QAPP Per-Contract CLP AFCEE NAVY DOE DOD USACE OTHER:

Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)

LPST No.: ☐ Dry Basis

Sampler Name: Steven Horale Signature:

TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

	Sample ID	Sampling Date	Time	Depth ft' In" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
1	RI-1-10	10-03-08	0945	N/A	W		X	4	V,8	G,P	H,S
2	EB-01	10-03-08	1005		W		X	4	V,8	G,P	H,S
3	Trip Blank	Lab →			W			2	V	C	H
4											
5											
6											
7											
8											
9											
10											

VOCs BTEX-MTBE OXYG ETOH VOHs
8260 8021 602 624 524 TCLP/SPLP ( )
PAHs 8270 8270-SIM 8310
TPH: TX1005 8015B 8015Mod 8015DRO 8015GRO 8015ORO
SVOCs 8270 8270-SIM 625 TCLP\SPLP ( )
Metals: RCRA (4, 8, 11) Pb TCLP/SPLP ( ) Other:
Metals Method: 6010 6020 200.8 7470/245.1 7471
NORM Ra 226 228 Uranium
Asbestos PLM PCM
Pesticides 8081 608 TCLP\SPLP ( )
Herbicides 8151615 TCLP\SPLP ( )
PCBS 8082 608

	SW-846 8260 (VOC)	Metals 6010
1	X	X
2	X	X
3	X	

TAT: Standard
TAT ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d
Addn: PAH above mg/L W, mg/Kg S Highest Hit
Hold Samples (Surcharges will apply and are pre-approved)
Sample Clean-ups are pre-approved as needed

Remarks: → See Contract for approved analytical SOP

Addn: Date Rcv by: From:

313944-1

	Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1		10/03/08 1535		
2				
3			Lab: D.R.	10/03/08 15:35

Total Containers per COC: Cooler Temp:

Upon signings this COC you accept XENCO terms and Conditions unless otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be hold 30 days after final report is e-mailed unless hereby requested. Rush Charges are pre-approved.

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____

Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**V**), 1L (**1**), 500ml (**5**), Tedlar Bag (**B**), Wipe (**W**), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Other (**O**) _____

Matrix: Air (A), Product (P), Solid(S), Water (W)

Committed to Excellence in Service and Quality since 1989 *www.xenco.com*

PENCO Laboratories

Prelogin / Nonconformance Report - Sample Log-In

Client: ULS Corp.
Date/Time: 10/06/08
Lab ID # : 313444
Initials:

Sample Receipt Checklist

1. Samples on ice?	Blue	(Water)	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	(N/A)	
4. Chain of Custody present?	(Yes)	No		
5. Sample instructions complete on chain of custody?	(Yes)	No		
6. Any missing / extra samples?	Yes	(No)		
7. Chain of custody signed when relinquished / received?	(Yes)	No		
8. Chain of custody agrees with sample label(s)?	(Yes)	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	(Yes)	No		
11. Samples in proper container / bottle?	(Yes)	No		
12. Samples properly preserved?	(Yes)	No	N/A	
13. Sample container intact?	(Yes)	No		
14. Sufficient sample amount for indicated test(s)?	(Yes)	No		
15. All samples received within sufficient hold time?	(Yes)	No		
16. Subcontract of sample(s)?	Yes	(No)	N/A	
17. VOC sample have zero head space?	(Yes)	No	N/A	

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	°C	lbs	°C	lbs	°C	lbs	°C	lbs	°C

Nonconformance Documentation

Contact:_____ Contacted by:_____ Date/Time:_____

Regarding: _____

_____

Corrective Action Taken: _____

_____

_____

_____

Check all that apply:
- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-61802-1
Client Project/Site: Kinder Morgan Texmark
Revision: 1

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
10/17/2012 6:48:57 PM
Cathy Upton
Data Delivery Analyst
cathy.upton@testamericainc.com

Designee for

Dean Joiner
Project Manager I
dean.joiner@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 13
Method Summary 14
Sample Summary 15
Client Sample Results 16
Definitions/Glossary 29
Surrogate Summary 30
QC Sample Results 32
Default Detection Limits 41
QC Association Summary 42
Lab Chronicle 45
Certification Summary 50
Chain of Custody 51
Receipt Checklists 55

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-61802-1

Project Name/Number: Kinder Morgan Texmark

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		10/05/2012
Name (printed)	Signature	Date

Data Delivery Analyst

Official Title (printed)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/02/12
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-61802
Reviewer Name: TWR	Prep Batch Number(s): 600-89414- ICP

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data									
Laboratory Name: TestAmerica-Houston				LRC Date: 10/02/12					
Project Name: Kinder Morgan Texmark				Laboratory Job Number: 600-61802					
Reviewer Name: TWR				Prep Batch Number(s): 600-89414- ICP					
#[1]	A[2]	Description		Yes	No	NA[3]	NR[4]	ER#[5]	
S1	OI	**Initial calibration (ICAL)**							
		Were response factors and/or relative response factors for each analyte within QC limits?				X			
		Were percent RSDs or correlation coefficient criteria met?				X			
		Was the number of standards recommended in the method used for all analytes?		X					
		Were all points generated between the lowest and highest standard used to calculate the curve?				X			
		Are ICAL data available for all instruments used?		X					
		Has the initial calibration curve been verified using an appropriate second source standard?		X					
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**							
		Was the CCV analyzed at the method-required frequency?		X					
		Were percent differences for each analyte within the method-required QC limits?		X					
		Was the ICAL curve verified for each analyte?		X					
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?		X					
S3	O	**Mass spectral tuning:**							
		Was the appropriate compound for the method used for tuning?				X			
		Were ion abundance data within the method-required QC limits?				X			
S4	O	**Internal standards (IS):**							
		Were IS area counts and retention times within the method-required QC limits?				X			
S5	OI	**Raw data (NELAC section 5.5.10)**							
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?		X					
		Were data associated with manual integrations flagged on the raw data?				X			
S6	O	**Dual column confirmation**							
		Did dual column confirmation results meet the method-required QC?				X			
S7	O	**Tentatively identified compounds (TICs):**							
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?				X			
S8	I	**Interference Check Sample (ICS) results:**							
		Were percent recoveries within method QC limits?		X					
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**							
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X					
S10	OI	**Method detection limit (MDL) studies**							
		Was a MDL study performed for each reported analyte?		X					
		Is the MDL either adjusted or supported by the analysis of DCSs?		X					
S11	OI	**Proficiency test reports:**							
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?		X					
S12	OI	**Standards documentation**							
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?		X					
S13	OI	**Compound/analyte identification procedures**							
		Are the procedures for compound/analyte identification documented?		X					
S14	OI	**Demonstration of analyst competency (DOC)**							
		Was DOC conducted consistent with NELAC Chapter 5?		X					
		Is documentation of the analyst's competency up-to-date and on file?		X					
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**							
		Are all the methods used to generate the data documented, verified, and validated, where applicable?		X					
S16	OI	**Laboratory standard operating procedures (SOPs):**							
		Are laboratory SOPs current and on file for each method performed?		X					

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 10/02/12
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-61802
Reviewer Name: TWR	Prep Batch Number(s): 600-89414- ICP
ER #[1]	**DESCRIPTION**

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/04/12
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-61802
Reviewer Name: WS	Prep Batch Number: 600-89474, 89487, 89530, 89731, 89810, 90019, and 90047 -VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				2
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			3
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				4
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 10/04/12
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-61802
Reviewer Name: WS	Prep Batch Number: 600-89474, 89487, 89530, 89731, 89810, 90019, and 90047 -VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?		X			5
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 10/04/12
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-61802
Reviewer Name: WS	Prep Batch Number: 600-89474, 89487, 89530, 89731, 89810, 90019, and 90047 -VOA

ER #[1]	DESCRIPTION
1	The 1,2-Dichloroethane-d4 surrogate recoveries in samples 600-61802-5, 20 and 22; the Toluene-d8 surrogate recoveries in samples 600-61802-9, 15 and 26; and the Bromofluorobenzene surrogate recoveries in samples 600-61802-5 and 22 were outside control limits due to matrix interference.
2	Benzene was detected above MDL, but below the MQL in the method blanks for batches 600-89530 and 90019. The levels of detection are below the recommended reporting limit and appropriate flags have been applied to the report.
3	The Benzene recoveries in samples 600-61802-7DL MS/MSD were below acceptance limits due to matrix interference.
4	All of the SDLs in samples 600-61802-1, 2, 3, 4, 6, 7, 11, 13, 18, 20, and 21 were elevated due to the high concentrations of target analytes. The Benzene SDLs in samples 600-61802-5, 9, 12, 15, and 22 were elevated due to the high concentrations of this analyte. The Benzene, Ethylbenzene and Styrene SDLs were elevated in sample 600-61802-19 due to the high concentration of these analytes.
5	The Chlorobenzene-d5 ISTD responses in samples 600-61802-9, 15 and 26 were above acceptance criteria due to matrix interference.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Detection Check Standard

Matrix:	Water
Method:	200.7/6010
Preparation:	200.7P/3010
Date Analyzed:	5/29/2012
Date Prepared:	5/28/2012
Instrument:	TJA1
TALs Batches:	80197
Units:	mg/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Aluminum	0.006	0.02	0.02316	0.5
Antimony	0.0063	0.01	0.01026	0.05
Arsenic	0.0033	0.01	0.00791	0.01
Barium	0.0022	0.005	0.00479	0.02
Beryllium	0.00134	0.002	0.00373	0.005
Boron	0.0077	0.02	0.02048	0.2
Cadmium	0.00073	0.001	0.00087	0.005
Calcium	0.022	0.05	0.05712	1
Chromium	0.0016	0.002	0.00396	0.01
Cobalt	0.00063	0.001	0.00031	0.01
Copper	0.0014	0.002	0.0017	0.01
Iron	0.087	0.1	0.06997	0.4
Lithium	0.0024	0.005	0.00351	0.2
Lead	0.0029	0.005	0.00453	0.01
Selenium	0.0042	0.01	0.01081	0.04
Manganese	0.00084	0.002	0.00197	0.01
Molybdenum	0.0027	0.005	0.00513	0.01
Nickel	0.00179	0.005	0.00463	0.01
Silver	0.0012	0.0025	0.00187	0.01
Sodium	0.02	0.05	0.02173	1
Strontium	0.0005	0.001	0.00099	0.005
Thallium	0.0078	0.02	0.01801	0.03
Tin	0.0028	0.005	0.000381	0.01
Titanium	0.0011	0.002	0.00198	0.01
Vanadium	0.0017	0.002	0.00376	0.01
Zinc	0.0022	0.005	0.0013	0.01

Detection Check Standard

Matrix:	Water
Method:	8260B_LL
Preparation:	Wei Shen
Date Analyzed:	9/6/2012
Date Prepared:	9/6/2012
TALs Batches:	A25003.D
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Dichlorodifluoromethane	0.12	0.25	0.223	1
Chloromethane	0.18	0.25	0.25	2
Vinyl Chloride	0.11	0.25	0.322	2
Bromomethane	0.25	0.25	0.365	2
Chloroethane	0.08	0.25	0.295	2
Trichlorofluoromethane	0.08	0.25	0.495	1
Allyl chloride	2	0.25	0.581	2
Acrolein	1.63	0.5	1.85	5
1,1-Dichloroethene	0.19	0.25	0.345	1
trans-1,2-Dichloroethene	0.09	0.25	0.311	1
Trichlorotrifluoroethane	1	0.25	0.372	2
Acetone	0.99	0.5	1.5	2
Methyl Iodide (Iodomethane)	2	0.25	0.644	2
Carbon Disulfide	0.24	0.25	0.731	1
2-Propanol (Isopropyl alcohol)	3.72	0.5	4.68	5
Acetonitrile	0.27	0.25	0.604	1
Methylene Chloride	0.15	0.25	0.0218	1
Methyl tert-butyl ether	0.12	0.25	0.27	1
Vinyl Acetate	0.21	0.25	1.29	1
Acrylonitrile	0.52	0.5	3.64	1
Chloroprene (2-Chloro-1,3-butadiene)	0.33	0.25	0.673	2
Propionitrile	0.66	0.5	5.26	5
cis-1,2-Dichloroethene	0.06	0.25	0.316	1
1,2-Dichloroethene	0.3	0.25	0.627	1
2-Butanone (MEK)	0.76	0.5	1.8	5
Isobutyl alcohol	3.32	0.5	26.58	1
Bromochloromethane	0.18	0.25	0.302	1
Methacrylonitrile	0.41	0.5	0.42	1
Carbon Tetrachloride	0.15	0.25	0.284	5
Benzene	0.08	0.25	0.328	1
1,2-Dichloroethane	0.14	0.25	0.3	1
Trichloroethene	0.13	0.25	0.33	1
1,1,1-Trichloroethane	0.15	0.25	0.286	1
1,1-Dichloroethane	0.11	0.25	0.286	1
1,2-Dichloropropane	0.16	0.25	0.25	1
2,2-Dichloropropane	0.13	0.25	0.329	1
Methylene Bromide (Bromomethane)	0.25	0.25	0.32	1
1,4-Dioxane	30.79	0.5	17.06	50
Methyl methacrylate	0.33	0.25	0.609	1

Bromodichloromethane	0.16	0.25	0.274	1
2-Chloroethyl vinyl ether	0.5	0.25	0.383	1
1,1-Dichloropropene	0.21	0.25	0.837	1
cis-1,3-Dichloropropene	0.18	0.25	0.293	1
4-Methyl-2-pentanone	0.45	0.5	0.846	2
Toluene	0.15	0.25	0.312	1
trans-1,3-Dichloropropene	0.21	0.25	1.02	1
1,1,2-Trichloroethane	0.28	0.25	0.337	1
Tetrachloroethene	0.18	0.25	0.36	1
1,3-Dichloropropane	0.22	0.5	0.513	1
2-Hexanone	0.35	0.5	0.404	
Dibromochloromethane	0.16	0.25	0.877	1
1,2-Dibromoethane (Ethylene bromide)	0.18	0.25	0.324	
Chlorobenzene	0.12	0.25	0.347	1
1,1,1,2-Tetrachloroethane	0.18	0.25	0.257	1
Ethylbenzene	0.11	0.25	0.344	1
m,p-Xylene	0.17	0.25	0.643	2
o-Xylene	0.12	0.25	0.34	1
Xylenes (total)	0.26	0.5	1.44	3
Styrene	0.07	0.25	0.309	1
Bromoform	0.19	0.25	2.09	1
Isopropylbenzene	0.18	0.25	0.291	1
Bromobenzene	0.19	0.25	0.397	1
1,2,3-Trichloropropane	0.29	0.5	0.334	1
1,1,2,2-Tetrachloroethane	0.22	0.5	0.611	1
trans-1,4-Dichloro-2-butene	0.64	0.5	4.13	1
n-Propylbenzene	0.15	0.25	0.29	1
2-Chlorotoluene	0.13	0.25	0.351	1
4-Chlorotoluene	0.14	0.25	0.353	1
1,3,5-Trimethylbenzene	0.1	0.25	0.342	1
tert-Butylbenzene	0.08	0.25	0.349	1
p-Isopropyltoluene	0.1	0.25	0.433	
1,2,4-Trimethylbenzene	0.14	0.25	0.362	1
sec-Butylbenzene	0.12	0.25	0.378	1
1,3-Dichlorobenzene	0.13	0.25	0.555	1
1,4-Dichlorobenzene	0.11	0.25	0.56	1
1,2-Dichlorobenzene	0.1	0.25	0.716	1
n-Butylbenzene	0.16	0.25	0.4	1
1,2-Dibromo-3-chloropropane	0.33	0.25	1.61	
1,2,4-Trichlorobenzene	0.31	0.25	2.3	1
Hexachlorobutadiene	0.17	0.25	1.13	
Naphthalene	0.32	0.5	1.51	1
1,2,3-Trichlorobenzene	0.57	0.5	1.56	1

Case Narrative

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Job ID: 600-61802-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-61802-1

Comments
The report was revised via client request--see attached email, to include Xylenes in the report.

Receipt
The samples were received on 9/21/2012 4:58 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

Except:

The following sample(s) was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): MW-13TCI (600-61802-26)

Per conversation via email with the client on 10/05/12, sample 600-61802-19 was analyzed for Arsenic and sample 26 was analyzed for Styrene even though they were not marked on the Chain of Custody.

Metals
Method(s) 200.7 Rev 4.4, 6010B: The following sample(s) required filtration to reduce matrix interferences: MW-12TCI (600-61802-20), MW-12TCI DUP (600-61802-21).

No other analytical or quality issues were noted.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU
6010B	Metals (ICP)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-61802-1	RW-1	Water	09/20/12 13:52	09/21/12 16:58
600-61802-2	RW-2	Water	09/20/12 14:08	09/21/12 16:58
600-61802-3	POE-1	Water	09/20/12 14:15	09/21/12 16:58
600-61802-4	RW-3	Water	09/20/12 14:25	09/21/12 16:58
600-61802-5	POE-3	Water	09/20/12 15:05	09/21/12 16:58
600-61802-6	RW-5	Water	09/20/12 15:10	09/21/12 16:58
600-61802-7	RW-4	Water	09/20/12 15:21	09/21/12 16:58
600-61802-8	MW-9TCI	Water	09/20/12 16:10	09/21/12 16:58
600-61802-9	R1-1-13	Water	09/20/12 16:25	09/21/12 16:58
600-61802-10	EB-092012	Water	09/20/12 16:45	09/21/12 16:58
600-61802-11	AMP-1	Water	09/21/12 08:08	09/21/12 16:58
600-61802-12	MW-17TCI	Water	09/21/12 08:54	09/21/12 16:58
600-61802-13	MW-4TCI	Water	09/21/12 09:43	09/21/12 16:58
600-61802-14	MW-3TCI	Water	09/21/12 10:25	09/21/12 16:58
600-61802-15	MW-5TCI	Water	09/21/12 08:06	09/21/12 16:58
600-61802-16	MW-16TCI	Water	09/21/12 09:09	09/21/12 16:58
600-61802-17	MW-6TCI	Water	09/21/12 10:35	09/21/12 16:58
600-61802-18	AMP-2	Water	09/21/12 11:40	09/21/12 16:58
600-61802-19	MW-10TCI	Water	09/21/12 14:02	09/21/12 16:58
600-61802-20	MW-12TCI	Water	09/21/12 15:17	09/21/12 16:58
600-61802-21	MW-12TCI DUP	Water	09/21/12 15:17	09/21/12 16:58
600-61802-22	MW-14TCI	Water	09/21/12 13:50	09/21/12 16:58
600-61802-23	R1-1-10	Water	09/21/12 15:20	09/21/12 16:58
600-61802-24	EB-092112	Water	09/21/12 14:58	09/21/12 16:58
600-61802-25	TB	Water	09/21/12 00:00	09/21/12 16:58
600-61802-26	MW-13TCI	Water	09/21/12 14:40	09/21/12 16:58

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: RW-1

Lab Sample ID: 600-61802-1

Date Collected: 09/20/12 13:52
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.0119	J	0.0500	0.00550	mg/L			09/28/12 16:34	50
Toluene	0.239		0.0500	0.00750	mg/L			09/28/12 16:34	50
Styrene	0.00350	U	0.0500	0.00350	mg/L			09/28/12 16:34	50
Xylenes, Total	0.0639	J	0.150	0.0130	mg/L			09/28/12 16:34	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*72*		*50 - 134*		*09/28/12 16:34*	*50*
Dibromofluoromethane	*77*		*62 - 130*		*09/28/12 16:34*	*50*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/28/12 16:34*	*50*
4-Bromofluorobenzene	*116*		*67 - 139*		*09/28/12 16:34*	*50*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	17.8		1.00	0.0800	mg/L			09/28/12 17:02	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*09/28/12 17:02*	*1000*
Dibromofluoromethane	*76*		*62 - 130*		*09/28/12 17:02*	*1000*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/28/12 17:02*	*1000*
4-Bromofluorobenzene	*118*		*67 - 139*		*09/28/12 17:02*	*1000*

Client Sample ID: RW-2

Lab Sample ID: 600-61802-2

Date Collected: 09/20/12 14:08
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.0624	J	0.100	0.0110	mg/L			09/28/12 17:29	100
Toluene	0.142		0.100	0.0150	mg/L			09/28/12 17:29	100
Styrene	0.00700	U	0.100	0.00700	mg/L			09/28/12 17:29	100
Xylenes, Total	0.0260	U	0.300	0.0260	mg/L			09/28/12 17:29	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*73*		*50 - 134*		*09/28/12 17:29*	*100*
Dibromofluoromethane	*95*		*62 - 130*		*09/28/12 17:29*	*100*
Toluene-d8 (Surr)	*88*		*70 - 130*		*09/28/12 17:29*	*100*
4-Bromofluorobenzene	*121*		*67 - 139*		*09/28/12 17:29*	*100*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	67.2	b	2.00	0.160	mg/L			10/01/12 11:45	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*10/01/12 11:45*	*2000*
Dibromofluoromethane	*101*		*62 - 130*		*10/01/12 11:45*	*2000*
Toluene-d8 (Surr)	*87*		*70 - 130*		*10/01/12 11:45*	*2000*
4-Bromofluorobenzene	*120*		*67 - 139*		*10/01/12 11:45*	*2000*

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: POE-1

Date Collected: 09/20/12 14:15
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.0223	J	0.100	0.0110	mg/L			09/28/12 17:56	100
Toluene	0.0485	J	0.100	0.0150	mg/L			09/28/12 17:56	100
Styrene	0.00700	U	0.100	0.00700	mg/L			09/28/12 17:56	100
Xylenes, Total	0.0260	U	0.300	0.0260	mg/L			09/28/12 17:56	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*72*		*50 - 134*		*09/28/12 17:56*	*100*
Dibromofluoromethane	*75*		*62 - 130*		*09/28/12 17:56*	*100*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/28/12 17:56*	*100*
4-Bromofluorobenzene	*117*		*67 - 139*		*09/28/12 17:56*	*100*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	164		5.00	0.400	mg/L			09/28/12 18:23	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*09/28/12 18:23*	*5000*
Dibromofluoromethane	*77*		*62 - 130*		*09/28/12 18:23*	*5000*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/28/12 18:23*	*5000*
4-Bromofluorobenzene	*118*		*67 - 139*		*09/28/12 18:23*	*5000*

Client Sample ID: RW-3

Date Collected: 09/20/12 14:25
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.305		0.200	0.0220	mg/L			09/28/12 18:50	200
Toluene	4.57		0.200	0.0300	mg/L			09/28/12 18:50	200
Styrene	0.0140	U	0.200	0.0140	mg/L			09/28/12 18:50	200
Xylenes, Total	1.33		0.600	0.0520	mg/L			09/28/12 18:50	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*58*		*50 - 134*		*09/28/12 18:50*	*200*
Dibromofluoromethane	*75*		*62 - 130*		*09/28/12 18:50*	*200*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/28/12 18:50*	*200*
4-Bromofluorobenzene	*117*		*67 - 139*		*09/28/12 18:50*	*200*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	248		5.00	0.400	mg/L			09/28/12 19:18	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*09/28/12 19:18*	*5000*
Dibromofluoromethane	*98*		*62 - 130*		*09/28/12 19:18*	*5000*
Toluene-d8 (Surr)	*88*		*70 - 130*		*09/28/12 19:18*	*5000*
4-Bromofluorobenzene	*121*		*67 - 139*		*09/28/12 19:18*	*5000*

Client Sample ID: POE-3

Lab Sample ID: 600-61802-5

Date Collected: 09/20/12 15:05

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/24/12 17:41	1
Toluene	0.00127		0.00100	0.000150	mg/L			09/24/12 17:41	1
Styrene	0.000166	J	0.00100	0.0000700	mg/L			09/24/12 17:41	1
Xylenes, Total	0.00227	J	0.00300	0.000260	mg/L			09/24/12 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*164*	*X*	*50 - 134*		*09/24/12 17:41*	*1*
Dibromofluoromethane	*68*		*62 - 130*		*09/24/12 17:41*	*1*
Toluene-d8 (Surr)	*75*		*70 - 130*		*09/24/12 17:41*	*1*
4-Bromofluorobenzene	*156*	*X*	*67 - 139*		*09/24/12 17:41*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.302		0.0200	0.00160	mg/L			09/25/12 17:47	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*09/25/12 17:47*	*20*
Dibromofluoromethane	*77*		*62 - 130*		*09/25/12 17:47*	*20*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/25/12 17:47*	*20*
4-Bromofluorobenzene	*80*		*67 - 139*		*09/25/12 17:47*	*20*

Client Sample ID: RW-5

Lab Sample ID: 600-61802-6

Date Collected: 09/20/12 15:10

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.0502		0.0100	0.00110	mg/L			09/28/12 19:45	10
Toluene	0.0205		0.0100	0.00150	mg/L			09/28/12 19:45	10
Styrene	0.00229	J	0.0100	0.000700	mg/L			09/28/12 19:45	10
Xylenes, Total	0.0414		0.0300	0.00260	mg/L			09/28/12 19:45	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*09/28/12 19:45*	*10*
Dibromofluoromethane	*74*		*62 - 130*		*09/28/12 19:45*	*10*
Toluene-d8 (Surr)	*82*		*70 - 130*		*09/28/12 19:45*	*10*
4-Bromofluorobenzene	*121*		*67 - 139*		*09/28/12 19:45*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.75		0.200	0.0160	mg/L			09/28/12 20:13	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*09/28/12 20:13*	*200*
Dibromofluoromethane	*75*		*62 - 130*		*09/28/12 20:13*	*200*
Toluene-d8 (Surr)	*83*		*70 - 130*		*09/28/12 20:13*	*200*
4-Bromofluorobenzene	*114*		*67 - 139*		*09/28/12 20:13*	*200*

Client Sample ID: RW-4

Lab Sample ID: 600-61802-7

Date Collected: 09/20/12 15:21

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.00133	J	0.00500	0.000550	mg/L			09/28/12 20:40	5
Toluene	0.00150	J	0.00500	0.000750	mg/L			09/28/12 20:40	5
Styrene	0.000350	U	0.00500	0.000350	mg/L			09/28/12 20:40	5
Xylenes, Total	0.00130	U	0.0150	0.00130	mg/L			09/28/12 20:40	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*83*		*50 - 134*		*09/28/12 20:40*	*5*
Dibromofluoromethane	*74*		*62 - 130*		*09/28/12 20:40*	*5*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/28/12 20:40*	*5*
4-Bromofluorobenzene	*115*		*67 - 139*		*09/28/12 20:40*	*5*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.39	b	0.100	0.00800	mg/L			10/01/12 10:29	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*83*		*50 - 134*		*10/01/12 10:29*	*100*
Dibromofluoromethane	*87*		*62 - 130*		*10/01/12 10:29*	*100*
Toluene-d8 (Surr)	*88*		*70 - 130*		*10/01/12 10:29*	*100*
4-Bromofluorobenzene	*118*		*67 - 139*		*10/01/12 10:29*	*100*

Client Sample ID: MW-9TCI

Lab Sample ID: 600-61802-8

Date Collected: 09/20/12 16:10

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			09/24/12 15:18	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/24/12 15:18	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/24/12 15:18	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/24/12 15:18	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/24/12 15:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*50 - 134*		*09/24/12 15:18*	*1*
Dibromofluoromethane	*116*		*62 - 130*		*09/24/12 15:18*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*09/24/12 15:18*	*1*
4-Bromofluorobenzene	*108*		*67 - 139*		*09/24/12 15:18*	*1*

Client Sample ID: R1-1-13

Lab Sample ID: 600-61802-9

Date Collected: 09/20/12 16:25

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.0137		0.00100	0.000110	mg/L			09/24/12 15:47	1
Toluene	0.00409		0.00100	0.000150	mg/L			09/24/12 15:47	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/24/12 15:47	1
Xylenes, Total	0.00611		0.00300	0.000260	mg/L			09/24/12 15:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*67*		*50 - 134*		*09/24/12 15:47*	*1*
Dibromofluoromethane	*110*		*62 - 130*		*09/24/12 15:47*	*1*

Client Sample ID: R1-1-13

Date Collected: 09/20/12 16:25
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*42*	*X*	*70 - 130*		*09/24/12 15:47*	*1*
4-Bromofluorobenzene	*122*		*67 - 139*		*09/24/12 15:47*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.840	b	0.100	0.00800	mg/L			09/25/12 13:38	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*09/25/12 13:38*	*100*
Dibromofluoromethane	*81*		*62 - 130*		*09/25/12 13:38*	*100*
Toluene-d8 (Surr)	*89*		*70 - 130*		*09/25/12 13:38*	*100*
4-Bromofluorobenzene	*114*		*67 - 139*		*09/25/12 13:38*	*100*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00344	J	0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:16	1

Client Sample ID: EB-092012

Date Collected: 09/20/12 16:45
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			09/25/12 16:50	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/25/12 16:50	1
Toluene	0.000187	J	0.00100	0.000150	mg/L			09/25/12 16:50	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/25/12 16:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*81*		*50 - 134*		*09/25/12 16:50*	*1*
Dibromofluoromethane	*79*		*62 - 130*		*09/25/12 16:50*	*1*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/25/12 16:50*	*1*
4-Bromofluorobenzene	*79*		*67 - 139*		*09/25/12 16:50*	*1*

Client Sample ID: AMP-1

Date Collected: 09/21/12 08:08
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.499		0.0400	0.00600	mg/L			09/28/12 15:40	40
Styrene	0.00280	U	0.0400	0.00280	mg/L			09/28/12 15:40	40
Xylenes, Total	0.670		0.120	0.0104	mg/L			09/28/12 15:40	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*09/28/12 15:40*	*40*
Dibromofluoromethane	*76*		*62 - 130*		*09/28/12 15:40*	*40*
Toluene-d8 (Surr)	*87*		*70 - 130*		*09/28/12 15:40*	*40*
4-Bromofluorobenzene	*121*		*67 - 139*		*09/28/12 15:40*	*40*

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: AMP-1

Lab Sample ID: 600-61802-11

Date Collected: 09/21/12 08:08
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	11.6		0.500	0.0400	mg/L			09/28/12 16:07	500
Ethylbenzene	2.75		0.500	0.0550	mg/L			09/28/12 16:07	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*09/28/12 16:07*	*500*
Dibromofluoromethane	*77*		*62 - 130*		*09/28/12 16:07*	*500*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/28/12 16:07*	*500*
4-Bromofluorobenzene	*114*		*67 - 139*		*09/28/12 16:07*	*500*

Client Sample ID: MW-17TCI

Lab Sample ID: 600-61802-12

Date Collected: 09/21/12 08:54
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.00308		0.00100	0.000110	mg/L			09/27/12 14:29	1
Toluene	0.00911		0.00100	0.000150	mg/L			09/27/12 14:29	1
Styrene	0.000239	J	0.00100	0.0000700	mg/L			09/27/12 14:29	1
Xylenes, Total	0.0120		0.00300	0.000260	mg/L			09/27/12 14:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*09/27/12 14:29*	*1*
Dibromofluoromethane	*72*		*62 - 130*		*09/27/12 14:29*	*1*
Toluene-d8 (Surr)	*76*		*70 - 130*		*09/27/12 14:29*	*1*
4-Bromofluorobenzene	*125*		*67 - 139*		*09/27/12 14:29*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.211		0.0200	0.00160	mg/L			09/27/12 13:07	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*50 - 134*		*09/27/12 13:07*	*20*
Dibromofluoromethane	*85*		*62 - 130*		*09/27/12 13:07*	*20*
Toluene-d8 (Surr)	*87*		*70 - 130*		*09/27/12 13:07*	*20*
4-Bromofluorobenzene	*117*		*67 - 139*		*09/27/12 13:07*	*20*

Client Sample ID: MW-4TCI

Lab Sample ID: 600-61802-13

Date Collected: 09/21/12 09:43
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.0991		0.0500	0.00550	mg/L			09/28/12 11:06	50
Styrene	0.00350	U	0.0500	0.00350	mg/L			09/28/12 11:06	50
Xylenes, Total	0.672		0.150	0.0130	mg/L			09/28/12 11:06	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*		*09/28/12 11:06*	*50*
Dibromofluoromethane	*85*		*62 - 130*		*09/28/12 11:06*	*50*
Toluene-d8 (Surr)	*87*		*70 - 130*		*09/28/12 11:06*	*50*
4-Bromofluorobenzene	*116*		*67 - 139*		*09/28/12 11:06*	*50*

Client Sample ID: MW-4TCI

Lab Sample ID: 600-61802-13

Date Collected: 09/21/12 09:43

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	27.6		2.00	0.160	mg/L			09/28/12 12:27	2000
Toluene	2.69		2.00	0.300	mg/L			09/28/12 12:27	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*50 - 134*		*09/28/12 12:27*	*2000*
Dibromofluoromethane	*81*		*62 - 130*		*09/28/12 12:27*	*2000*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/28/12 12:27*	*2000*
4-Bromofluorobenzene	*116*		*67 - 139*		*09/28/12 12:27*	*2000*

Client Sample ID: MW-3TCI

Lab Sample ID: 600-61802-14

Date Collected: 09/21/12 10:25

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00493		0.00100	0.0000800	mg/L			09/24/12 18:09	1
Ethylbenzene	0.000518	J	0.00100	0.000110	mg/L			09/24/12 18:09	1
Toluene	0.000319	J	0.00100	0.000150	mg/L			09/24/12 18:09	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/24/12 18:09	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/24/12 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*50 - 134*		*09/24/12 18:09*	*1*
Dibromofluoromethane	*104*		*62 - 130*		*09/24/12 18:09*	*1*
Toluene-d8 (Surr)	*90*		*70 - 130*		*09/24/12 18:09*	*1*
4-Bromofluorobenzene	*105*		*67 - 139*		*09/24/12 18:09*	*1*

Client Sample ID: MW-5TCI

Lab Sample ID: 600-61802-15

Date Collected: 09/21/12 08:06

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/24/12 18:38	1
Toluene	0.000543	J	0.00100	0.000150	mg/L			09/24/12 18:38	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/24/12 18:38	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/24/12 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*50 - 134*		*09/24/12 18:38*	*1*
Dibromofluoromethane	*72*		*62 - 130*		*09/24/12 18:38*	*1*
Toluene-d8 (Surr)	*29*	*X*	*70 - 130*		*09/24/12 18:38*	*1*
4-Bromofluorobenzene	*119*		*67 - 139*		*09/24/12 18:38*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.264		0.0200	0.00160	mg/L			09/25/12 18:44	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*50 - 134*		*09/25/12 18:44*	*20*
Dibromofluoromethane	*78*		*62 - 130*		*09/25/12 18:44*	*20*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/25/12 18:44*	*20*
4-Bromofluorobenzene	*83*		*67 - 139*		*09/25/12 18:44*	*20*

Client Sample ID: MW-16TCI

Lab Sample ID: 600-61802-16

Date Collected: 09/21/12 09:09
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00882		0.00100	0.0000800	mg/L			09/27/12 13:34	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/27/12 13:34	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/27/12 13:34	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/27/12 13:34	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/27/12 13:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*		*09/27/12 13:34*	*1*
Dibromofluoromethane	*84*		*62 - 130*		*09/27/12 13:34*	*1*
Toluene-d8 (Surr)	*80*		*70 - 130*		*09/27/12 13:34*	*1*
4-Bromofluorobenzene	*118*		*67 - 139*		*09/27/12 13:34*	*1*

Client Sample ID: MW-6TCI

Lab Sample ID: 600-61802-17

Date Collected: 09/21/12 10:35
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000225	J	0.00100	0.0000800	mg/L			09/25/12 17:18	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/25/12 17:18	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/25/12 17:18	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/25/12 17:18	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/25/12 17:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*50 - 134*		*09/25/12 17:18*	*1*
Dibromofluoromethane	*79*		*62 - 130*		*09/25/12 17:18*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/25/12 17:18*	*1*
4-Bromofluorobenzene	*83*		*67 - 139*		*09/25/12 17:18*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00886	J	0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:31	1

Client Sample ID: AMP-2

Lab Sample ID: 600-61802-18

Date Collected: 09/21/12 11:40
Matrix: Water
Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.949		0.100	0.0110	mg/L			09/28/12 12:54	100
Toluene	1.86		0.100	0.0150	mg/L			09/28/12 12:54	100
Styrene	0.00700	U	0.100	0.00700	mg/L			09/28/12 12:54	100
Xylenes, Total	0.865		0.300	0.0260	mg/L			09/28/12 12:54	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*		*09/28/12 12:54*	*100*
Dibromofluoromethane	*71*		*62 - 130*		*09/28/12 12:54*	*100*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/28/12 12:54*	*100*
4-Bromofluorobenzene	*117*		*67 - 139*		*09/28/12 12:54*	*100*

Client Sample ID: AMP-2

Lab Sample ID: 600-61802-18

Date Collected: 09/21/12 11:40

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	108		5.00	0.400	mg/L			09/28/12 13:22	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*50 - 134*		*09/28/12 13:22*	*5000*
Dibromofluoromethane	*81*		*62 - 130*		*09/28/12 13:22*	*5000*
Toluene-d8 (Surr)	*89*		*70 - 130*		*09/28/12 13:22*	*5000*
4-Bromofluorobenzene	*119*		*67 - 139*		*09/28/12 13:22*	*5000*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0142		0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:35	1

Client Sample ID: MW-10TCI

Lab Sample ID: 600-61802-19

Date Collected: 09/21/12 14:02

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.0281		0.00100	0.000150	mg/L			10/01/12 13:51	1
Xylenes, Total	0.000816	J	0.00300	0.000260	mg/L			10/01/12 13:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*10/01/12 13:51*	*1*
Dibromofluoromethane	*101*		*62 - 130*		*10/01/12 13:51*	*1*
Toluene-d8 (Surr)	*89*		*70 - 130*		*10/01/12 13:51*	*1*
4-Bromofluorobenzene	*120*		*67 - 139*		*10/01/12 13:51*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.612		0.200	0.0220	mg/L			10/01/12 13:26	200
Styrene	0.887		0.200	0.0140	mg/L			10/01/12 13:26	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*63*		*50 - 134*		*10/01/12 13:26*	*200*
Dibromofluoromethane	*98*		*62 - 130*		*10/01/12 13:26*	*200*
Toluene-d8 (Surr)	*87*		*70 - 130*		*10/01/12 13:26*	*200*
4-Bromofluorobenzene	*117*		*67 - 139*		*10/01/12 13:26*	*200*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	354		20.0	1.60	mg/L			10/02/12 14:06	20000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*50 - 134*		*10/02/12 14:06*	*20000*
Dibromofluoromethane	*86*		*62 - 130*		*10/02/12 14:06*	*20000*
Toluene-d8 (Surr)	*85*		*70 - 130*		*10/02/12 14:06*	*20000*
4-Bromofluorobenzene	*121*		*67 - 139*		*10/02/12 14:06*	*20000*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0196		0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:39	1

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: MW-12TCI

Lab Sample ID: 600-61802-20

Date Collected: 09/21/12 15:17
Date Received: 09/21/12 16:58

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.338		0.100	0.0110	mg/L			09/28/12 13:50	100
Styrene	0.828		0.100	0.00700	mg/L			09/28/12 13:50	100
Xylenes, Total	1.19		0.300	0.0260	mg/L			09/28/12 13:50	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*41*	*X*	*50 - 134*		*09/28/12 13:50*	*100*
Dibromofluoromethane	*77*		*62 - 130*		*09/28/12 13:50*	*100*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/28/12 13:50*	*100*
4-Bromofluorobenzene	*116*		*67 - 139*		*09/28/12 13:50*	*100*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	126		5.00	0.750	mg/L			09/28/12 14:18	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*09/28/12 14:18*	*5000*
Dibromofluoromethane	*96*		*62 - 130*		*09/28/12 14:18*	*5000*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/28/12 14:18*	*5000*
4-Bromofluorobenzene	*115*		*67 - 139*		*09/28/12 14:18*	*5000*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	363	b	20.0	1.60	mg/L			10/01/12 10:54	20000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*50 - 134*		*10/01/12 10:54*	*20000*
Dibromofluoromethane	*87*		*62 - 130*		*10/01/12 10:54*	*20000*
Toluene-d8 (Surr)	*87*		*70 - 130*		*10/01/12 10:54*	*20000*
4-Bromofluorobenzene	*120*		*67 - 139*		*10/01/12 10:54*	*20000*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0296		0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:43	1

Client Sample ID: MW-12TCI DUP

Lab Sample ID: 600-61802-21

Date Collected: 09/21/12 15:17
Date Received: 09/21/12 16:58

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.337		0.200	0.0220	mg/L			09/28/12 15:13	200
Styrene	0.699		0.200	0.0140	mg/L			09/28/12 15:13	200
Xylenes, Total	1.22		0.600	0.0520	mg/L			09/28/12 15:13	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*61*		*50 - 134*		*09/28/12 15:13*	*200*
Dibromofluoromethane	*75*		*62 - 130*		*09/28/12 15:13*	*200*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/28/12 15:13*	*200*
4-Bromofluorobenzene	*119*		*67 - 139*		*09/28/12 15:13*	*200*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	315	b	10.0	0.800	mg/L			10/01/12 11:20	10000

Client Sample ID: MW-12TCI DUP

Lab Sample ID: 600-61802-21

Date Collected: 09/21/12 15:17

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	95.8		10.0	1.50	mg/L			10/01/12 11:20	10000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*50 - 134*		*10/01/12 11:20*	*10000*
Dibromofluoromethane	*99*		*62 - 130*		*10/01/12 11:20*	*10000*
Toluene-d8 (Surr)	*89*		*70 - 130*		*10/01/12 11:20*	*10000*
4-Bromofluorobenzene	*121*		*67 - 139*		*10/01/12 11:20*	*10000*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0311		0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:54	1

Client Sample ID: MW-14TCI

Lab Sample ID: 600-61802-22

Date Collected: 09/21/12 13:50

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.00542		0.00100	0.000110	mg/L			09/27/12 14:01	1
Toluene	0.00921		0.00100	0.000150	mg/L			09/27/12 14:01	1
Styrene	0.000160	J	0.00100	0.0000700	mg/L			09/27/12 14:01	1
Xylenes, Total	0.00415		0.00300	0.000260	mg/L			09/27/12 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*139*	*X*	*50 - 134*		*09/27/12 14:01*	*1*
Dibromofluoromethane	*69*		*62 - 130*		*09/27/12 14:01*	*1*
Toluene-d8 (Surr)	*69*	*X*	*70 - 130*		*09/27/12 14:01*	*1*
4-Bromofluorobenzene	*215*	*X*	*67 - 139*		*09/27/12 14:01*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.790		0.0500	0.00400	mg/L			09/27/12 19:38	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*09/27/12 19:38*	*50*
Dibromofluoromethane	*74*		*62 - 130*		*09/27/12 19:38*	*50*
Toluene-d8 (Surr)	*83*		*70 - 130*		*09/27/12 19:38*	*50*
4-Bromofluorobenzene	*112*		*67 - 139*		*09/27/12 19:38*	*50*

Client Sample ID: R1-1-10

Lab Sample ID: 600-61802-23

Date Collected: 09/21/12 15:20

Matrix: Water

Date Received: 09/21/12 16:58

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000651	J b	0.00100	0.0000800	mg/L			09/25/12 11:36	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/25/12 11:36	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/25/12 11:36	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/25/12 11:36	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/25/12 11:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*50 - 134*		*09/25/12 11:36*	*1*

Client Sample ID: R1-1-10

Date Collected: 09/21/12 15:20
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-23
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*79*		*62 - 130*		*09/25/12 11:36*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/25/12 11:36*	*1*
4-Bromofluorobenzene	*111*		*67 - 139*		*09/25/12 11:36*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0239		0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:58	1

Client Sample ID: EB-092112

Date Collected: 09/21/12 14:58
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-24
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000232	J b	0.00100	0.0000800	mg/L			09/25/12 11:07	1
Ethylbenzene	0.000215	J	0.00100	0.000110	mg/L			09/25/12 11:07	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/25/12 11:07	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/25/12 11:07	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/25/12 11:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*09/25/12 11:07*	*1*
Dibromofluoromethane	*75*		*62 - 130*		*09/25/12 11:07*	*1*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/25/12 11:07*	*1*
4-Bromofluorobenzene	*103*		*67 - 139*		*09/25/12 11:07*	*1*

Client Sample ID: TB

Date Collected: 09/21/12 00:00
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-25
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000110	J	0.00100	0.0000800	mg/L			09/24/12 19:35	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/24/12 19:35	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/24/12 19:35	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/24/12 19:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*50 - 134*		*09/24/12 19:35*	*1*
Dibromofluoromethane	*99*		*62 - 130*		*09/24/12 19:35*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*09/24/12 19:35*	*1*
4-Bromofluorobenzene	*104*		*67 - 139*		*09/24/12 19:35*	*1*

Client Sample ID: MW-13TCI

Date Collected: 09/21/12 14:40
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-26
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000626	J	0.00100	0.0000800	mg/L			09/24/12 20:02	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/24/12 20:02	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/24/12 20:02	1

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: MW-13TCI
Date Collected: 09/21/12 14:40
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-26
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/24/12 20:02	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/24/12 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*50 - 134*		*09/24/12 20:02*	*1*
Dibromofluoromethane	*98*		*62 - 130*		*09/24/12 20:02*	*1*
Toluene-d8 (Surr)	*31*	*X*	*70 - 130*		*09/24/12 20:02*	*1*
4-Bromofluorobenzene	*108*		*67 - 139*		*09/24/12 20:02*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.
X	Surrogate is outside control limits
b	The compound was found in the blank and sample
N	MS, MSD: Spike recovery exceeds upper or lower control limits.

Metals

Qualifier	Qualifier Description
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(50-134)	(62-130)	(70-130)	(67-139)
600-61802-1	RW-1	72	77	86	116
600-61802-1 - DL	RW-1	74	76	85	118
600-61802-2	RW-2	73	95	88	121
600-61802-2 - DL	RW-2	79	101	87	120
600-61802-3	POE-1	72	75	85	117
600-61802-3 - DL	POE-1	74	77	86	118
600-61802-4	RW-3	58	75	85	117
600-61802-4 - DL	RW-3	80	98	88	121
600-61802-5	POE-3	164 X	68	75	156 X
600-61802-5 - DL	POE-3	80	77	84	80
600-61802-6	RW-5	87	74	82	121
600-61802-6 - DL	RW-5	76	75	83	114
600-61802-7	RW-4	83	74	84	115
600-61802-7 - DL	RW-4	83	87	88	118
600-61802-7 MS - DL	RW-4	76	86	86	116
600-61802-7 MSD - DL	RW-4	79	91	89	118
600-61802-8	MW-9TCI	98	116	92	108
600-61802-8 MS	MW-9TCI	79	116	90	111
600-61802-8 MSD	MW-9TCI	77	82	88	103
600-61802-9	R1-1-13	67	110	42 X	122
600-61802-9 - DL	R1-1-13	79	81	89	114
600-61802-10	EB-092012	81	79	85	79
600-61802-11	AMP-1	80	76	87	121
600-61802-11 - DL	AMP-1	74	77	84	114
600-61802-12 - DL	MW-17TCI	82	85	87	117
600-61802-12	MW-17TCI	79	72	76	125
600-61802-13	MW-4TCI	75	85	87	116
600-61802-13 - DL	MW-4TCI	78	81	86	116
600-61802-13 MS - DL	MW-4TCI	75	84	88	117
600-61802-13 MSD - DL	MW-4TCI	74	81	89	116
600-61802-14	MW-3TCI	84	104	90	105
600-61802-15	MW-5TCI	74	72	29 X	119
600-61802-15 - DL	MW-5TCI	81	78	85	83
600-61802-16	MW-16TCI	86	84	80	118
600-61802-17	MW-6TCI	81	79	84	83
600-61802-18 - DL	AMP-2	82	81	89	119
600-61802-18	AMP-2	75	71	86	117
600-61802-19 - DL	MW-10TCI	63	98	87	117
600-61802-19	MW-10TCI	79	101	89	120
600-61802-19 - DL2	MW-10TCI	78	86	85	121
600-61802-19 MS - DL2	MW-10TCI	74	82	83	119
600-61802-19 MSD - DL2	MW-10TCI	77	86	86	118
600-61802-20	MW-12TCI	41 X	77	85	116
600-61802-20 - DL	MW-12TCI	79	96	84	115
600-61802-20 - DL2	MW-12TCI	78	87	87	120
600-61802-21	MW-12TCI DUP	61	75	86	119
600-61802-21 - DL	MW-12TCI DUP	78	99	89	121
600-61802-22 - DL	MW-14TCI	79	74	83	112
600-61802-22	MW-14TCI	139 X	69	69 X	215 X
600-61802-23	R1-1-10	84	79	84	111

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(50-134)	(62-130)	(70-130)	(67-139)
600-61802-24	EB-092112	80	75	85	103
600-61802-24 MS	EB-092112	71	74	86	100
600-61802-24 MSD	EB-092112	73	75	87	109
600-61802-25	TB	81	99	86	104
600-61802-26	MW-13TCI	82	98	31 X	108
LCS 600-89474/3	Lab Control Sample	87	124	101	120
LCS 600-89487/4	Lab Control Sample	85	83	84	86
LCS 600-89530/3	Lab Control Sample	73	81	88	108
LCS 600-89731/3	Lab Control Sample	78	84	94	122
LCS 600-89810/3	Lab Control Sample	75	83	90	119
LCS 600-90019/3	Lab Control Sample	76	81	89	120
LCS 600-90047/3	Lab Control Sample	77	86	85	115
MB 600-89474/4	Method Blank	88	88	91	113
MB 600-89487/6	Method Blank	83	74	84	80
MB 600-89530/4	Method Blank	80	78	85	105
MB 600-89731/4	Method Blank	77	81	85	113
MB 600-89810/4	Method Blank	77	87	88	119
MB 600-90019/4	Method Blank	77	97	86	118
MB 600-90047/4	Method Blank	78	96	84	122

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-89474/4
Matrix: Water
Analysis Batch: 89474

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			09/24/12 14:50	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/24/12 14:50	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/24/12 14:50	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/24/12 14:50	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/24/12 14:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*		*09/24/12 14:50*	*1*
Dibromofluoromethane	*88*		*62 - 130*		*09/24/12 14:50*	*1*
Toluene-d8 (Surr)	*91*		*70 - 130*		*09/24/12 14:50*	*1*
4-Bromofluorobenzene	*113*		*67 - 139*		*09/24/12 14:50*	*1*

Lab Sample ID: LCS 600-89474/3
Matrix: Water
Analysis Batch: 89474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.009691		mg/L		97	69 - 131
Ethylbenzene	0.0100	0.009996		mg/L		100	68 - 128
Toluene	0.0100	0.009805		mg/L		98	67 - 130
Styrene	0.0100	0.01010		mg/L		101	68 - 133
Xylenes, Total	0.0300	0.03155		mg/L		105	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*
Dibromofluoromethane	*124*		*62 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene	*120*		*67 - 139*

Lab Sample ID: 600-61802-8 MS
Matrix: Water
Analysis Batch: 89474

Client Sample ID: MW-9TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0000800	U	0.0100	0.01091		mg/L		109	65 - 125
Ethylbenzene	0.000110	U	0.0100	0.01076		mg/L		108	60 - 140
Toluene	0.000150	U	0.0100	0.01060		mg/L		106	76 - 125
Styrene	0.0000700	U	0.0100	0.01096		mg/L		110	60 - 140
Xylenes, Total	0.000260	U	0.0300	0.03379		mg/L		113	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*
Dibromofluoromethane	*116*		*62 - 130*
Toluene-d8 (Surr)	*90*		*70 - 130*
4-Bromofluorobenzene	*111*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-61802-8 MSD
Matrix: Water
Analysis Batch: 89474

Client Sample ID: MW-9TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0000800	U	0.0100	0.01064		mg/L		106	65 - 125	3	30
Ethylbenzene	0.000110	U	0.0100	0.01063		mg/L		106	60 - 140	1	30
Toluene	0.000150	U	0.0100	0.01052		mg/L		105	76 - 125	1	30
Styrene	0.0000700	U	0.0100	0.01073		mg/L		107	60 - 140	2	30
Xylenes, Total	0.000260	U	0.0300	0.03358		mg/L		112	60 - 140	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*
Dibromofluoromethane	*82*		*62 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*
4-Bromofluorobenzene	*103*		*67 - 139*

Lab Sample ID: MB 600-89487/6
Matrix: Water
Analysis Batch: 89487

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			09/25/12 12:39	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/25/12 12:39	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/25/12 12:39	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/25/12 12:39	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/25/12 12:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*83*		*50 - 134*		*09/25/12 12:39*	*1*
Dibromofluoromethane	*74*		*62 - 130*		*09/25/12 12:39*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*09/25/12 12:39*	*1*
4-Bromofluorobenzene	*80*		*67 - 139*		*09/25/12 12:39*	*1*

Lab Sample ID: LCS 600-89487/4
Matrix: Water
Analysis Batch: 89487

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.009864		mg/L		99	69 - 131
Ethylbenzene	0.0100	0.009781		mg/L		98	68 - 128
Toluene	0.0100	0.009625		mg/L		96	67 - 130
Styrene	0.0100	0.01014		mg/L		101	68 - 133
Xylenes, Total	0.0300	0.03100		mg/L		103	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*50 - 134*
Dibromofluoromethane	*83*		*62 - 130*
Toluene-d8 (Surr)	*84*		*70 - 130*
4-Bromofluorobenzene	*86*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-89530/4
Matrix: Water
Analysis Batch: 89530

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0002738	J	0.00100	0.0000800	mg/L			09/25/12 10:40	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/25/12 10:40	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/25/12 10:40	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/25/12 10:40	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/25/12 10:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*09/25/12 10:40*	*1*
Dibromofluoromethane	*78*		*62 - 130*		*09/25/12 10:40*	*1*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/25/12 10:40*	*1*
4-Bromofluorobenzene	*105*		*67 - 139*		*09/25/12 10:40*	*1*

Lab Sample ID: LCS 600-89530/3
Matrix: Water
Analysis Batch: 89530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01138		mg/L		114	69 - 131
Ethylbenzene	0.0100	0.01097		mg/L		110	68 - 128
Toluene	0.0100	0.01056		mg/L		106	67 - 130
Styrene	0.0100	0.01110		mg/L		111	68 - 133
Xylenes, Total	0.0300	0.03433		mg/L		114	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*73*		*50 - 134*
Dibromofluoromethane	*81*		*62 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*
4-Bromofluorobenzene	*108*		*67 - 139*

Lab Sample ID: 600-61802-24 MS
Matrix: Water
Analysis Batch: 89530

Client Sample ID: EB-092112
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.000232	J b	0.0100	0.01098		mg/L		107	65 - 125
Ethylbenzene	0.000215	J	0.0100	0.01086		mg/L		106	60 - 140
Toluene	0.000150	U	0.0100	0.01075		mg/L		107	76 - 125
Styrene	0.0000700	U	0.0100	0.01144		mg/L		114	60 - 140
Xylenes, Total	0.000260	U	0.0300	0.03445		mg/L		115	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*71*		*50 - 134*
Dibromofluoromethane	*74*		*62 - 130*
Toluene-d8 (Surr)	*86*		*70 - 130*
4-Bromofluorobenzene	*100*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 600-61802-24 MSD
Matrix: Water
Analysis Batch: 89530

Client Sample ID: EB-092112
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.000232	J b	0.0100	0.01077		mg/L		105	65 - 125	2	30
Ethylbenzene	0.000215	J	0.0100	0.01136		mg/L		111	60 - 140	4	30
Toluene	0.000150	U	0.0100	0.01064		mg/L		106	76 - 125	1	30
Styrene	0.0000700	U	0.0100	0.01196		mg/L		120	60 - 140	4	30
Xylenes, Total	0.000260	U	0.0300	0.03628		mg/L		121	60 - 140	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*73*		*50 - 134*
Dibromofluoromethane	*75*		*62 - 130*
Toluene-d8 (Surr)	*87*		*70 - 130*
4-Bromofluorobenzene	*109*		*67 - 139*

Lab Sample ID: MB 600-89731/4
Matrix: Water
Analysis Batch: 89731

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			09/27/12 09:42	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/27/12 09:42	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/27/12 09:42	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/27/12 09:42	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/27/12 09:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*09/27/12 09:42*	*1*
Dibromofluoromethane	*81*		*62 - 130*		*09/27/12 09:42*	*1*
Toluene-d8 (Surr)	*85*		*70 - 130*		*09/27/12 09:42*	*1*
4-Bromofluorobenzene	*113*		*67 - 139*		*09/27/12 09:42*	*1*

Lab Sample ID: LCS 600-89731/3
Matrix: Water
Analysis Batch: 89731

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01126		mg/L		113	69 - 131
Ethylbenzene	0.0100	0.01148		mg/L		115	68 - 128
Toluene	0.0100	0.01134		mg/L		113	67 - 130
Styrene	0.0100	0.01117		mg/L		112	68 - 133
Xylenes, Total	0.0300	0.03584		mg/L		119	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*78*		*50 - 134*
Dibromofluoromethane	*84*		*62 - 130*
Toluene-d8 (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene	*122*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-89810/4
Matrix: Water
Analysis Batch: 89810

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			09/28/12 10:37	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			09/28/12 10:37	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			09/28/12 10:37	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			09/28/12 10:37	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			09/28/12 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*09/28/12 10:37*	*1*
Dibromofluoromethane	*87*		*62 - 130*		*09/28/12 10:37*	*1*
Toluene-d8 (Surr)	*88*		*70 - 130*		*09/28/12 10:37*	*1*
4-Bromofluorobenzene	*119*		*67 - 139*		*09/28/12 10:37*	*1*

Lab Sample ID: LCS 600-89810/3
Matrix: Water
Analysis Batch: 89810

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01093		mg/L		109	69 - 131
Ethylbenzene	0.0100	0.01106		mg/L		111	68 - 128
Toluene	0.0100	0.01079		mg/L		108	67 - 130
Styrene	0.0100	0.01083		mg/L		108	68 - 133
Xylenes, Total	0.0300	0.03470		mg/L		116	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*75*		*50 - 134*
Dibromofluoromethane	*83*		*62 - 130*
Toluene-d8 (Surr)	*90*		*70 - 130*
4-Bromofluorobenzene	*119*		*67 - 139*

Lab Sample ID: MB 600-90019/4
Matrix: Water
Analysis Batch: 90019

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0001024	J	0.00100	0.0000800	mg/L			10/01/12 09:34	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			10/01/12 09:34	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			10/01/12 09:34	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			10/01/12 09:34	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			10/01/12 09:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*10/01/12 09:34*	*1*
Dibromofluoromethane	*97*		*62 - 130*		*10/01/12 09:34*	*1*
Toluene-d8 (Surr)	*86*		*70 - 130*		*10/01/12 09:34*	*1*
4-Bromofluorobenzene	*118*		*67 - 139*		*10/01/12 09:34*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-90019/3
Matrix: Water
Analysis Batch: 90019

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0125	0.01090		mg/L		87	69 - 131
Ethylbenzene	0.0125	0.01080		mg/L		86	68 - 128
Toluene	0.0125	0.01062		mg/L		85	67 - 130
Styrene	0.0125	0.01047		mg/L		84	68 - 133
Xylenes, Total	0.0375	0.03369		mg/L		90	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*
Dibromofluoromethane	*81*		*62 - 130*
Toluene-d8 (Surr)	*89*		*70 - 130*
4-Bromofluorobenzene	*120*		*67 - 139*

Lab Sample ID: MB 600-90047/4
Matrix: Water
Analysis Batch: 90047

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			10/02/12 12:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*50 - 134*		*10/02/12 12:23*	*1*
Dibromofluoromethane	*96*		*62 - 130*		*10/02/12 12:23*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*10/02/12 12:23*	*1*
4-Bromofluorobenzene	*122*		*67 - 139*		*10/02/12 12:23*	*1*

Lab Sample ID: LCS 600-90047/3
Matrix: Water
Analysis Batch: 90047

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01080		mg/L		108	69 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*
Dibromofluoromethane	*86*		*62 - 130*
Toluene-d8 (Surr)	*85*		*70 - 130*
4-Bromofluorobenzene	*115*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Lab Sample ID: 600-61802-13 MS
Matrix: Water
Analysis Batch: 89810

Client Sample ID: MW-4TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene - DL	27.6		20.0	51.80		mg/L		121	65 - 125
Ethylbenzene - DL	0.220		20.0	21.24		mg/L		106	60 - 140
Toluene - DL	2.69		20.0	23.89		mg/L		106	76 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL (Continued)

Lab Sample ID: 600-61802-13 MS
Matrix: Water
Analysis Batch: 89810

Client Sample ID: MW-4TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Styrene - DL	0.233		20.0	20.52		mg/L		101	60 - 140
Xylenes, Total - DL	0.949		60.0	66.94		mg/L		110	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL	*75*		*50 - 134*
Dibromofluoromethane - DL	*84*		*62 - 130*
Toluene-d8 (Surr) - DL	*88*		*70 - 130*
4-Bromofluorobenzene - DL	*117*		*67 - 139*

Lab Sample ID: 600-61802-13 MSD
Matrix: Water
Analysis Batch: 89810

Client Sample ID: MW-4TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene - DL	27.6		20.0	50.73		mg/L		116	65 - 125	2	30
Ethylbenzene - DL	0.220		20.0	22.82		mg/L		114	60 - 140	7	30
Toluene - DL	2.69		20.0	25.02		mg/L		112	76 - 125	5	30
Styrene - DL	0.233		20.0	22.32		mg/L		110	60 - 140	8	30
Xylenes, Total - DL	0.949		60.0	71.59		mg/L		118	60 - 140	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL	*74*		*50 - 134*
Dibromofluoromethane - DL	*81*		*62 - 130*
Toluene-d8 (Surr) - DL	*89*		*70 - 130*
4-Bromofluorobenzene - DL	*116*		*67 - 139*

Lab Sample ID: 600-61802-7 MS
Matrix: Water
Analysis Batch: 90019

Client Sample ID: RW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene - DL	1.39	b	1.25	2.114	N	mg/L		58	65 - 125
Ethylbenzene - DL	0.0110		1.25	1.097		mg/L		88	60 - 140
Toluene - DL	0.0150		1.25	1.070		mg/L		86	76 - 125
Styrene - DL	0.00700		1.25	1.046		mg/L		84	60 - 140
Xylenes, Total - DL	0.0260		3.75	3.414		mg/L		91	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL	*76*		*50 - 134*
Dibromofluoromethane - DL	*86*		*62 - 130*
Toluene-d8 (Surr) - DL	*86*		*70 - 130*
4-Bromofluorobenzene - DL	*116*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL (Continued)

Lab Sample ID: 600-61802-7 MSD
Matrix: Water
Analysis Batch: 90019

Client Sample ID: RW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene - DL	1.39	b	1.25	2.097	N	mg/L		57	65 - 125	1	30
Ethylbenzene - DL	0.0110		1.25	1.136		mg/L		91	60 - 140	3	30
Toluene - DL	0.0150		1.25	1.094		mg/L		88	76 - 125	2	30
Styrene - DL	0.00700		1.25	1.131		mg/L		91	60 - 140	8	30
Xylenes, Total - DL	0.0260		3.75	3.571		mg/L		95	60 - 140	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL	*79*		*50 - 134*
Dibromofluoromethane - DL	*91*		*62 - 130*
Toluene-d8 (Surr) - DL	*89*		*70 - 130*
4-Bromofluorobenzene - DL	*118*		*67 - 139*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL2

Lab Sample ID: 600-61802-19 MS
Matrix: Water
Analysis Batch: 90047

Client Sample ID: MW-10TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene - DL2	354		200	562.0		mg/L		104	65 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL2	*74*		*50 - 134*
Dibromofluoromethane - DL2	*82*		*62 - 130*
Toluene-d8 (Surr) - DL2	*83*		*70 - 130*
4-Bromofluorobenzene - DL2	*119*		*67 - 139*

Lab Sample ID: 600-61802-19 MSD
Matrix: Water
Analysis Batch: 90047

Client Sample ID: MW-10TCI
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene - DL2	354		200	555.9		mg/L		101	65 - 125	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr) - DL2	*77*		*50 - 134*
Dibromofluoromethane - DL2	*86*		*62 - 130*
Toluene-d8 (Surr) - DL2	*86*		*70 - 130*
4-Bromofluorobenzene - DL2	*118*		*67 - 139*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 600-89414/1-A
Matrix: Water
Analysis Batch: 89589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 89414

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00328	U	0.0100	0.00328	mg/L		09/25/12 07:15	09/26/12 12:08	1

Lab Sample ID: LCS 600-89414/2-A
Matrix: Water
Analysis Batch: 89589

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 89414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.009		mg/L		101	80 - 120

Lab Sample ID: 600-61802-9 MS
Matrix: Water
Analysis Batch: 89589

Client Sample ID: R1-1-13
Prep Type: Total/NA
Prep Batch: 89414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.00344	J	1.00	1.054		mg/L		105	75 - 125

Lab Sample ID: 600-61802-9 MSD
Matrix: Water
Analysis Batch: 89589

Client Sample ID: R1-1-13
Prep Type: Total/NA
Prep Batch: 89414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.00344	J	1.00	1.066		mg/L		106	75 - 125	1	20

Lab Sample ID: 600-61802-9 DU
Matrix: Water
Analysis Batch: 89589

Client Sample ID: R1-1-13
Prep Type: Total/NA
Prep Batch: 89414

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.00344	J	0.006210	J	mg/L		57	20

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units	Method
Benzene	0.00100	0.0000800	mg/L	8260B
Ethylbenzene	0.00100	0.000110	mg/L	8260B
Styrene	0.00100	0.0000700	mg/L	8260B
Toluene	0.00100	0.000150	mg/L	8260B
Xylenes, Total	0.00300	0.000260	mg/L	8260B

Method: 6010B - Metals (ICP)

Analyte	MQL	MDL	Units	Method
Arsenic	0.0100	0.00328	mg/L	6010B

GC/MS VOA

Analysis Batch: 89474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-5	POE-3	Total/NA	Water	8260B	
600-61802-8	MW-9TCI	Total/NA	Water	8260B	
600-61802-8 MS	MW-9TCI	Total/NA	Water	8260B	
600-61802-8 MSD	MW-9TCI	Total/NA	Water	8260B	
600-61802-9	R1-1-13	Total/NA	Water	8260B	
600-61802-14	MW-3TCI	Total/NA	Water	8260B	
600-61802-15	MW-5TCI	Total/NA	Water	8260B	
600-61802-25	TB	Total/NA	Water	8260B	
600-61802-26	MW-13TCI	Total/NA	Water	8260B	
LCS 600-89474/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-89474/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 89487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-5 - DL	POE-3	Total/NA	Water	8260B	
600-61802-10	EB-092012	Total/NA	Water	8260B	
600-61802-15 - DL	MW-5TCI	Total/NA	Water	8260B	
600-61802-17	MW-6TCI	Total/NA	Water	8260B	
LCS 600-89487/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-89487/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 89530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-9 - DL	R1-1-13	Total/NA	Water	8260B	
600-61802-23	R1-1-10	Total/NA	Water	8260B	
600-61802-24	EB-092112	Total/NA	Water	8260B	
600-61802-24 MS	EB-092112	Total/NA	Water	8260B	
600-61802-24 MSD	EB-092112	Total/NA	Water	8260B	
LCS 600-89530/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-89530/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 89731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-12 - DL	MW-17TCI	Total/NA	Water	8260B	
600-61802-12	MW-17TCI	Total/NA	Water	8260B	
600-61802-16	MW-16TCI	Total/NA	Water	8260B	
600-61802-22 - DL	MW-14TCI	Total/NA	Water	8260B	
600-61802-22	MW-14TCI	Total/NA	Water	8260B	
LCS 600-89731/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-89731/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 89810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-1	RW-1	Total/NA	Water	8260B	
600-61802-1 - DL	RW-1	Total/NA	Water	8260B	
600-61802-2	RW-2	Total/NA	Water	8260B	
600-61802-3	POE-1	Total/NA	Water	8260B	
600-61802-3 - DL	POE-1	Total/NA	Water	8260B	
600-61802-4	RW-3	Total/NA	Water	8260B	
600-61802-4 - DL	RW-3	Total/NA	Water	8260B	
600-61802-6	RW-5	Total/NA	Water	8260B	
600-61802-6 - DL	RW-5	Total/NA	Water	8260B	

GC/MS VOA (Continued)

Analysis Batch: 89810 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-7	RW-4	Total/NA	Water	8260B	
600-61802-11	AMP-1	Total/NA	Water	8260B	
600-61802-11 - DL	AMP-1	Total/NA	Water	8260B	
600-61802-13	MW-4TCI	Total/NA	Water	8260B	
600-61802-13 - DL	MW-4TCI	Total/NA	Water	8260B	
600-61802-13 MS - DL	MW-4TCI	Total/NA	Water	8260B	
600-61802-13 MSD - DL	MW-4TCI	Total/NA	Water	8260B	
600-61802-18 - DL	AMP-2	Total/NA	Water	8260B	
600-61802-18	AMP-2	Total/NA	Water	8260B	
600-61802-20	MW-12TCI	Total/NA	Water	8260B	
600-61802-20 - DL	MW-12TCI	Total/NA	Water	8260B	
600-61802-21	MW-12TCI DUP	Total/NA	Water	8260B	
LCS 600-89810/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-89810/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 90019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-2 - DL	RW-2	Total/NA	Water	8260B	
600-61802-7 - DL	RW-4	Total/NA	Water	8260B	
600-61802-7 MS - DL	RW-4	Total/NA	Water	8260B	
600-61802-7 MSD - DL	RW-4	Total/NA	Water	8260B	
600-61802-19 - DL	MW-10TCI	Total/NA	Water	8260B	
600-61802-19	MW-10TCI	Total/NA	Water	8260B	
600-61802-20 - DL2	MW-12TCI	Total/NA	Water	8260B	
600-61802-21 - DL	MW-12TCI DUP	Total/NA	Water	8260B	
LCS 600-90019/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-90019/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 90047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-19 - DL2	MW-10TCI	Total/NA	Water	8260B	
600-61802-19 MS - DL2	MW-10TCI	Total/NA	Water	8260B	
600-61802-19 MSD - DL2	MW-10TCI	Total/NA	Water	8260B	
LCS 600-90047/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-90047/4	Method Blank	Total/NA	Water	8260B	

Metals

Prep Batch: 89414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-9	R1-1-13	Total/NA	Water	3010A	
600-61802-9 DU	R1-1-13	Total/NA	Water	3010A	
600-61802-9 MS	R1-1-13	Total/NA	Water	3010A	
600-61802-9 MSD	R1-1-13	Total/NA	Water	3010A	
600-61802-17	MW-6TCI	Total/NA	Water	3010A	
600-61802-18	AMP-2	Total/NA	Water	3010A	
600-61802-19	MW-10TCI	Total/NA	Water	3010A	
600-61802-20	MW-12TCI	Total/NA	Water	3010A	
600-61802-21	MW-12TCI DUP	Total/NA	Water	3010A	
600-61802-23	R1-1-10	Total/NA	Water	3010A	
LCS 600-89414/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 600-89414/1-A	Method Blank	Total/NA	Water	3010A	

Metals (Continued)

Analysis Batch: 89589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-61802-9	R1-1-13	Total/NA	Water	6010B	89414
600-61802-9 DU	R1-1-13	Total/NA	Water	6010B	89414
600-61802-9 MS	R1-1-13	Total/NA	Water	6010B	89414
600-61802-9 MSD	R1-1-13	Total/NA	Water	6010B	89414
600-61802-17	MW-6TCI	Total/NA	Water	6010B	89414
600-61802-18	AMP-2	Total/NA	Water	6010B	89414
600-61802-19	MW-10TCI	Total/NA	Water	6010B	89414
600-61802-20	MW-12TCI	Total/NA	Water	6010B	89414
600-61802-21	MW-12TCI DUP	Total/NA	Water	6010B	89414
600-61802-23	R1-1-10	Total/NA	Water	6010B	89414
LCS 600-89414/2-A	Lab Control Sample	Total/NA	Water	6010B	89414
MB 600-89414/1-A	Method Blank	Total/NA	Water	6010B	89414

Client Sample ID: RW-1

Lab Sample ID: 600-61802-1

Date Collected: 09/20/12 13:52

Matrix: Water

Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	89810	09/28/12 16:34	WS	TAL HOU
Total/NA	Analysis	8260B	DL	1000	89810	09/28/12 17:02	WS	TAL HOU

Client Sample ID: RW-2

Lab Sample ID: 600-61802-2

Date Collected: 09/20/12 14:08

Matrix: Water

Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	89810	09/28/12 17:29	WS	TAL HOU
Total/NA	Analysis	8260B	DL	2000	90019	10/01/12 11:45	WS	TAL HOU

Client Sample ID: POE-1

Lab Sample ID: 600-61802-3

Date Collected: 09/20/12 14:15

Matrix: Water

Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	89810	09/28/12 17:56	WS	TAL HOU
Total/NA	Analysis	8260B	DL	5000	89810	09/28/12 18:23	WS	TAL HOU

Client Sample ID: RW-3

Lab Sample ID: 600-61802-4

Date Collected: 09/20/12 14:25

Matrix: Water

Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	89810	09/28/12 18:50	WS	TAL HOU
Total/NA	Analysis	8260B	DL	5000	89810	09/28/12 19:18	WS	TAL HOU

Client Sample ID: POE-3

Lab Sample ID: 600-61802-5

Date Collected: 09/20/12 15:05

Matrix: Water

Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 17:41	WS	TAL HOU
Total/NA	Analysis	8260B	DL	20	89487	09/25/12 17:47	DT	TAL HOU

Client Sample ID: RW-5

Lab Sample ID: 600-61802-6

Date Collected: 09/20/12 15:10

Matrix: Water

Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	89810	09/28/12 19:45	WS	TAL HOU
Total/NA	Analysis	8260B	DL	200	89810	09/28/12 20:13	WS	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: RW-4

Lab Sample ID: 600-61802-7

Date Collected: 09/20/12 15:21
Date Received: 09/21/12 16:58

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	89810	09/28/12 20:40	WS	TAL HOU
Total/NA	Analysis	8260B	DL	100	90019	10/01/12 10:29	WS	TAL HOU

Client Sample ID: MW-9TCI

Lab Sample ID: 600-61802-8

Date Collected: 09/20/12 16:10
Date Received: 09/21/12 16:58

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 15:18	WS	TAL HOU

Client Sample ID: R1-1-13

Lab Sample ID: 600-61802-9

Date Collected: 09/20/12 16:25
Date Received: 09/21/12 16:58

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 15:47	WS	TAL HOU
Total/NA	Analysis	8260B	DL	100	89530	09/25/12 13:38	WS	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:16	DCL	TAL HOU

Client Sample ID: EB-092012

Lab Sample ID: 600-61802-10

Date Collected: 09/20/12 16:45
Date Received: 09/21/12 16:58

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89487	09/25/12 16:50	DT	TAL HOU

Client Sample ID: AMP-1

Lab Sample ID: 600-61802-11

Date Collected: 09/21/12 08:08
Date Received: 09/21/12 16:58

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		40	89810	09/28/12 15:40	WS	TAL HOU
Total/NA	Analysis	8260B	DL	500	89810	09/28/12 16:07	WS	TAL HOU

Client Sample ID: MW-17TCI

Lab Sample ID: 600-61802-12

Date Collected: 09/21/12 08:54
Date Received: 09/21/12 16:58

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	20	89731	09/27/12 13:07	WS	TAL HOU
Total/NA	Analysis	8260B		1	89731	09/27/12 14:29	WS	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: MW-4TCI

Date Collected: 09/21/12 09:43
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	89810	09/28/12 11:06	WS	TAL HOU
Total/NA	Analysis	8260B	DL	2000	89810	09/28/12 12:27	WS	TAL HOU

Client Sample ID: MW-3TCI

Date Collected: 09/21/12 10:25
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 18:09	WS	TAL HOU

Client Sample ID: MW-5TCI

Date Collected: 09/21/12 08:06
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 18:38	WS	TAL HOU
Total/NA	Analysis	8260B	DL	20	89487	09/25/12 18:44	DT	TAL HOU

Client Sample ID: MW-16TCI

Date Collected: 09/21/12 09:09
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89731	09/27/12 13:34	WS	TAL HOU

Client Sample ID: MW-6TCI

Date Collected: 09/21/12 10:35
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89487	09/25/12 17:18	DT	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:31	DCL	TAL HOU

Client Sample ID: AMP-2

Date Collected: 09/21/12 11:40
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	5000	89810	09/28/12 13:22	WS	TAL HOU
Total/NA	Analysis	8260B		100	89810	09/28/12 12:54	WS	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:35	DCL	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: MW-10TCI

Lab Sample ID: 600-61802-19

Date Collected: 09/21/12 14:02
Matrix: Water
Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	200	90019	10/01/12 13:26	WS	TAL HOU
Total/NA	Analysis	8260B		1	90019	10/01/12 13:51	WS	TAL HOU
Total/NA	Analysis	8260B	DL2	20000	90047	10/02/12 14:06	WS	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:39	DCL	TAL HOU

Client Sample ID: MW-12TCI

Lab Sample ID: 600-61802-20

Date Collected: 09/21/12 15:17
Matrix: Water
Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	89810	09/28/12 13:50	WS	TAL HOU
Total/NA	Analysis	8260B	DL	5000	89810	09/28/12 14:18	WS	TAL HOU
Total/NA	Analysis	8260B	DL2	20000	90019	10/01/12 10:54	WS	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:43	DCL	TAL HOU

Client Sample ID: MW-12TCI DUP

Lab Sample ID: 600-61802-21

Date Collected: 09/21/12 15:17
Matrix: Water
Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	89810	09/28/12 15:13	WS	TAL HOU
Total/NA	Analysis	8260B	DL	10000	90019	10/01/12 11:20	WS	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:54	DCL	TAL HOU

Client Sample ID: MW-14TCI

Lab Sample ID: 600-61802-22

Date Collected: 09/21/12 13:50
Matrix: Water
Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	50	89731	09/27/12 19:38	WS	TAL HOU
Total/NA	Analysis	8260B		1	89731	09/27/12 14:01	WS	TAL HOU

Client Sample ID: R1-1-10

Lab Sample ID: 600-61802-23

Date Collected: 09/21/12 15:20
Matrix: Water
Date Received: 09/21/12 16:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89530	09/25/12 11:36	WS	TAL HOU
Total/NA	Prep	3010A			89414	09/25/12 07:15	DCL	TAL HOU
Total/NA	Analysis	6010B		1	89589	09/26/12 12:58	DCL	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Client Sample ID: EB-092112

Date Collected: 09/21/12 14:58
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-24
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89530	09/25/12 11:07	WS	TAL HOU

Client Sample ID: TB

Date Collected: 09/21/12 00:00
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-25
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 19:35	WS	TAL HOU

Client Sample ID: MW-13TCI

Date Collected: 09/21/12 14:40
Date Received: 09/21/12 16:58

Lab Sample ID: 600-61802-26
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89474	09/24/12 20:02	WS	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-61802-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAC	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAC	6	T104704223-10-6-TX	10-31-12
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAC	8	GULF	10-31-12

Te rica Houston
6310 [illegible] Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Loc: 600
61802

TestAmerica

Client Information	Sampler: S. Horak / C. Hebert	Lab PM: Joiner, Dean A	Car	COC No: 600-16858-6607.5
Client Contact: Ravi Kommajosyula	Phone: 713-914-6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1
Company: URS Corporation				Job #: 1 of 3
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract # 266213.US			
Email: ravi.kommajosyula@urs.com	WO #: Project # 25014684 Vendor # 1160216			
Project Name: Texmark Facility	Project #: 60002844			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_LL - BTEX Only	8260B_LL - Styrene	6010B - Arsenic	BENZENE	ETHYLBENZENE	TOLUENE										Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	A	A	D	A	A	A										X	
RW-1	9/20/12	1352	G	Water				X		X	X	X											
RW-2		1408	G	Water				X		X	X	X											
POE-1		1445	G	Water				X		X	X	X											
RW-3		1425	G	Water				X		X	X	X											
POE-3		1505 (GR)	G	Water				X		X	X	X											
RW-5		1510	G	Water				X		X	X	X											
RW-4		1521	G	Water				X		X	X	X											
MW-9TC1		1610 (GR)	G	Water				X		X	X	X											
RI-1-13		1625	G	Water				X	X	X	X	X											
EB-092012		1645	G	Water						X	X	X											
AMP-1	9/21/2012	0808	G	Water				X		X	X	X											

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Ravi K	9/21/12 0958			09/21/12 458PM	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: S. Horak / C. Hebert	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-16858-6607.5
Client Contact: Ravi Kommajosyula	Phone: 713-914-6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 2 of 3
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract # 266213.US			
Email: ravi.kommajosyula@urs.com	WO #: Project # 25014684 Vendor # 1160216			
Project Name: Texmark Facility	Project #: 60002844			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_LL - BTEX Only	8260B_LL - Styrene	6010B - Arsenic	BENZENE	TOLUENE	ETHYLBENZENE	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	A	D	A	A	A	X	
MW-17 TCI	9/21/2012	0854	G	Water				X		X	X	X		
MW-4 TCI		0943	G	Water				X		X	X	X		
MW-3 TCI		1025	G	Water				X		X	X	X		
MW-5 TCI		~~0808~~ 0806	G	Water				X		X	X	X		
MW-16 TCI		0909	G	Water				X		X	X	X		
MW-6 TCI		1035	G	Water				X	X	X	X	X		
AMP-2		1140	G	Water				X	X	X	X	X		
MW-10 TCI		1402	G	Water				X		X	X	X		
MW-12 TCI		1517	G	Water				X	X	X	X	X		
MW-12 TCI DUP		1517	G	Water				X	X	X	X	X		
MW-14 TCI		1350	G	Water				X		X	X	X		

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Ravi K[illegible]	9/21/12 0458		[illegible]	09/21/12 458 PM	TA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

10/17/2012

Tes[illegible]ca Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica

Client Information	Sampler: S. Horak / C. Hebert	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-16858-6607.5
Client Contact: Ravi Kommajosyula	Phone: 713-914-6699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 3 of 3
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:	Analysis Requested		
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract # 266213.US			
Email: ravi.kommajosyula@urs.com	WO #: Project # 25014684 Vendor # 1160216			
Project Name: Texmark Facility	Project #: 60002844			
Site:	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_LL - BTEX Only	8260B_LL - Styrene	6010B - Arsenic	BENZENE	ETHYLBENZENE	TOLUENE	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	D					
~~MW~~ R1-1-10	9/21/2012	1520	G	Water				X	X	X	X	X		
EB-092112	9/21/12	1458	G	Water						X	X	X		
TB	9/21/12	—	G	Water						X	X	X		
			G	Water										
			G	Water										
			G	Water										
			G	Water										
			G	Water										
			G	Water										
			G	Water										
			G	Water										

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Ravi Kommajosyula	9/21/12 0458		[signature]	09/21/12 450PM	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Page 53 of 55

10/17/2012

Upton, Cathy

From: Hon, Samantha [samantha.hon@urs.com]
Sent: Wednesday, October 17, 2012 4:18 PM
To: Upton, Cathy
Cc: Joiner, Dean; Andrews, Jeremy
Subject: RE: Files from 600-61802-1 Kinder Morgan Texmark

Hi Cathy,

We just realized that we needed to run Xylenes on all the samples in this lab package. Would you mind regenerating the report with Xylenes included? We need this pretty quickly, so if you can get this to us as soon as you can, we'd really appreciate it. Sorry for mix-up.

Thanks!
Sam

Samantha Hon

URS Corporation
10550 Richmond Ave Suite 155
Houston, TX 77042
Direct: 713-914-6576
Main: 713-914-6699
Fax: 713-789-8404

From: Upton, Cathy [mailto:cathy.upton@testamericainc.com]
Sent: Friday, October 05, 2012 4:12 PM
To: Waddail, Aubrey; Patel, Raaj; Kommajosyula, Ravi; Hon, Samantha
Subject: Files from 600-61802-1 Kinder Morgan Texmark

Please find the attached report for the group listed above and contact Dean Joiner if you have any questions.

Thank you,

CATHY L UPTON

TestAmerica Houston
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 713.690.4444
www.testamericainc.com

Reference: [126038]
Attachments: 2

This e-mail and any attachments contain URS Corporation confidential information that may be proprietary or privileged. If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies.

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-61802-1

Login Number: 61802
List Number: 1
Creator: Trenery, Michael J

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-68603-1
Client Project/Site: Kinder Morgan Texmark

For:
URS Corporation
10550 Richmond Ave
Houston, Texas 77042

Attn: Ravi Kommajosyula

Authorized for release by:
2/26/2013 11:38:50 AM
Cathy Upton
Data Delivery Analyst
cathy.upton@testamericainc.com

Designee for

Dean Joiner
Project Manager I
dean.joiner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 15
Surrogate Summary 16
QC Sample Results 17
Default Detection Limits 21
QC Association Summary 22
Lab Chronicle 23
Certification Summary 24
Chain of Custody 25
Receipt Checklists 26

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-68603-1

Project Name/Number: Kinder Morgan Texmark

This Data Package consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Cathy Upton		02/26/2013
Name (printed)	Signature	Date
Data Delivery Analyst		
Official Title (printed)		

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 02/22/13
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-68603
Reviewer Name: YX	Prep Batch Number: 600-99606, 99666, 99671 and 99904-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X			1
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		2
		Were MS/MSD RPDs within laboratory QC limits?			X		2
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				3
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 02/22/13
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-68603
Reviewer Name: YX	Prep Batch Number: 600-99606, 99666, 99671 and 99904-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 02/22/13
Project Name: Kinder Morgan Texmark	Laboratory Job Number: 600-68603
Reviewer Name: YX	Prep Batch Number: 600-99606, 99666, 99671 and 99904-VOA

ER #[1]	DESCRIPTION
1	See Case Narrative.
2	The laboratory selected samples from other groups to perform as the MS/MSDs.
3	All of the SDLs in samples 600-68603-2 and 4 were elevated due to the nature of the sample matrix.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Detection Check Standard

Matrix:	Water
Method:	8260B_LL
Preparation:	Wei Shen
Date Analyzed:	10/8/2012
Date Prepared:	10/8/2012
TALs Batches:	A25003.D
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Dichlorodifluoromethane	0.12	1	0.0281	5
Chloromethane	0.18	1	0.355	10
Vinyl Chloride	0.11	0.5	0.131	10
Bromomethane	0.25	1	0.882	10
Chloroethane	0.08	0.5	0.208	10
Allyl chloride	2	1	1.84	5
Acrolein	1.63	1	4.34	5
1,1-Dichloroethene	0.19	0.5	4.3	5
trans-1,2-Dichloroethene	0.09	0.5	4.68	5
Trichlorotrifluoroethane	1	1	0.534	5
Acetone	0.99	1	1.87	5
Methyl Iodide (Iodomethane)	2	1	2.29	5
Carbon Disulfide	0.24	1	2.6	5
2-Propanol (Isopropyl alcohol)	3.72	1	7.51	5
Acetonitrile	0.27	1	1.21	5
Methylene Chloride	0.15	0.5	1.79	10
Methyl tert-butyl ether	0.12	0.5	0.704	5
Vinyl Acetate	0.21	0.5	0.776	5
Acrylonitrile	0.52	1	2.71	5
Chloroprene (2-Chloro-1,3-butadiene)	0.33	1	1.16	5
Propionitrile	0.66	1	1.58	5
cis-1,2-Dichloroethene	0.06	0.5	0.659	5
1,2-Dichloroethene	0.3	1	1.45	5
2-Butanone (MEK)	0.76	1	1.64	5
Isobutyl alcohol	3.32	1	8.48	5
Bromochloromethane	0.18	0.5	0.436	5
Methacrylonitrile	0.41	1	1.62	5
Carbon Tetrachloride	0.15	0.5	0.318	5
Benzene	0.08	0.5	0.355	5
1,2-Dichloroethane	0.14	0.5	0.379	5
Trichloroethene	0.13	0.5	0.343	5
1,1,1-Trichloroethane	0.15	0.5	0.306	5
1,1-Dichloropropene	0.11	0.5	0.281	5
1,2-Dichloroethane	0.3	0.5	0.316	5
1,2-Dichloropropane	0.16	0.5	0.292	5
2,2-Dichloropropane	0.13	1	0.682	5
Methylene Bromide (Bromomethane)	0.25	0.5	0.328	5
1,4-Dioxane	30.79	1	34.08	250
Methyl methacrylate	0.33	1	1.55	5

Bromodichloromethane	0.16	0.5	0.715	5
2-Chloroethyl vinyl ether	0.5	1	2.04	5
1,1-Dichloropropane	0.21	0.5	0.774	5
cis-1,3-Dichloropropene	0.18	0.5	0.718	5
4-Methyl-2-pentanone	0.45	1	2.42	10
Toluene	0.15	0.5	0.431	5
trans-1,3-Dichloropropene	0.21	0.5	0.406	5
Ethyl Methacrylate	0.94	1	0.686	10
1,1,2-Trichloroethane	0.18	0.5	0.401	5
Tetrachloroethene	0.18	0.5	0.823	5
1,3-Dichloropropane	0.22	1	0.89	5
2-Hexanone	0.35	1	2.01	10
Dibromochloromethane	0.16	0.5	0.811	5
1,2-Dibromoethane (Ethylene bromide)	0.18	0.5	0.373	5
Chlorobenzene	0.12	0.5	0.424	5
1,1,1,2-Tetrachloroethane	0.18	0.5	0.401	5
Ethylbenzene	0.11	0.5	0.357	5
m,p-Xylene	0.17	0.5	0.741	10
o-Xylene	0.12	0.5	0.37	5
Xylenes (total)	0.26	0.5	1.11	5
Styrene	0.07	0.5	0.344	5
Bromoform	0.19	0.5	0.915	5
Isopropylbenzene	0.18	0.5	0.367	5
Bromobenzene	0.19	0.5	0.457	5
1,2,3-Trichloropropane	0.29	1	0.89	5
1,1,2,2-Tetrachloroethane	0.22	1	0.729	5
trans-1,4-Dichloro-2-butene	0.64	1	2.36	5
n-Propylbenzene	0.15	0.5	0.372	5
2-Chlorotoluene	0.13	0.5	0.424	5
4-Chlorotoluene	0.14	0.5	0.442	5
1,3,5-Trimethylbenzene	0.1	0.5	0.392	5
tert-Butylbenzene	0.08	0.5	0.359	5
p-Isopropyltoluene	0.1	0.5	0.329	5
1,2,4-Trimethylbenzene	0.14	0.5	0.388	5
sec-Butylbenzene	0.12	0.5	0.329	5
1,3-Dichlorobenzene	0.13	0.5	0.437	5
1,4-Dichlorobenzene	0.11	0.5	0.475	5
1,2-Dichlorobenzene	0.1	0.5	0.466	5
n-Butylbenzene	0.16	0.5	0.297	5
1,2-Dibromo-3-chloropropane	0.33	1	1.2	5
1,2,4-Trichlorobenzene	0.31	1	0.849	5
Hexachlorobutadiene	0.17	0.5	0.363	5
Naphthalene	0.32	1	1.09	5
1,2,3-Trichlorobenzene	0.57	1	0.867	5

Job ID: 600-68603-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-68603-1

Comments
No additional comments.

Receipt
The samples were received on 2/14/2013 9:39 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

Except:

The following sample(s) was listed on the Chain of Custody (COC); however, no sample(s) was received: unpreserved VOAs for each sample.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-68603-1	Equipment Blank	Water	02/13/13 11:00	02/14/13 09:39
600-68603-2	RW-9	Water	02/13/13 11:30	02/14/13 09:39
600-68603-3	MW-19	Water	02/13/13 12:40	02/14/13 09:39
600-68603-4	MW-20	Water	02/13/13 01:40	02/14/13 09:39
600-68603-5	MW-18	Water	02/13/13 03:15	02/14/13 09:39
600-68603-6	Trip Blank	Water	02/13/13 00:00	02/14/13 09:39

Client Sample ID: Equipment Blank

Lab Sample ID: 600-68603-1
Matrix: Water

Date Collected: 02/13/13 11:00
Date Received: 02/14/13 09:39

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/15/13 17:27	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/15/13 17:27	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/15/13 17:27	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/15/13 17:27	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/15/13 17:27	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/15/13 17:27	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/15/13 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*02/15/13 17:27*	*1*
Dibromofluoromethane	*75*		*62 - 130*		*02/15/13 17:27*	*1*
Toluene-d8 (Surr)	*81*		*70 - 130*		*02/15/13 17:27*	*1*
4-Bromofluorobenzene	*102*		*67 - 139*		*02/15/13 17:27*	*1*

Client Sample ID: RW-9

Lab Sample ID: 600-68603-2
Matrix: Water

Date Collected: 02/13/13 11:30
Date Received: 02/14/13 09:39

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0184	J	0.100	0.00800	mg/L			02/14/13 21:49	100
Ethylbenzene	0.0110	U	0.100	0.0110	mg/L			02/14/13 21:49	100
Toluene	0.0150	U	0.100	0.0150	mg/L			02/14/13 21:49	100
Xylenes, Total	0.0260	U	0.300	0.0260	mg/L			02/14/13 21:49	100
m-Xylene & p-Xylene	0.0170	U	0.200	0.0170	mg/L			02/14/13 21:49	100
o-Xylene	0.0120	U	0.100	0.0120	mg/L			02/14/13 21:49	100
Styrene	0.00700	U	0.100	0.00700	mg/L			02/14/13 21:49	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*50 - 134*		*02/14/13 21:49*	*100*
Dibromofluoromethane	*75*		*62 - 130*		*02/14/13 21:49*	*100*
Toluene-d8 (Surr)	*79*		*70 - 130*		*02/14/13 21:49*	*100*
4-Bromofluorobenzene	*105*		*67 - 139*		*02/14/13 21:49*	*100*

Client Sample ID: MW-19

Lab Sample ID: 600-68603-3
Matrix: Water

Date Collected: 02/13/13 12:40
Date Received: 02/14/13 09:39

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000365	J	0.00100	0.0000800	mg/L			02/16/13 19:30	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/16/13 19:30	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/16/13 19:30	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/16/13 19:30	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/16/13 19:30	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/16/13 19:30	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/16/13 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*50 - 134*		*02/16/13 19:30*	*1*

Client Sample ID: MW-19

Date Collected: 02/13/13 12:40
Date Received: 02/14/13 09:39

Lab Sample ID: 600-68603-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*81*		*62 - 130*		*02/16/13 19:30*	*1*
Toluene-d8 (Surr)	*91*		*70 - 130*		*02/16/13 19:30*	*1*
4-Bromofluorobenzene	*110*		*67 - 139*		*02/16/13 19:30*	*1*

Client Sample ID: MW-20

Date Collected: 02/13/13 01:40
Date Received: 02/14/13 09:39

Lab Sample ID: 600-68603-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000400	U	0.00500	0.000400	mg/L			02/19/13 13:19	5
Ethylbenzene	0.000550	U	0.00500	0.000550	mg/L			02/19/13 13:19	5
Toluene	0.000750	U	0.00500	0.000750	mg/L			02/19/13 13:19	5
Xylenes, Total	0.00130	U	0.0150	0.00130	mg/L			02/19/13 13:19	5
m-Xylene & p-Xylene	0.000850	U	0.0100	0.000850	mg/L			02/19/13 13:19	5
o-Xylene	0.000600	U	0.00500	0.000600	mg/L			02/19/13 13:19	5
Styrene	0.000350	U	0.00500	0.000350	mg/L			02/19/13 13:19	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*		*02/19/13 13:19*	*5*
Dibromofluoromethane	*79*		*62 - 130*		*02/19/13 13:19*	*5*
Toluene-d8 (Surr)	*74*		*70 - 130*		*02/19/13 13:19*	*5*
4-Bromofluorobenzene	*100*		*67 - 139*		*02/19/13 13:19*	*5*

Client Sample ID: MW-18

Date Collected: 02/13/13 03:15
Date Received: 02/14/13 09:39

Lab Sample ID: 600-68603-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000675	J	0.00100	0.0000800	mg/L			02/15/13 17:55	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/15/13 17:55	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/15/13 17:55	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/15/13 17:55	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/15/13 17:55	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/15/13 17:55	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/15/13 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*02/15/13 17:55*	*1*
Dibromofluoromethane	*75*		*62 - 130*		*02/15/13 17:55*	*1*
Toluene-d8 (Surr)	*85*		*70 - 130*		*02/15/13 17:55*	*1*
4-Bromofluorobenzene	*105*		*67 - 139*		*02/15/13 17:55*	*1*

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Client Sample ID: Trip Blank
Date Collected: 02/13/13 00:00
Date Received: 02/14/13 09:39

Lab Sample ID: 600-68603-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/15/13 16:16	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/15/13 16:16	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/15/13 16:16	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/15/13 16:16	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/15/13 16:16	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/15/13 16:16	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/15/13 16:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*50 - 134*		*02/15/13 16:16*	*1*
Dibromofluoromethane	*93*		*62 - 130*		*02/15/13 16:16*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*02/15/13 16:16*	*1*
4-Bromofluorobenzene	*83*		*67 - 139*		*02/15/13 16:16*	*1*

Definitions/Glossary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(50-134)	(62-130)	(70-130)	(67-139)
600-68603-1	Equipment Blank	79	75	81	102
600-68603-2	RW-9	84	75	79	105
600-68603-3	MW-19	81	81	91	110
600-68603-4	MW-20	88	79	74	100
600-68603-5	MW-18	80	75	85	105
600-68603-6	Trip Blank	81	93	92	83
LCS 600-99606/3	Lab Control Sample	83	83	88	105
LCS 600-99666/3	Lab Control Sample	89	95	92	89
LCS 600-99671/4	Lab Control Sample	82	82	87	101
LCS 600-99791/4	Lab Control Sample	82	80	85	100
LCS 600-99904/4	Lab Control Sample	83	82	77	94
MB 600-99606/4	Method Blank	80	76	84	104
MB 600-99666/4	Method Blank	82	91	92	84
MB 600-99671/6	Method Blank	81	73	82	106
MB 600-99791/6	Method Blank	79	75	84	104
MB 600-99904/6	Method Blank	83	74	76	101

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-99606/4
Matrix: Water
Analysis Batch: 99606

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/14/13 13:46	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/14/13 13:46	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/14/13 13:46	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/14/13 13:46	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/14/13 13:46	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/14/13 13:46	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/14/13 13:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*50 - 134*		*02/14/13 13:46*	*1*
Dibromofluoromethane	*76*		*62 - 130*		*02/14/13 13:46*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*02/14/13 13:46*	*1*
4-Bromofluorobenzene	*104*		*67 - 139*		*02/14/13 13:46*	*1*

Lab Sample ID: LCS 600-99606/3
Matrix: Water
Analysis Batch: 99606

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01038		mg/L		104	69 - 131
Ethylbenzene	0.0100	0.009980		mg/L		100	68 - 128
Toluene	0.0100	0.01023		mg/L		102	67 - 130
Xylenes, Total	0.0300	0.03057		mg/L		102	68 - 132
m-Xylene & p-Xylene	0.0200	0.02034		mg/L		102	67 - 132
o-Xylene	0.0100	0.01023		mg/L		102	68 - 134
Styrene	0.0100	0.009775		mg/L		98	68 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*83*		*50 - 134*
Dibromofluoromethane	*83*		*62 - 130*
Toluene-d8 (Surr)	*88*		*70 - 130*
4-Bromofluorobenzene	*105*		*67 - 139*

Lab Sample ID: MB 600-99666/4
Matrix: Water
Analysis Batch: 99666

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/15/13 11:14	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/15/13 11:14	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/15/13 11:14	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/15/13 11:14	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/15/13 11:14	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/15/13 11:14	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/15/13 11:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-99666/4
Matrix: Water
Analysis Batch: 99666

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		50 - 134		02/15/13 11:14	1
Dibromofluoromethane	91		62 - 130		02/15/13 11:14	1
Toluene-d8 (Surr)	92		70 - 130		02/15/13 11:14	1
4-Bromofluorobenzene	84		67 - 139		02/15/13 11:14	1

Lab Sample ID: LCS 600-99666/3
Matrix: Water
Analysis Batch: 99666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.009607		mg/L		96	69 - 131
Ethylbenzene	0.0100	0.01071		mg/L		107	68 - 128
Toluene	0.0100	0.01102		mg/L		110	67 - 130
Xylenes, Total	0.0300	0.03334		mg/L		111	68 - 132
m-Xylene & p-Xylene	0.0200	0.02189		mg/L		109	67 - 132
o-Xylene	0.0100	0.01145		mg/L		114	68 - 134
Styrene	0.0100	0.01143		mg/L		114	68 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		50 - 134
Dibromofluoromethane	95		62 - 130
Toluene-d8 (Surr)	92		70 - 130
4-Bromofluorobenzene	89		67 - 139

Lab Sample ID: MB 600-99671/6
Matrix: Water
Analysis Batch: 99671

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/15/13 12:14	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/15/13 12:14	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/15/13 12:14	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/15/13 12:14	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/15/13 12:14	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/15/13 12:14	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/15/13 12:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		50 - 134		02/15/13 12:14	1
Dibromofluoromethane	73		62 - 130		02/15/13 12:14	1
Toluene-d8 (Surr)	82		70 - 130		02/15/13 12:14	1
4-Bromofluorobenzene	106		67 - 139		02/15/13 12:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-99671/4
Matrix: Water
Analysis Batch: 99671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01036		mg/L		104	69 - 131
Ethylbenzene	0.0100	0.01014		mg/L		101	68 - 128
Toluene	0.0100	0.01035		mg/L		104	67 - 130
Xylenes, Total	0.0300	0.03159		mg/L		105	68 - 132
m-Xylene & p-Xylene	0.0200	0.02096		mg/L		105	67 - 132
o-Xylene	0.0100	0.01063		mg/L		106	68 - 134
Styrene	0.0100	0.009944		mg/L		99	68 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*82*		*50 - 134*
Dibromofluoromethane	*82*		*62 - 130*
Toluene-d8 (Surr)	*87*		*70 - 130*
4-Bromofluorobenzene	*101*		*67 - 139*

Lab Sample ID: MB 600-99791/6
Matrix: Water
Analysis Batch: 99791.

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/16/13 10:38	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/16/13 10:38	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/16/13 10:38	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/16/13 10:38	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/16/13 10:38	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/16/13 10:38	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/16/13 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*02/16/13 10:38*	*1*
Dibromofluoromethane	*75*		*62 - 130*		*02/16/13 10:38*	*1*
Toluene-d8 (Surr)	*84*		*70 - 130*		*02/16/13 10:38*	*1*
4-Bromofluorobenzene	*104*		*67 - 139*		*02/16/13 10:38*	*1*

Lab Sample ID: LCS 600-99791/4
Matrix: Water
Analysis Batch: 99791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01044		mg/L		104	69 - 131
Ethylbenzene	0.0100	0.009855		mg/L		99	68 - 128
Toluene	0.0100	0.01022		mg/L		102	67 - 130
Xylenes, Total	0.0300	0.03094		mg/L		103	68 - 132
m-Xylene & p-Xylene	0.0200	0.02054		mg/L		103	67 - 132
o-Xylene	0.0100	0.01040		mg/L		104	68 - 134
Styrene	0.0100	0.009881		mg/L		99	68 - 133

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-99791/4
Matrix: Water
Analysis Batch: 99791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		50 - 134
Dibromofluoromethane	80		62 - 130
Toluene-d8 (Surr)	85		70 - 130
4-Bromofluorobenzene	100		67 - 139

Lab Sample ID: MB 600-99904/6
Matrix: Water
Analysis Batch: 99904

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			02/19/13 11:53	1
Ethylbenzene	0.000110	U	0.00100	0.000110	mg/L			02/19/13 11:53	1
Toluene	0.000150	U	0.00100	0.000150	mg/L			02/19/13 11:53	1
Xylenes, Total	0.000260	U	0.00300	0.000260	mg/L			02/19/13 11:53	1
m-Xylene & p-Xylene	0.000170	U	0.00200	0.000170	mg/L			02/19/13 11:53	1
o-Xylene	0.000120	U	0.00100	0.000120	mg/L			02/19/13 11:53	1
Styrene	0.0000700	U	0.00100	0.0000700	mg/L			02/19/13 11:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		50 - 134		02/19/13 11:53	1
Dibromofluoromethane	74		62 - 130		02/19/13 11:53	1
Toluene-d8 (Surr)	76		70 - 130		02/19/13 11:53	1
4-Bromofluorobenzene	101		67 - 139		02/19/13 11:53	1

Lab Sample ID: LCS 600-99904/4
Matrix: Water
Analysis Batch: 99904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01010		mg/L		101	69 - 131
Ethylbenzene	0.0100	0.009555		mg/L		96	68 - 128
Toluene	0.0100	0.009290		mg/L		93	67 - 130
Xylenes, Total	0.0300	0.03049		mg/L		102	68 - 132
m-Xylene & p-Xylene	0.0200	0.02024		mg/L		101	67 - 132
o-Xylene	0.0100	0.01025		mg/L		102	68 - 134
Styrene	0.0100	0.009734		mg/L		97	68 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		50 - 134
Dibromofluoromethane	82		62 - 130
Toluene-d8 (Surr)	77		70 - 130
4-Bromofluorobenzene	94		67 - 139

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units	Method
Benzene	0.00100	0.0000800	mg/L	8260B
Ethylbenzene	0.00100	0.000110	mg/L	8260B
m-Xylene & p-Xylene	0.00200	0.000170	mg/L	8260B
o-Xylene	0.00100	0.000120	mg/L	8260B
Styrene	0.00100	0.0000700	mg/L	8260B
Toluene	0.00100	0.000150	mg/L	8260B
Xylenes, Total	0.00300	0.000260	mg/L	8260B

QC Association Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

GC/MS VOA

Analysis Batch: 99606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-68603-2	RW-9	Total/NA	Water	8260B	
LCS 600-99606/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-99606/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 99666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-68603-6	Trip Blank	Total/NA	Water	8260B	
LCS 600-99666/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-99666/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 99671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-68603-1	Equipment Blank	Total/NA	Water	8260B	
600-68603-5	MW-18	Total/NA	Water	8260B	
LCS 600-99671/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-99671/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 99791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-68603-3	MW-19	Total/NA	Water	8260B	
LCS 600-99791/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-99791/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 99904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-68603-4	MW-20	Total/NA	Water	8260B	
LCS 600-99904/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-99904/6	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Client Sample ID: Equipment Blank

Lab Sample ID: 600-68603-1
Matrix: Water
Date Collected: 02/13/13 11:00
Date Received: 02/14/13 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	99671	02/15/13 17:27	DT	TAL HOU

Client Sample ID: RW-9

Lab Sample ID: 600-68603-2
Matrix: Water
Date Collected: 02/13/13 11:30
Date Received: 02/14/13 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	99606	02/14/13 21:49	DT	TAL HOU

Client Sample ID: MW-19

Lab Sample ID: 600-68603-3
Matrix: Water
Date Collected: 02/13/13 12:40
Date Received: 02/14/13 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	99791	02/16/13 19:30	DT	TAL HOU

Client Sample ID: MW-20

Lab Sample ID: 600-68603-4
Matrix: Water
Date Collected: 02/13/13 01:40
Date Received: 02/14/13 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	99904	02/19/13 13:19	DT	TAL HOU

Client Sample ID: MW-18

Lab Sample ID: 600-68603-5
Matrix: Water
Date Collected: 02/13/13 03:15
Date Received: 02/14/13 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	99671	02/15/13 17:55	DT	TAL HOU

Client Sample ID: Trip Blank

Lab Sample ID: 600-68603-6
Matrix: Water
Date Collected: 02/13/13 00:00
Date Received: 02/14/13 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	99666	02/15/13 16:16	DT	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark

TestAmerica Job ID: 600-68603-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-12
Louisiana	NELAP	6	01967	06-30-13
Oklahoma	State Program	6	9503	08-31-13
Texas	NELAP	6	T104704223-10-6-TX	10-31-13
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13

Test America Houston
6310 Rotnway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2/26/2013

Client Information	Sampler: Ravi Kommajosyula	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-16858-6607.5
Client Contact: Ravi Kommajosyula	Phone: (713) 914-1699	E-Mail: dean.joiner@testamericainc.com		Page: Page 1
Company: URS Corporation				Job #:
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Subcontract # 266213.US			
Email: ravi.kommajosyula@urs.com	WO #: Project # 25014684 Vendor # 1160216			
Project Name: Texmark Facility	Project #: 60002844			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_LL - BTEX Only	8260B_LL - Styrene	[illegible]	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	D		
Equipment Blank	2/13/13	1100	G	Water			X	X			
RW-9	2/13/13	1130	G	Water			X	X			
MW-19	2/13/13	1240	G	Water			X	X			
MW-20	2/13/13	0140	G	Water			X	X			
MW-18	2/13/13	0315	G	Water			X	X			
Trip Blank	LAB		G	Water			X				
Temp Blank	LAB		G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Ravi Kommajosyula	2/14/13 0845		[signature]	02/14/13 0939	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-68603-1

Login Number: 68603

List Number: 1

Creator: Pulumbarit, Josh

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Data Usability Summary

To:	Celeste Wieting	**Date:**	January 22, 2014
From:	Brenda Basile	**File:**	Kinder Morgan Texmark 1213 DUS.doc
RE:	Review of Groundwater Samples Collected December 2013	**CC:**	Samantha Hon

URS reviewed one laboratory report from TestAmerica (Houston, Texas) reporting the analytical results for groundwater samples collected December 11 to December 16, 2013 at the Kinder Morgan Texmark site. The package was reviewed for conformance to the requirements of *SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846) and *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13). The purpose of this sample event was to provide data on concentrations of chemicals of concern (COCs) in groundwater.

The TestAmerica laboratory is accredited under Texas certificate T104704223-14-12. TestAmerica is accredited for the matrices, methods and analytes reported in this laboratory report.

Groundwater and associated quality control samples were analyzed using the following methods:

- SW-846 8260B - Volatile Organic Compounds by Gas Chromatography-Mass Spectrometry (GC/MS)

Data were reviewed as described in the RG-366/TRRP-13 Guidance Document and the results of the review are discussed in this Data Usability Summary (DUS). The reportable data, laboratory review checklists (LRCs) and exception reports (ERs) were reviewed.

Introduction

Groundwater and associated quality control (QC) samples were analyzed for benzene using the method listed above. Table 1 lists the sample identifications cross-referenced to laboratory identifications and the analyses performed for each sample. Samples were analyzed for parameters as listed on the chain-of-custody (C-O-C). No data were qualified due to exceedances of quality control criteria.

QC Results

PRESERVATION AND HOLDING TIMES

Samples were received at the laboratory at temperatures less than 6°C. Samples were prepared and analyzed within holding times specified in Chapter Two of SW-846.

CALIBRATIONS

Initial calibration data and instrument performance calibrations (GC/MS tunes) were not submitted in the data packages. Continuing calibration data were not submitted in the data packages. The TCEQ does not require calibration data as part of the data package deliverables. According to the LRCs, tunes and calibrations were acceptable.

BLANKS

No analytes were detected in field or laboratory quality control blanks.

SURROGATE RECOVERIES AND INTERNAL STANDARD AREAS

Surrogate recoveries were within the default RG-366/TRRP-13 acceptance criteria of 60-140 percent recovery (%R). TestAmerica stated on the LRCs that internal standard areas were acceptable.

LABORATORY CONTROL SAMPLES

Laboratory control sample (LCS) recoveries were within the default RG-366/TRRP-13 acceptance criteria of 60-140%R for organic analytes.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Batch, or non-project, matrix spike/matrix spike duplicate (MS/MSD) data were not evaluated.

FIELD PRECISION

Field duplicate precision is summarized in Table 2. Data are evaluated using 30 relative percent difference (RPD) as the criterion for groundwater. Field duplicate precision is acceptable.

SUMMARY

Analytical data are usable for determining concentrations of COCs in groundwater at the Kinder Morgan Texmark Site.

Table 1 Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	8260	Comment
ROW 2	600-84195-01	X	
ROW 1	600-84195-02	X	
ROW 5	600-84195-03	X	
ROW 4	600-84195-04	X	
MW-07 TCI	600-84195-05	X	
ROW 3	600-84195-06	X	
EQ Blank 1	600-84195-07	X	Equipment Blank
MW-19 TCI	600-84195-08	X	
MW-05 TCI	600-84195-09	X	
MW-16	600-84195-10	X	
MW-14 TCI	600-84195-11	X	
MW-14 TCI DUP	600-84195-12	X	Field duplicate of MW-14 TCI
EQ Blank 2	600-84195-13	X	Equipment Blank
MW-08 TCI	600-84195-14	X	
TMW-21 TCI	600-84195-15	X	
EQ Blank 3	600-84195-16	X	Equipment Blank
Trip Blank	600-84195-17	X	Trip Blank

Table 5 Field Precision

Field Identification	Analyte	Sample Result	Duplicate Result	RPD	Qualification
MW-14 TCI / MW-14 TCI DUP	Benzene	0.0443	0.0338	27	A
RPD = ((SR - DR)*200)/ (SR + DR) A – Acceptable					



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-84195-1
Client Project/Site: Kinder Morgan Texmark GW

For:
URS Corporation
10550 Richmond Avenue
Suite 155
Houston, Texas 77042

Attn: Raaj Patel

Authorized for release by:
12/24/2013 3:35:55 PM
Sophia Shah, Project Management Assistant I
sophia.shah@testamericainc.com

Designee for

Dean Joiner, Project Manager II
(713)690-4444
dean.joiner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
TRRP Cover Page 3
TRRP Checklists & DCSs 4
Case Narrative 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Definitions/Glossary 17
Surrogate Summary 18
QC Sample Results 19
Default Detection Limits 21
QC Association Summary 22
Lab Chronicle 23
Certification Summary 26
Chain of Custody 27
Receipt Checklists 29

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Houston
TRRP Data Package Cover Page

Job Number: 600-84195-1
Project Name/Number: Kinder Morgan Texmark GW

This Data Package- consists of:

This signature page, the laboratory review checklist, and the following Reportable Data:

- ☒ R1 Field Chain-of-Custody Form
- ☒ R2 Sample Identification Cross-reference;
- ☒ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ R4 Surrogate Recovery Data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ R5 Test Reports/Summary Forms for Blank Samples;
- ☒ R6 Test Reports/Summary Forms for Laboratory Control Samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - d) The laboratory's LCS QC limits
- ☒ R7 Test Reports for Matrix Spike/Matrix Spike Duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked sample,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ R8 Laboratory analytical duplicates (if applicable) recovery and precision, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ R9 List of method quantitation limit (MQL) and detectability check sample results for each analyte for each method and matrix;
- ☒ R10 Other problems or anomalies

The exception report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under Texas laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm, to the best of my knowledge, that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Sophia Shah		12/24/2013
Name (printed)	Signature	Date

Project Management Assistant
Official Title (printed)

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/24/13
Project Name: Kinder Morgan Texmark GW	Laboratory Job Number: 600-84195
Reviewer Name: YX	Prep Batch Number: 600-123145, 123327, 123395 and 123399-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		1
		Were MS/MSD RPDs within laboratory QC limits?			X		1
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				2
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: TestAmerica-Houston	LRC Date: 12/24/13
Project Name: Kinder Morgan Texmark GW	Laboratory Job Number: 600-84195
Reviewer Name: YX	Prep Batch Number: 600-123145, 123327, 123395 and 123399-VOA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Exception Reports	
Laboratory Name: TestAmerica-Houston	LRC Date: 12/24/13
Project Name: Kinder Morgan Texmark GW	Laboratory Job Number: 600-84195
Reviewer Name: YX	Prep Batch Number: 600-123145, 123327, 123395 and 123399-VOA

ER #[1]	DESCRIPTION
1	The laboratory selected samples from another groups to perform as the MS/MSDs.
2	Benzene SDL was elevated in samples 600-84195-9 and 15 due to the high concentration of this analyte.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Detection Check Standard

Matrix:	Water
Method:	8260B_LL
Preparation:	Wei Shen
Date Analyzed:	8/27/2013
Date Prepared:	8/27/2013
TALs Batches:	600-114138
Units:	ug/L

Analyte	MDL	DCS Spike	Measured Result	MQL
Bromomethane	0.25	0.5	0.542	2
Chloroethane	0.08	0.5	0.476	2
Trichlorofluoromethane	0.08	0.25	0.201	1
1,1-Dichloroethene	0.19	0.5	0.496	1
trans-1,2-Dichloroethene	0.09	0.25	0.256	1
Methyl Iodide (Iodomethane)	2	0.5	0.502	2
Carbon Disulfide	0.24	0.5	0.555	1
Methylene Chloride	0.15	0.5	2.04	1
Acetonitrile	0.27	0.75	0.425	1
Methyl tert-butyl ether	0.12	0.25	0.242	1
Chloroprene (2-Chloro-1,3-butadiene)	0.33	0.5	0.468	2
cis-1,2-Dichloroethene	0.3	0.25	0.251	1
1,2-Dichloroethene	0.3	0.5	0.507	1
Chlorobromomethane	0.18	0.5	0.514	1
Carbon Tetrachloride	0.15	0.5	0.768	5
Benzene	0.08	0.25	0.249	1
1,2-Dichloroethane	0.14	0.5	0.456	1
Trichloroethene	0.13	0.25	0.246	1
1,1,1-Trichloroethane	0.15	0.25	0.246	1
1,1-Dichloroethane	0.11	0.25	0.25	1
1,2-Dichloropropane	0.16	0.5	0.504	1
cis-1,3-Dichloropropene	0.18	0.5	0.496	1
Methylene Bromide (Bromomethane)	0.25	0.5	0.542	1
Methyl methacrylate	0.33	1.5	1.23	1
4-Methyl-2-pentanone	0.45	0.5	0.492	2
Toluene	0.15	0.25	0.256	1
trans-1,3-Dichloropropene	0.21	0.5	0.444	1
Ethyl methacrylate	0.26	1.5	1.38	1
1,1,2-Trichloroethane	0.28	0.5	0.498	1
Tetrachloroethene	0.18	0.25	0.322	1
1,3-Dichloropropane	0.22	0.25	0.214	1
Dibromochloromethane	0.16	0.5	0.505	1
1,2-Dibromoethane (Ethylene bromide)	0.18	0.5	0.489	1
Chlorobenzene	0.12	0.25	0.214	1
Ethylbenzene	0.11	0.25	0.21	1
m,p-Xylene	0.17	0.25	0.39	2
o-Xylene	0.12	0.25	0.245	1
Xylenes (total)	0.26	0.75	0.635	3
Styrene	0.07	0.5	0.411	1

BPB

Bromoform	0.19	0.5	0.551	1
Chloroform	0.13	0.25	0.228	1
Isopropylbenzene	0.18	0.25	0.237	1
Bromobenzene	0.19	0.25	0.305	1
n-Propylbenzene	0.15	0.25	0.296	1
2-Chlorotoluene	0.13	0.25	0.265	1
4-Chlorotoluene	0.14	0.25	0.231	1
1,3,5-Trimethylbenzene	0.1	0.25	0.249	1
tert-Butylbenzene	0.08	0.25	0.273	1
p-Isopropyltoluene	0.1	0.25	0.248	1
1,2,4-Trimethylbenzene	0.14	0.25	0.246	1
sec-Butylbenzene	0.12	0.25	0.242	1
1,3-Dichlorobenzene	0.13	0.25	0.284	1
1,4-Dichlorobenzene	0.11	0.25	0.299	1
1,2-Dichlorobenzene	0.1	0.5	0.503	1
n-Butylbenzene	0.16	0.5	0.396	1
Naphthalene	0.32	0.5	0.505	1
1,1,1,2-Tetrachloroethane	0.18	0.5	1	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.5	0.201	1
1,1-Dichloropropene	0.21	0.5	0.453	1
4-Isopropyltoluene	0.1	0.5	0.496	1
Acrylonitrile	0.52	1.5	0.855	2
Dibromomethane	0.52	0.5	0.529	1
Dichlorobromomethane	0.16	0.5	0.514	1
Isopropyl ether	0.09	0.5	0.516	
1-Chlorohexane	0.26	0.5	0.556	1
1,2,3-Trimethylbenzene	0.13	0.5	0.759	1
Benzyl chloride	0.24	5	3.14	1
Butyl methacrylate	0.28	5	4.46	1
Butyl acrylate	0.28	5	4.39	1
1,3-Butadiene	0.33	0.5	0.523	1
Acetaldehyde	2.07	5	5.24	5
n-Pentane	0.22	0.5	0.599	1
Ethyl ether	0.15	0.5	0.599	1
Propionaldehyde	1	10	9.71	1
n-Hexane	0.16	0.5	0.573	1
Methylcyclohexane	0.1	0.5	0.546	1
Cyclohexane	0.16	0.5	0.874	1
Isopropyl acetate	0.2	1.5	2.43	1
Butadiene	0.21	0.5	0.523	1
Ethyl acrylate	0.34	0.5	0.974	2
n-Butanol	0.33	0.5	0.41	2

Job ID: 600-84195-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-84195-1

Comments
No additional comments.

Receipt
The samples were received on 12/16/2013 3:22 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

Method Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-84195-1	ROW 2	Water	12/11/13 10:56	12/16/13 15:22
600-84195-2	ROW 1	Water	12/11/13 11:08	12/16/13 15:22
600-84195-3	ROW 5	Water	12/11/13 12:06	12/16/13 15:22
600-84195-4	ROW 4	Water	12/11/13 12:08	12/16/13 15:22
600-84195-5	MW-07 TCI	Water	12/11/13 15:25	12/16/13 15:22
600-84195-6	ROW 3	Water	12/11/13 16:05	12/16/13 15:22
600-84195-7	EQ. BLANK 1	Water	12/11/13 17:30	12/16/13 15:22
600-84195-8	MW-19 TCI	Water	12/12/13 10:05	12/16/13 15:22
600-84195-9	MW-05 TCI	Water	12/12/13 11:16	12/16/13 15:22
600-84195-10	MW-16	Water	12/12/13 12:24	12/16/13 15:22
600-84195-11	MW-14 TCI	Water	12/12/13 13:40	12/16/13 15:22
600-84195-12	MW-14 TCI DUP	Water	12/12/13 13:42	12/16/13 15:22
600-84195-13	EQ. BLANK 2	Water	12/12/13 17:00	12/16/13 15:22
600-84195-14	MW-08 TCI	Water	12/13/13 11:12	12/16/13 15:22
600-84195-15	TMW-21 TCI	Water	12/16/13 12:58	12/16/13 15:22
600-84195-16	EQ. BLANK 3	Water	12/16/13 14:00	12/16/13 15:22
600-84195-17	TRIP BLANK	Water	12/16/13 00:00	12/16/13 15:22

Client Sample ID: ROW 2
Date Collected: 12/11/13 10:56
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/19/13 09:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*83*		*70 - 130*		*12/19/13 09:03*	*1*
Dibromofluoromethane	*80*		*62 - 130*		*12/19/13 09:03*	*1*
4-Bromofluorobenzene	*88*		*67 - 139*		*12/19/13 09:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*		*12/19/13 09:03*	*1*

Client Sample ID: ROW 1
Date Collected: 12/11/13 11:08
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/18/13 08:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*82*		*70 - 130*		*12/18/13 08:34*	*1*
Dibromofluoromethane	*80*		*62 - 130*		*12/18/13 08:34*	*1*
4-Bromofluorobenzene	*88*		*67 - 139*		*12/18/13 08:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*12/18/13 08:34*	*1*

Client Sample ID: ROW 5
Date Collected: 12/11/13 12:06
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0263**		0.00100	0.0000800	mg/L			12/19/13 21:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*75*		*70 - 130*		*12/19/13 21:58*	*1*
Dibromofluoromethane	*81*		*62 - 130*		*12/19/13 21:58*	*1*
4-Bromofluorobenzene	*84*		*67 - 139*		*12/19/13 21:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*50 - 134*		*12/19/13 21:58*	*1*

Client Sample ID: ROW 4
Date Collected: 12/11/13 12:08
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.000409**	J	0.00100	0.0000800	mg/L			12/19/13 22:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*73*		*70 - 130*		*12/19/13 22:26*	*1*
Dibromofluoromethane	*79*		*62 - 130*		*12/19/13 22:26*	*1*
4-Bromofluorobenzene	*90*		*67 - 139*		*12/19/13 22:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*50 - 134*		*12/19/13 22:26*	*1*

Client Sample ID: MW-07 TCI
Date Collected: 12/11/13 15:25
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/18/13 09:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*76*		*70 - 130*		*12/18/13 09:03*	*1*
Dibromofluoromethane	*80*	✓	*62 - 130*		*12/18/13 09:03*	*1*
4-Bromofluorobenzene	*88*		*67 - 139*		*12/18/13 09:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*50 - 134*		*12/18/13 09:03*	*1*

Client Sample ID: ROW 3
Date Collected: 12/11/13 16:05
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000447	J	0.00100	0.0000800	mg/L			12/19/13 08:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*79*		*70 - 130*		*12/19/13 08:33*	*1*
Dibromofluoromethane	*81*	✓	*62 - 130*		*12/19/13 08:33*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*12/19/13 08:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*50 - 134*		*12/19/13 08:33*	*1*

Client Sample ID: EQ. BLANK 1
Date Collected: 12/11/13 17:30
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U ✓	0.00100	0.0000800	mg/L			12/18/13 08:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*80*		*70 - 130*		*12/18/13 08:06*	*1*
Dibromofluoromethane	*79*	✓	*62 - 130*		*12/18/13 08:06*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*12/18/13 08:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*50 - 134*		*12/18/13 08:06*	*1*

Client Sample ID: MW-19 TCI
Date Collected: 12/12/13 10:05
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00530		0.00100	0.0000800	mg/L			12/19/13 22:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*72*		*70 - 130*		*12/19/13 22:55*	*1*
Dibromofluoromethane	*79*	✓	*62 - 130*		*12/19/13 22:55*	*1*
4-Bromofluorobenzene	*81*		*67 - 139*		*12/19/13 22:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*		*12/19/13 22:55*	*1*

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Client Sample ID: MW-05 TCI — **Lab Sample ID: 600-84195-9**
Date Collected: 12/12/13 11:16 — **Matrix: Water**
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.334		0.0200	0.00160	mg/L			12/19/13 10:29	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	73		70 - 130		12/19/13 10:29	20
Dibromofluoromethane	80		62 - 130		12/19/13 10:29	20
4-Bromofluorobenzene	94	✓	67 - 139		12/19/13 10:29	20
1,2-Dichloroethane-d4 (Surr)	87		50 - 134		12/19/13 10:29	20

Client Sample ID: MW-16 — **Lab Sample ID: 600-84195-10**
Date Collected: 12/12/13 12:24 — **Matrix: Water**
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/20/13 11:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		70 - 130		12/20/13 11:57	1
Dibromofluoromethane	82	✓	62 - 130		12/20/13 11:57	1
4-Bromofluorobenzene	93		67 - 139		12/20/13 11:57	1
1,2-Dichloroethane-d4 (Surr)	89		50 - 134		12/20/13 11:57	1

Client Sample ID: MW-14 TCI — **Lab Sample ID: 600-84195-11**
Date Collected: 12/12/13 13:40 — **Matrix: Water**
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0443		0.00100	0.0000800	mg/L			12/20/13 12:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	71		70 - 130		12/20/13 12:25	1
Dibromofluoromethane	82	✓	62 - 130		12/20/13 12:25	1
4-Bromofluorobenzene	86		67 - 139		12/20/13 12:25	1
1,2-Dichloroethane-d4 (Surr)	89		50 - 134		12/20/13 12:25	1

Client Sample ID: MW-14 TCI DUP — **Lab Sample ID: 600-84195-12**
Date Collected: 12/12/13 13:42 — **Matrix: Water**
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0338		0.00100	0.0000800	mg/L			12/20/13 15:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	74		70 - 130		12/20/13 15:17	1
Dibromofluoromethane	81		62 - 130		12/20/13 15:17	1
4-Bromofluorobenzene	85	✓	67 - 139		12/20/13 15:17	1
1,2-Dichloroethane-d4 (Surr)	88		50 - 134		12/20/13 15:17	1

BRB

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Client Sample ID: EQ. BLANK 2

Lab Sample ID: 600-84195-13
Matrix: Water
Date Collected: 12/12/13 17:00
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/18/13 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*76*		*70 - 130*		*12/18/13 01:56*	*1*
Dibromofluoromethane	*86*		*62 - 130*		*12/18/13 01:56*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*12/18/13 01:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*50 - 134*		*12/18/13 01:56*	*1*

Client Sample ID: MW-08 TCI

Lab Sample ID: 600-84195-14
Matrix: Water
Date Collected: 12/13/13 11:12
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000164	J	0.00100	0.0000800	mg/L			12/19/13 23:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*73*		*70 - 130*		*12/19/13 23:23*	*1*
Dibromofluoromethane	*80*		*62 - 130*		*12/19/13 23:23*	*1*
4-Bromofluorobenzene	*86*		*67 - 139*		*12/19/13 23:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*		*12/19/13 23:23*	*1*

Client Sample ID: TMW-21 TCI

Lab Sample ID: 600-84195-15
Matrix: Water
Date Collected: 12/16/13 12:58
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	46.7		2.00	0.160	mg/L			12/20/13 15:45	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*77*		*70 - 130*		*12/20/13 15:45*	*2000*
Dibromofluoromethane	*80*		*62 - 130*		*12/20/13 15:45*	*2000*
4-Bromofluorobenzene	*87*		*67 - 139*		*12/20/13 15:45*	*2000*
1,2-Dichloroethane-d4 (Surr)	*86*		*50 - 134*		*12/20/13 15:45*	*2000*

Client Sample ID: EQ. BLANK 3

Lab Sample ID: 600-84195-16
Matrix: Water
Date Collected: 12/16/13 14:00
Date Received: 12/16/13 15:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/18/13 02:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*82*		*70 - 130*		*12/18/13 02:25*	*1*
Dibromofluoromethane	*84*		*62 - 130*		*12/18/13 02:25*	*1*
4-Bromofluorobenzene	*90*		*67 - 139*		*12/18/13 02:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*50 - 134*		*12/18/13 02:25*	*1*

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Client Sample ID: TRIP BLANK
Date Collected: 12/16/13 00:00
Date Received: 12/16/13 15:22

Lab Sample ID: 600-84195-17
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/18/13 01:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*75*		*70 - 130*		*12/18/13 01:28*	*1*
Dibromofluoromethane	*84*		*62 - 130*		*12/18/13 01:28*	*1*
4-Bromofluorobenzene	*87*		*67 - 139*		*12/18/13 01:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*50 - 134*		*12/18/13 01:28*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DBFM	BFB	12DCE
Lab Sample ID	Client Sample ID	(70-130)	(62-130)	(67-139)	(50-134)
600-84195-1	ROW 2	83	80	88	86
600-84195-2	ROW 1	82	80	88	87
600-84195-3	ROW 5	75	81	84	90
600-84195-4	ROW 4	73	79	90	89
600-84195-5	MW-07 TCI	76	80	88	87
600-84195-6	ROW 3	79	81	89	90
600-84195-7	EQ. BLANK 1	80	79	89	85
600-84195-8	MW-19 TCI	72	79	81	86
600-84195-9	MW-05 TCI	73	80	94	87
600-84195-10	MW-16	80	82	93	89
600-84195-11	MW-14 TCI	71	82	86	89
600-84195-12	MW-14 TCI DUP	74	81	85	88
600-84195-13	EQ. BLANK 2	76	86	89	98
600-84195-14	MW-08 TCI	73	80	86	88
600-84195-15	TMW-21 TCI	77	80	87	86
600-84195-16	EQ. BLANK 3	82	84	90	96
600-84195-17	TRIP BLANK	75	84	87	96
LCS 600-123145/3	Lab Control Sample	77	89	89	96
LCS 600-123327/3	Lab Control Sample	77	84	91	91
LCS 600-123395/6	Lab Control Sample	78	84	89	91
LCS 600-123399/3	Lab Control Sample	80	90	93	94
MB 600-123145/4	Method Blank	81	83	89	93
MB 600-123327/4	Method Blank	81	81	90	90
MB 600-123395/3	Method Blank	82	82	90	88
MB 600-123399/4	Method Blank	82	81	95	91

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane
BFB = 4-Bromofluorobenzene
12DCE = 1,2-Dichloroethane-d4 (Surr)

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-123145/4
Matrix: Water
Analysis Batch: 123145

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/18/13 00:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*81*		*70 - 130*		*12/18/13 00:02*	*1*
Dibromofluoromethane	*83*		*62 - 130*		*12/18/13 00:02*	*1*
4-Bromofluorobenzene	*89*		*67 - 139*		*12/18/13 00:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*50 - 134*		*12/18/13 00:02*	*1*

Lab Sample ID: LCS 600-123145/3
Matrix: Water
Analysis Batch: 123145

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01092		mg/L		109	69 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*77*		*70 - 130*
Dibromofluoromethane	*89*		*62 - 130*
4-Bromofluorobenzene	*89*		*67 - 139*
1,2-Dichloroethane-d4 (Surr)	*96*		*50 - 134*

Lab Sample ID: MB 600-123327/4
Matrix: Water
Analysis Batch: 123327

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/19/13 01:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*81*		*70 - 130*		*12/19/13 01:22*	*1*
Dibromofluoromethane	*81*		*62 - 130*		*12/19/13 01:22*	*1*
4-Bromofluorobenzene	*90*		*67 - 139*		*12/19/13 01:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*50 - 134*		*12/19/13 01:22*	*1*

Lab Sample ID: LCS 600-123327/3
Matrix: Water
Analysis Batch: 123327

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01009		mg/L		101	69 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*77*		*70 - 130*
Dibromofluoromethane	*84*		*62 - 130*
4-Bromofluorobenzene	*91*		*67 - 139*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 600-123395/3
Matrix: Water
Analysis Batch: 123395

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/19/13 14:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*82*		*70 - 130*		*12/19/13 14:51*	*1*
Dibromofluoromethane	*82*		*62 - 130*		*12/19/13 14:51*	*1*
4-Bromofluorobenzene	*90*		*67 - 139*		*12/19/13 14:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*		*12/19/13 14:51*	*1*

Lab Sample ID: LCS 600-123395/6
Matrix: Water
Analysis Batch: 123395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01007		mg/L		101	69 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*78*		*70 - 130*
Dibromofluoromethane	*84*		*62 - 130*
4-Bromofluorobenzene	*89*		*67 - 139*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*

Lab Sample ID: MB 600-123399/4
Matrix: Water
Analysis Batch: 123399

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0000800	U	0.00100	0.0000800	mg/L			12/20/13 11:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*82*		*70 - 130*		*12/20/13 11:29*	*1*
Dibromofluoromethane	*81*		*62 - 130*		*12/20/13 11:29*	*1*
4-Bromofluorobenzene	*95*		*67 - 139*		*12/20/13 11:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*50 - 134*		*12/20/13 11:29*	*1*

Lab Sample ID: LCS 600-123399/3
Matrix: Water
Analysis Batch: 123399

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.01088		mg/L		109	69 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*80*		*70 - 130*
Dibromofluoromethane	*90*		*62 - 130*
4-Bromofluorobenzene	*93*		*67 - 139*
1,2-Dichloroethane-d4 (Surr)	*94*		*50 - 134*

Unadjusted Detection Limits

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	MQL	MDL	Units	Method
Benzene	0.00100	0.0000800	mg/L	8260B

GC/MS VOA

Analysis Batch: 123145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84195-2	ROW 1	Total/NA	Water	8260B	
600-84195-5	MW-07 TCI	Total/NA	Water	8260B	
600-84195-7	EQ. BLANK 1	Total/NA	Water	8260B	
600-84195-13	EQ. BLANK 2	Total/NA	Water	8260B	
600-84195-16	EQ. BLANK 3	Total/NA	Water	8260B	
600-84195-17	TRIP BLANK	Total/NA	Water	8260B	
LCS 600-123145/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-123145/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 123327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84195-1	ROW 2	Total/NA	Water	8260B	
600-84195-6	ROW 3	Total/NA	Water	8260B	
600-84195-9	MW-05 TCI	Total/NA	Water	8260B	
LCS 600-123327/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-123327/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 123395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84195-3	ROW 5	Total/NA	Water	8260B	
600-84195-4	ROW 4	Total/NA	Water	8260B	
600-84195-8	MW-19 TCI	Total/NA	Water	8260B	
600-84195-14	MW-08 TCI	Total/NA	Water	8260B	
LCS 600-123395/6	Lab Control Sample	Total/NA	Water	8260B	
MB 600-123395/3	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 123399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-84195-10	MW-16	Total/NA	Water	8260B	
600-84195-11	MW-14 TCI	Total/NA	Water	8260B	
600-84195-12	MW-14 TCI DUP	Total/NA	Water	8260B	
600-84195-15	TMW-21 TCI	Total/NA	Water	8260B	
LCS 600-123399/3	Lab Control Sample	Total/NA	Water	8260B	
MB 600-123399/4	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Client Sample ID: ROW 2 — **Lab Sample ID: 600-84195-1**
Date Collected: 12/11/13 10:56 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123327	12/19/13 09:03	DT1	TAL HOU

Client Sample ID: ROW 1 — **Lab Sample ID: 600-84195-2**
Date Collected: 12/11/13 11:08 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123145	12/18/13 08:34	DT1	TAL HOU

Client Sample ID: ROW 5 — **Lab Sample ID: 600-84195-3**
Date Collected: 12/11/13 12:06 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123395	12/19/13 21:58	DT1	TAL HOU

Client Sample ID: ROW 4 — **Lab Sample ID: 600-84195-4**
Date Collected: 12/11/13 12:08 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123395	12/19/13 22:26	DT1	TAL HOU

Client Sample ID: MW-07 TCI — **Lab Sample ID: 600-84195-5**
Date Collected: 12/11/13 15:25 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123145	12/18/13 09:03	DT1	TAL HOU

Client Sample ID: ROW 3 — **Lab Sample ID: 600-84195-6**
Date Collected: 12/11/13 16:05 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123327	12/19/13 08:33	DT1	TAL HOU

Client Sample ID: EQ. BLANK 1 — **Lab Sample ID: 600-84195-7**
Date Collected: 12/11/13 17:30 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123145	12/18/13 08:06	DT1	TAL HOU

Client Sample ID: MW-19 TCI — **Lab Sample ID: 600-84195-8**
Date Collected: 12/12/13 10:05 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123395	12/19/13 22:55	DT1	TAL HOU

Client Sample ID: MW-05 TCI — **Lab Sample ID: 600-84195-9**
Date Collected: 12/12/13 11:16 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	123327	12/19/13 10:29	DT1	TAL HOU

Client Sample ID: MW-16 — **Lab Sample ID: 600-84195-10**
Date Collected: 12/12/13 12:24 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123399	12/20/13 11:57	DT1	TAL HOU

Client Sample ID: MW-14 TCI — **Lab Sample ID: 600-84195-11**
Date Collected: 12/12/13 13:40 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123399	12/20/13 12:25	DT1	TAL HOU

Client Sample ID: MW-14 TCI DUP — **Lab Sample ID: 600-84195-12**
Date Collected: 12/12/13 13:42 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123399	12/20/13 15:17	DT1	TAL HOU

Lab Chronicle

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Client Sample ID: EQ. BLANK 2 — **Lab Sample ID: 600-84195-13**
Date Collected: 12/12/13 17:00 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123145	12/18/13 01:56	DT1	TAL HOU

Client Sample ID: MW-08 TCI — **Lab Sample ID: 600-84195-14**
Date Collected: 12/13/13 11:12 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123395	12/19/13 23:23	DT1	TAL HOU

Client Sample ID: TMW-21 TCI — **Lab Sample ID: 600-84195-15**
Date Collected: 12/16/13 12:58 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2000	123399	12/20/13 15:45	DT1	TAL HOU

Client Sample ID: EQ. BLANK 3 — **Lab Sample ID: 600-84195-16**
Date Collected: 12/16/13 14:00 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123145	12/18/13 02:25	DT1	TAL HOU

Client Sample ID: TRIP BLANK — **Lab Sample ID: 600-84195-17**
Date Collected: 12/16/13 00:00 — **Matrix: Water**
Date Received: 12/16/13 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	123145	12/18/13 01:28	DT1	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: URS Corporation
Project/Site: Kinder Morgan Texmark GW

TestAmerica Job ID: 600-84195-1

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-14
Louisiana	NELAP	6	30643	06-30-14
Oklahoma	State Program	6	1309	08-31-14
Texas	NELAP	6	T104704223	10-31-14
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	TX00083	10-31-14

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Client Information	Sampler: Celeste Wieting	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14075-5758.1
Client Contact: [redacted] Raaj Patel	Phone: 713-914-6519	E-Mail: dean.joiner@testamericainc.com		Page: Page 1 of 2
Company: URS Corporation				Job #: 25015234
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): [redacted] 5 DAY TAT			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommalosvula@urs.com	WO #:			
Project Name: Kinder Morgan Texmark GW	Project #: 60002844			
Site: Texmark	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

600-84195 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_LL - Benzene	Containers
			Preservation Code:				A	
ROW 2	12-11-13	1056	G	Water	N	N	X	3
ROW 1	12-11-13	1108	G	Water	N	N	X	3
ROW 5	12-11-13	1208	G	Water	N	N	X	3
ROW 4	12-11-13	1208	G	Water	N	N	X	3
MW-07TCI	12-11-13	1525	G	Water	N	N	X	3
ROW 3	12-11-13	1605	G	Water	N	N	X	3
EQ. BLANK 1	12-11-13	1730	G	Water	N	N	X	3
MW-19TCI	12-12-13	1005	G	Water	N	N	X	3
MW-05TCI	12-12-13	1110	G	Water	N	N	X	3
MW-16	12-12-13	1224	G	Water	N	N	X	3
MW-14TCI	12-12-13	1340	G	Water	N	N	X	3

Page 27 of 29

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Celeste Wieting	12/16/13 1430	URS		12/16/13 1420	
2						
3		12/16/13 1522			12/16/13 1522	

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

Client Information	Sampler: Celeste Wieting	Lab PM: Joiner, Dean A	Carrier Tracking No(s):	COC No: 600-14075-5758.1
Client Contact: ~~Ravi Kommajosyula~~ Raaj Patel	Phone: 713-914-6519	E-Mail: dean.joiner@testamericainc.com		Page: ~~Page 1 of 1~~ Page 2 of 2
Company: URS Corporation				Job #: 25015234
Address: 10550 Richmond Ave	Due Date Requested:			
City: Houston	TAT Requested (days): 7 WD TRRP			
State, Zip: TX, 77042				
Phone: 713-914-6303(Tel)	PO #: Purchase Order not required			
Email: ravi.kommajosyula@urs.com	WO #:			
Project Name: Kinder Morgan Texmark GW	Project #: 60002844			
Site: Texmark	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_LL - Benzene	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-14TCI DUP	12-12-13	1342	G	Water	N	N	X	3	
EQ. BLANK 2	12-12-13	1700	G	Water	N	N	X	3	
MW-08.TCI	12-13-13	1112	G	Water	N	N	X	3	
TMW-21TCI	12-16-13	1258	G	Water	N	N	X	3	
EQ. BLANK 3	12-16-13	1400	G	Water	N	N	X	3	
TEMP BLANK			G	Water	N	N	X	3	
TRIP BLANK			G	Water	N	N	X	3	
END OF RECORD			G	Water	N	N	X	3	
			G	Water	N	N	X	3	
			G	Water	N	N	X	3	
			G	Water	N	N	X	3	

Page 18 of 20

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by	Date:	Time:	Method of Shipment:
Relinquished by: Celeste Wieting	Date/Time: 12/16/13 1430	Company: URS	Received by:	Date/Time: 12/16/13 1420	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time: 12/16/13 1522	Company: TA	Received by:	Date/Time: 12/16/13 1522	Company: TA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks

12/24/2013

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 600-84195-1

Login Number: 84195
List Number: 1
Creator: Capps, Dana R

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Table 2-1
Groundwater Analytical Data Summary

Well ID	Date	Analyte				
		Benzene	Ethylbenzene	Toluene	Styrene	Arsenic
Tier 1 Groundwater PCL		0.005	0.7	1	0.1	0.01
AMP-1	10/2/2008	**50.34 J**	---	---	---	---
	11/20/2009	**72.71**	---	---	---	---
	12/2/2010	**54.35**	**3.206**	0.4579	---	---
	9/21/2012	**11.6**	**2.75**	0.499	<0.00280	---
AMP-2	10/2/2008	**106 J**	**0.76 J**	**2.49 J**	<0.001 J	0.007
	11/20/2009	**113.9**	---	---	---	---
	3/16/2010	**56.58**	---	---	---	---
	12/1/2010	**69.56**	**0.7244**	**1.775**	---	---
	9/21/2012	**108**	**0.949**	**1.86**	<0.00700	**0.0142**
AMP-2-2	11/23/2009	**310**	---	---	---	---
	3/16/2010	**43.15**	---	---	---	---
	3/16/2010 **	**67.08**	---	---	---	---
	12/2/2010	**123.3**	0.0817	**5.975**	---	---
	12/2/2010 **	**133.9**	0.0852	**6.755**	---	---
	2/28/2012	**162**	---	---	---	---
	2/28/2012 **	**155**	---	---	---	---
MW-03 TCI	11/18/2009	<0.0005	---	---	---	---
	12/2/2010	**0.0287**	<0.0005	0.0009 J	---	---
	9/21/2012	0.00493	0.000518 J	0.000319 J	<0.0000700	---
MW-04 TCI	10/2/2008	**6.468 J**	---	---	---	---
	11/18/2009	**0.109**	---	---	---	---
	12/2/2010	**65.87**	0.247	**10.34**	---	---
	9/21/2012	**27.6**	<0.00550	**2.69**	<0.00350	---
MW-05 TCI	11/18/2009	**0.0191**	---	---	---	---
	12/2/2010	**0.0653**	0.0006 J	0.0074	---	---
	9/21/2012	**0.264**	<0.000110 UJ	0.000543 JL	<0.0000700 UJ	---
	12/12/2013	**0.334**	---	---	---	---
MW-06 TCI	10/2/2008	**0.198 J**	<0.001 J	<0.001 J	<0.001 J	0.002
	11/20/2009	0.0013	---	---	---	---
	12/1/2010	**0.0056**	<0.0005	<0.0005	---	---
	9/21/2012	<0.0000800	<0.000110	<0.000150	<0.0000700	0.00886 J
MW-09 TCI	11/20/2009	<0.0005	---	---	---	---
	12/2/2010	**0.0389**	<0.0005	0.0011	---	---
	9/20/2012	<0.0000800	<0.000110	<0.000150	<0.0000700	---
MW-10 TCI	10/2/2008	**316 J**	0.613 J	**58.1 J**	**0.988 J**	**0.013**
	10/2/2008 **	**301 J**	0.684 J	**54.6 J**	**1.1 J**	**0.014**
	11/23/2009	**194.7**	---	---	---	---
	3/16/2010	**214.2**	---	---	---	---
	12/2/2010	**213.1**	0.233	**30.57**	---	---
	6/21/2011	**213**	---	---	---	---
	7/2/2011	**227**	---	---	---	---
	7/8/2011	**207**	---	---	---	---
	7/14/2011	**215**	---	---	---	---
	7/22/2011	**247**	---	---	---	---
	9/21/2012	**354**	0.612	0.0281	**0.887**	**0.0196**
MW-12 TCI	10/2/2008	**138 J**	0.193 J	**50.3 J**	**0.511 J**	**0.018**
	9/14/2009	**206**	---	---	---	---
	10/7/2009	**178.5**	---	---	---	---
	11/23/2009	**8.181**	---	---	---	---
	3/16/2010	**32.21**	---	---	---	---
	12/2/2010	**1.752**	<0.005	0.9731	---	---
	2/28/2012	**345**	---	---	---	---
	9/21/2012	**363**	0.338	**126**	**0.828**	**0.0296**
	9/21/2012 **	**315**	0.337	**95.8**	**0.699**	**0.0311**
MW-13 TCI	11/20/2009	<0.0005	---	---	---	---
	12/2/2010	0.0007 J	<0.0005	<0.0005	---	---
	9/21/2012	<0.0000800	<0.000110 UJ	<0.000150 UJL	<0.0000700 UJ	---

Table 2-1
Groundwater Analytical Data Summary

Well ID	Date	Analyte				
		Benzene	Ethylbenzene	Toluene	Styrene	Arsenic
Tier 1 Groundwater PCL		0.005	0.7	1	0.1	0.01
MW-14 TCI	1/21/2009	**0.0461**	---	---	---	---
	4/8/2009	**1.623**	---	---	---	---
	9/14/2009	**1.46**	---	---	---	---
	10/7/2009	**0.05**	---	---	---	---
	11/18/2009	**0.4698**	---	---	---	---
	3/16/2010	<0.0005	---	---	---	---
	12/2/2010	<0.0005	<0.0005	<0.0005	---	---
	9/21/2012	**0.790**	0.00542 JH	0.00921	0.000160 JH	---
	12/12/2013	**0.0443**	---	---	---	---
	12/12/2013 **	**0.0338**	---	---	---	---
MW-15 TCI	11/18/2009	NS	NS	NS	NS	NS
MW-16 TCI	11/18/2009	<0.0005	---	---	---	---
	12/2/2010	<0.0005	<0.0005	<0.0005	---	---
	9/21/2012	**0.00882**	<0.000110	<0.000150	<0.0000700	---
	12/12/2013	<0.0000800	---	---	---	---
MW-17 TCI	11/18/2009	**0.3674**	---	---	---	---
	12/2/2010	**0.2058**	0.004	0.0128	---	---
	9/21/2012	**0.211**	0.00308	0.00911	0.000239 J	---
MW-18 TCI	2/13/2013	0.000675 J	<0.000110	<0.000150	<0.0000700	---
MW-19 TCI	2/13/2013	0.000365 J	<0.000110	<0.000150	<0.0000700	---
	12/12/2013	**0.00530**	---	---	---	---
MW-20 TCI	2/13/2013	<0.000400	<0.000550	<0.000750	<0.000350	---
POE-1	10/2/2008	**116.6 J**	---	---	---	---
	1/21/2009	**11.63**	---	---	---	---
	4/8/2009	**6.558**	---	---	---	---
	9/14/2009	**29.29**	---	---	---	---
	10/7/2009	**32.78**	---	---	---	---
	11/23/2009	**1.526**	---	---	---	---
	11/23/2009 **	**1.37**	---	---	---	---
	3/16/2010	**2.543**	---	---	---	---
	12/2/2010	**86**	0.0918	0.0118	---	---
	2/28/2012	**96.7**	---	---	---	---
	9/20/2012	**164**	0.0223 J	0.0485 J	<0.00700	---
POE-3	10/2/2008	**0.266 J**	<0.001 J	<0.001 J	<0.001 J	**0.018**
	11/20/2009	**0.2496**	---	---	---	---
	12/2/2010	**0.2002**	<0.0005	0.0021	---	---
	2/28/2012	**0.869**	---	---	---	---
	9/20/2012	**0.302**	<0.000110 UJH	<0.000150	0.000166 JH	---
RI-1-10	10/3/2008	---	---	---	---	**0.017**
	11/18/2009	**0.0413**	---	---	---	---
	12/1/2010	<0.0005	<0.0005	<0.0005	---	---
	9/21/2012	<0.0000800	<0.000110	<0.000150	<0.0000700	**0.0239**
RI-1-13	10/2/2008	**3.92 J**	0.022 J	0.016 J	<0.001 J	0.004
	11/18/2009	**1.026**	---	---	---	---
	3/16/2010	**2.768**	---	---	---	---
	12/1/2010	**0.8818**	0.0073	0.0066	---	---
	9/20/2012	**0.840**	0.0137 J	0.00409 JL	<0.0000700 UJ	0.00344 J
ROW-01	4/10/2009	<0.5	---	---	---	---
	11/17/2009	<0.0005	---	---	---	---
	12/3/2010	0.0015	<0.0005	0.0007 J	---	---
	12/11/2013	<0.0000800	---	---	---	---
ROW-02	4/10/2009	<0.5	---	---	---	---
	11/17/2009	<0.0005	---	---	---	---
	12/3/2010	**0.0309**	0.0005 J	0.0019	---	---
	12/11/2013	<0.0000800	---	---	---	---
ROW-03	4/10/2009	<0.001	<0.001	<0.001	<0.001	**0.013**
	11/17/2009	<0.0005	---	---	---	---
	12/3/2010	**0.0157**	<0.0005	0.0009 J	---	---
	12/11/2013	0.000447 J	---	---	---	---
ROW-04	4/10/2009	0.002 J	0.003 J	<0.001	<0.001	**0.011**
	11/18/2009	<0.0005	---	---	---	---
	11/18/2009 **	<0.0005	---	---	---	---
	12/3/2010	0.0017	<0.0005	<0.0005	---	---
	12/11/2013	0.000409 J	---	---	---	---

Table 2-1
Groundwater Analytical Data Summary

Well ID	Date	Analyte				
		Benzene	Ethylbenzene	Toluene	Styrene	Arsenic
Tier 1 Groundwater PCL		**0.005**	**0.7**	**1**	**0.1**	**0.01**
ROW-05	4/10/2009	**0.089**	<0.001	<0.001	<0.001	**0.025**
	4/10/2009 **	**0.095**	<0.001	<0.001	<0.001	**0.026**
	11/17/2009	**0.0136**	---	---	---	---
	12/3/2010	**0.0941**	0.0005 J	0.0017	---	---
	12/11/2013	**0.0263**	---	---	---	---
RW-1	2/28/2012	**63.9**	---	---	---	---
	9/20/2012	**17.8**	0.0119 J	0.239	<0.00350	---
RW-2	2/28/2012	**18.7**	---	---	---	---
	9/20/2012	**67.2**	0.0624 J	0.142	<0.00700	---
RW-3	2/28/2012	**268**	---	---	---	---
	9/20/2012	**248**	0.305	**4.57**	<0.0140	---
RW-4	2/28/2012	**0.661**	---	---	---	---
	9/20/2012	**1.39 JL**	0.00133 J	<0.000750	<0.000350	---
RW-5	2/28/2012	**1.39**	---	---	---	---
	9/20/2012	**2.75**	0.0502	0.0205	0.00229 J	---
RW-9	2/13/2013	**0.0184 J**	<0.0110	<0.0150	<0.00700	---
MW-21	12/16/2013	**46.7**	---	---	---	---

Notes:
Concentrations exceed the TCEQ TRRP Tier 1 $^{GW}GW_{Ing}$ PCL
All concentrations are reported in milligrams per liter (mg/L)
--- Not analyzed
NS - Not sampled
U - Not detected
J - Estimated concentration
H - Bias in sample result is likely to be high.
L - Bias in sample result is likely to be low.

Table 2-2
Aquifer Test Results Summary
March 2010

Area	Well ID	Slug K (cm/sec)	Pump K (cm/sec)	Average K (cm/sec)	Storage Coefficient
Northern Migration Pathway	POE-1	1.60E-04	--	2.60E-04	
	POE-1 RW3 OBS	--	4.20E-04		0.00105
	AMP 2-2	9.70E-05	1.60E-05	5.60E-05	--
	MW-04	8.60E-04	--	2.00E-03	--
	MW-17	1.50E-03	--		--
	MW-05	2.80E-03			--
	MW-09	4.80E-03	--		--
Central Migration Pathway	AMP-2	4.70E-04		3.90E-04	--
	MW-12	7.90E-04			--
	MW-10	5.90E-04	1.40E-04		--
	MW-06	1.60E-04			--
Southern Migration Pathway	RW-5 (POE-3 OBS)	--	1.70E-03	1.30E-03	1.40E-04
	POE-3	1.00E-03	--		--

K - hydraulic conductivity

Appendix 3

Studies and Tests Documentation

Table 3-1 – Tier 2 soil to Air Inhalation PCL Calculations

Table 3-2 – Human Health Risk-Based Input Parameters for Groundwater to Ambient Air Vapor Inhalation

Table 3-3 – Human Health Risk-Based Chemical and Physical Properties and Toxicity Criteria for Groundwater to Ambient Air Vapor Inhalation

Table 3-4 – Human Health Risk-Based Screening Level Calculation for Groundwater to Ambient Air Vapor Inhalation

Table 3-5 – Human Health Risk-Based Screening Level Results for Groundwater to Ambient Air Vapor Inhalation

Kinder Morgan letter dated May 4, 2012 to TCEQ regarding Class V Injection Well Permit (5X2600596)

URS Memorandum dated May 4, 2012 to Kinder Morgan regarding Chemical Injection Pilot Test (TCEQ Class V Injection Permit – 5X2600596)

Kinder Morgan letter dated May 20, 2013 to TCEQ regarding Additional Information for Class V Injection Well Permit Closure Request (TCEQ Authorization 5X2600596)

Table 3-1

Tier 2 Soil to Air Inhalation PCL Calculations

Revised RAP
Addendum Texmark
Chemicals, Inc. Galena
Park, Texas

$$^{Air}Soil_{Inh-V} = \frac{^{Air}RBEL_{Inh}}{VF_{SS}}$$

where:

$^{Air}RBEL_{Inh}$ = Benzene PEL

VF_{SS} is the smaller of the two calculated values below:

$$VF_{SS}\left[\frac{mg/m^3 - air}{mg/kg - Soil}\right] = \frac{2\rho_b D_A}{(Q/C)\left[3.14 D_A{}^{\tau}\right]^{\frac{1}{2}}} \cdot \left(\frac{10^4 cm^2}{m^2}\right)$$

$$D_A = \left[\frac{\theta_{as}{}^{3.33} D^{air} H' + \theta_{ws}{}^{3.33} D^{wat}}{\left[\theta_{ws} + K_d \rho_b + \theta_{as} H'\right]\theta_T{}^2}\right]$$

or

$$VF_{SS}\left[\frac{mg/m^3 - air}{mg/kg - soil}\right] = \frac{\rho_b d_s}{(Q/C)\tau} \cdot \left(\frac{10^4 cm^2}{m^2}\right)$$

Symbol	Parameter	Unit	Value	Source
pb	Soil bulk density	g/cm3	1.67	350.75(c) and (d)
ds	Thickness of affected surficial soil	cm	305	350.75(c) and (d)
Q/C	Inverse of mean concentration in air at center of affected soil area	[(g/m2-s)/(kg/m3)]	40.76	350.75(c) and (d)
τ	Exposure interval	sec	9.50E+08	350.74(j)(2)
VFss 1	Volatilization Factor 1	[(mg/m3 - air)/(mg/kg - soil)]	1.32E-04	calculated
θas	olumetric air content of vadose zone soil	cm3-air/cm3-soil	0.21	350.75(c) and (d)
Dair	Diffusion coefficient in air	cm2/s	0.088	chemphys table (benzene)
H'	Dimensionless Henry's Law Constant	-	0.227	chemphys table (benzene)
θws	lumetric water content of vadose zone so	cm3-water / cm3-soil	0.16	350.75(c) and (d)
Dwat	Diffusion coefficient in water	cm2/s	9.8E-06	chemphys table (benzene)
Kd	Soil-partition coefficient	cm3-water/g-soil	0.1321387	350.75(c) and (d)
Koc	oil organic carbon water partition coefficie	cm3-water/g-carbon	66.07	chemphys table (benzene)
foc	Fraction organic carbon	g-carbon/g-soil	0.002	350.75(c) and (d)
θT	Total soil porosity	cm3-pore/cm3-soil	0.37	350.75(c) and (d)
DA	Apparent diffusivity	cm2/s	0.0018882	calculated
VFss 2	Volitalization Factor 2	[(mg/m3 - air)/(mg/kg - soil)]	6.52E-04	calculated
VFss Representative	Representative VFss	[(mg/m3 - air)/(mg/kg - soil)]	1.32E-04	calculated
PEL	Permissible Exposure Limit (benzene)	mg/m3	3.19	NIOSH
AirSoilInh-V	Soil to Air inhalation PCL	mg/kg	**24,251**	calculated

Footnotes:

30 TAC 350.71-350.79, 2009 Development of Protective Concentration Levels.

TCEQ, TRRP Chemical & Physical Properties, updated June 29, 2012 - Texas Commission on Environmental Quality

TCEQ, TRRP Toxicity Factors, updated June 29, 2012 - Texas Commission on Environmental Quality

Table 3-2
Human Health Risk-Based Input Parameters for Groundwater to Ambient Air Vapor Inhalation

Symbol	Description	Units	Value	Reference
Specified Risk or Hazard Criteria				
HQ	Hazard Quotient	--	1	30 TAC 350.71-350.79
RL	Risk level	--	1.00E-05	30 TAC 350.71-350.79
Exposure Parameters				
AT.A.res	Defined averaging time for non-carcinogenic-Adult	yr	25	30 TAC 350.71-350.79
AT_c	Defined carcinogenic averaging time	yr	70	30 TAC 350.71-350.79
BW	Body weight	kg	70	30 TAC 350.71-350.79
ED.A.res	Exposure duration-Adult	yr	25	30 TAC 350.71-350.79
EF.res	Exposure frequency	days/yr	250	30 TAC 350.71-350.79
Soil Parameters				
--	Soil type	--	Clay	Site-specific
L_{gw}	Depth to groundwater	cm	305	Site-specific
h_v	Vadose zone thickness	cm	300	Site-specific
h_{cap}	Thickness of capillary fringe	cm	5	30 TAC 350.71-350.79
θ_T	Total soil porosity	cm^3-pore space/cm^3-soil	0.37	30 TAC 350.71-350.79
θ_{as}	Volumetric air content of vadose zone soils	cm^3-water/cm^3-soil	0.21	30 TAC 350.71-350.79
θ_{ws}	Volumetric water content of vadose zone soils	cm^3-water/cm^3-soil	0.16	30 TAC 350.71-350.79
θ_{wcap}	Volumetric water content of capillary fringe soils	cm^3-water/cm^3-soil	0.333	30 TAC 350.71-350.79
θ_{acap}	Volumetric air content of capillary fringe soils	cm^3-air/cm^3-soil	0.037	30 TAC 350.71-350.79
Ambient Parameters				
U_{air}	Windspeed above ground surface in ambient mixing zone	cm/s	240	30 TAC 350.71-350.79
δ_{air}	Ambient air mixing zone height	cm	200	30 TAC 350.71-350.79
W_g	Width of source-zone area	cm	3.48E+04	30 TAC 350.71-350.79
Chemical-Specific, Transport and Thermodynamic Parameters				
MW	Molecular weight	g/mol	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
Pv	Saturated vapor pressure	mmHg	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
S	Pure constituent solubility	mg/L	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
H'	Dimensionless Henry's Law Constant	cm^3-water/cm^3-air	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
D_{air}	Molecular diffusion coefficient in air	cm^2/s	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
D_{water}	Molecular diffusion coefficient in water	cm^2/s	Chemical-specific	TCEQ, TRRP Chemical/Physical Properties
Chemical-Specific Toxicity Parameters				
RfC	Reference concentration	mg/m^3	Chemical-specific	TCEQ, TRRP Toxicity Factors
URF	Inhalation unit risk factor	$(ug/m^3)^{-1}$	Chemical-specific	TCEQ, TRRP Toxicity Factors
Derived Parameters				
$^{Air}RBEL_{inh-nc}$	Risk-based exposure limit for non-carcinogens	mg/m^3	Chemical-specific	30 TAC 350.74 (a)
$^{Air}RBEL_{inh-c}$	Risk-based exposure limit for carcinogens	mg/m^3	Chemical-specific	30 TAC 350.74 (a)
VF_{Wamb}	Volatilization factor, water to ambient air	mg/m^3-air/mg/L-water	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,ws}$	Effective diffusivity – water table to soil surface	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,s}$	Effective diffusivity – vadose zone soils	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)
$D_{eff,cap}$	Effective diffusivity – capillary fringe zone	cm^2/s	Chemical-specific	30 TAC 350.75 (b) (1)

Footnotes:
30 TAC 350.71-350.79, 2009 Development of Protective Concentration Levels.
TCEQ, TRRP Chemical & Physical Properties, updated June 26, 2007 - Texas Commission on Environmental Quality
TCEQ, TRRP Toxicity Factors, updated June 26, 2007 - Texas Commission on Environmental Quality
the boring log.

Table 3-3
Human Health Risk-Based Chemical and Physical Properties and Toxicity Criteria for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	MW g/mol	S mg/L	Pv mmHg	H' unitless	D_{air} cm^2/s	D_{water} cm^2/s	RfC mg/m^3	URF $(ug/m^3)^{-1}$
Volatile Organic Compounds									
Benzene	71-43-2	7.81E+01	1.77E+03	9.50E+01	2.27E-01	8.80E-02	9.80E-06	2.80E-01	2.20E-06

Footnotes:
TCEQ, TRRP Chemical & Physical Properties, updated June 26, 2007 - Texas Commission on Environmental Quality
TCEQ, TRRP Toxicity Factors, updated June 26, 2007 - Texas Commission on Environmental Quality

Table 3-4
Human Health Risk-Based Screening Level Calculation for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	$D_{eff,s}$ cm^2/s	$D_{eff,cap}$ cm^2/s	$D_{eff,ws}$ cm^2/s	VF_{wamb} mg/m^3-air/mg/L-water	$^{Air}RBEL_{Inh}$ Non-Carc. mg/m^3	Carc. mg/m^3
Volatile Organic Compounds							
Benzene	71-43-2	3.56E-03	1.91E-05	8.80E-04	4.75E-04	4.09E-01	1.86E-02

Footnotes:

$$D_s^{eff}\left[\frac{cm2}{s}\right] = D^{air}\frac{\theta_{as}^{3.33}}{\theta_T^2} + \left[\frac{D^{wat}}{H'}\right]\left[\frac{\theta_{ws}^{3.33}}{\theta_T^2}\right]$$

$$D_{cap}^{eff}\left[\frac{cm2}{s}\right] = D^{air}\frac{\theta_{acap}^{3.33}}{\theta_T^2} + \left[\frac{D^{wat}}{H'}\right]\left[\frac{\theta_{wcap}^{3.33}}{\theta_T^2}\right]$$

$$D_{ws}^{eff}\left[\frac{cm2}{s}\right] = \left(h_{cap} + h_v\right)\left[\frac{h_{cap}}{D_{cap}^{eff}} + \frac{h_v}{D_s^{eff}}\right]^{-1}$$

$$VF_{wamb}\left[\frac{mg/m^3 - air}{mg/L - H_2O}\right] = \frac{H'}{1 + \left[\frac{U_{air}\delta_{air}L_{gw}}{W_g D_{ws}^{eff}}\right]} \bullet \left[10^3\frac{L}{m^3}\right]$$

$$^{Air}RBEL_{Inh-c}\left[\frac{mg}{m^3}\right] = \frac{RL \times ATC \times 365 days/yr}{URF \times 1000 \mu g/mg \times EF.res \times ED.A.res}$$

$$^{Air}RBEL_{Inh-nc}\left[\frac{mg}{m^3}\right] = \frac{RfC \times HQ \times AT.A.res \times 365 days/yr}{EF.res \times ED.A.res}$$

Table 3-5
Human Health Risk-Based Screening Level Results for Groundwater to Ambient Air Vapor Inhalation

Chemical of Concern	CAS #	VF_{Wamb}	$^{Air}RBEL_{Inh}$		$^{Air}GW_{Inh-V}$		$^{Air}GW_{Inh-V}$
			Non-Carc.	Carc.	Non-Carc.	Carc.	Minimum
		mg/m^3-air/mg/L-water	mg/m^3	mg/m^3	mg/L	mg/L	mg/L
Volatile Organic Compounds							
Benzene	71-43-2	4.75E-04	3.19E+00	3.19E+00	6.71E+03	6.71E+03	6.71E+03

Footnotes:

$$VF_{wamb}\left[\frac{mg/m^3-air}{mg/L-H_2O}\right]=\frac{H'}{1+\left[\frac{U_{air}\delta_{air}L_{gw}}{W_g D_{ws}^{eff}}\right]}\bullet\left[10^3\frac{L}{m^3}\right]$$

$$^{Air}RBEL_{Inh-c}\left[\frac{mg}{m^3}\right]=\frac{RL\times ATC\times 365 days/yr}{URF\times 1000\mu g/mg\times EF.res\times ED.Ares}$$

$$^{Air}RBEL_{Inh-nc}\left[\frac{mg}{m^3}\right]=\frac{RfC\times HQ\times AT.Ares\times 365 days/yr}{EF.res\times ED.Ares}$$

$$^{Air}GW_{Inh-V}=\frac{^{Air}RBEL_{Inh}}{VF_{Wamb}}$$

KINDER MORGAN

May 4, 2012

Mr. Bryan S. Smith, P.G., Project Manager
Texas Commission on Environmental Quality
Underground Injection Control Permits Team
Radioactive Materials Division
P.O. Box 13087
Austin, TX 78711-3087

Re: *Class V Injection Well Permit (5X2600596)*
Texmark Chemicals, Inc.
900 Clinton Drive
Galena Park, Texas 77547

Dear Mr. Smith:

Attached please find a memorandum documenting the results of a chemical injection pilot test performed under the Texas Commission on Environmental Quality (TCEQ) Class V Injection Permit 5X2600596 conducted by Kinder Morgan Liquids Terminals, LLC (KMLT) at the Texmark Chemicals, Inc. (TCI) facility in Galena Park, Texas. Results of the pilot test did not meet objectives of pilot test scope of work and therefore a full scale system was not implemented. KMLT is thereby requesting closure of the above-referenced permit. Please refer to the attached memorandum and supporting documentation for more detail regarding the pilot study activities.

If you have any questions regarding the information presented in this submittal, please do not hesitate to contact me at (713) 920-8423.

Sincerely,
Kinder Morgan Liquids Terminals, LLC

Johnny Kennedy, P.G.
Remediation Project Manager

Attachments

cc: Raaj U. Patel, P.G., Program Manager - URS Corporation

405 Clinton Drive *Galena Park, TX 77547* *Ph: 713-920-8423*
Fax: 713-472-7660

MEMORANDUM

To:	Johnny Kennedy, Remediation Project Manager Kinder Morgan Liquids Terminals, LLC	**Date:**	May 4, 2012
From:	Jeremy Andrews, Hydrogeologist Raaj Patel, Principal Geologist/Program Manager	**Project:**	Tank 28 Area Texmark Chemicals Inc. Facility
RE:	Chemical Injection Pilot Test (TCEQ Class V Injection Permit – 5X2600596)		

Introduction

On February 2, 2011, Kinder Morgan Liquids Terminals, LLC. (KMLT) requested a Class V Injection Permit to conduct a pilot test and full scale program to reduce source concentrations of benzene in groundwater at the Texmark Chemicals, Inc. (TCI) facility (the Site, see attached Figure 1) in Galena Park, Texas. The request was approved on March 2, 2011 and a Class V Injection Well Permit (5X2600596) was issued by TCEQ. This memo details the injection pilot test conducted by URS at the TCI facility on June 30, 2011 and requests closure of the permit.

Background Conditions

Dissolved-phase benzene is the primary Chemical of Concern (COC) in groundwater at the Site. The highest concentrations in the southern area of the Site have been detected in groundwater sampled from MW-10. Benzene concentrations in groundwater at MW-10TCI have ranged from 138 milligrams per liter (mg/L) to 316 mg/L since 2007. The dissolved oxygen (DO) concentration in groundwater at MW-10TCI was 1.21 mg/L prior to injection activities, indicating a potential aerobic environment. However, the oxidation-reduction potential (ORP) measurement in groundwater was -104.8 milliVolts (mV), indicating that conditions may not be optimal for natural aerobic biodegradation. Injection of RegenOx™ was proposed to oxidize benzene and also increase the DO and ORP over a period of 2 to 4 weeks.

Methods

RegenOx™ was introduced into the uppermost groundwater-bearing zone (5 – 25 feet below ground surface) through direct probe injection at three locations hydraulically up-gradient of MW-10TCI and newly installed observation well MW-10OBW on June 30, 2011 (See attached Figure 2). RegenOx™ is an in-situ chemical oxidant (sodium percarbonate) and an activator complex (a composition of ferrous salt embedded in a micro-scale catalyst gel). Groundwater chemistry parameters from monitoring wells MW-10TCI and MW-10OBW were measured in the field for DO, ORP, temperature, and pH. Benzene was analyzed from groundwater collected during pre and post injection sampling events.

Injection Program & Results

During the injection at location INJ-1, located 5.5 feet hydraulically up-gradient of MW-10OBW, field parameters were monitored in groundwater at MW-10OBW. When the injection at INJ-1 reached 17 feet below ground surfaces (23 minutes after initial injection), the DO concentration in MW-10OBW increased to 22 mg/L and the groundwater in MW-10OBW reached the top of the well casing. Therefore, injection

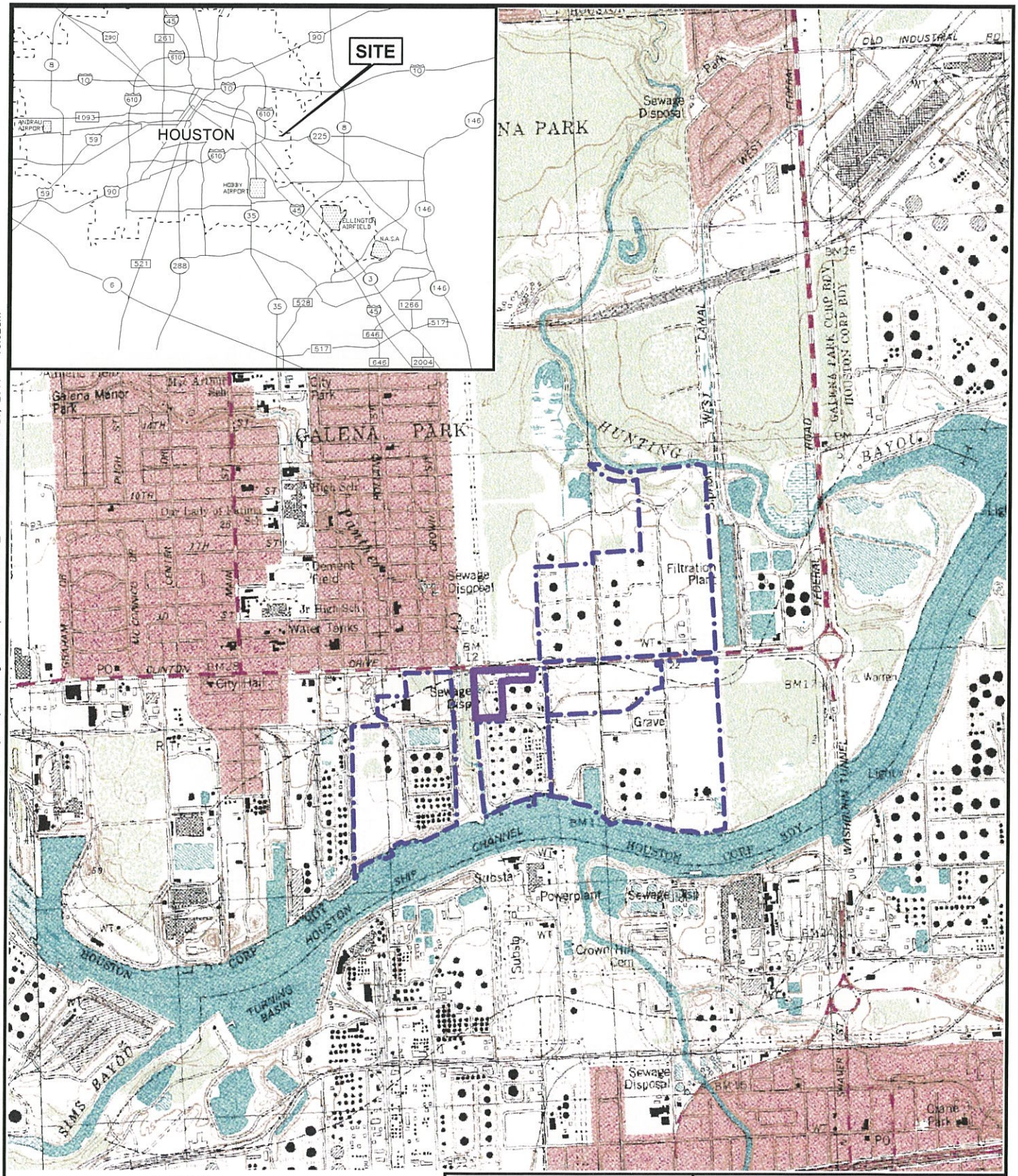
activities stopped at location INJ-1 and a new injection location (INJ-1A) was established 10 feet hydraulically up-gradient of MW-10OBW. The DO concentrations were stable around 45 mg/L during the injection at location INJ-1A, and the water level stabilized 5 feet below the top of the casing (approximately 2 feet below ground surface).

During the injection at location INJ-2, located 11 feet hydraulically up-gradient of MW-10TCI, field parameters were monitored in groundwater at MW-10TCI. The DO concentration in MW-10TCI was stabilized at approximately 50 mg/L, and the water level in MW-10TCI did not increase near the surface (stabilized approximately 5 feet below ground surface) during the injection activities.

Groundwater samples were collected and analyzed for benzene from MW-10TCI and MW-10OBW prior to the injection on June 21, 2011. The groundwater from both wells was sampled again following the injection on July 2, 8, 14, and 22, 2011. The DO and benzene concentrations peaked in both wells on July 2, 2011, two days after injection (Figures 3 and 4). ORP peaked on July 8, 2011 in MW-10OBW, and July 14, 2011 in MW-10TCI. The increase in the benzene concentrations may be due to the detergent effect that RegenOx™ has on benzene adsorbed to soil in the subsurface. Following the increase on July 2, 2011, benzene decreased below pre-injection concentrations in both wells on July 8, 2011. However by the July 14, 2011 sampling event, the benzene concentrations had increased back to near pre-injection concentrations. DO also returned to near pre-injection values by the July 22, 2011 sampling event for both wells. The return to pre-injection conditions may be due to migration of untreated groundwater up-gradient of the injection points reaching MW-10TCI and MW-10OBW by the July 22, 2011 sampling event.

Conclusion

The injection pilot test was conducted to evaluate the ability of RegenOx™ to oxidize dissolved phase benzene in groundwater over a period of 2 to 4 weeks at the Site. However, the injection of RegenOx™ at the Site did not maintain a decreasing trend of benzene following injection over the time frame intended. Therefore, the full scale system was not implemented because the injection pilot study did not meet the objections of the pilot test scope. KMLT requests that the above referenced injection permit be closed.



LEGEND:

TEXMARK PROPERTY

KMLT PROPERTY

0 1000 2000 4000

APPROXIMATE SCALE IN FEET

SOURCE: U.S.G.S. 7.5-MINUTE SERIES TOPOGRAPHIC MAPS. PASADENA (1982) AND JACINTO CITY (1982), TEXAS QUADRANGLES.

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	NAB	02-22-11
	Chk'd by: JA	Date: 02-22-11

Title: **TEXMARK CHEMICALS SITE LOCATION MAP**

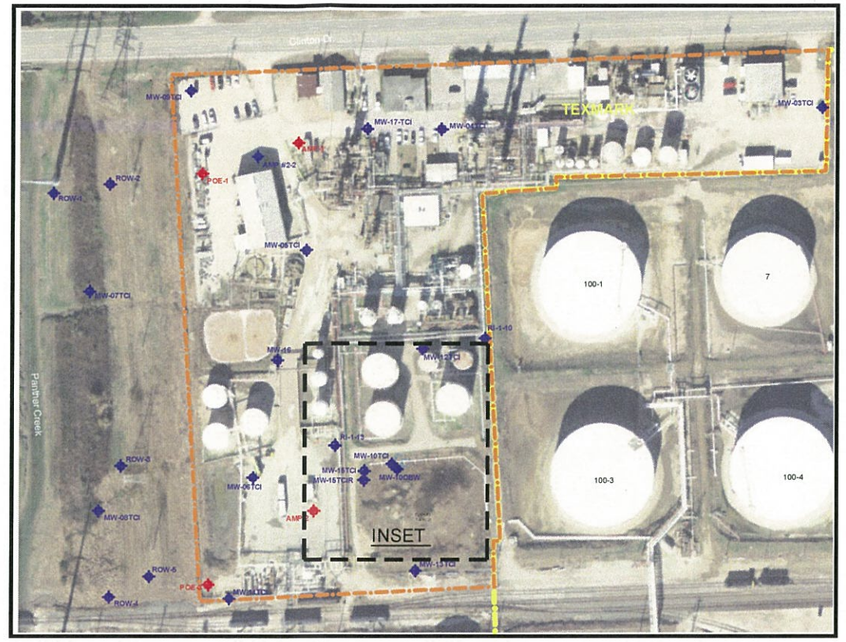
Project: TEXMARK PLANT
GALENA PARK, HARRIS COUNTY, TEXAS

Client: KMLT

Project No.:	File Name:	Figure:
25014675	FIG 1 - CHEMICAL SITE LOCATION MAP - TOPO.DWG	1

File: K:\ELM\25012333.KMLT.2009 Texmark RAP Implem.09\Dwgs\CAD\Fig 1 - Chemical Site Location Map - Topo.dwg Layout: Regional Map User: Norris_Brown Plotted: Feb 23, 2011 - 10:02am





SITE LAYOUT

SCALE: 1" = 200'

NORTH

LEGEND

- KMLT PROPERTY LINE
- TEXMARK PROPERTY LINE
- MONITOR WELL LOCATION
- POINT OF EXPOSURE (POE) AND ATTENUATION MONITORING POINT (AMP) WELL
- REGENOX INJECTION LOCATION

Source:

HGAC digital ortho imagery 2010
Coordinates in NAD 83 Texas State Plane South Central Zone, feet

INSET DETAIL

0 15 30 60

APPROXIMATE SCALE IN FEET

URS
10550 RICHMOND AVE., SUITE 155
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	SJF/JA	04-27-12
	Chk'd by: RUP	Date: 04-27-12

Title: **PILOT INJECTION LOCATION MAP**

Project: TEXMARK PLANT
KINDER MORGAN LIQUIDS TERMINALS, L.P.
GALENA PARK, TEXAS

Client: KMLT

Project No.:	File Name:	Figure:
25013694	Pilot Injection Location Map.dwg	2

File: K:\ELM\25009931 KMLT Texmark 08\Dwgs\CAD_2012\Pilot Injection Location Map.dwg Layout: Layout1 User: Susan_Forrest Plotted: May 03, 2012 – 10:17am

Figure 3
MW10OBW (INJ-1 and INJ-1A)

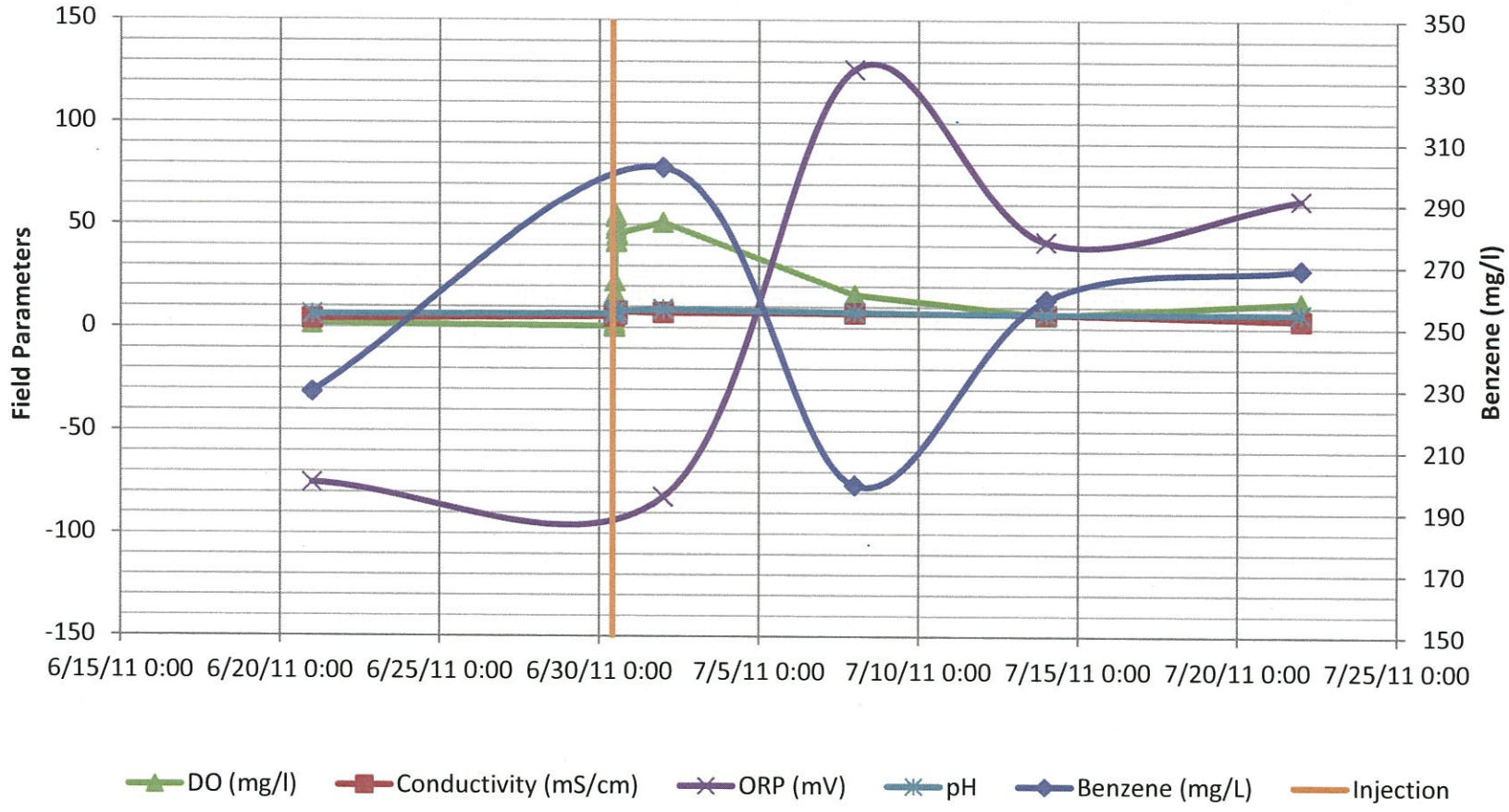
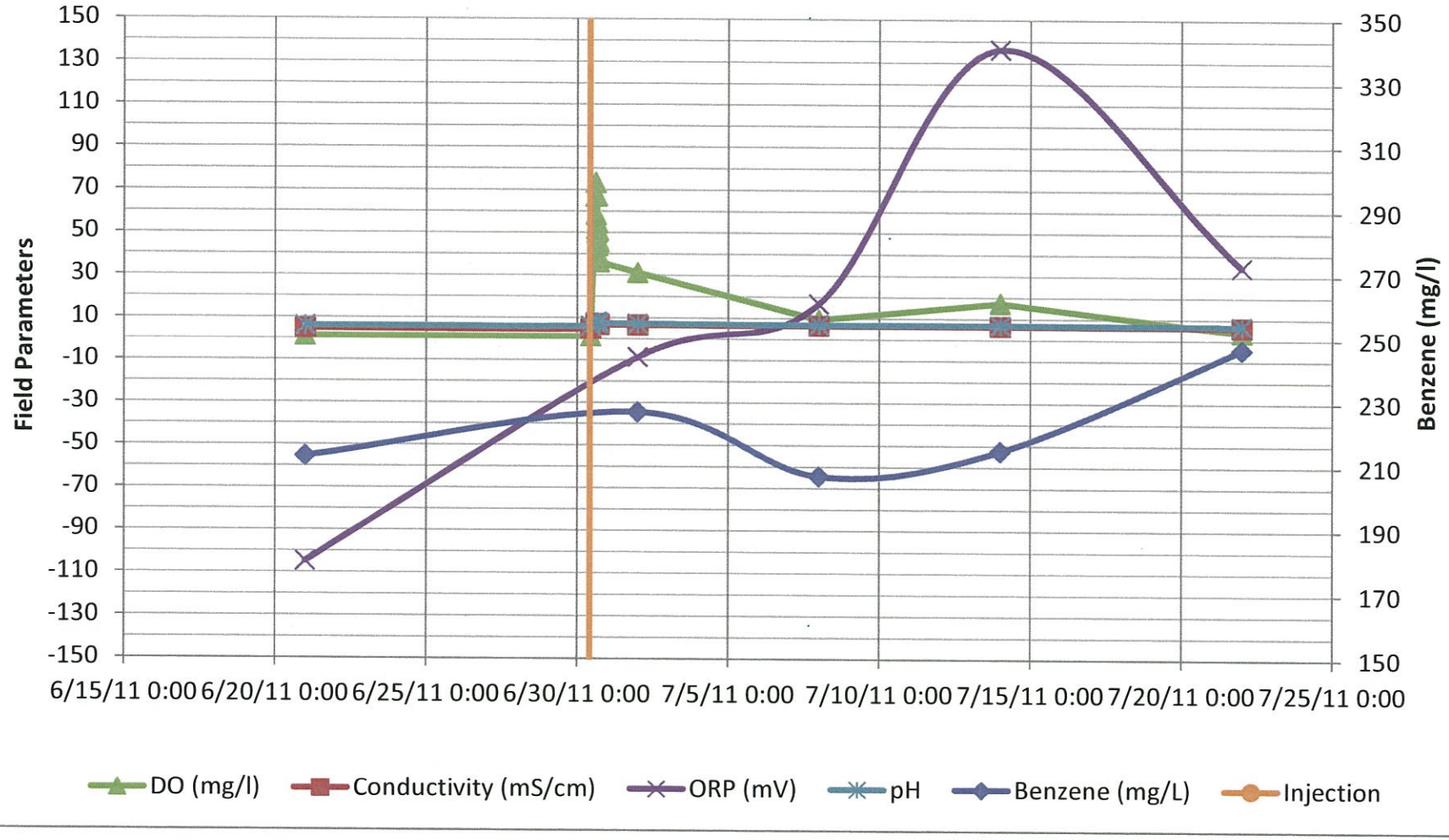


Figure 4
MW10TCI (INJ-2)



KINDER MORGAN

May 20, 2013

Mr. Bryan S. Smith, P.G., Project Manager
Texas Commission on Environmental Quality
Underground Injection Control Permits Team
Radioactive Materials Division
P. O. Box 13087
Austin, TX 78711-3087

Re: *Additional Information for Class V Injection Well Permit Closure Request*
(TCEQ Authorization 5X2600596)
Texmark Chemicals, Inc.
900 Clinton Drive
Galena Park, Texas

Dear Mr. Smith:

Outlined below is the well plugging information that you requested on April 26, 2013 from Mr. Raaj Patel of URS Corporation. As discussed in the closure request for the Class V Injection Permit (Permit No. 5X2600596) dated May 04, 2012, KM Liquids Terminals LLC (KMLT) conducted a chemical injection pilot test at the Texmark Chemicals, Inc. (TCI) facility in Galena Park, Texas. The plan was to implement a full scale injection program if the pilot test results were favorable. However, the results of the pilot test did not meet the objectives of pilot test scope of work, and therefore a full scale program was not implemented.

During the pilot test, RegenOx™ (a solid oxidizer mixed with an activator at a 10% solution in water) was injected through direct probe injection at three locations and injection performance was monitored downgradient of these three locations. The injections, conducted on June 30, 2011, at each location utilized a direct push technology (DPT) GeoProbe system, and after completion of injection activities, each location was backfilled with bentonite chips and a bentonite/cement plug at the surface. Since these locations were not completed as wells, well plugging reports were not generated for these locations.

Please do not hesitate to call me at (713) 920-8423 if you have any questions regarding the information presented in this letter or need additional information.

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Project Manager

CC: Raaj U. Patel, P.G., Program Manager – URS Corporation

906 Clinton Drive *Galena Park, TX 77547* *Ph: 713-920-8423*
Fax: 713-472-7660

Appendix 4

Proposed Institutional Controls

Proposed Deed Notice Language

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS

COUNTY OF HARRIS

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

> ***A legal property description used in the last recorded vesting deed, covering the Property that includes the entire recorded tract of land held by the owner executing this deed notice, is attached hereto and incorporated herein by reference as Exhibit A.***

Portions of the groundwater of the Property contain certain identified chemicals of concern, specifically benzene, ethylbenzene, toluene, and xylenes, arsenic, and styrene, causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The property considered to be the Affected Property is described as follows:

> ***METES AND BOUNDS DESCRIPTION:*** *Being a tract of land containing 8.0685 acres of land situated in the Ezekiel Thomas Survey, A-73, Harris County, Texas, described as Tract I, Tract II, and Tract III by that instrument to Texmark Properties, Inc., recorded under File Number T453277, Harris County Official Public Records of Real Property (HCOPRRP), and being out of a called 16.91 acre tract described as "Tract A" in deed from The Texas Company to General American Transportation Corporation, dated November 22, 1944 and recorded in Volume 1163, Page 515, Harris County Deed Records (H.C.D.R.); said 8.0685 acre tract being more particularly described by metes and bounds as follows (all bearings are referenced to that instrument recorded under File Number T453277, HCOPRRP):*
>
> *BEGINNING at a "V" in concrete base of chainlink fence post set in the south right-of-way of Clinton Drive (100 feet wide) as described in Volume 704, Page 216, and Volume 1011, Page 47, H.C.D.R., said point being the northeast corner of said Tract I, from which a concrete monument with "Texaco Star" in top found for the northeast corner of a called 1.17 acre tract,*
> *described as Tract Number 1, in deed from The Texas Company to General American Transportation Corporation, dated November 22, 1944 and recorded in Volume 1163, Page 515, H.C.D.R., bears North 87°56'52" East, 195.61 feet;*
>
> *THENCE South 01°56'57" East, 154.29 feet with the east line of said Tract I to a 5/8 inch iron rod found 1.5 feet north of the base of an old chain link fence corner, 6.0 feet north of an existing chain link fence corner;*
>
> *THENCE South 87°56'52" West, 383.32 feet with the most easterly south line of said Tract I, to a "X" in concrete set for an interior corner of said Tract I;*

THENCE South 02°03'08" East, 15.00 with the east line of said Tract I to a 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for an ell corner of said Tract I;

THENCE South 87°56'52" West, 87.10 feet with a southerly line of said Tract I to a 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for an interior corner of said Tract I;

THENCE South 02°03'08" East, 2.00 feet with the east line of said Tract I to a 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for an ell corner of said Tract I;

THENCE South 87°56'52" West, 20.25 feet with a southerly line of said Tract I to an "X" in concrete set for an interior corner of said Tract I, from which a bent 5/8 inch iron rod found bears South 27°20' East, 0.97 feet;

THENCE South 03°04'30" East, at 183.85 feet pass an ell corner of said Tract I, the northeast corner of said Tract III, from which a 1-1/2 inch iron pipe found bears North 12°31' East, 0.31 feet, at 326.91 feet pass a 1-1/2 inch iron pipe found for the southeast corner of said Tract III, the northeast corner of said Tract II, in all 461.62 feet to a 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for the most northerly southeast corner of said Tract II;

THENCE South 87°48'43" West, 25.87 feet with the most northerly south line of said Tract II to a 5/8 inch iron rod found for an interior corner of said Tract II;

THENCE South 04°38'01" E, 58.12 feet with the east line of said Tract II to a 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for the most southerly southeast corner of said Tract II, from which a bent 5/8 inch iron rod found bears North 13°59' East, 1.02 feet, said point being in the south line of said 16.91 acre tract, the north line of a tract of land described in deed to Southern Pacific Rail Road recorded in Volume 2051, Page 242, H.C.D.R.;

THENCE South 87°48'43" West, with the south line of said 16.91 acre tract, the north line of said rail road tract, the south line of said Tract II, at 172.87 feet pass a 5/8 inch iron rod found for the southwest corner of said Tract II, the most southerly southeast corner of said Tract I, in all 371.62 feet to a 5/8 inch iron rod found for the southwest corner of said Tract I, the southeast corner of a 50 foot wide pipeline alley as shown on sketch in said deed to General American Transportation Corporation, from which a 1-1/2 inch iron pipe found bears North 83°51' West, 0.69 feet, and a 5/8 inch iron rod with cap found bears North 69°30' West, 0.33 feet;

THENCE North 03°26'35" West, 692.04 feet with the east line of said pipeline alley, the west line of said Tract I, to a chainlink fence post found for the northeast corner of said pipeline alley, the northwest corner of said Tract I, said point being in the south right-of-way of said Clinton Drive;

THENCE North 87°56'52" East, 894.38 feet with the south right-of-way of said Clinton Drive, the north line of said Tract I, to the POINT OF BEGINNING, and containing 8.0685 acres of land.

The certified metes and bounds description and corresponding plat map of the Affected Property for groundwater are attached hereto and incorporated herein by reference as Exhibit A. The Affect Property Maintenance and Monitoring Requirements are provided in Exhibit B.

The constituents of concern in groundwater at the Affected Property defined here as exceeding TRRP Protective concentration Levels (PCLs) for residential land use are benzene, ethylbenzene, toluene, and xylenes, arsenic, and styrene.

This notice is required for the following reasons:

> *The Affected Property currently meets TRRP standards for commercial/industrial use. Based on the reports, the chemicals of concern pose no significant present or future risk to humans or the environment based on commercial/industrial land use. No further remediation of the Affected Property is required by the TCEQ as long as the Affected Property is not to be used for residential purposes as the property may not be protective for residential use. If any person desires in the future to use the Affected Property for residential purposes, the TCEQ must be notified at least 60 days in advance of such use and additional response actions may be necessary before the property may be used for residential purposes. Persons contemplating a change in land use for the Affected Property are encouraged to review the definitions for commercial/industrial and residential land use contained in TRRP as the definition of residential land use is broad.*

As of the date of this Notice, the record owner of fee title to the Property is Texmark Properties, Inc. with an address of 900 Clinton Drive, Houston, Texas 77547.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E
Austin, TX 78753

Mail: TCEQ – MC 199
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier: ISWR No. 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this _____ day of _____, _____.

Texmark Properties Inc.

By: _____

Name: _____

Title: _____

STATE OF TEXAS
HARRIS COUNTY

BEFORE ME, on this the ____day of_____, _____ personally appeared [name]_____, [title]_____, of [company]_____, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, _____.

Notary Public in and for the State of Texas,
County of

My Commission Expires:

EXHIBIT A

CLINTON DRIVE (100 FEET WIDE)
VOL.704, PG.216, VOL.1011, PG.47, H.C.D.R.

CLINTON DRIVE (100 FEET WIDE)
VOL.704, PG.216, VOL.1011, PG.47, H.C.D.R.

N87° 56'52"E - 894.38'

N87° 56'52"E
195.61'

POINT OF BEGINNING
8.0685 ACRE TRACT

POINT OF BEGINNING
1,959 SQ.FT. EASEMENT TRACT

S01° 56'57"E - 164.29'

GENERAL AMERICAN TRANSPORTATION CORP
VOL. 1163, PG. 515
H.C.D.R.

MACHINE SHOP
(F.F. ELEV. 22.01')

900 CLINTON
MAIN
OFFICE
BUILDING
(F.F. ELEV. 23.80')

DETAIL "A"

INTERNAL IMPROVEMENTS
NOT LOCATED

TEXMARK PROPERTIES, INC
TRACT I
6.581 ACRES
F.N. T453277
H.C.O.P.R.R.P.

S87° 56'52"W
20.26'

S87° 56'52"W - 87.10'

S02° 03'08"E
2.00'

S02° 03'08"E
16.00'

S87° 56'52"W - 383.32'

FND ½" I.R.

10' PIPERACK EASEMENT
TEXMARK PROPERTY
F.N. T453276 H.C.O.P.R.R.P.

GENERAL AMERICAN TRANSPORTATION CORP
REMAINDER OF TRACT A
16.91 ACRES
VOL. 1163, PG. 515
H.C.D.R.

N87° 56'52"E
10.62'

S87° 56'52"W - 197.17'

S03° 04'30"E - 183.85'

DETAIL "B"

FND 1-1/2" I.P.
BRS S12°39'E 0.35'

S03° 04'30"E - 491.82'

SET "X" IN CONC.

N84° 50'40"E - 197.27'

FND 1-1/2" I.P.

S03° 04'30"E - 356.31'

FND 1-1/2" I.P.

S03° 04'30"E - 134.72'

TEXMARK PROPERTIES, INC
TRACT II
0.8159 ACRES
F.N. T453277
H.C.O.P.R.R.P.

S87° 48'43"W
25.87'

S04° 38'01"E
58.12'

SET ½" I.R. W/ "ALS CAP"
FND ½" I.R. (BENT)
BRS N13°59'E 1.02'

S87° 48'43"W - 198.75'

FND. ½" I.R.

S87° 48'43"W - 172.87'

S87° 48'43"W - 371.62'

SOUTHERN PACIFIC RAIL ROAD FEE STRIP
VOL 2051, PG 242, H.C.D.R.

GENERAL AMERICAN TRANSPORTATION CORP.
TRACT B
31.96 ACRES +/-
VOL 1163, PG. 515
H.C.D.R.

HOUSTON LIGHTING & POWER COMPANY
32.44 ACRES
VOL. 1011, PG. 274
H.C.D.R.

N02° 26'35"W - 692.04'

GENERAL AMERICAN TRANSPORTATION CORP
REMAINDER OF TRACT A
16.91 ACRES
VOL 1163, PG. 515
H.C.D.R.

DETAIL "A"

MACHINE SHOP

MAIN OFFICE

DETAIL "A" & "B" SCALE - 1" = 10'

S86° 19'00"W
16.90' +/-

VICINITY MAP
1" = 1 MILE
KEY MAP PG. 496X

PROJECT LOCATION

N

1" = 30'

10 15 0 30 60
FEET

NOT TO SCALE

SOUTHWEST CORNER OF BUILDING LOOKING NORTH

NORTHEAST CORNER OF BUILDING LOOKING EAST

WOOD

BRICK EXTERIOR

CINDER BLOCK EXTERIOR

SLAB

SECTION "A-A"

SECTION "B-B"

LEGEND

- UTILITY POLE
- VALVE
- SIGN
- TREE
- GRASS
- ELEVATED PIPE
- INLET
- GUY WIRE
- CHAIN-LINK FENCE
- TEST LEAD
- PIPELINE MARKER
- MONITORING WELL
- OVERHEAD POWER LINES
- UNDERGROUND PIPE
- FOUND PROPERTY CORNER
- SET PROPERTY CORNER
- TETHER ANCHOR

GENERAL NOTES

1. THIS SURVEY RELIES UPON A COMMITMENT FOR TITLE INSURANCE ISSUED BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY UNDER G.F. NUMBER 07005921, EFFECTIVE DATE: JUNE 10, 2007. FOR ALL EASEMENTS, RESTRICTIONS, RIGHTS - OF - WAY OR OTHER ENCUMBRANCES OF RECORD THAT MAY AFFECT THIS PROPERTY.

2. THE BEARINGS SHOWN HEREON ARE REFERENCED TO THAT INSTRUMENT RECORDED UNDER FILE NUMBER T453277, OF THE HARRIS COUNTY OFFICIAL PUBLIC RECORDS OF REAL PROPERTY, H.C.O.P.R.R.P.).

3. THIS SUBJECT TRACT IS LOCATED IN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), SHADED ZONE "X" (AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE) AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD), AND ZONE "AE" (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT WITH A BASE FLOOD ELEVATION DETERMINED TO BE 12 FEET); AS PER NATIONAL FLOOD INSURANCE PROGRAM FIRM MAP NUMBER=48201H-0505-L (CITY OF GALENA PARK, TX), WITH THE LATEST AVAILABLE PUBLISHED REVISION BEING DATED JUNE 19, 2007.

4. THIS TRACT IS SUBJECT TO THE TERMS AND PROVISIONS OF THAT CERTAIN NOTICE OF INDUSTRIAL SOLID WASTE DISPOSAL SITE, RECORDED UNDER FILE NUMBER F612607, H.C.O.P.R.R.P.

5. THIS DRAWING IS PART OF A PROFESSIONAL SURVEYING REPORT THAT ALSO INCLUDES A TWO - PAGE METES AND BOUNDS DESCRIPTION OF THE SUBJECT 8.0685 ACRE TRACT, AND A ONE-PAGE METES AND BOUNDS DESCRIPTION OF THE SUBJECT 1,959 SQUARE FOOT EASEMENT TRACT AS PREPARED BY ANDREW LONNIE SIKES, INC. UNDER PROJECT 2257-07-01.

6. ALL CORNERS ARE MARKED BY: SET ⅝" INCH IRON RODS WITH CAPS STAMPED "A.L. SIKES RPLS 2914" UNLESS OTHERWISE NOTED.

TO: TEXMARK CHEMICALS INCORPORATED, COMERICA BANK, & OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

I HEREBY CERTIFY THAT THIS PLAT REPRESENTS A SURVEY MADE ON THE GROUND, UNDER MY SUPERVISION, THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY AND THAT THIS PROFESSIONAL SERVICE SUBSTANTIALLY CONFORMS TO THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A, CONDITION II SURVEY.

ANDREW LONNIE SIKES
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION No. 2914

SURVEY OF

8.0685 ACRE FEE TRACT

BEING
6.581 ACRES (TRACT I)
0.8159 ACRES (TRACT II)
& 0.6716 ACRES (TRACT III)
RECORDED IN
F.N. T453277, H.C.O.P.R.R.P.
AND A

1,959 SQ.FT. EASEMENT TRACT

RECORDED IN
F.N. T453276, H.C.O.P.R.R.P.
ALL BEING OUT OF CALLED
16.91 ACRES BEING TRACT "A"
RECORDED IN
VOL. 1163, PG. 515, H.C.D.R.

EZEKIEL THOMAS SURVEY, ABSTRACT-73
HARRIS COUNTY, TEXAS

FOR

TEXMARK CHEMICALS INCORPORATED

PROJECT NO. 2257-0701
SHEET 1 OF 1

ANDREW LONNIE SIKES, INC.
CONVENTIONAL SURVEYING, GPS & AERIAL MAPPING
1140 BEDFORD ST.
HOUSTON, TX. 77061
OFFICE: 281.561.9124
1965 EDINBURG RD. BLDG.3
CONROE, TX. 77304
OFFICE: 936.441.7121

SURVEYED: JW / 03-03-01 - 01-20-07 | BOOK: No.1 | 2257-07-01 | IMAGE: | NONE
DRAWN BY: JWS / 01-20-07 | CHECKED: | ALS / 01-29-07 | REVISED: | NA

DATE Updated Worksheet - 2-6-07
Path: C:\Projects\2007\01\Texmark\Survey\Texmark 8.0685 AC Tract & 1,959 SQ.FT. Easement.dwg

EXHIBIT B

Affected Property Maintenance and Monitoring Requirements

Affected Property maintenance and monitoring will consist of weekly inspections and maintenance and semiannual groundwater monitoring of the well network and annual reporting to the Texas Commission on Environmental Quality (TCEQ). Additional information regarding inspections and maintenance and groundwater monitoring can be found in the TCEQ-approved Revised Response Action Plan for the Texmark Chemicals, Inc. facility (September 2018).

ATTACHMENT W

Corrective Action Program Report

KINDER MORGAN
KM Liquids Terminals LLC

February 28, 2024 **FedEx Tracking No. 7753 3167 6680**

Ms. Maureen M. Hatfield
Project Manager
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Corrective Action Team, VCP-CA Section
Remediation Division
MC-127ma
12100 Park 35 Circle
Austin, Texas 78753

Re: **Annual Corrective Action Program Report**
Reporting Period January 1, 2023 through December 31, 2023
North Holding Basin, Southeast Holding Basin, Texmark Chemical Group, Central Plant PMZ, West Plant WMA PMZ/West Chemical AOC, Old Pump House No. 5 AOC, and Gate 6 AOC
KM Liquids Terminals LLC – Galena Park Terminal, Galena Park, Texas
ISWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA ID No. TXD026481523

Dear Ms. Hatfield:

Attached please find two (2) original and an electronic copy (via file transfer) of the Annual Corrective Action Program (CAP) Report for the KM Liquids Terminals LLC (KM) Galena Park Terminal located in Galena Park, Texas prepared by AECOM Technical Services, Inc. (AECOM). This report is being submitted in accordance with the reporting requirements of Section XI.G and listed in CP Table VII of the November 8, 2019 KM Compliance Plan (Section XI of the Permit). As required by the Compliance Plan, one additional copy will be submitted to the Texas Commission on Environmental Quality (TCEQ) Region 12 office in Houston, Texas.

The Galena Park Terminal's hazardous waste permit and compliance plan modification was issued on November 8, 2019. The permit was modified and approved by the TCEQ executive director on November 8, 2019 and a modified Compliance Plan was issued. The Compliance Plan specifies annual reporting to replace the previous semiannual reporting. The first Annual Corrective Action Program Report was submitted on February 28, 2020. Annual Corrective Action Program Reports followed on February 26, 2021, February 28, 2022, and February 28, 2023.

In addition to the existing permitted units, the Corrective Action Management Unit (CAMU)/(North Holding Basin) (NHB) and the former Southeast Holding Basin (SEHB), Compliance Plan modifications included the addition of the above-referenced solid waste management units (SWMU) and areas of concern (AOCs) subject to groundwater corrective action and compliance monitoring (Compliance Plan Table I).

KINDER MORGAN
KM Liquids Terminals LLC

If you have any questions regarding the information presented in this submittal, please do not hesitate to contact me at (713) 654-6035.

Sincerely,

KM Liquids Terminals LLC



Johnny Kennedy, P.G.
Remediation Manager

cc: TCEQ Waste Program Manager, TCEQ Region 12, Houston, Texas (FedEx No. 7753 3172 5832)

AECOM

Annual Corrective Action Program Report

Hazardous Waste Permit No. 50054 Section XI
January 1, 2023 through December 31, 2023

KM Liquids Terminals LLC
Galena Park Terminal

Project number: 60699810

February 28, 2024

Delivering a better world

Quality information

Prepared by



Zoe Knesl
Environmental Scientist

Reviewed by



Ashley Holmes
Project Manager

Prepared for:

Mr. Johnny Kennedy, P.G.
KM Liquids Terminals LLC
Galena Park Terminal
1500 Clinton Drive
Galena Park, Texas 77547

Prepared by:

AECOM
19219 Katy Freeway
Suite 100
Houston, Texas 77094
aecom.com

Copyright © 2024 by AECOM

All rights reserved. No part of this copyrighted work may be reproduced, distributed, or transmitted in any form or by any means without the prior written permission of AECOM.

Table of Contents

1. Introduction 1
2. Evaluation of Collected Groundwater Data (Compliance Plan Table VII Item 4, 8, 14, and 15) 3
2.1 Development and Maintenance of a Cone of Depression (Compliance Plan Table VII.8a) 4
2.2 Direction and Gradient of Groundwater Flow (Compliance Plan Table VII.8.b) 8
2.3 Effectiveness of Hydrodynamic Control of the Contaminated Zone (Compliance Plan Table VII.8.c) 9
2.4 Estimation of the Rate and Direction of Contaminant Migration (Compliance Plan Table VII.8.d) 10
3. Reporting Requirements (Compliance Plan Table VII) 12
3.1 Corrective Action System (Compliance Plan Table VII.10 and 18) 12
3.2 Field Determination Requirements (Provision XI.F.3.d(4), Compliance Plan Table VII.10) 14
3.2.1 Well Depth Determination 14
3.2.1.1 Total Depth Maintenance during the January - December 2023 Period 15
3.2.1.2 Analysis of the Data from the January - December 2023 Total Depth Data 16
3.2.2 Well Performance Determination 16
3.2.2.1 Pump Performance Maintenance and Data Analysis During the January - December 2023 Period 16
3.2.2.2 Incidental Pump Performance Maintenance and Data 17
3.3 Management of Recovered Groundwater and LNAPL with Quarterly Tabulations and Graphs (Compliance Plan Table VII.11 and Compliance Plan Table VII.20) 23
3.4 Updated Table and Maps of Corrective Action Wells (Compliance Plan Table VII.12) 24
3.5 Summary of Chemical Analysis (Table VII.13 and 22) 24
3.6 Water Level Elevations and NAPL Thickness (Compliance Plan Table VII.14 and Compliance Plan Table VII.19) 26
3.7 Potentiometric Surface Maps (Compliance Plan Table VII.15) 27
3.7.1 Tabulation of Data Evaluation Results and Compliance Tables (Compliance Plan Table VII.16) 27
3.8 Hazardous Constituent and NAPL Extent Maps (Compliance Plan Table VII.22 and Compliance Plan Table VII.23) 27
3.9 Schedule Summary (Table VII.17) 28
3.10 Well Inspections, Repairs and Operational Difficulties (Compliance Plan Table VII.18) 28
4. Status of Gate 6 Area of Concern (Compliance Plan Table VII.24) 30
5. Recommendations 31

List of Appendices

Appendix A Corrective Action System Well Elevations for North Holding Basin, Southeast Holding Basin, Central Plant, West Plant/West Chem, Texmark, and Old Pump House No. 5 (Compliance Plan Table (CP Table) VII.4)

Appendix B Historical Groundwater Concentration Summary – North Holding Basin, Southeast Holding Basin, Central Plant, West Plant/West Chem, Texmark, East Plant Gate 6, and Old Pump House No. 5 (CP Table VII.13 and VII.16)

Appendix C Compliance Plan Activities Schedule (CP Table VIII)

Appendix D Notification of Uncompleted Weekly Compliance Activities, dated January 2, 2024.

Figures

Figure 1 Site Map - North Holding Basin (CP Table VII.12)
Figure 2 Site Map - Southeast Holding Basin (CP Table VII.12)
Figure 3 Site Map – Central Plant (CP Table VII.12)
Figure 4 Site Map - West Plant/West Chem (CP Table VII.12)
Figure 5 Site Map – Texmark (CP Table VII.12)
Figure 6 Site Map - Old Pump House No. 5 (CP Table VII.12)
Figure 7a Groundwater Potentiometric Map – January 31, 2023 North Holding Basin Zone III (CP Table VII.8 and VII.15)
Figure 7b Groundwater Potentiometric Elevation Map – January 31, 2023 North Holding Basin Zone IV (CP Table VII.8 and VII.15)
Figure 7c Groundwater Potentiometric Elevation Map – January 31, 2023 North Holding Basin Zone V (CP Table VII.8 and VII.15)
Figure 7d Groundwater Potentiometric Elevation Map – July 21, 2023 North Holding Basin Zone III (CP Table VII.8 and VII.15)
Figure 7e Groundwater Potentiometric Elevation Map – July 21, 2023 North Holding Basin Zone IV (CP Table VII.8 and VII.15)
Figure 7f Groundwater Potentiometric Elevation Map – July 21, 2023 North Holding Basin Zone V (CP Table VII.8 and VII.15)
Figure 8a Groundwater Potentiometric Elevation Map – January 30, 2023 Southeast Holding Basin UNTU (CP Table VII.8 and VII.15)
Figure 8b Groundwater Potentiometric Elevation Map – January 30, 2023 Southeast Holding Basin SCF (CP Table VII.8 and VII.15)
Figure 8c Groundwater Potentiometric Elevation Map – July 20, 2023 Southeast Holding Basin UNTU (CP Table VII.8 and VII.15)
Figure 8d Groundwater Elevation Map – July 20, 2023 Southeast Holding Basin SCF (CP Table VII.8 and VII.15)
Figure 9a Groundwater Elevation Map – January 31, 2023 Central Plant PMZ (CP Table VII.8 and VII.15)
Figure 9b Groundwater Elevation Map – July 21, 2023 Central Plant PMZ (CP Table VII.8 and VII.15)
Figure 10a Groundwater Elevation Map – February 24, 2023 West Plant/West Chem (CP Table VII.8 and VII.15)
Figure 10b Groundwater Elevation Map – August 15, 2023 West Plant/West Chem (CP Table VII.8 and VII.15)
Figure 11a Groundwater Elevation Map – February 23, 2023 Texmark (CP Table VII.8 and VII.15)
Figure 11b Groundwater Elevation Map – August 30, 2023 Texmark (CP Table VII.8 and VII.15)
Figure 12a Groundwater Elevation Map – January 30, 2023 Old Pump House No. 5 (CP Table VII.8 and VII.15)
Figure 12b Groundwater Elevation Map – July 21, 2023 Old Pump House No. 5 (CP Table VII.8 and VII.15)
Figure 13 Instantaneous Flow Rates: January 1 – December 31, 2023 (CP Table VII.10)
Figure 14 Average Flow Rates: January 1 – December 31, 2023 (CP Table VII.10)
Figure 15a Contaminant Isopleth Map 1,2-Dichloroethane January 31, 2023 North Holding Basin Zone

III (CP Table VII.22)

Figure 15b Contaminant Isopleth Map 1,2-Dichloroethane January 31, 2023 North Holding Basin Zone IV (CP Table VII.22)

Figure 15c Contaminant Isopleth Map 1,2-Dichloroethane January 31, 2023 North Holding Basin Zone V (CP Table VII.22)

Figure 15d Contaminant Isopleth Map 1,2-Dichloroethane July 21, 2023 North Holding Basin Zone III (CP Table VII.22)

Figure 15e Contaminant Isopleth Map 1,2-Dichloroethane July 21, 2023 North Holding Basin Zone IV (CP Table VII.22)

Figure 15f Contaminant Isopleth Map 1,2-Dichloroethane July 21, 2023 North Holding Basin Zone V (CP Table VII.22)

Figure 16a Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin Zone UNTU (CP Table VII.22)

Figure 16b Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin Zone SCF (CP Table VII.22)

Figure 16c Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin Zone SCF/UNTU (CP Table VII.22)

Figure 16d Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin Zone UNTU (CP Table VII.22)

Figure 16e Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin Zone SCF (CP Table VII.22)

Figure 16f Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin Zone SCF/UNTU (CP Table VII.22)

Figure 17a Contaminant Concentration Exceedances Map January 31, 2023 Central Plant PMZ Zone SCF/UNTU (CP Table VII.22)

Figure 17b Contaminant Concentration Exceedances Map July 21, 2023 Central Plant PMZ Zone SCF/UNTU (CP Table VII.22)

Figure 18a Contaminant Concentration Exceedances Map February 24, 2023 West Plant/West Chem (CP Table VII.22)

Figure 18b Contaminant Concentration Exceedances Map August 15, 2023 West Plant/West Chem (CP Table VII.22)

Figure 19 Contaminant Concentration Exceedances Map February 23, 2023 Texmark (CP Table VII.22)

Figure 20a Contaminant Concentration Exceedances Map January 30, 2023 Old Pump House No. 5 (CP Table VII.22)

Figure 20b Contaminant Concentration Exceedances Map July 21, 2023 Old Pump House No. 5 (CP Table VII.22)

Figure 21a Extent of LNAPL Map – January 30, 2023 Southeast Holding Basin (CP Table VII.23)

Figure 21b Extent of LNAPL Map – July 20, 2023 Southeast Holding Basin (CP Table VII.23)

Figure 22a Extent of LNAPL Map – January 30, 2023 Old Pump House No. 5 (CP Table VII.23)

Figure 22b Extent of LNAPL Map – July 21, 2023 Old Pump House No. 5 (CP Table VII.23)

Figure 23a Extent of LNAPL Map – February 24, 2023 West Plant/West Chem (CP Table VII.23)

Figure 23b Extent of LNAPL Map – August 15, 2023 West Plant/West Chem (CP Table VII.23)

Tables

Table 1 Groundwater Elevation Data January and July 2023- North Holding Basin (CP Table VII.14)

Table 2 Groundwater Elevation Data January and July 2023- Southeast Holding Basin (CP Table VII.14)

Table 3 Groundwater Elevation Data January and July 2023- Central Plant PMZ (CP Table VII.14)

Table 4 Groundwater Elevation Data February and August 2023- West Plant/West Chem (CP Table VII.14)

Table 5 Historical Groundwater Elevation Data - Texmark Chemicals (CP Table VII.14)

Table 6 Historical Groundwater Elevation Data – Old Pump House 5 (CP Table VII.14)

Table 7 LNAPL Thickness and Removal Southeast Holding Basin, West Plant/West Chem and OPH5 (CP Table VII.19 and VII.20)

Table 8 Corrective Action Program Wells (CP Table VII.12)

Table 9 January and July 2023 Groundwater Analytical Data Summary - North Holding Basin (CP Table VII.13 and VII.16)

Table 10 January and July 2023 Groundwater Analytical Data Summary - Southeast Holding Basin (CP Table VII.13 and VII.16)

Table 11 January and July 2023 Groundwater Analytical Data Summary – Central Plant PMZ (CP Table VII.13 and VII.16)

Table 12 February and August 2023 Groundwater Analytical Data Summary – West Plant/West Chem (CP Table VII.13 and VII.16)

Table 13 February/March 2023 Groundwater Analytical Data Summary - Texmark Chemicals (CP Table VII.13 and VII.16)

Table 14 Historical Groundwater Analytical Data Summary – Old Pump House No. 5 (CP Table VII.13 and VII.16)

Table 15 Weekly Pump Rates - North and Southeast Holding Basins, Central Plant PMZ, West Plant/West Chem PMZ, and Texmark Chemicals (CP Table VII.10)

Table 16 Fluid Recovery Totals (CP Table VII.20)

Table 17 Maintenance and System Shut-Downs – North Holding Basin, Southeast Holding Basin, Central Plant PMZ, West Plant/West Chem, Texmark, and Old Pump House No. 5 (CP Table VII.10)

1. Introduction

This Annual Corrective Action Program Report (Report) is being submitted in accordance with the reporting requirements of Section XI.G and those listed in the Compliance Plan Table (CP Table) VII of the Kinder Morgan Liquids Terminals LLC (Kinder Morgan) Hazardous Waste Permit 50054, issued by the Texas Commission on Environmental Quality (TCEQ) on September 30, 1992 and renewed on March 8, 2004, and January 6, 2015 (Permit). The permit was modified and approved by the TCEQ executive director on November 8, 2019 and a modified Compliance Plan was issued. The Compliance Plan specifies annual reporting of the activities associated with the Corrective Action Program in place at the Kinder Morgan Galena Park Terminal (KMLT).

In addition to the existing Corrective Action Management Unit (CAMU)/North Holding Basin (NHB), and the Southeast Holding Basin (SEHB), the Compliance Plan modifications included the addition of the following Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) subject to groundwater corrective action and compliance monitoring (Compliance Plan Table I):

- Central Plant (CP) Waste Management Area (WMA) Plume Management Zone (PMZ) (CP PMZ);
- SWMU Group W3 (West Plant WMA PMZ/West Chemical Area of Concern (AOC)) (WP/WC PMZ);
- Texmark Chemical Group (TCI); and
- Old Pump House No. 5 AOC (OPH5).

As required by CP Table VII Item 2, **Table A** below shows the history of modifications to Hazardous Waste (HW) Permit 50054.

Table A: History of Modifications to HW Permit 50054

Application Date	Type	Summary	TCEQ Approval (Issuance Date)
September 17, 2013	Renewal/Major Amendment	Compliance renewal	January 6, 2015
April 26, 2016	Class 1 Modification	Revised the legal description of the facility and replacement of Compliance Plan Attachment A	May 31, 2016
September 5, 2018	Class 3 Modification	Addition of TCI, CP PMZ, WP/WC PMZ, and OPH5 to the Corrective Action Program. Addition of the Gate 6 AOC, WP/WC PMZ, and OPH5 to Compliance Plan Table II	November 8, 2019

This Report addresses the Kinder Morgan Galena Park Terminal located in Galena Park, Texas, hereafter referred to as the Galena Park Terminal or KMLT.

Section XI of the Permit sets forth the requirements for the Corrective Action Program at the NHB, located in the WP/WC PMZ Area as shown on **Figure 1**, the SEHB, located in the Central Plant Area as shown on **Figure 2**, the CP PMZ as shown on **Figure 3**, the WP/WC PMZ as shown on **Figure 4**, TCI as shown on **Figure 5,** and OPH5 shown on **Figure 6**. General facility information is listed as follows:

Company Name: KM Liquids Terminals LLC

Primary Contact: Mr. Johnny Kennedy, P.G.

Site Location: 1500 Clinton Drive, Galena Park, Texas 77547

EPA ID No.: TXD026481523

ISWR No.: 30573

Permit No.: 50054

Compliance Plan: Section XI of the Permit

This Report covers the time period from January 1, 2023 to December 31, 2023 for the NHB, SEHB, CP PMZ, WP/WC PMZ, TCI, and OPH5 plant areas as required by the Permit.

2. Evaluation of Collected Groundwater Data (Compliance Plan Table VII Item 4, 8, 14, and 15)

In accordance with Section XI.F.3.(2), semiannual groundwater level measurements are required in the Corrective Action Program areas. Areas CP PMZ, WP/WC PMZ, TCI, and OPH5 were incorporated into the Corrective Action Program on November 8, 2019 and data relevant to this section is included in this report. Groundwater level measurements were obtained at the NHB on January 31 and July 21, 2023, at the SEHB on January 30 and July 20, 2023, at the CP PMZ on January 31 and July 21, 2023, at the WP/WC PMZ on February 24 and August 15, 2023, at TCI on February 23 and August 30, 2023 during the annual sampling and semi-annual gauging events, and at OPH5 on January 30 and July 21, 2023, during the semiannual sampling events. These data are summarized in **Tables 1 through 6**. In accordance with the Permit (CP Table VII, Item 4), a tabulation of well casing elevations is included in **Appendix A**. Potentiometric maps were prepared using the groundwater elevation data. The potentiometric maps for NHB Zone III, Zone IV, and Zone V are presented as **Figures 7a-7f,** SEHB Uppermost Natural Transmissive Unit (UNTU) and Sandy Channel Fill (SCF) maps are presented as **Figures 8a-8d,** CP PMZ maps are presented as **Figures 9a and 9b**, WP/WC PMZ maps are presented as **Figures 10a and 10b**, TCI maps are presented as **Figures 11a and 11b**, and OPH5 maps are presented as **Figures12a and 12b**.

As required by the Permit, Compliance Plan Attachment-C, Item 15,

> *The Permittee shall measure and keep a record of the elevation of the top of each well casing in feet above mean sea level to the nearest 0.01 foot and permanently mark the measuring point on the well. The Permittee shall compare old and new elevations from previously surveyed wells and determine a frequency not to exceed five (5) year intervals.*

Compliant with the Permit, the Corrective Action Systems wells in the NHB and SEHB were surveyed by a Registered Professional Land Surveyor (RPLS) during May 2019. Prior to the 2019 survey, the wells were surveyed in April 2014. Due to inaccessibility during the 2014 survey, wells MW-17 (SEHB), MW-35 (SEHB), and MW-11 (NHB) were surveyed in June 2015. The next scheduled survey will occur in 2024.

The NHB MW-5 well pad was reconstructed during July 2019. To accommodate the new well pad, 6.65” (0.55’) of the top of the well casing was removed yielding a top of casing (TOC) measurement of approximately 20.25 feet (ft.) above mean sea level (MSL). In May 2019, KMLT received approval from the TCEQ to remove MW-5 from the sampling program, therefore, NHB MW-5 has not been resurveyed since the repairs during 2021. The WP/WC PMZ monitoring well MW-27 well pad was also reconstructed during July 2019. To accommodate the new well pad, 3.95” (0.33’) of the top of the well casing was removed yielding an approximate new TOC measurement of 19.35’. WP/WC PMZ MW-27 was resurveyed by an RPLS during 2021. The CP MW-6 well casing was repaired during 2021 and was resurveyed by an RPLS during 2021. Well CP RI-1-17 was also resurveyed on account of a pad repair due to damage sustained by adjacent vehicles.

Additionally, on December 9, 2020, replacement monitoring well MW-35R was installed within 15 feet of the destroyed monitoring well MW-35 location under the same construction specifications as MW-35 with the exception of the protective surface casing which was not warranted. Well CP MW-35R was resurveyed by an RPLS during 2021. **Appendix A** contains the updated survey information.

2.1 Development and Maintenance of a Cone of Depression (Compliance Plan Table VII.8a)

NHB

Groundwater elevations from the monitoring wells screened in Zone III (MW-1, MW-4, MW-5, MW-7, MW-8, MW-9, MW-10, MW-11, MW-13, and RW-16) were used to construct a potentiometric map (January 31, 2023) for Zone III at the NHB (**Table 1, Figure 7a**). Recovery wells MW-4, MW-15, and RW-16 were not operational during the January 2023 gauging event. A well-defined cone of depression is historically observed in recovery wells MW-4 and MW-7 in Zone III, as depicted on **Figure 7a**. This cone historically also included RW-16; however, this recovery well was inactive at the time of the January sampling event. Consistent with previous events, groundwater generally flows eastward across the NHB toward MW-7 and MW-11 in Zone III.

Groundwater elevations from the monitoring wells screened in Zone IV (MW-6, MW-14, MW-15, and RW-17) were used to construct a potentiometric map (January 31, 2023) for Zone IV at the NHB (**Table 1, Figure 7b**). Consistent with previous events, groundwater generally flows eastward across the NHB toward RW-17 and MW-6 in Zone IV.

Groundwater elevation from the monitoring well screened in Zone V (MW-12) is shown on **Figure 7c** (January 31, 2023). As only one well is screened in this zone, potentiometric maps were not prepared, and groundwater flow direction was not calculated.

Groundwater elevations from the monitoring wells screened in Zone III (MW-1, MW-4, MW-5, MW-7, MW-8, MW-9, MW-10, MW-11, MW-13, and RW-16) were used to construct a potentiometric map (July 21, 2023) for Zone III at the NHB (**Table 1, Figure 7d**). As shown on **Figure 7d,** a well-defined cone of depression is observed in Zone III at MW-7. This cone historically also included RW-16; however, this recovery well was inactive at the time of the July sampling event.

Groundwater elevations from the monitoring wells screened in Zone IV (MW-6, MW-14, MW-15, and RW-17) were used to construct a potentiometric map (July 21, 2023) for Zone IV at the NHB (**Table 1, Figure 7e**). A well-defined cone of depression is historically observed in Zone IV around RW-17 and MW-06. Consistent with previous events, groundwater generally flows northward and eastward across the NHB toward RW-17 and MW-6 in Zone IV.

Groundwater elevation from the monitoring well screened in Zone V (MW-12) is shown on **Figure 7f** (July 21, 2023). As only one well is screened in this zone, potentiometric maps were not prepared, and groundwater flow direction was not calculated.

TOC elevations for the NHB are presented in **Appendix A**.

SEHB

Groundwater is recovered from the Upper Natural Transmissive Unit (UNTU) and the shallower Sandy Channel fill (SCF) Zones at the SEHB. A groundwater gradient map was prepared for wells screened across the UNTU and SCF.

Groundwater elevations from the monitoring wells screened in the UNTU (MW-1, MW-4R, MW-6, MW-8, MW-9, MW-10, MW-12, MW-16, MW-19, MW-21, MW-23, MW-24R, MW-26, MW-30, MW-31, RW-1, and RW-2) were used to construct a potentiometric map (January 30, 2023) for the UNTU at the SEHB (**Table 2**, **Figure 8a**). Consistent with previous monitoring events, the groundwater in the UNTU zones generally flows across the site to the south and east toward the groundwater recovery wells, specifically RW-1 and RW-2 to the south and MW-10, MW-24R, MW-26, and MW-30 to the east. A consistent cone of groundwater depression is formed around the areas of the recovery wells in the UNTU groundwater zone.

Groundwater elevations from the monitoring wells screened in the SCF (P-1, MW-15, MW-18, MW-20, MW-22, MW-27, MW-29, MW-32, NTRW, and STRW were used to construct a potentiometric map (January 30, 2023) for the SCF at the SEHB (**Table 2**, **Figure 8b**). Consistent with previous monitoring events, the groundwater in the SCF zone generally flows across the site to the east toward the

groundwater recovery wells, specifically NTRW in the northern portion and STRW in the southern portion of the SEHB. A consistent cone of groundwater depression is formed around the areas of recovery wells NTRW and STRW in the SCF groundwater zone.

Groundwater elevations from the monitoring wells screened in the UNTU (MW-1, MW-4R, MW-6, MW-8, MW-9, MW-10, MW-12, MW-16, MW-19, MW-21, MW-23, MW-24R, MW-26, MW-30, MW-31, RW-1, and RW-2) were used to construct a potentiometric map (July 20, 2023) for the UNTU at the SEHB (**Table 2**, **Figure 8c**). Consistent with previous monitoring events, the groundwater in the UNTU zones generally flows across the site to the south and east toward the groundwater recovery wells, specifically RW-1, and RW-2 to the south and MW-10, MW-24R, MW-26, and MW-30 to the east. A consistent cone of groundwater depression is formed around the areas of the recovery wells in the UNTU groundwater zone.

Groundwater elevations from the monitoring wells screened in the SCF (P-1, MW-15, MW-18, MW-20, MW-22, MW-27, MW-29, MW-32, NTRW, and STRW were used to construct a potentiometric map (July 20, 2023) for the SCF at the SEHB (**Table 2, Figure 8d**). Consistent with previous monitoring events, the groundwater in the SCF zone generally flows across the site to the east and southeast toward the groundwater recovery wells, specifically NTRW in the northern portion and STRW in the southern portion of the SEHB. A consistent cone of groundwater depression is formed around the areas of recovery wells NTRW and STRW in the SCF groundwater zone.

Product was observed and measured in wells MW-18, MW-20, MW-23, MW-27, P-1, NTRW, and STRW. The thickness and approximate extents are presented on **Figures 21a and 21b**. CP Well P-1 has historically had product, but it has not been observed or measured since January 2020 with the exception of a minimal observance (0.01 ft.) during the January 2023 sampling event. SEHB Well MW-12 has historically had product, but it has not been observed or measured since December 2019 and was not present during the January or July 2023 sampling events. Groundwater elevations in wells with product were corrected using a product density of 0.87.

TOC elevations for the SEHB wells are presented in **Appendix A**.

CP PMZ

The Central Plant WMA, also referred to as the CP PMZ, is comprised of SWMU C-1 through C-4. Semiannual monitoring is performed for COCs for the CP PMZ wells and additional monthly sampling for bis 2-(chloroethyl) ether has been performed for POE-2. POE-2 is historically the only recovery well located within the CP PMZ. It has been deactivated since May 9, 2019 to observe the effect of the pumping on the bis 2-(chloroethyl) ether concentrations. Due to the lack of wells in the area, a cone of depression had not been observed for
POE-2 while the pump was activated.

No other groundwater recovery systems are in place for the CP PMZ.

The CP PMZ was incorporated into the Compliance Plan on November 8, 2019. Groundwater elevations from the monitoring wells screened in the SCF/UNTU (AMP-01, AMP-02, AMP-03, POE-1, MW-35, MW-36, MW-37, MW-38, RI-1-14, RI-1-18, RI-3-01, RI-3-02, RI-3-03, R1-1-17, RI-1-09, and MW-40) were used to construct a potentiometric map (January 31, 2023) for the SCF/UNTU at the CP PMZ (**Table 3**, **Figure 9a**). POE-2 groundwater elevation was not measured as the probe would not go down the casing due to the presence of recovery well equipment in the casing. Therefore, POE-2 groundwater elevations were not used to prepare the potentiometric map. Consistent with previous monitoring events, the groundwater exhibited a radial flow from a groundwater mound in the northern center of the Site. The groundwater on the western side of the CP PMZ in the SCF/UNTU zone generally flowed across the site to the west and southwest, but groundwater on the eastern side of the CP PMZ is influenced by the recovery wells in the SEHB area (NTRW and STRW), causing the groundwater to flow east and southeast towards recovery wells NTRW and STRW.

Groundwater elevations from the monitoring wells screened in the SCF/UNTU (AMP-01, AMP-02, AMP-03, POE-1, MW-35, MW-36, MW-37, MW-38, RI-1-14, RI-1-18, RI-3-01, RI-3-02, RI-3-03, R1-1-17, RI-1-09, and MW-40) were used to construct a potentiometric map (July 21, 2023) for the SCF/UNTU at the CP

PMZ (**Table 3, Figure 9b**). POE-2 groundwater elevation was not measured as the probe would not go down the casing due to the presence of recovery well equipment in the casing. Therefore, POE-2 groundwater elevations were not used to prepare the potentiometric map. Consistent with previous monitoring events, the groundwater exhibited a radial flow from a groundwater mound in the northern center of the Site. The groundwater on the western side of the CP PMZ in the SCF/UNTU zone generally flowed across the site to the west and southwest, but groundwater on the eastern side of the CP PMZ is influenced by the recovery wells in the SEHB area (NTRW and STRW), causing the groundwater to flow east and southeast towards recovery wells NTRW and STRW.

TOC elevations for the CP PMZ are presented in **Appendix A**.

WP/WC PMZ

The WP/WC PMZ is within the WP/WC WMA, which is comprised of SWMU Groups W1 through W3, Tank 50, and areas of the West Plant/West Chem AOC. Semiannual monitoring is performed for COCs for the WP/WC PMZ wells. Historically, a cone of depression has been maintained at the groundwater recovery wells.

Groundwater elevations from the WP/WCP PMZ monitoring wells (MW-10, MW-18, MW-20, MW-25, MW-26, MW-27, MW-28, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, MW-10, MW-3, P-1, P-2, VMW-1, VMW-2, VMW-3, VMW-4, VMW-6, VMW-7, VMW-9, P-3, MW-2, VMW-8, and VMW-10) were used to construct a potentiometric map (February 24, 2023) (**Table 4**, **Figure 10a**). The recovery wells (OB-1, OB-3, RW-1, RW-25R, and RW-39) have in-well pumps and ancillary hoses that prevent probe access for groundwater elevation data. These wells were not used to construct the groundwater elevation map (**Figure 10a**). Consistent with previous monitoring events, the groundwater generally flows across the site to the southeast toward the groundwater recovery wells located in the southeast corner of the WP/WC PMZ, to the south towards the Houston Ship Channel in the western portion of the WP/WC PMZ, and to the northeast in the northern portion of the WP/WC PMZ.

Groundwater elevations from the same monitoring wells as above, except MW-23 and MW-29, were used to construct a potentiometric map (August 15, 2023) for the WP/WC PMZ (**Table 4, Figure 10b**). The recovery wells (OB-1, OB-3, MW-23, RW-1, RW-25R, and RW-39) have in-well pumps and ancillary hoses that prevent probe access for groundwater elevation data. These wells were not used to construct the groundwater elevation map (**Figure 10b)**. Consistent with previous monitoring events, the groundwater generally flows across the site to the southeast toward the groundwater recovery wells located in the southeast corner of the WP/WC PMZ, to the south towards the Houston Ship Channel in the western portion of the WP/WC PMZ, and to the northeast in the northern portion of the WP/WC PMZ.

TOC elevations for the WP/WC PMZ are presented in **Appendix A**.

TCI

The TCI groundwater recovery system manages groundwater impacts from Impoundment 2 and Tank 28. Annual monitoring during February is performed for COCs for TCI wells. Well gauging at TCI is conducted semiannually. An active 13-well groundwater recovery system recovers groundwater at the western property boundary in the northern well group and southern well group. A well-defined cone of depression has historically been maintained at the recovery wells.

Groundwater elevations from the monitoring wells (AMP-2, MW-03-TCI, MW-04-TCI, MW-05-TCI, MW-06-TCI, MW-10-TCI, MW-12-TCI, MW-13-TCI, MW-14-TCI, MW-16-TCI, MW-17-TCI, MW-18-TCI, MW-19-TCI, MW-20-TCI, RI-1-10, and RI-1-13) and recovery wells (POE-1, POE-3, RW-1, RW-2, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, RW-9) were used to construct a potentiometric map (February 23, 2023), at TCI (**Table 5, Figure 11a**). Six wells (AMP-1, MW-07-TCI, MW-08-TCI, MW-09-TCI, MW-15-TCI, RI-1-14) were not located or could not be accessed, and MW-15-TCI was plugged and abandoned in 2013; these wells were not used to construct the groundwater elevation map (**Figure 11a**). Groundwater flow was consistent with previous years in which the groundwater generally flows across the site to the west toward the groundwater recovery wells near Panther Creek; specifically, MW-09TCI, RW-6, RW-1, RW-2, POE-1, RW-3, RW-7, RW-8, RW-9, and POE-1 in the northern recovery well group and RW-4, RW-5, and POE-3 in the southern recovery well group.

Groundwater elevations from AMP-2, MW-05-TCI, MW-06-TCI, MW-16-TCI, MW-18-TCI, MW-19-TCI, MW-20-TCI, RI-1-10, and RI-1-13) and recovery wells (POE-1, POE-3, RW-1, RW-3, RW-4, RW-5, RW-6, RW-7, and RW-8) were used to construct a potentiometric map (August 30, 2023) for TCI (**Table 5, Figure 11b**). Several wells (AMP-1, MW-03-TCI, MW-04-TCI, MW-07-TCI, MW-08-TCI, MW-09-TCI, MW-10-TCI, MW-12-TCI, MW-13-TCI, MW-14-TCI, MW-15-TCI, MW-17-TCI, RW-9, RI-1-14, and MW-9) were not located or could not be accessed; these wells were not used to construct the groundwater elevation map (**Figure 11b**). Consistent with previous monitoring events, the groundwater generally flows across the site to the west and southwest toward the northern and southern recovery well groups near Panther Creek.

On April 9, 2020, pumps in recovery wells at TCI were lowered in the wells such that they are now located approximately 20 ft below ground surface (bgs). This operational change improved the consistency of the groundwater draw-down in the wells and thus maintaining a cone of depression.

TOC elevations for the TCI wells are presented in **Appendix A**.

OPH5

The OPH5 AOC was incorporated into the Corrective Action Program with the modified Kinder Morgan Galena Park Terminal Permit/Compliance Plan on November 8, 2019. **Table 6** presents 2023 groundwater elevation data for the OPH5 AOC area. Groundwater elevations were measured on January 30 and July 21, 2023.

Groundwater elevations from the monitoring wells (OPH-1, OPH-2, OPH-3, OPH-4, OPH-5, OPH-6, OPH-7, OPH-8, OPH-9, OPH-10, and OPH-11) were used to construct a potentiometric map (January 30, 2023) at OPH5 (**Table 6, Figure 12a**). Consistent with previous monitoring events, the groundwater generally flows across the site to the southwest toward a ship docking bay off of the Houston Ship Chanel Creek.

Groundwater elevations from the same monitoring wells were used to construct a potentiometric map (July 21, 2023 at OPH5 (**Table 6, Figure 12b**). Consistent with previous monitoring events, the groundwater generally flows across the site to the southwest toward a ship docking bay off of the Houston Ship Chanel Creek.

The corrective action program at the OPH5 AOC included a manual LNAPL recovery program within a PMZ, but these activities have ceased with the approval of the TCEQ in 2021. Therefore, manual LNAPL recovery did not occur in 2023 in the OPH5 AOC. Groundwater recovery pumps are not part of the corrective action program and the development and maintenance of a cone of depression is not applicable to the OPH5 AOC. On May 24, 2022, Kinder Morgan submitted *Technical Report - LNAPL Bail/Down Testing and LNAPL Transmissivity – OPH5 AOC, East Plant* concluding that (a) the small LNAPL plume within the OPH5 PMZ is stable and is not expanding and (b) the LNAPL is not readily recoverable based on its transmissivity data. The report recommended ceasing LNAPL recovery. On August 12, 2022, the TCEQ issued a conditional approval to cease manual LNAPL removal. The conditions included:

> *2a. Continue to monitor LNAPL thicknesses for changes in its condition or distribution; and,*
>
> *2b. Verify that the presence of LNAPL does not create explosive conditions.*
>
> *If the groundwater protective concentration level exceedance (PCLE) zone expands or explosive conditions are present due to LNAPL, propose a modification to the Response Action Plan (RAP) per 30 Texas Administrative Code (TAC) §350.33(f)(4)(C)(i).*

The KMLT response to the TCEQ conditional approval, dated October 11, 2022, included the following statements:

> *Response to Comment #2a – KMLT will monitor LNAPL thicknesses for changes in its condition or distribution during the semiannual groundwater monitoring required by Provision XI.F.3.d.(1).*
>
> *Response to Comment #2b – KMLT has an extensive hydrocarbon monitoring system, both above grade and below grade, in place at OPH5 (see attached diagram). The system is in place to monitor the atmosphere for explosive vapors at Old Pumphouse #5 and the piping manifold associated with the pumphouse. If explosive atmospheric conditions were to develop in the area, the various monitors would alarm, and corrective action would be taken by. KMLT proposes that this system will be adequate for meeting the conditions stated in TCEQ Comment 2b.*

The TCEQ approved the response in a letter dated December 19, 2022.

2.2 Direction and Gradient of Groundwater Flow (Compliance Plan Table VII.8.b)

NHB

Historically, the groundwater flow direction in Zone III at the NHB is toward the east and forms a distinct groundwater cone of depression around recovery wells MW-7 and RW-16 along the eastern property boundary near Panther Creek (**Figures 7a and 7d**). However, this cone did not include RW-16 since this recovery well was inactive at the time of the sampling events. The flow direction is influenced by the active groundwater pumping along the eastern side of the NHB and the natural topographic gradient toward Panther Creek. The potentiometric gradient in Zone III between monitoring well MW-1 and recovery well MW-7 is estimated at 0.0280 feet per foot (ft/ft) (January 31, 2023) and 0.0251 ft/ft (July 21, 2023) toward the east.

Historically, the groundwater flow direction in Zone IV at the NHB is also toward the east and forms a distinct cone of depression around recovery wells MW-6 and RW-17 along the eastern property boundary near Panther Creek (**Figures 7b and 7e**). The flow direction is influenced by the active groundwater pumping along the eastern side of the NHB and the natural topographic gradient toward Panther Creek. The potentiometric gradient in Zone IV between recovery well MW-15 and recovery well MW-6 is estimated at 0.0586 (January 31, 2023) ft/ft toward MW-6 and 0.0344 ft/ft (July 21, 2023) toward MW-15. MW-15 was not operational during the January gauging event. There is only one well installed in Zone V so the potentiometric gradient cannot be determined, however, it is assumed to be consistent with gradients in Zone III and IV.

SEHB

The general groundwater flow direction at the SEHB is toward the south and east in Zone UNTU (**Figures 8a and 8c**) and in Zone SCF (**Figures 8b and 8d**). This general flow direction is influenced by the active groundwater pumping from the groundwater recovery systems along the Houston Ship Channel (HSC) and the natural topographic gradient toward the HSC. The potentiometric gradient in the UNTU between MW-6 and recovery well MW-26 was estimated at 0.0122 ft/ft (January 30, 2023) and as 0.0145 ft/ft (July 20, 2023) to the southeast. The potentiometric gradient in the SCF between MW-15 and MW-32 was estimated at 0.0151 ft/ft (January 30, 2023) and 0.0168 ft/ft (July 20, 2023) toward the recovery wells to the east and southeast.

CP PMZ

The general groundwater flow direction at the CP PMZ is toward the southwest and west on the west side of the PMZ and to the east and southeast on the east side of the PMZ in Zone SCF/UNTU (**Figures 9a and 9b**). These general flow directions are influenced by the natural topographic gradient toward the HSC on the west side of the PMZ and the recovery wells (NTRW and STRW) on the east side of the PMZ. The western potentiometric gradient in the SCF/UNTU between MW-36 and RI-3-03 was estimated at 0.0083

ft/ft (January 31, 2023) and 0.0089 ft/ft (July 21, 2023) toward the west and southwest. The eastern potentiometric gradient in SCF/UNTU between MW-36 and MW-32 was estimated at 0.0110 ft/ft (January 31, 2023) and 0.0125 ft/ft (July 21, 2023).

WP/WC PMZ

The general groundwater flow direction at the WP/WC PMZ is toward the east southeast toward the groundwater recovery wells located along the HSC, downgradient to the southeast. The general groundwater flow direction at the WP/WC PMZ is toward the southeast in Zone SCF/UNTU (**Figures 10a and 10b**). This general flow direction is influenced by the active groundwater pumping from the groundwater recovery systems along the HSC and the natural topographic gradient toward the HSC. The potentiometric gradient in the SCF/UNTU between MW-38 and MW-20 was estimated at 0.0082 ft/ft (February 24, 2023) and 0.0058 ft/ft (August 15, 2023) toward the south/southeast and northwest.

TCI

The general groundwater flow direction at TCI is toward the southwest toward the west and southwest toward the groundwater recovery wells located near Panther Creek (**Figures 11a and 11b**). This general flow direction is influenced by the active groundwater pumping from the groundwater recovery systems near Panther Creek and the natural topographic gradient toward Panther Creek. The potentiometric gradient in the SCF between MW-4-TCI and RW-9 was estimated at 0.0236 ft/ft (February 23, 2023). During the August 2023 gauging event, the gradient was 0.0859 ft/ft between MW-05-TCI and RW-8, toward the west.

OPH5

The general groundwater flow direction at the OPH5 AOC is toward the west southwest towards the ship docking bay adjacent to the HSC. (**Figures 12a and 12b**). This general flow direction is influenced by the natural topographic gradient toward the HSC as there are no active recovery wells at OPH5. The potentiometric gradient in the SCF between OPH-MW-3 and OPH-MW-5 was estimated at 0.0221 ft/ft (January 30, 2023) and 0.0207 ft/ft (July 21, 2023) toward the west southwest.

2.3 Effectiveness of Hydrodynamic Control of the Contaminated Zone (Compliance Plan Table VII.8.c)

NHB

The January 31 and July 21, 2023, groundwater potentiometric maps for the NHB (**Figures 7a through 7f**) demonstrate that the groundwater interception system (recovery wells) is effective in capturing groundwater as illustrated by a cone of depression observed in the eastern portion of the NHB in both Zone III and Zone IV. Zone V was only measured in July 2023 and exhibited a depressed groundwater level (approximately 3 ft.) from the past two years, exhibiting a relatively increased cone of depression. Weekly system inspections and measurements of instantaneous and average flow rates of the recovery wells indicate that the draw-down in the recovery wells is being maintained. The impacted groundwater at the NHB is effectively captured by the onsite groundwater recovery system.

Furthermore, none of the surface water samples collected from Panther Creek report concentrations of the NHB constituents above laboratory detection limits.

SEHB

The January 30 and July 20, 2023 groundwater potentiometric maps for the SEHB (**Figures 8a through 8d**) demonstrate that the groundwater interception system (recovery wells and trenches) is effective in capturing groundwater as illustrated by a cone of depression observed to the east and southeastern portion of the SEHB in both the UNTU and SCF. Weekly system inspections and measurements of instantaneous and average flow rates of the recovery wells indicate that the draw-down in the recovery wells is being maintained. The impacted groundwater at the SEHB is effectively captured by the onsite groundwater recovery system.

CP PMZ

Recovery well POE-2 is the only recovery well in the CP PMZ and has been inactivated since May 2019 to monitor bis 2-(chloroethyl)ether concentrations, therefore hydrodynamic control is not applicable. The POE-2 well location is shown on **Figures 9a and 9b**.

WP/WC PMZ

The February 24 and August 15, 2023, groundwater potentiometric maps for the WP/WC PMZ (**Figures 10a and 10b**) demonstrate that the groundwater interception system (recovery wells) is effective in capturing groundwater. The average pump rate has been generally consistent with historical averages and the system is operating as designed. Weekly system inspections and measurements of instantaneous and average flow rates of the recovery wells indicate that the draw-down in the recovery wells is being maintained. The impacted groundwater is effectively captured by the onsite groundwater recovery system.

TCI

The February 23, 2023 and August 30, 2023 groundwater potentiometric maps for TCI (**Figures 11a and 11b**) demonstrate that the groundwater interception system (recovery wells) is effective in capturing groundwater as illustrated by a cone of depression observed at the recovery wells along the western portion of TCI. Weekly system inspections and measurements of instantaneous and average flow rates of the recovery wells indicate that the draw-down in the recovery wells is being maintained. The impacted groundwater is effectively captured by the onsite groundwater recovery system.

OPH5

Groundwater recovery is not part of the corrective action program at the OPH5 AOC. Therefore, hydrodynamic control is not applicable.

2.4 Estimation of the Rate and Direction of Contaminant Migration (Compliance Plan Table VII.8.d)

NHB

The hydraulic gradient in Zone III between monitoring well MW-1 and recovery well MW-7 is estimated at 0.0280 ft/ft (January 31, 2023) and 0.0251 ft/ft (July 21, 2023) toward the recovery wells to the east. The hydraulic gradient in Zone IV between MW-15 and MW-6 is estimated at 0.0586 (January 31, 2023) ft/ft and 0.0344 ft/ft (July 21, 2023) toward the recovery wells to the east. LNAPL was not detected in the NHB during this reporting period and COC concentrations are generally consistent with historical findings. MW-1 reported an estimated (J) 1,2-dichloroethane concentration of 0.0083 milligrams per liter (mg/L) during July 2020 where there were no previous detections but has not been detected in MW-1 since (**Table 9, Figure 15d**). MW-6 and MW-7 reported detections above their respective groundwater protection standards, which is historically consistent. Generally, it does not appear that the dissolved phase 1,2-dichloroethane plume is migrating.

SEHB

The hydraulic gradient in the UNTU between MW-6 and recovery well MW-26 is estimated at 0.0122 ft/ft (January 30, 2023) and 0.0145 ft/ft (July 20, 2023) towards the east and southeast. The hydraulic gradient in the SCF between MW-15 and MW-32 was estimated at 0.0151 ft/ft (January 30, 2023) and 0.0168 ft/ft (July 20, 2023) toward the recovery wells to the east and southeast. The groundwater gradient data for the SCF and UNTU during the reporting period are consistent with historical trends. LNAPL and dissolved organics typically migrate at slower rates. In water bearing units like the SCF and UNTU, it is not unusual for dissolved organics to migrate on the order of a few feet per year rather than a few feet per day.

LNAPL was detected in MW-18, MW-20, MW-23, MW-27, P-1, the South Trench, and the North Trench at the SEHB during this reporting period and is discussed in Section 3.6. COC concentrations are generally consistent with historical findings; therefore, it does not appear that the area affected by the dissolved phase COCs is expanding.

CP PMZ

The hydraulic gradient in the CP PMZ is toward the west and southwest on the west side of the PMZ and to the east and southeast on the east side of the PMZ in Zone SCF/UNTU. These general flow directions are influenced by the natural topographic gradient toward the HSC on the west side of the PMZ and the recovery wells (NTRW and STRW) on the east side of the PMZ. The western hydraulic gradient in the SCF/UNTU between MW-36 and RI-3-03 was estimated at 0.0083 ft/ft (January 31, 2023) and 0.0089 ft/ft (July 21, 2023) toward the west and southwest. The eastern potentiometric gradient in SCF/UNTU between MW-36 and MW-32 was estimated at 0.0110 ft/ft (January 31, 2023) and 0.0125 ft/ft (July 21, 2023) toward the east and southeast. LNAPL was not detected at CP PMZ during this reporting period. There were no COC protective groundwater standard exceedances and no increasing concentrations in AMP or POE wells.

WP/WC PMZ

The hydraulic gradient in the WP/WC PMZ between MW-38 and MW-20 was estimated at 0.0082 ft/ft (February 24, 2023) and 0.0058 ft/ft (August 15, 2023) to the south/southeast and the northwest. LNAPL was detected in monitoring wells MW-38, VMW-8, and VMW-10 in the WP/WC PMZ during this reporting period and is discussed in Section 3.6. COC concentrations are generally consistent with historical findings; therefore, it does not appear that the dissolved phase COCs are migrating.

TCI

The hydraulic gradient at TCI between MW-04-TCI and RW-09 was estimated at 0.0236 ft/ft (February 23, 2023) and 0.0859 ft/ft (August 30, 2023) towards the recovery wells to the west and southwest. LNAPL was not detected at TCI during this reporting period. Gauging of all wells is conducted on a semiannual schedule and sampling of eight (8) select wells is conducted on an annual schedule during February and COC concentrations are generally consistent with historical findings.

OPH5

The hydraulic gradient at OPH5 between OPH-MW-3 and OPH-MW-5 was estimated at 0.0221 ft/ft (January 30, 2023) and 0.0207 ft/ft (July 21, 2023) to the east. There are no recovery wells at OPH5. LNAPL was detected in monitoring wells OPH MW-1, OPH MW-7, and OPH MW-8 in the OPH5 AOC during this reporting period and is discussed in Section 3.6. LNAPL recovery systems (Spill Busters^{TM}) installed in selected wells and manual LNAPL removal on a weekly schedule ceased on April 13, 2021, following TCEQ approval for the shutdown on March 29, 2021. The TCEQ approved the cessation of manual LNAPL removal conditionally on August 12, 2022, and formally on December 19, 2022, due to plume stability and a lack of transmissivity/

3. Reporting Requirements (Compliance Plan Table VII)

This section summarizes the groundwater monitoring and record keeping requirements of the Permit.

3.1 Corrective Action System (Compliance Plan Table VII.10 and 18)

Under Provision XI.B.3 of the Permit, Kinder Morgan is currently recovering contaminated groundwater from the NHB, the SEHB, the WP/WC PMZ, and TCI by means of a network of recovery wells and at the SEHB by a pair of groundwater interceptor trenches. The Corrective Action Systems and ancillary equipment are inspected on a weekly basis to record flow measurements at each recovery well and ensure the system is operating properly and these records are maintained at the Terminal. Well inspection checklists were completed for the NHB, SEHB, WP/WC PMZ, and TCI monitoring and recovery wells during the January-February and July-August 2023 gauging and sampling events and these records are maintained in the project files. The corrective action program at the OPH5 AOC consisted of recovery of LNAPL within a PMZ prior to 2022. The LNAPL was being recovered via a subgrade wall drain system installed in the pump house containment area, using Spill Busters™ installed in select wells/sumps, and manual removal in LNAPL plume wells not equipped with Spill Busters™. The TCEQ approved ceasing these operations on March 29, 2021 and they were shut down on April 13, 2021. The TCEQ approved the cessation of manual LNAPL removal conditionally on August 12, 2022 and formally on December 19, 2022 due to plume stability and a lack of transmissivity.

KMLT submitted a notification for well replacement for MW-35 on November 16, 2020 since the well had been damaged and was subsequently unable to be located. The TCEQ responded the same day with approval to proceed with the well replacement. During December 2020, CP MW-35R was installed within 15 feet of the original CP MW-35 well location. It was surveyed by an RPLS in December 2021. Survey data was presented in the 2021 CAP report.

Weekly inspections were not conducted the week of December 24-29, 2023 on account of the lead Geologist on site and his replacement being absent from the site due to unanticipated medical issues. The TCEQ was notified with a *Notice of Uncompleted Weekly Compliance Activities* letter on January 2, 2024 (**Appendix D**).

NHB

On January 31 and July 21, 2023, groundwater samples were collected from the Point of Compliance (POC) wells, Background wells, Corrective Action Observation (CAO) wells and Corrective Action System (CAS) wells associated with the Corrective Action Program at the NHB. Kinder Morgan received concurrence from the TCEQ to suspend sampling of MW-5, MW-9, MW-14, and MW-12 due to the lack of historical detections.

Additionally, three (3) surface water samples were collected from Panther Creek located east of the NHB. A surface water sample was collected from an up gradient, cross gradient, and downgradient location east of the NHB. A list of all the Corrective Action Program wells with designations is provided in **Table 8**. Groundwater sampling was performed in accordance with the protocol outlined in the Sampling and Analysis Plan (SAP) that was prepared to comply with Section XI of the Permit. Groundwater samples collected from the NHB Corrective Action Wells were analyzed for the Compliance Plan Table IIIA parameter (i.e., 1,2-dichloroethane). Additionally, field parameters (i.e., temperature, pH, specific conductivity, dissolved oxygen, oxygen reduction potential, and turbidity) were collected from the monitoring wells and visual descriptions were recorded in the field logs for the groundwater samples. The January and July 2023 field parameters and laboratory analytical data are summarized in **Table 9** and **Figures 15a through 15f** show the contaminant isopleths for 1,2-Dichloroethane in Zones III, IV, and V. Historical groundwater analytical data for the NHB is contained in **Appendix B**.

SEHB

On January 30 and July 20, 2023, groundwater samples were collected from Point of Exposure (POE), POC, CAO, and CAS wells associated with the Corrective Action Program at the SEHB. Refer to **Table 8** for a list of the Corrective Action Program wells with their designation. Samples were not collected from

wells containing LNAPL. The groundwater samples were analyzed for Compliance Plan Table IIIA parameters. In addition, field parameters were collected from the monitoring wells and visual descriptions were recorded in the field logs for the groundwater samples.

Evaluation of groundwater analytical data was conducted in compliance with the procedures outlined in Provision XI.F.4 of the Permit. These procedures require a direct comparison of the detected concentration of each constituent to the respective Concentration Limits listed in Compliance Plan Table IIIA. Wells are considered compliant with the Groundwater Protection Standard (GWPS) when the value of each constituent is less than, or equal to, the respective Concentration Limit. When one or more constituent values exceed the respective Concentration Limits, that well is considered non-compliant for that sampling event. This evaluation was made within 60 days of collecting the groundwater samples. Those wells with COC concentrations exceeding the GWPS are shown on **Table 10** for the SEHB. **Figures 16a through 16f** show contaminant concentrations for COCs which exceeded the GWPS in Zones UNTU, SCF, and SCF/UNTU. Historical groundwater analytical data for the SEHB is contained in **Appendix B**.

In accordance with Provision XI.E.1.e, Kinder Morgan regularly abates LNAPL from a subset of monitoring wells in the SEHB area as discussed in Section 3.6. LNAPL recovery volumes are included in **Table 7**.

CP PMZ

On January 31 and July 21, 2023, groundwater samples were collected from POE, CAO, and Attenuation Monitoring Point (AMP) wells associated with the Corrective Action Program at the CP PMZ. Refer to **Table 8** for a list of the Corrective Action Program wells with their designation. The groundwater samples were analyzed for Compliance Plan Table IIIA parameters. In addition, field parameters were collected from the monitoring wells and visual descriptions were recorded in the field logs for the groundwater samples.

Evaluation of groundwater analytical data was conducted in compliance with the procedures outlined in Provision XI.F.4 of the Permit. These procedures require a direct comparison of the detected concentration of each constituent to the respective Concentration Limits listed in Compliance Plan Table IIIA. Wells are considered compliant with the GWPS when the value of each constituent is less than, or equal to, the respective Concentration Limit. When one or more constituent values exceed the respective Concentration Limits, that well is considered non-compliant for that sampling event. This evaluation was made within 60 days of collecting the groundwater samples. None of the wells exceeded the GWPS as shown on **Table 11** for the CP. **Figures 17a and 17b** show no contaminant concentrations for COCs exceeding the GWPS in the SCF/UNTU since no exceedances were reported. Historical groundwater analytical data for the CP PMZ is contained in **Appendix B**.

WP/WC PMZ

On February 24 and August 15, 2023, groundwater samples were collected from POE, AMP and CAO wells associated with the Corrective Action Program at the WP/WC PMZ. Refer to **Table 8** for a list of the Corrective Action Program wells with their designation. Samples were not collected from wells containing LNAPL. The groundwater samples were analyzed for Compliance Plan Table IIIA parameters. In addition, field parameters were collected from the monitoring wells and visual descriptions were recorded in the field logs for the groundwater samples.

Evaluation of groundwater analytical data was conducted in compliance with the procedures outlined in Provision XI.F.4 of the Permit. These procedures require a direct comparison of the detected concentration of each constituent to the respective Concentration Limits listed in Compliance Plan Table IIIA. Wells are considered compliant with the GWPS when the value of each constituent is less than, or equal to, the respective Concentration Limit. When one or more constituent values exceed the respective Concentration Limits, that well is considered non-compliant for that sampling event. This evaluation was made within 60 days of collecting the groundwater samples. None of the wells exceeded the GWPS as shown on **Table 12** for the WP/WC PMZ. **Figures 18a and 18b** show no contaminant concentrations for COCs exceeding the GWPS since no exceedances were reported. Historical groundwater analytical data for the WP/WC PMZ is contained in **Appendix B**.

In accordance with Provision XI.E.1.e, Kinder Morgan regularly abates LNAPL from 3 monitoring wells in the WP/WC PMZ area as discussed in Section 3.6. LNAPL recovery volumes are included in **Table 7**.

TCI

On February 23, 2023, groundwater samples were collected from POC, CAO, and monitoring wells associated with the Corrective Action Program at TCI. Refer to **Table 8** for a list of the Corrective Action Program wells with their designation. LNAPL has not been observed in the wells at TCI. The groundwater samples were analyzed for Compliance Plan Table IIIA parameters. In addition, field parameters were collected from the monitoring wells and visual descriptions were recorded in the field logs for the groundwater samples.

Evaluation of groundwater analytical data was conducted in compliance with the procedures outlined in Provision XI.F.4 of the Permit. These procedures require a direct comparison of the detected concentration of each constituent to the respective Concentration Limits listed in Compliance Plan Table IIIA. Wells are considered compliant with the GWPS when the value of each constituent is less than, or equal to, the respective Concentration Limit. When one or more constituent values exceed the respective Concentration Limits, that well is considered non-compliant for that sampling event. This evaluation was made within 60 days of collecting the groundwater samples. Those wells with COC concentrations exceeding the GWPS are shown on **Table 13** for TCI. **Figure 19** shows contaminant concentrations for COCs which exceeded the GWPS in the SCF/UNTU. Historical groundwater analytical data for TCI is contained in **Appendix B**.

OPH5

Prior to 2022, the corrective action program at the OPH5 AOC consisted of recovery of LNAPL within a PMZ. The LNAPL was being recovered via a subgrade wall drain system installed in the pump house containment area, using Spill Busters™ installed in select wells/sumps, and manual removal in LNAPL plume wells not equipped with Spill Busters™. The systems (i.e. subgrade wall drain, Spill Busters™) were inspected on a weekly basis. These operations ceased on April 13, 2021, following TCEQ approval for the shutdown on March 29, 2021. The TCEQ approved the cessation of manual LNAPL removal conditionally on August 12, 2022 and formally on December 19, 2022 due to plume stability and a lack of transmissivity.

The Corrective Action Program wells for OPH5 (with well designations) are included in **Table 8**. Groundwater samples collected from the corrective action wells are analyzed for CP Table IIIA parameters (i.e. benzene, ethylbenzene, toluene, xylenes, 1-methylnaphthalene, and 2-methylnaphthalene). Samples are not collected from wells containing LNAPL. Samples were collected in the OPH5 area on January 30 and July 21, 2023; **Table 14** contains a summary of COCs in these wells. No COCs exceeded the established GWPS in the OPH5 AOC. Historical groundwater analytical data for the OPH5 AOC are included in **Appendix B**. **Figures 20a and 20b** show no contaminant concentrations for COCs since no exceedances were reported.

3.2 Field Determination Requirements (Provision XI.F.3.d(4), Compliance Plan Table VII.10)

This Section describes the evaluation of potential well silting, well performance, and performance corrective actions. A summary of these items is presented in **Table 17**.

3.2.1 Well Depth Determination

For the total well depth determination, the groundwater elevation, total well depth, screened interval, and well completion depth of the NHB, SEHB, CP PMZ, WP/WC PMZ, and TCI recovery wells were obtained from the well construction logs, where available. TOC elevations were obtained from the May 2019 well survey for the NHB and SEHB wells. Where well construction logs were not available, other sources were utilized, such as information contained in Table V.1a of the 2003 Permit Application. These data were compared to the most recent well depth measurements to determine if silting has covered more than 20%

of the well screen, thus potentially negatively affecting well performance. Where silting was suspected of impacting recoveries or the screen was more than 20% silted, the well was re-developed.

3.2.1.1 Total Depth Maintenance during the January - December 2023 Period

The well maintenance activities which were conducted during the current reporting period as a result of the weekly inspections are summarized below. Any wells indicating screen blockage greater than 20 percent (%) are scheduled to be re-developed in 2024.

NHB

- Due to the malfunctioning pump in MW-6, (Zone IV), the pump was removed for servicing on June 21, 2023. When the pump was removed, the total depth (TD) was measured, and the screen was found to be 8.6% silted and would not require redevelopment. The pump was replaced on June 23, 2023. This pump was pulled from the well again on July 6, 2023 and the screen was calculated to be only 3.9% silted.
- Due to the malfunctioning pump in MW-7, (Zone III), the pump was removed for servicing on October 27, 2022. When the pump was removed, the total depth was measured, and the screen was found to be 46.2% silted and will require redevelopment.
- The total depth of RW-16 was measured on November 16, 2022 and the screen was found to be 36.8% silted. The well was redeveloped, and the TD of RW-16 was measured on December 20, 2023. The screen was found to be 9.7% silted.

SEHB

- The pump in MW-25 (zone SCF/UNTU) is stuck, preventing repair and redevelopment. The last total depth was measured on September 9, 2020, and was calculated to be 53.3% silted. Once the pump can be pulled from the well, the well will be redeveloped, and blockage can be recalculated.

CP PMZ

- There is one recovery well in the CP PMZ, POE-2. This well was deactivated in May of 2019 in order to monitor Bis(2-chloroethyl)ether concentrations. No total depth maintenance or measurements occurred during the reporting period.

WP/WC PMZ

- During the semiannual sampling event, MW-39 was found to be 20.95% silted on August 15, 2023. This well will require redevelopment. The pump was removed again on December 20, 2023 to verify the TD. The screen was found to be 34.1% blocked and this well will require redevelopment.

TCI

- There are 13 recovery wells along the western TCI property boundary that capture the westerly groundwater flow across the site. The pumps for TCI recovery wells RW-1, RW-2, RW-3, and RW-9, were removed from the wells for maintenance or cleaning during the reporting period and a TD measurement was measured and recorded. The wells were returned to service after repairs were made; the screens were not more than 20% silted.
- The pump in RW-1 was removed for servicing on April 20, 2023 with a TD measurement resulting in 18.0% silting. An additional TD measurement on June 2, 2023 resulted in 15.2% silting. This well was not redeveloped.
- The pump in RW-2 was removed for servicing on May 12, 2023 with a TD measurement resulting in 14.2% silting. An additional TD measurement on June 2, 2023 resulted in 12.4% silting. This well was not redeveloped.
- The pump in RW-3 was removed for servicing on May 19, 2023 with a TD measurement resulting in 4.4% silting. This well was not redeveloped.
- The pump in RW-8 was removed for servicing on August 30, 2023 with a TD measurement resulting in 21.4% silting. This well will require redevelopment. This well's TD was measured on December 20,

2023 to confirm the amount of silting, the measurement resulted in 8.5% silting, which will not require redevelopment.

- The pump in RW-9 was removed for servicing on October 27, 2023 with a TD measurement resulting in 13.1% silting. This well was not redeveloped.
- The pump in RW-4 was replaced on December 15, 2023 with a TD measurement resulting in 2.7% silting. This well was not redeveloped.
- The pump in POE-1 was found offline on December 15, 2023 with a TD measurement resulting in 18.5% silting. This well was not redeveloped.

OPH5

- There are no recovery wells in the OPH5 AOC, therefore, no maintenance was performed that would require a TD measurement.

3.2.1.2 Analysis of the Data from the January - December 2023 Total Depth Data

The evaluation of potential recovery well silting and mitigation during this reporting period is summarized below.

NHB

- NHB recovery wells MW-7 is known to have more than 20% of the screen blocked by silting. This well will require redevelopment and will be addressed in 2024.

SEHB

- SEHB recovery well MW-25 is known to have more than 20% of the screen blocked by silting. This well will be redeveloped once the pump can be removed.

CP PMZ

- No recovery well POE-2 total depth maintenance or measurements occurred during the reporting period.

WP/WC PMZ

- WP/WC PMZ recovery well MW-39 is known to have more than 20% of the screen blocked by silting. This well will require redevelopment and will be addressed in 2024.

TCI

- TCI recovery well RW-8 is known to have more than 20% of the screen blocked by silting. This well will require redevelopment and will be addressed in 2024.

OPH5

- There are no recovery wells in the OPH5 AOC, therefore, no maintenance was performed that would require a TD measurement.

3.2.2 Well Performance Determination

Recovery well performance data for the reporting period were compiled and evaluated on a weekly basis to assess the potential for the groundwater production rates to decrease by 25%. The baseline period of recovery performance from which the 25% decline is measured is established when a pump is installed, or maintenance performed and/or the recovery rates have stabilized. Recovery loss due to system shut down is not included in recovery performance data. When well performance decreases by more than 25% from the established baseline, pump, well or system maintenance is performed, and monitoring is resumed.

3.2.2.1 Pump Performance Maintenance and Data Analysis During the January - December 2023 Period

Production and recovery rates will continue to be obtained, recorded, and monitored weekly. The updated results for the compliance wells will be presented in future Annual Corrective Action Program Reports.

Although occasional counter malfunctions were encountered, fluid recovery volumes were estimated by measuring the time between the individual pump cycles and multiplying by the known volume pumped, resulting in an estimated weekly recovery volume for each well. These volumes were then checked against recent readings to ascertain pump functionality.

The evaluation of potential recovery well performance reduction and mitigation during this reporting period is summarized below.

NHB

The NHB system was shut down on September 15, 2023 due to an underground leak near MW-16. New infrastructure was constructed on top of the buried piping (i.e., C-5 bullet tank with the dimensions of 11-foot in diameter by 83 feet in length and a capacity of 44,310 gallons (1055 bbls), associated concrete pump pad and ancillary piping and equipment), and piping was located and to be rerouted and replaced in 2024. As such, all NHB recovery wells exhibited a performance decline over the period. Repairs are ongoing and are scheduled to be completed in the first quarter of 2024. However, the overall trend since installation appears to be positive Recovery well MW-4 has not been functional since August of 2022 and is pending repair. However, the overall trend since installation appears to be positive. Kinder Morgan will continue to closely monitor the recovery rates at these wells and take additional corrective actions if necessary.

SEHB

- Recovery wells MW-5 and MW-25 were observed to exhibit declining recoveries during the reporting period at a rate of more than 25%. Silt and water runoff has affected pump performance in the past. Diversion controls have been installed to prevent future damage to the pump. These two pumps are stuck in the recovery well casings and cannot be repaired. Recovery well-MW-5 has been offline since April 2023. Efforts are ongoing to attempt to dislodge the pumps and initiate repairs.
- MW-13 and NTRW were observed to exhibit declining recoveries during the reporting period at a rate of more than 25%. Both wells are located along the shoreline and may be impacted by similar silt and sand runoff as MW-25 and MW-5 are. The pumps will be pulled and inspected, and the TD of the well will be measured to check for impact or blockage of the screen in 2024.

CP PMZ

- The recovery well in the CP (POE-2) was not activated during the reporting period, except when sampling POE-2, so no performance data was collected.

WP/WC PMZ

- None of the WP/WC PMZ recovery wells production approached a decline of 25% from their established baselines during the reporting period.

TCI

- Recovery wells RW-5 and RW-7 production approached a decline of 25% from their established baselines during the reporting period. However, RW-5 has been offline since July 2023, and RW-7 was intermittently offline throughout the year. The pumps will be pulled and inspected, and the TD of the well will be measured to check for impacts or blockage of the screen and to check the functionality of the pump in 2024.

OPH5

- Groundwater is not recovered at OPH5.

3.2.2.2 Incidental Pump Performance Maintenance and Data

Table 17 contains a summary of the pump and equipment replacement and maintenance activities other than minor activities such as priming and restarting pumps and counter repairs. The following pump performance maintenance activities occurred during the reporting period due to pump interruptions or failures and ensuing repairs and maintenance:

NHB

MW-4 (Zone III)

- 1/5/23 – The pump was offline and stuck in the well casing.
- 1/20/23 – A subcontractor tried to pull the pump with a treble hook, but the eyelet on the pump broke and the attempt failed. Kinder Morgan is having a custom hook developed that will aid in the pump's retrieval.
- 9/14/23 – It was established that the well casing needs to be flushed in order to remove the pump and repair or replace it. Efforts are ongoing to remove the pump from the casing.

MW-6 (Zone IV)

- Water was observed in the vault and pumped out on 1/26/23, 2/2/23, 2/9/23, 5/11/23, 5/18/23, 6/7/23, and 6/14/23.
- The pump was primed and restarted on 3/15/23, 3/30/23, 6/14/23, 7/19/23, and 9/15/23.
- 4/5/23 – the leaking discharge hose was repaired.
- 4/19/23 – the counter was repaired.
- 6/23/23 – a new pump was installed.
- 6/28/23 – the discharge volume for the new pump was measured.
- 7/6/23 – an additional new pump was installed.

MW-7 (Zone III)

- Water was observed in the vault and pumped out on 1/26/23, 2/2/23, 2/9/23, and 6/14/23.
- The pump was primed and restarted on 3/15/23 and 3/30/23.
- 4/19/23 – the counter was repaired.

MW-11 (Zone III)

- The pump was primed and restarted on 5/11/23 and 9/15/23.

MW-15 (Zone IV)

- Water was observed in the vault and pumped out on 1/5/23, 1/18/23, 1/26/23, 2/2/23, 3/30/23, 4/5/23, 4/26/23, 5/11/23, 5/18/23, and 6/7/23.
- The pump was primed and restarted on 1/10/23 and 1/26/23.
- 2/3/23 – the exhaust was adjusted so it was no longer blocked.
- 2/7/23 - The splice on the discharge hose was found leaking and clamps loose. Old clamps were removed, connection below the well cap was adjusted, hoses extended, and the discharge and exhaust hoses were free and clear of the top of casing.

RW-16 (Zone III)

- 1/5/23 – The pump was offline due to calcium carbonate buildup. Efforts are ongoing to dissolve the calcium carbonate so the pump can be pulled and repaired/replaced.
- 1/20/2023 – Due to calcification, the discharge hose and check valves were replaced.

RW-17

- Water was observed in the vault and pumped out on 1/18/23 and 2/9/23.
- The pump was primed and restarted on 3/30/23, 5/4/23, 5/11/23, 5/18/23, and 7/12/23.
- 4/19/23 – the counter was repaired.

- 4/26/23 – it was observed that the vault lid ball socket needed repair. It is working adequately.
- 5/18/23 – the ball socket and vault lid were repaired by a subcontractor.
- 5/24/23 – the counter was repaired.
- 8/3/23 – a new counter was installed.

SEHB

MW-5 (Zone SCF/UNTU)

- 1/5/23 – a vacuum truck pumped out the vault.
- 4/13/23 – the pump was found offline and would not restart. The pump is stuck in the well. Efforts are ongoing to dislodge the pump so it can be repaired/replaced. Kinder Morgan is having a custom hook developed that will aid in the pump's retrieval.

MW-7 (Zone SCF/UNTU)

- 2/2/23 – water in the vault was pumped out.

MW-13 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 2/2/23, 5/18/23, and 11/15/23.
- The counter was cleaned and/or repaired on 3/2/23, 6/1/23, and 8/17/23.
- 10/20/23 – The counter was replaced.

MW-25 (Zone SCF/UNTU)

- 1/5/23 – The pump was found offline and would not restart.
- 1/27/23 – The pump was turned on, it cycled twice and then stopped.
- 2/7/23 – The pump was back online.
- 2/24/23 – The pump was restarted.
- 5/11/23 – The pump was found offline, repaired on 5/12/23.
- 6/14/23 – the pump was restarted.
- 6/21/23 – The pump was observed to be suck in the well casing. Efforts are ongoing to dislodge the pump so it can be repaired/replaced. Kinder Morgan is having a custom hook developed that will aid in the pump's retrieval.

MW-26 – (Zone UNTU)

- 1/5/23 – the vault was observed to be flooded due to a nearby broken fire water line, access was limited until 2/7/23 when it was pumped out and returned to service.
- Water was observed in the vault and pumped out on 2/7/23, 4/13/23, 4/26/23, 5/11/23, 5/18/23, 6/14/23, and 11/15/23.
- The pump was restarted on 6/1/23, and 7/27/23.
- The pump was observed to be stuck in the well casing from 6/29/23 through 7/20/23 when it was pulled and replaced back in the well after restarting.
- 9/31/23 – The pump was stuck in the well casing and was offline.
- 9/14/23 – the counter was replaced.

MW-30 – (Zone UNTU)

- 2/24/23 – The pump was restarted.
- 5/11/23 – Water was observed in the vault and pumped out.

MW-33 – (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 2/2/23 and 4/26/23.

MW-34 – (Zone SCF/UNTU)

- 1/27/23 – It was observed that the pump needed a new bracket for the air regulator.
- 2/2/23 – The bracket and air regulator were replaced.
- 2/24/23 – the pump was restarted.

South Trench – (Zone SCF)

- 4/13/23 – The pump was restarted.

CP PMZ

- The recovery well in the CP (POE-2) was only briefly activated monthly to sample POE-2 during the reporting period and no system maintenance was necessary or conducted. However, during the freeze of December 2022, multiple line breaks occurred, necessitating repair prior to operating the TCI recovery system which pumps through the CP PMZ to Tank 3-10.

WP/WC PMZ

MW-23

- 10/24/23 – It was noted that the ball valve needs to be replaced.
- 11/14/23 – the vault was pumped out and a small air leak was observed.

MW-32

- 10/5/23 – the nitrogen line was observed to be leaking at the valve.
- 10/12/23 – no leak was visible.

MW-39

- The pump was found offline and restarted on 4/18/23 and 4/25/23.

OB-3

- 12/12/23 – the counter was found stuck and it was repaired.

TCI

RW-1 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 7/7/23, 7/13/23, 10/20/23, and 12/15/23.
- The pump was found offline and restarted on 6/2/23, 7/28/23, 8/30/23, 9/15/23, 9/29/23, and 10/13/23.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled.
- 11/14/23 – The air regulator needs to be changed. It was changed out the same day.
- 11/14/23 – The vault lid needs repair.

RW-2 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 5/12/23, 5/19/23, 7/13/23,
- The pump was found offline and restarted on 3/2/23, and 10/13/23.
- 5/19/23 – The pump was found offline and it was established a new pump was needed.

- 6/2/23 – Pump replaced.
- 10/20/23 – it was noted that the lid needed repair.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled. Holes need to be drilled into the concrete in order to hang the regulators. Repairs are in progress.
- 11/9/23 – Label needs to be attached.
- 11/22/23 – The label was replaced.

RW-3 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 5/12/23, 6/12/23, 11/3/23, 12/1/23, and 12/21/23.
- The pump was found offline and restarted on 3/2/23, 10/6/23, and 10/13/23.
- 5/12/23 – It was noted that the pump needs to be swapped out.
- 5/19/23 – The pump was replaced.
- 6/2/23 – The air line was replaced.
- 6/22/23 – It was observed that the support arm was broken.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled. Regulator still works, but its position makes it hard to repair.
- 11/14/23 – The air regulator needs to be changed.
- 11/14/23 – The vault lid needs repair.
- 11/22/23 – The label was replaced. Air regulator was changed out.

RW-4 (Zone SCF/UNTU)

- The pump was found offline and restarted on 8/11/23, 8/25/23, 8/30/23, 9/8/23, 9/15/23, 9/29/23, 10/27/23.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled.
- 11/14/23 – It was observed that the pump needs to be replaced.
- 11/22/23 – The pump and all hoses need to be replaced.
- 12/15/23 – The pump and hoses were replaced.

RW-5 (Zone SCF/UNTU)

- The pump was found offline and restarted on 3/2/23, 3/10/23, 6/30/23, 7/7/23, 7/13/23, 7/28/23, 8/11/23, 8/30/23, 10/13/23, 10/27/23, 11/9/23, 11/14/23, 12/7/23, 12/15/23, and 12/21/23.
- 5/5/23 – It was noted that the hinge was broken.
- 8/11/23 – It was observed that the pump is in need of maintenance.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled. Holes need to be drilled into the concrete in order to hang the regulators. Repairs are in progress.
- 11/14/23 - Completed line extension out of vault.
- 12/15/23 – It was noted that the pump may need to be replaced.

RW-6 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 5/12/23, 5/19/23, 6/12/23, 6/30/23, 7/7/23, 11/3/23, and 12/1/23.
- The pump was found offline and restarted on 10/13/23, 10/27/23, 12/1/23, and 12/21/23.
- 4/25/23 – The hinge was observed to be broken.
- 10/20/23 - Air regulator needs to be re-hung on side well vaults.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled. Holes need to be drilled into the concrete in order to hang the regulators. Repairs are in progress.
- 11/9/23 - Exhaust line extended out of casing.
- 11/22/23 – The label was replaced.

POE-1 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 6/2/23, 9/12/23, 6/16/23, 7/7/23, and 12/1/23.
- The pump was found offline and restarted on 10/6/23 and 10/13/23.
- 5/26/23 – the air hose was mended.
- 10/20/23 – it was noted that the lid needs repair.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled. Holes need to be drilled into the concrete in order to hang the regulators. Repairs are in progress.
- 11/9/23 - Exhaust line extended out of casing.
- 11/22/23 – The label was replaced.
- 12/15/23 –The pump was found offline and may need the check valve replaced.
- 1/5/2024 – Exhaust line replaced. Need to replace discharge hose.

POE-3 (Zone SCF/UNTU)

- 3/16/23 – the air line was replaced.

MW-9 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 4/28/23, 5/5/23, 5/12/23, 7/13/23, 11/3/23, 12/15/23, and 12/21/23.
- The pump was found offline and restarted on 3/2/23, 4/28/23, 5/12/23, 7/13/23, 8/30/23, 9/8/23, 9/29/23, 10/6/23, 11/3/23, 11/14/23, 11/22/23, 12/7/23, 12/15/23, and 12/21/23.
- 4/7/23 – it was noted that the regulator was hissing.
- 6/12/23 – regulator replaced.
- 6/22/23 – counter repaired.
- 10/27/23 – pump replaced.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled.
- 2/23/24 – The label was replaced. Air regulator was reattached.

RW-7 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 5/12/23, 5/19/23, 6/12/23, 7/7/23, 11/3/23, 12/1/23, 12/15/23 and 12/21/23.

- The pump was found offline and restarted on 7/28/23, 8/25/23, 9/29/23, and 10/6/23.
- 7/7/23 – the counter was repaired.
- 10/20/23 - The stainless steel tube on the pump was severely corroded. The pump was replaced.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled.
- 11/9/23 - Exhaust line extended out of casing.
- 11/14/23 – the counter was checked and found to be working.
- 11/22/23 – Label attached.

RW-8 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 5/12/23, 5/19/23, 6/2/23, 6/12/23, 6/22/23, and 7/7/23.
- The pump was found offline and restarted on 3/2/23, 7/13/23, and 9/29/23.
- 8/18/23 – The air line was repaired.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall and that the vault needs to be relabeled.
- 11/9/23 - Exhaust line was extended out of the casing, so it won't blow water in personnel's face. Pump is online and working well.
- 2/23/24 – The air regulator was reattached to the vault wall and the label was replaced.

RW-9 (Zone SCF/UNTU)

- Water was observed in the vault and pumped out on 4/28/23, 5/12/23, 5/19/23, 6/2/23, 6/12/23, 6/22/23, 7/7/23, 9/8/23, 12/1/23, 12/15/23, and 12/21/23.
- The pump was found offline and restarted on 4/28/23, 10/6/23, 10/13/23, 12/15/23.
- 7/13/23 - offline, pump stuck, need to remove air ball valve to pull pump and replace. Ball valve is blocking second casing.
- 8/4/23 - remove ball valve (air) plug, pull pump, replace pump and air regulator hoses as needed.
- 10/20/23 – The pump was offline. Pump was replaced the same day.
- 11/3/23 – It was noted that the air regulator needs to be reattached to the vault wall. Holes need to be drilled into the concrete in order to hang the regulators. Repairs are in progress.

OPH5

- Groundwater is not recovered at OPH5.

3.3 Management of Recovered Groundwater and LNAPL with Quarterly Tabulations and Graphs (Compliance Plan Table VII.11 and Compliance Plan Table VII.20)

Fluids recovered from the NHB, SEHB, and TCI groundwater recovery systems are temporarily stored in the Central Plant aboveground storage Tank 3-10 prior to being pumped into Central Plant Tank 32; both are located in the western portion of the Central Plant. From Tank 32, the recovered water is eventually discharged through a pipeline to the permitted Gulf Coast Waste Disposal Authority (GCWDA) for treatment and disposal along with other waste waters from the Galena Park Terminal. Tank 3-10 has a capacity of approximately 135,000 gallons. Discharges from Tank 3-10 are from an outlet at the lowest point on the cone-shaped bottom in order to prevent LNAPL discharge to the wastewater system. Kinder Morgan manages the recovered groundwater fluids. Fluid levels in Tank 3-10 are maintained at

approximately one-half full and are continuously monitored by Kinder Morgan personnel. Groundwater recovered from the WP/WC PMZ is transported to a wastewater sump that is hard piped to the wastewater system and Tank 32.

Graphs of the operational history (instantaneous and average flow rates) of the NHB, SEHB, WP/WC PMZ, and TCI recovery systems, for this reporting period, are shown on **Figures 13** and **14** respectively. The graphs present the total instantaneous pumping rate measured weekly at each recovery system and the average weekly pumping rate for each recovery system. The total instantaneous pumping rate for each system is calculated by adding the pumping rates measured weekly at the wellhead of each recovery well in the system. The average weekly pump rate is based on weekly pump cycle counter readings taken at each wellhead. Based on the measured rate of gallons per pump counter reading, the counter readings are converted to gallons and recorded weekly. The weekly pump rates for this reporting period are presented in **Table 15**.

Currently the SEHB is the only plant area that has LNAPL recovery as a portion of the recovered groundwater. Measurable LNAPL in was indicated in January 2023 in NTRW (0.11 ft.) and STRW (0.01 ft.). Measurable LNAPL was indicated in July 2023 in wells MW-18 (0.17 ft.), MW-20 (0.98 ft.), MW-23 (0.06 ft.), MW-27 (0.02 ft.), STRW (0.06 ft.), and NTRW (0.11 ft.). The combined volume of fluids (groundwater and LNAPL) recovered by the NHB, SEHB, WP/WC PMZ, and TCI groundwater interception systems was determined by tracking the recovered fluids with pump cycle counters at the wellhead of each recovery pump. The volume of fluids pumped for each pumping cycle is measured periodically for accuracy. An estimated 23,158,455 gallons of total fluids were recovered during this reporting period, and an estimated 9,788 gallons of the total fluids was recovered as LNAPL. These data are presented in **Table 16**. The total LNAPL recovery in **Table 16** includes LNAPL recovered at the SEHB NTRW. This table does not include LNAPL recovered by bailing.

LNAPL is periodically gauged and manually removed from wells in the CP PMZ and WP/WC PMZ that contain LNAPL. Upon manual recovery, the recovered LNAPL is disposed into Pit No. 2, located in in the southern portion of the CP which is pumped into Tank 32 and then discharged to the GCWDA. In summary, during 2023, a total of 8.1 gallons of LNAPL was removed from the WP/WC PMZ and 10.1 gallons was removed from the SEHB for a total of 18.2 gallons. A tabulated summary of removed LNAPL from the CP PMZ, the WP/WC PMZ, and OPH5 is provided as **Table 7**.

LNAPL is no longer recovered from OPH5 per TCEQ approval dated December 19, 2022.

3.4 Updated Table and Maps of Corrective Action Wells (Compliance Plan Table VII.12)

A summary of the Corrective Action Wells and their designations is provided in **Table 8**. The locations of these wells are depicted on **Figure 1** and **Figure 2** for the NHB and SEHB, respectively. **Figure 3** presents the locations of wells in the CP PMZ, **Figure 4** shows wells in the WP/WC PMZ, **Figure 5** shows well locations at TCI, and **Figure 6** shows well locations at OPH5.

In an email correspondence between Kinder Morgan and the TCEQ dated May 29, 2019, The TCEQ approved Kinder Morgan's request to suspend sampling NHB MW-5 and MW-9 completed in Zone III, MW-14 completed in Zone IV, and MW-12 completed in Zone V effective during the 2022 reporting period. The request was initially made as the NHB COC (1,2-dichloroethane) has consistently been below the GWPS in these wells.

3.5 Summary of Chemical Analysis (Table VII.13 and 22)

NHB

The analytical results for the NHB and Panther Creek January and July 2023 sampling events are summarized in **Table 9**. Those wells which exceeded the GWPS for 1,2-dichloroethane, listed in CP Table IIIA, for Zone III, Zone IV, and Zone V are shown on Contaminant Isopleth Maps, **Figures 15a through 15f**, respectively. An historical summary of 1,2-dichloroethane concentrations for the wells associated with

the NHB through the current reporting period is presented in **Appendix B**. In general, detected COC concentrations are consistent with historical concentrations. Copies of the original laboratory analysis reports are maintained at the Kinder Morgan Galena Park Terminal and electronic copies are maintained in the project files and are available upon request.

SEHB

The analytical results for the SEHB January and July 2023 groundwater sampling events are summarized in **Table 10**. Those wells which exceeded the GWPS for the COCs listed in CP Table IIIA, for the UNTU, SCF, and SCF/UNTU for January and July 2023 are shown on Contaminant Concentrations Maps, **Figures 16a through 16f**, respectively. An historical summary of SEHB sampling results is presented in **Appendix B**. In general, detected COC concentrations are consistent with historical concentrations. Copies of the original laboratory analysis reports are maintained at the Kinder Morgan Galena Park Terminal and electronic copies are maintained in the project files and are available upon request.

CP PMZ

The analytical results for the CP PMZ January and July 2023 groundwater sampling events are summarized in **Table 11**. Those wells which exceeded the GWPS for the COCs listed in CP Table IIIA, for the SCF/UNTU for January and July 2023 are shown on Contaminant Concentrations Maps, **Figures 17a and 17b**, respectively. Wells with LNAPL were not sampled and results are not shown on the figures. An historical summary of CP PMZ sampling results is presented in **Appendix B**. In general, detected COC concentrations are consistent with historical concentrations. Copies of the original laboratory analysis reports are maintained at the Kinder Morgan Galena Park Terminal and electronic copies are maintained in the project files and are available upon request.

Semiannual monitoring is performed for COCs for the CP PMZ wells and additional monthly sampling for bis 2-(chloroethyl) ether has been performed for POE-2. POE-2 is historically the only recovery well located within the CP PMZ and has been deactivated since May 9, 2019 to observe the effect of the pumping on the bis 2-(chloroethyl) ether concentrations. In 2023, the bis 2-(chloroethyl) ether concentrations remained below the TCEQ Texas Risk Reduction Program (TRRP) Tier 1 groundwater ingestion Residential Protective Concentration Level (PCL) of 0.00083 mg/L at CP PMZ POE-2 with the exception of March (0.001450 J mg/L), April (0.001490 J mg/L), May (0.001120 J mg/L), June (0.001040 J mg/L), and July (sample was picked up late in August so it has an analysis date of August 1, 2023) (0.000915 J mg/L).

WP/WC PMZ

The analytical results for the WP/WC PMZ February and August 2023 groundwater sampling events are summarized in **Table 12**. Those wells which exceeded the GWPS for the COCs listed in CP Table IIIA, for the SCF/UNTU for February and August 2023 are shown on Contaminant Concentrations Maps, **Figures 18a and 18b**, respectively. Wells with LNAPL were not sampled and results are not shown on the figures. An historical summary of WP/WC PMZ sampling results is presented in **Appendix B**. In general, detected COC concentrations are consistent with historical concentrations. Copies of the original laboratory analysis reports are maintained at the Kinder Morgan Galena Park Terminal and electronic copies are maintained in the project files and are available upon request.

TCI

The analytical results for the TCI February 2023 groundwater sampling event are summarized in **Table 13**. Those wells which exceeded the GWPS for the COCs listed in CP Table IIIA, for the SCF/UNTU for February 2023 are shown on Contaminant Concentrations Maps, **Figure 19**. An historical summary of TCI sampling results is presented in **Appendix B**. In general, detected COC concentrations are consistent with historical concentrations. Copies of the original laboratory analysis reports are maintained at the Kinder Morgan Galena Park Terminal and electronic copies are maintained in the project files and are available upon request.

OPH5

The analytical results for the OPH5 January and July 2023 groundwater sampling events are summarized in **Table 14**. Those wells which had detections for the COCs listed in CP Table IIIA, for the SCF/UNTU for January and July 2023 are shown on Contaminant Concentrations Maps, **Figures 20a and 20b**, respectively. Wells with LNAPL were not sampled and results are not shown on the figures. An historical summary of OPH5 sampling results is presented in **Appendix B**. In general, detected COC concentrations are consistent with historical concentrations and below the GWPS. Copies of the original laboratory analysis reports are maintained at the Kinder Morgan Galena Park Terminal and electronic copies are maintained in the project files and are available upon request.

3.6 Water Level Elevations and NAPL Thickness (Compliance Plan Table VII.14 and Compliance Plan Table VII.19)

A tabulation of water level elevation measurements from the January-February and July-August 2023 monitoring events at Galena Park Terminal is presented in **Tables 1 through 6**. These tables also provide depth to water measurements, total well depth measurements, and LNAPL thickness measurements, where applicable. **Table 7** contains data on LNAPL measurements and amounts bailed throughout 2023.

NHB

LNAPL or dense non-aqueous phase liquid (DNAPL) were not detected in the NHB wells during the January and July 2023 monitoring events.

SEHB

During the January 2023 sampling event, LNAPL was detected in wells MW-18 (0.03 ft.), MW-20 (0.32 ft.), MW-23 (0.02 ft.), MW-27 (0.05 ft.), P-1 (0.01 ft), the North Trench (NTRW) (0.11 ft.), and the South Trench (STRW) (0.01 ft.). The LNAPL thickness measurements in the monitor wells ranged from a thickness of 0.01 ft. (STRW and P-1) to 0.32 ft. (MW-20). LNAPL data for the January 2023 sampling event is presented in Table 2.

During the July 2023 sampling event, LNAPL was detected in wells MW-18 (0.17 ft), MW-20 (0.98 ft), MW-23 (0.06 ft.), MW-27 (0.02 ft.), P-1 (0.01 ft.), the NTRW (0.11 ft.), and the STRW (0.06 ft.). The LNAPL thickness measurements in the monitor wells ranged from a thickness of 0.01 ft. (P-1) to 0.98 ft. (MW-20). LNAPL data for the July 2023 sampling event is presented in Table 2.

Kinder Morgan continued LNAPL gauging and LNAPL removal from SEHB P-1, MW-12, MW-18, MW-20, MW-23, and MW-27, during the reporting period. LNAPL gauging and removal was initialized during the spring of 2019 and the LNAPL is gauged and removed weekly as practicable. The LNAPL thicknesses and recovered LNAPL volumes for the wells is shown in **Table 7**. **Figures 21a and 21b** present the extent of LNAPL during the sampling events. The wells showed a decreasing or stable LNAPL thickness through the reporting period (**Table 7**). During the 2023 monitoring period, a total of 18.2 gallons of LNAPL was removed from these wells. Kinder Morgan will continue to gauge these wells on a regular basis and remove LNAPL as necessary.

DNAPL was not detected during the January and July 2023 sampling events at the SEHB.

CP PMZ

LNAPL and DNAPL were not detected during the January and July 2023 sampling events at the CP PMZ.

WP/WC PMZ

During the February 2023 sampling event, LNAPL was detected in the WP/WC PMZ in wells MW-38 (3.64 ft.), VMW-3 (0.30 ft), VMW-8 (2.26 ft.), and VMW-10 (1.11 ft.). The LNAPL thickness measurements in the wells ranged from a thickness of 0.30 ft (VMW-3) to 3.64 ft (MW-38).

During the August 2023 sampling event, LNAPL was detected in in the WP/WC PMZ in wells MW-38 (6.02 ft), VMW-3 (0.33 ft), VMW-8 (3.31 ft.), and VMW-10 (1.03 ft). The LNAPL thickness measurements in the monitor wells ranged from a thickness of 0.33 ft. (VMW-3) to 6.02 ft. (MW-38).

Discrepancies were noticed between the weekly gauging and product removal volumes and values recorded during the semi-annual groundwater sampling events. The two data sets are obtained by two different parties. Therefore, equipment functionality, procedures, and recordation practices are being reassessed going forward.

Regular LNAPL gauging and removal, if necessary, are conducted at WP/WC PMZ wells MW-38, VMW-8, and VMW-10. A total of 10.1 gallons of LNAPL was removed from WP/WC PMZ MW-38, VMW-8, and VMW-10 during 2023. A LNAPL gauging and summary for WP/WC PMZ is presented in **Table 7**. **Figures 23a** and **23b** present the extent of LNAPL during the sampling events.

TCI

Groundwater elevation measurements were conducted at TCI in February and March and August 2023; no NAPL or DNAPL was detected. Historically, LNAPL has not been observed at TCI.

OPH5

As part of the corrective action program associated with the OPH5 AOC, LNAPL recovery was being conducted, but ceased in 2022 with the approval of the TCEQ, letter dated August 12, 2022. Prior to 2022, during each weekly inspection event, LNAPL thickness was measured in OPHMW-1 (sump), OPHMW-7, and OPHMW-8, manual LNAPL recovery was completed in OPHMW-1 (sump) and OPHMW-8, and volumes recovered were recorded. Additionally, an LNAPL discharge flow rate for the wall drain system was measured, and based on the flow rate, an approximate LNAPL discharge volume, since the last flow measurement, was calculated. LNAPL thickness at the OPH5 AOC ranged from 0.62 ft. (OPHMW-7, July 2023) to 1.81 ft. (OPHMW-8, July 2023) during the reporting period (**Table 6**). The extent of LNAPL during the sampling events is presented in **Figures 22a and 22b**. The TCEQ conditionally approved the cessation of LNAPL recovery due to plume stability and lack of transmissivity in a letter dated August 22, 2022 and granted its formal approval in a following letter dated December 19, 2022. LNAPL is now only gauged during the semi-annual sampling events and no recovery occurred during 2023.

3.7 Potentiometric Surface Maps (Compliance Plan Table VII.15)

As discussed in **Section 2** of this report, groundwater potentiometric surface maps were prepared using the groundwater elevation data collected during the January-February and July-August 2023 sampling events. Potentiometric surface maps (**Figures 7a through 7f**) were completed for the NHB, depicting groundwater flow direction in Zone III, Zone IV, and Zone V, respectively. There is only one well completed in Zone V (MW-12) therefore groundwater contours and flow calculations were not prepared for this zone. Additionally, potentiometric surface maps for the UNTU and SCF (**Figures 8a through 8d**) were completed for the SEHB. CP PMZ potentiometric maps are presented as **Figures 9a and 9b**. WP/WC PMZ potentiometric maps are presented as **Figures 10a and 10b**. TCI potentiometric maps are presented as **Figures 11a and 11b**. OPH5 potentiometric maps are presented as **Figures 12a and 12b**.

3.7.1 Tabulation of Data Evaluation Results and Compliance Tables (Compliance Plan Table VII.16)

Groundwater analytical data collected from the January-February and July-August 2023 semiannual events were evaluated within 60 days, as outlined in Provision XI.F.4. As stated in **Section 3.1**, these groundwater analytical data are presented in **Tables 9 through 14**. In general, the reported 2022 analytical testing results are consistent with historical data.

3.8 Hazardous Constituent and NAPL Extent Maps (Compliance Plan Table VII.22 and Compliance Plan Table VII.23)

Contaminant Isopleth Maps showing the NHB Zone III, Zone IV, and Zone V GWPS exceedances of the constituents listed in Compliance Plan Table IIIA for the reporting period are presented on **Figures 15a through 15f** respectively.

Contaminant Concentration Maps showing the SEHB Zone UNTU, SCF, and SCF/UNTU GWPS exceedances of the constituents listed in Compliance Plan Table IIIA for the reporting period are presented on **Figures 16a through 16f**, respectively.

Contaminant Concentration Maps showing the CP PMZ Zone SCF/UNTU GWPS exceedances of the constituents listed in Compliance Plan Table IIIA for the reporting period are presented on **Figures 17a and 17b**.

Contaminant Concentration Maps showing the WP/WC PMZ Zone SCF/UNTU GWPS exceedances of the constituents listed in Compliance Plan Table IIIA for the reporting period are presented on **Figures 18a and 18b**.

Contaminant Concentration Maps showing the TCI Zone SCF/UNTU GWPS exceedances of the constituents listed in Compliance Plan Table IIIA for the reporting period are presented on **Figure 19**.

Contaminant Concentration Maps showing the OPH5 GWPS exceedances of the constituents listed in Compliance Plan Table IIIA for the reporting period are presented on **Figures 20a and 20b**.

Additionally, LNAPL thickness and areal extent in the SEHB are illustrated on **Figures 21a and 21b**. As stated in **Section 3.6**, above, certain SEHB and WP/WC PMZ wells have historically exhibited LNAPL. Kinder Morgan continued LNAPL gauging and removal from SEHB wells MW-12, MW-18, MW-20, MW-23, MW-27, and P-1 during the reporting period. LNAPL thickness and aerial extent in the OPH5 AOC are presented in **Figures 22a** (January) **and 22b** (July). Additionally, Kinder Morgan continued to gauge and remove LNAPL from MW-38, VMW-8, and VMW-10 in the WP/WC PMZ; LNAPL thickness and aerial extent for the WP/WC PMZ are presented in **Figures 23a** (February 2023) **and 23b** (August 2023).

3.9 Schedule Summary (Table VII.17)

The next semi-annual sampling event is scheduled to occur within the first 60 days of the first quarter of 2024, as required by Provision XI.F.3.b. Analytical results will be evaluated against the GWPSs within 60 days of the collection of the last sample. Weekly inspections will be performed on the groundwater recovery systems to ensure operations are maintained in a functional and leak-free condition. The January 1 through December 31, 2024 Annual Corrective Action Program Report will be submitted to the TCEQ no later than March 1, 2025. The Compliance Plan Schedule is included as **Appendix C**.

3.10 Well Inspections, Repairs and Operational Difficulties (Compliance Plan Table VII.18)

Well inspections were performed at the NHB, SEHB, CP PMZ, WP/WC PMZ, TCI, and OPH5 wells during the 2023 sampling events and well recoveries and performance are monitored weekly. Groundwater recovery system and well maintenance or repairs performed as a result of these inspections, as well as other events, are shown in **Table 17** and described in **Section 3.2**.

In an email correspondence between Kinder Morgan and the TCEQ dated May 29, 2019, The TCEQ approved Kinder Morgan's request to suspend sampling NHB MW-5 and MW-9 completed in Zone III, MW-14 completed in Zone IV, and MW-12 completed in Zone V effective during the next reporting period. The request was initially made as the NHB COC (1,2-dichloroethane) has consistently been below the GWPS in these wells.

The NHB system was shut down and restarted on January 12, 2023 to replace the ball valve on the air line at MW-4. The system was shut down on August 3, 2023 because water was surfacing east of MW-7; the discharge line was excavated, and a new section welded in-place prior to restarting the system on August 30. Additionally, the system was shut down on September 14, 2023 due to a nitrogen leak, it remains shut down pending underground repairs. New infrastructure was constructed on top of the buried piping (i.e., C-5 bullet tank with the dimensions of 11-foot in diameter by 83 feet in length and a capacity of 44,310 gallons (1055 bbls), associated concrete pump pad and ancillary piping and equipment), and piping was located and to be rerouted and replaced in 2024.

The WP/WC PMZ system was shut down from September 19, 2023, through September 27, 2023, due to hot work (welding) next to the sump where the system discharges.

The TCI system was shut down from December 22, 2022, through February 17, 2023 due to breaks in the CP lines caused by a cold freeze event in late 2022.

Additional minor repairs requiring resolution include damaged well vault hinges, vault cover pistons, corroded or worn tubing, connectors, pump cycle counters, pump repairs and damaged well pads and bollards. Several new pumps were installed where the existing pump was beyond repair. Although these conditions do not pose a threat to the integrity or reliability of the system, action has been taken to correct them.

4. Status of Gate 6 Area of Concern (Compliance Plan Table VII.24)

The Gate 6 AOC is located in the eastern portion of the KM Liquids Terminals LLC (Kinder Morgan) Galena Park Terminal in Galena Park Texas. The Gate 6 Area is located on property wholly owned by Kinder Morgan and partially located beneath the active facility currently operated by World Energy for processing biofuels at 550 Clinton Drive. The existing biofuels facility at the site was constructed in 2006.

- Kinder Morgan submitted a Response Action Completion Report (RACR) requesting closure to the TCEQ on October 12, 2022 since response action criteria (stable plume) had been met. The RACR and the request for closure was approved by the TCEQ via email on November 17, 2022 and via letter December 19, 2022 and the monitoring wells (EP-1, EP-2, EP-3, EP-6R, EP-7, and EP-8) were plugged and abandoned in November 29, 2022. Per the TCEQ's condition for terminating corrective action for the Gate 6 AOC, Kinder Morgan will update CP Table II in the Permit renewal application, due in 2024, to officially terminate corrective action for the Gate 6 AOC in accordance with Permit Provisions XI.D. and XI.H.6.

5. Recommendations

The groundwater recovery systems in the NHB, SEHB, CP PMZ, WP/WC PMZ, and TCI are functioning as designed. LNAPL is regularly removed from monitoring wells that are not part of the recovery systems. Per the TCEQ's condition for terminating corrective action for the Gate 6 AOC, Kinder Morgan will update CP Table II in the Permit renewal application, due in 2024, to officially terminate corrective action for the Gate 6 AOC in accordance with Permit Provisions XI.D. and XI.H.6. There are no further recommendations for modifications at this time.

Appendix A

Corrective Action System Well Elevations for NHB and SEHB (CP Table VII.4)

Appendix A

CORRECTIVE ACTION SYSTEM WELL ELEVATIONS

North and Southeast Holding Basins
KM Liquids Terminals LLC
Galena Park Terminal

NHB

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
MW-1	Zone III	15.33
MW-4	Zone III	10.59
MW-5 [2]	Zone III	20.25
MW-6	Zone IV	8.92
MW-7	Zone III	10.40
MW-8	Zone III	16.67
MW-9	Zone III	12.59
MW-10	Zone III	19.75
MW-11	Zone III	11.74
MW-12	Zone V	9.59
MW-13	Zone III	13.47
MW-14	Zone IV	14.00
MW-15	Zone IV	10.41
RW-16	Zone III	9.26
RW-17	Zone IV	8.57

Elevations measured May 2019, unless as noted.

SEHB

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
P-1	SCF	20.55
MW-1	UNTU	21.49
MW-2R	SCF/UNTU	11.89
MW-3R	SCF/UNTU	12.08
MW-4R	UNTU	12.51
RW-5 Former (MW-5)	SCF/UNTU	10.59
MW-6 [4]	UNTU	24.06
MW-7	SCF/UNTU	13.98
MW-8	UNTU	15.37
MW-9	UNTU	14.26
MW-10	UNTU	13.61
MW-11	SCF/UNTU	18.58
MW-12	UNTU	19.89
MW-13	SCF/UNTU	10.03
MW-14	SCF/UNTU	10.50

SEHB

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
MW-15	SCF	20.85
MW-16	UNTU	19.99
MW-17 [3]	SCF/UNTU	18.69
MW-18	SCF	13.89
MW-19	UNTU	19.41
MW-20	SCF	22.08
MW-21	UNTU	14.92
MW-22	SCF	21.42
MW-23	UNTU	16.05
MW-24R	UNTU	12.70
MW-25	SCF/UNTU	8.40
MW-26	UNTU	8.91
MW-27	SCF	15.00
MW-29	SCF	15.39
MW-30	UNTU	9.24

SEHB

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
MW-31	UNTU	13.47
MW-32	SCF	13.40
MW-33	SCF/UNTU	10.28
MW-34	SCF/UNTU	8.47
RW-1	UNTU	13.13
RW-2	UNTU	12.34

Notes:

1. MSL - *Mean Sea Level*

2. The MW-5 well pad was reconstructed on July 2, 2019. To accommodate the new well pad, 6.65" (0.55') of the top of the well casing was removed yielding an approximate new TOC measurement of 20.80'-0.55' = 20.25'. 20.25' is the assumed TOC until surveyed again.

3. Surveyed June 2019
4. Surveyed December 2021

Appendix A

CORRECTIVE ACTION SYSTEM WELL ELEVATIONS

Central Plant
KM Liquids Terminals LLC
Galena Park Terminal

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
AMP-01	SCF/UNTU	15.54
AMP-02	SCF/UNTU	15.85
AMP-03	SCF/UNTU	16.67
POE-01	SCF/UNTU	18.21
POE-02	SCF/UNTU	16.72
MW-35R [2]	SCF/UNTU	17.46
MW-36	SCF/UNTU	19.8
MW-37	SCF/UNTU	16.92
MW-38	SCF/UNTU	22.05
RI-1-14	SCF/UNTU	18.12
RI-1-18	SCF/UNTU	17.77
RI-3-01	SCF/UNTU	16.48
RI-3-02	SCF/UNTU	16.98
RI-3-03	SCF/UNTU	15.36
RI-1-09	SCF/UNTU	6.06
RI-1-17 [2]	SCF/UNTU	17.91
MW-40	SCF/UNTU	19.52
MW-41	SCF/UNTU	22.02

Notes:

1. MSL - *Mean Sea Level*
2. Surveyed December 2021

Appendix A

CORRECTIVE ACTION SYSTEM WELL ELEVATIONS

West Plant / West Chem
KM Liquids Terminals LLC
Galena Park Terminal

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
MW-10	SCF/UNTU	19.75
MW-18 [2]	SCF/UNTU	15.33
MW-19 [5]	SCF/UNTU	19.7
MW-20 [3]	SCF/UNTU	19.25
MW-22 [3]	SCF/UNTU	18.45
MW-24 [3]	SCF/UNTU	15.93
MW-25 [6]	SCF/UNTU	12.21
MW-26 [3]	SCF/UNTU	10.86
MW-27 *	SCF/UNTU	23.58*
MW-28 [3]	SCF/UNTU	20.63
MW-29 [3]	SCF/UNTU	25.49
MW-30 [3]	SCF/UNTU	22.04
MW-31 [3]	SCF/UNTU	24.14
MW-32 [3]	SCF/UNTU	24.11
MW-33 [3]	SCF/UNTU	26.08
MW-34 [3]	SCF/UNTU	26.33
MW-35 [4]	SCF/UNTU	24.97
MW-36 [4]	SCF/UNTU	25.12
MW-37 [4]	SCF/UNTU	24.55
MW-38 [4]	SCF/UNTU	22.18
MW-39 [2]	SCF/UNTU	22.26
MW-40	SCF/UNTU	NS
OB-02 [2]	SCF/UNTU	20.43
OB-03 [2]	SCF/UNTU	17.74
RW-01 [5]	SCF/UNTU	21.53
RW-02 [5]	SCF/UNTU	20.55
RW-25R [5]	SCF/UNTU	22.86
WC-MW-2	SCF/UNTU	21.12
WC-MW-3	SCF/UNTU	24.61
WC-MW-4	SCF/UNTU	23.25
WC-MW-6	SCF/UNTU	21.4
P-1	SCF/UNTU	27.81
P-2	SCF/UNTU	20.54
P-3	SCF/UNTU	19.9
VMW-1	SCF/UNTU	27.64
VMW-2	SCF/UNTU	22.54
VMW-3	SCF/UNTU	21.93
VMW-4	SCF/UNTU	21.47
VMW-6	SCF/UNTU	21.98
VMW-7	SCF/UNTU	25.99
VMW-8	SCF/UNTU	22.2
VMW-9	SCF/UNTU	21.1
VMW-10	SCF/UNTU	18.58

Notes:

1. MSL - *Mean Sea Level*

* The MW-27 well pad was reconstructed during July 2, 2019. Surveyed December 2021.

2. TOC elevations are from the 2007 First Quarter Groundwater Monitoring Report.
3. TOC elevations are values from the 2004 APAR.
4. TOC elevations are from the 2009 GES survey
5. TOC elevations are from the 2011 URS survey
6. TOC values are from August 2011 and 7 from 2012 URS Surveys.

Appendix A

CORRECTIVE ACTION SYSTEM WELL ELEVATIONS

East Plant
KM Liquids Terminals LLC
Galena Park Terminal

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
EPMW-1	UGBU [2]	17.78
EPMW-2	UGBU	15.3
EPMW-3	UGBU	15.82
EPMW-4	Well Plugged and Abandoned May 1, 2015	
EPMW-5	Well Plugged and Abandoned October 2013	
EPMW-6	Well Destroyed 2015	
EPWW-6R	UGBU	17.8
EPMW-7	UGBU	18.76
EPMW-8	UGBU	14.65

Notes:

1. MSL = Mean Sea Level
2. UGBU = Uppermost Groundwater Bearing Unit

Appendix A

CORRECTIVE ACTION SYSTEM WELL ELEVATIONS

Texmark Chemicals / TCI
KM Liquids Terminals LLC
Galena Park Terminal

Monitor Well	Unit Monitored	Top of Casing Elevation (MSL[1], ft.)
RW-1	SCF/UNTU	18.66
RW-2	SCF/UNTU	18.4
POE-1	SCF/UNTU	18.66
RW-3	SCF/UNTU	18.07
RW-4	SCF/UNTU	12.12
RW-5	SCF/UNTU	12.26
POE-3	SCF/UNTU	13.1
MW-9	SCF/UNTU	17.89
RW-6	SCF/UNTU	16.85
RW-7	SCF/UNTU	17.13
RW-8	SCF/UNTU	16.72
RW-9	SCF/UNTU	17.21
TMW-21	SCF/UNTU	UNK
AMP-1	SCF/UNTU	20.43
AMP-2	SCF/UNTU	12.35
AMP 2-2	SCF/UNTU	P&A
MW-03-TC1	SCF/UNTU	25.7
MW-04-TCI	SCF/UNTU	23.02
MW-05-TCI	SCF/UNTU	19.65
MW-06-TCI	SCF/UNTU	11.78
MW-07-TCI	SCF/UNTU	8.64
MW-08-TCI	SCF/UNTU	6.06
MW-09-TCI	SCF/UNTU	19.2
MW-10R-TCI	SCF/UNTU	17.36
MW-12-TCI	SCF/UNTU	16.64
MW-13-TCI	SCF/UNTU	12.83
MW-14-TCI	SCF/UNTU	10.14
MW-15-TCI	SCF/UNTU	17.76
MW-16-TCI	SCF/UNTU	13.78
MW-17-TCI	SCF/UNTU	23.11
MW-18-TCI	SCF/UNTU	14.1
MW-19-TCI	SCF/UNTU	13.7
MW-20-TCI	SCF/UNTU	12.12
ROW-1	SCF/UNTU	8.59
ROW-2	SCF/UNTU	9.12
ROW-3	SCF/UNTU	6.4
ROW-4	SCF/UNTU	6.69
ROW-5	SCF/UNTU	7.37
ROW-6	SCF/UNTU	UNK
RI-1-10	SCF/UNTU	22.52
RI-1-13	SCF/UNTU	15.55

Notes:
Notes:
UNK = Unknown
1. MSL = Mean Sea Level

Appendix B

Historical Groundwater Concentration Summary – NHB, SEHB, CP PMZ, WP/WC PMZ, TCI, and OPH5 (CP Table VII.13 and VII.16)

Appendix B

HISTORICAL ANALYTICAL DATA

KM Liquids Terminals LLC

Galena Park Terminal

North Holding Basin 1,2-Dichloroethane Groundwater Concentrations (mg/L) since 2002

Semiannual Sampling Event	MW-1	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	RW-16	RW-17
2nd Event - 2002	<0.005	**0.0075**	0.0012	**<5**	**0.0349**	<0.005	<0.005	<0.005	**0.0733**	<0.005	**0.0665**	**0.0421**	**0.0253**	**0.0164**	**0.0273**
1st Event - 2003	<0.005	**0.0551**	<0.005	**0.0082**	**0.0322**	<0.005	<0.005	**0.0083**	**1.83**	<0.005	**0.0684**	**0.0623**	**0.0155**	**0.0127**	**0.059**
2nd Event - 2003	<0.005	<0.005	<0.005	**0.0106**	**0.0338**	<0.005	<0.005	<0.005	**12.3**	<0.005	**0.025**	**0.0434**	**0.0177**	**0.0129**	**0.0203**
1st Event - 2004	<0.005	**0.107 E**	<0.005	**0.0075**	**0.0329**	<0.005	<0.005	<0.005	**2.9**	<0.005	**0.0805**	**0.0272**	**0.0158**	**0.0229**	**0.0268**
2nd Event - 2004	<0.001	**0.0342**	<0.001	**0.0046**	0.0015	<0.001	<0.001	0.003	**12.9**	<0.001	**0.0575**	<0.001	<0.001	<0.001	**0.018**
1st Event - 2005	<0.001	**0.166**	<0.001	**0.0202**	**0.0181**	<0.001	<0.001	**0.0062**	**0.404**	<0.001	**0.0497**	**0.0243**	**0.0023**	**0.011**	**0.0243**
2nd Event - 2005	<0.00053	**0.205 E**	<0.00053	**0.0097**	0.0014 J	<0.00053	<0.00053	0.0046	**8.92**	<0.00053	**0.0348**	**0.0184**	**0.0078**	**0.007**	**0.029**
1st Event - 2006	<0.00053	**0.0351**	<0.00053	**0.009**	**0.0176**	<0.0053	<0.0053	0.0044	**2.06**	<0.00053	**0.0309**	**0.0115**	**0.011**	**0.0092**	**0.0334**
2nd Event - 2006	<0.00053	**0.183**	<0.00053	**0.008**	**0.0245**	<0.0053	<0.0053	0.0023	**0.127**	<0.00053	**0.0233**	**0.0053**	**0.0071**	**0.0078**	**0.0208**
1st Event - 2007	<0.005	**0.017**	<0.005	**0.007**	**0.026**	<0.005	<0.005	**0.011**	**0.072**	<0.005	**0.031**	<0.005	0.005	**0.007**	**0.011**
2nd Event - 2007	<0.005	**0.27**	<0.005	<0.005	**0.021**	<0.005	<0.005	<0.005	**0.042**	<0.005	**0.058**	<0.005	0.005	**0.008**	**0.01**
1st Event - 2008	<0.005	**0.005**	<0.005	<0.005	**0.016**	<0.005	<0.005	**0.011**	**0.006**	<0.005	**0.012**	<0.005	**0.051**	**0.008**	**0.034**
2nd Event - 2008	<0.005	<0.005	<0.005	<0.0005	**0.013**	<0.005	<0.005	NS	<0.005	<0.005	<0.005	<0.005	0.005	**0.006**	<0.005
1st Event - 2009	<0.005	**0.022**	<0.005	<0.005	**0.011**	<0.005	<0.005	<0.005	**0.039**	<0.005	<0.005	<0.005	<0.005	**0.006**	**0.024**
2nd Event - 2009	<0.005	**0.018**	<0.005	<0.005	**0.007**	<0.005	<0.005	<0.005	**0.024**	<0.005	0.015	<0.005	<0.005	<0.005	**0.011**
1st Event - 2010	<0.001	**0.020**	<0.001	**0.019**	**0.017**	<0.001	<0.001	NS	**0.022**	<0.001	**0.082**	0.002	0.001	<0.001	**0.027**
2nd Event - 2010	<0.001	**0.024**	<0.001	**0.021**	**0.057**	<0.001	<0.001	0.001	**0.014**	<0.001	**0.062**	0.002	**0.026**	**0.005**	**0.017**
1st Event - 2011	<0.0003	**0.0864**	<0.0003	**0.0056**	**0.0711**	<0.0003	<0.0003	0.0011 J	0.0045 J	<0.0003	**0.0521**	0.0012 J	**0.0094**	**0.0059**	**0.0142**
2nd Event - 2011	<0.000268	**0.00816**	NS	**0.00689**	**0.0188**	<0.000268	NS	0.00063	**0.00847**	NS	**0.0498**	NS	**0.00774**	**0.0107**	**0.0178**
1st Event - 2012	0.00014 U	**0.0020**	NS	**0.0051**	**0.050**	0.00014 U	NS	0.00014 U	0.0044	NS	0.00014 U	NS	**0.0071**	**0.0085**	**0.017**
2nd Event - 2012	0.00014 U	**0.031**	NS	**0.0080**	**0.047**	0.00014 U	NS	0.00014 U	0.0037	NS	0.00014 U	NS	**0.0064**	**0.0072**	**0.018**
1st Event - 2013	0.00014 U	**0.014**	NS	0.0036	**0.0094**	0.00091 J	NS	0.00014 U	**0.0070**	NS	0.00014 U	NS	**0.0058**	**0.0065**	**0.025**
2nd Event - 2013	0.00014 U	**0.0093**	NS	0.0040	**0.0160**	0.00097 J	NS	0.00014 U	**0.0059**	0.00014 U	0.00014 U	NS	**0.0085**	**0.0061**	**0.030**
1st Event - 2014	<0.00014	**0.0077**	NS	**0.0037**	**0.038**	**0.00019 J**	NS	<0.00014	**0.0063**	0.00015	0.0003	NS	**0.0055**	**0.0044**	**0.029**
2nd Event - 2014	0.00014 U	**0.0058**	NS	**0.0050**	**0.026**	0.00014 J	NS	0.00014 U	0.0019	NS	0.00021 J	NS	0.0033	0.0046	**0.022**
1st Event - 2015	<0.00012	**0.0061**	NS	**0.043**	**0.016**	<0.00012	NS	0.00260	0.0019	NS	0.00042 J	NS	0.0040	**0.033**	**0.016**
2nd Event - 2015	<0.00012	0.0047	<0.00012	**0.009**	**0.011**	<0.00058	<0.00012	<0.00012	0.0012	NS	<0.00012	0.00038 J	0.0041	0.0026	**0.011**
1st Event - 2016	< 0.00012	**0.0095**	< 0.00012	0.0032	**0.016**	< 0.00012	< 0.00012	< 0.00012	0.0021	NS	0.00051 J	< 0.00012	**0.0077**	0.0041	**0.017**
2nd Event - 2016	< 0.00012	**0.0073**	< 0.00012	**0.0760**	**0.020**	< 0.00012	<0.00012	< 0.00012	0.0026	NS	0.00033 J	0.00055 J	**0.0057**	0.0041	**0.015**
1st Event - 2017	< 0.00012	0.0034	< 0.00012	**0.076**	**0.013**	< 0.00012	<0.00012	< 0.00012	0.00097 J	< 0.00012	0.00012 J	0.00022 J	0.0042	0.0027	**0.0098**
2nd Event - 2017	< 0.00012	0.0028	< 0.00012	**0.025**	**0.016**	< 0.00012	<0.00012	< 0.00012	0.00041	< 0.00012	< 0.00012	0.00036	**0.0050**	0.0031	**0.0120**
1st Event - 2018	< 0.00012	0.00096 J	< 0.00012	**0.054**	**0.023**	< 0.00012	<0.00012	< 0.00012	0.00200	0.00061 J	< 0.00012	< 0.00012	**0.0054**	0.0028	**0.0110**
2nd Event - 2018	< 0.00012	0.0029	< 0.00012	**0.049**	**0.012**	0.00019 J	<0.00012	< 0.00012	0.0015	< 0.00012	< 0.00012	0.00030 J	0.0044	0.0029	**0.0097**
1st Event - 2019	< 0.00012	0.0024	< 0.00012	**0.023**	**0.0087**	0.00037 J	< 0.00012	0.0013	0.00077 J	0.0013	0.00031 J	< 0.00012	0.0014	0.0031	0.0040
2nd Event - 2019	< 0.00012	0.0030	NS	**0.0083**	**0.0120**	< 0.00012	NS	< 0.00012	0.0023	NS	< 0.00012	NS	**0.0071**	< 0.00012	**0.0110**
1st Event - 2020	< 0.00012	0.0014	NS	**0.0220**	**0.0053**	< 0.00012	NS	< 0.00012	0.0016	NS	< 0.00012	NS	0.0029	**0.0100**	0.00049 J
2nd Event - 2020	**0.00045 J**	NS	NS	**0.013**	**0.0083**	**0.00038 J**	NS	< 0.00012	0.0013	NS	< 0.00012	NS	**0.0056**	**0.0080**	0.0032
1st Event - 2021	< 0.000285	0.00165	NS	**0.00950**	**0.0106**	0.000290 J	NS	0.000780 J	0.00158	NS	< 0.000285	NS	0.000370 J	**0.0091**	0.00354
2nd Event - 2021	< 0.00029	0.0016	NS	**0.0073**	**0.009**	< 0.00029	NS	< 0.00029	0.0013	NS	< 0.00029	NS	0.0021	**0.0087**	0.003
1st Event - 2022	< 0.00029	0.0019	NS	**0.0075**	**0.0086**	< 0.00029	NS	< 0.00029	< 0.00029	NS	< 0.00029	NS	0.0040	< 0.00029	0.0029
2nd Event - 2022	< 0.00059	0.0037	NS	**0.0090**	**0.0078**	<0.00059	NS	< 0.00059	0.0011	NS	< 0.00059	NS	0.0041	< 0.00059	0.0031
1st Event - 2023	< 0.00059	0.0018	NS	**0.0067**	**0.0072**	< 0.00059	NS	< 0.00059	0.0011	NS	< 0.00059	NS	0.0017	< 0.00059	0.0027
2nd Event - 2023	< 0.00059	< 0.00059	NS	**0.0061**	**0.0093**	< 0.00059	NS	< 0.00059	0.00099 J	NS	< 0.00059	NS	0.0029	< 0.00059	0.0033

Notes:

NS - *not sampled*

J = Estimated concentration

Bold - Exceeds GWPS limits

U = Not Detected

mg/L = milligrams per liter

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-1 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-1															
SAMPLING PERIOD	(mg/L)	1st Q 2018	3rd Q 2018	1st Q 2019	3rd Q 2019	1st Q 2020	3rd Q 2020	1st Q 2021	3rd Q 2021	1st Q 2022	3rd Q 2022	1st Q 2023	3rd Q 2023
GC/MS Volatiles (SW846 8260B) (mg/L)													
1,1-Dichloroethylene	***0.007***	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000216 UX	0.00022 U	0.00022 U	0.00074 U	0.00074 U	0.00074 U
1,2,3-Trichloropropane	***0.00013***	***0.00029*** U	***0.00029*** U	***0.00029*** U	***0.00029*** U	***0.00029*** U	***0.00029*** U	***0.000283*** U	***0.00028*** U	***0.00028*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U
1,2-Dichlorobenzene	***0.6***	0.00015 U	0.00015 U	0.00021 J	0.00021 J	0.00015 U	0.00034 J	0.00047 J	0.00027 J	0.00046 J	0.00051 U	0.00051 U	0.00051 U
1,2-Dichloroethane	***0.005***	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.000285 U	0.00029 U	0.00029 U	0.00059 U	0.00059 U	0.00059 U
1,2-Dichloropropane	***0.005***	0.00051 J	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.000396 UX	0.0004 U	0.0004 U	0.00067 U	0.00067 U	0.00067 U
Methyl ethyl ketone (2 Butanone)	***15***	0.00076 U *	0.00085 J	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.0027 U	0.0027 U	0.0027 U	0.0083 U	0.0083 U	0.0083 U
4-Methyl-2-pentanone (MIBK)	***2***	0.00035 U *	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00106 U	0.0011 U	0.0011 U	0.0075 U	0.0075 U	0.0075 U
Acetone	***22***	0.00045 U *	0.00045 U *	0.00045 U *	0.00045 U	0.00045 U	0.00045 U	0.0123 U	0.012 U *1	0.012 U	0.011 J	0.0012 U	0.0012 U
Benzene	***0.005***	***0.096***	***0.057***	***0.034***	***0.03***	***0.01***	***0.067***	***0.024*** X	***0.032***	***0.054***	***0.059***	***0.049***	***0.059***
Carbon disulfide	***2.4***	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.0004 JX	0.00037 U	0.00037 U	0.0019 U	0.0019 U	0.0019 U
Chlorobenzene	***0.1***	0.044	0.019	0.01	0.014	0.0049	0.033	0.0413	0.014	0.054	0.041	0.03	0.036
Chloroform	***0.24***	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000259 U	0.00026 U	0.00026 U	0.00064 U	0.00064 U	0.00064 U
Ethylbenzene	***0.7***	0.0018 B	0.00082 J	0.00031 J	0.00035 J	0.00021 U	0.00075 J	0.00089 J	0.00061 J	0.00078 J	0.00069 J	0.00041 U	0.0006 J
n-Hexane	***1.5***	0.0055	0.0023	0.00098 J	0.00026 U	0.00026 U	0.0043	0.00558 X	0.00043 J	0.0045 J	0.0021 J	0.0011 J	0.00094 J
Methylene chloride	***0.005***	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00191 UX	0.0019 U	0.0019 U	0.0017 U	0.0017 U	0.0017 U
Styrene	***0.1***	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.000162 U	0.00062 U	0.00062 U	0.00066 U	0.00066 U	0.00066 U
Tetrachloroethylene	***0.005***	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.0005 UX	0.0005 U	0.0005 U	0.0008 U	0.0008 U	0.0008 U
Toluene	***1***	0.0055	0.003	0.0016	0.0014	0.0003 J	0.0029	0.00315	0.0012	0.0028	0.0031	0.0014	0.0021
trans-1,2-Dichloroethylene	***0.1***	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000256 UHX	0.00026 U	0.00026 U	0.00095 U	0.00095 U	0.00095 U
Trichloroethylene	***0.005***	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.000424 U	0.00042 U	0.00042 U	0.00079 U	0.00079 U	0.00079 U
Vinyl Acetate	***24***	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.019	0.00357 UX	0.0036 U *1	0.0036 U	0.0021 U	0.0021 U	0.0021 U
Vinyl chloride	***0.002***	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.000234 UX	0.00073 J	0.00023 U	0.00064 U	0.00064 U	0.00064 U
Xylene (total)	***10***	0.018	0.0083	0.0043	0.0041	0.00099 J	0.0092	0.00905	0.0037 J	0.0099 J	0.0081 J	0.005 J	0.006 J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)													
2,4,6-Trichlorophenol	***0.083***	0.0034 U	0.017 U	0.00033 U	0.0033 U	0.0034 U	0.0033 U	0.000169 U	0.00068 U	0.0014 U	0.00027 U	0.0014 U	0.0014 U
2,4-Dichlorophenol	***0.073***	0.0027 U	0.013 U	0.00026 U	0.0026 U *	0.0027 U	0.0026 U	0.000143 U	0.00057 U	0.0011 U	0.00023 U	0.0011 U	0.0011 U
2,4-Dimethylphenol	***0.49***	0.0019 U	0.009 U	0.00018 U	0.0018 U	0.0018 U	0.0018 U	0.000184 U	0.00074 U	0.0015 U	0.0003 U	0.0015 U	0.0015 U
2-Methylnaphthalene	***0.098***	0.0033 J	0.007 U	0.00063 J	0.0014 U	0.0014 U	0.0018 J	0.0015	0.0024 U	0.0048 U	0.00096 U	0.0048 U *+	0.0048 U
2-Methylphenol	***1.2***	0.002 U	0.0095 U	0.00019 U	0.0019 U	0.0019 U	0.0019 U	0.000199 U	0.0008 U	0.0016 U	0.00032 U	0.0016 U	0.0016 U
3&4-Methylphenol	***0.12***	0.0017 U	0.008 U	0.00016 U	0.0016 U	0.0016 U	0.0016 U	0.000203 U	0.00081 U	0.0016 U	0.00033 U	0.0016 U	0.0016 U
4-Bromophenyl phenyl ether	***0.000061***	***0.0026*** U	***0.013*** U	***0.00025*** U	***0.0025*** U *	***0.0026*** U	***0.0025*** U	***0.000209*** U	***0.00084*** U	***0.0017*** U	***0.00033*** U	***0.0017*** U	***0.0017*** U
Acenaphthene	***1.5***	0.075	0.071	0.018	0.017 *	0.0086 J	0.032	0.0669	0.02	0.063	0.024	0.063	0.082
Acenaphthylene	***1.5***	0.0018 J	0.008 U	0.00051 J	0.0016 U *	0.0016 U	0.0016 U	0.000268 U	0.0017 U	0.0021 U	0.00043 U	0.0021 U	0.0021 U
Aniline	***0.16***	0.0013 U	0.006 U	0.00012 U	0.0012 U	0.0012 U	0.0012 U	0.000392 UF	0.0016 U	0.0031 U *1	0.00063 U	0.0031 U	0.0031 UJL
Anthracene	***7.3***	0.0046 U	0.022 U	0.00088 J	0.0044 U *	0.0045 U	0.0044 U	0.00465	0.00077 U	0.0054 J	0.0026 J	0.0045 J	0.0077 J
Benzo(a)anthracene	***0.0013***	***0.0026*** U	***0.013*** U	0.00025 U	***0.0025*** U	***0.0026*** U	***0.0025*** U	0.000187 U	0.00075 U	***0.0015*** U	0.0003 U	***0.0015*** U	***0.0015*** U
Benzo(a)pyrene	***0.0002***	***0.0014*** U	***0.0065*** U	0.00013 U *	***0.0013*** U	***0.0013*** U	***0.0013*** U	0.000184 U	***0.00074*** U	***0.0015*** U	***0.0003*** U	***0.0015*** U	***0.0015*** U
Benzo(b)fluoranthene	***0.0013***	***0.0019*** U	***0.009*** U	0.00018 U *	***0.0018*** U	***0.0018*** U	***0.0018*** U	0.000262 U	0.001 U	***0.0021*** U	0.00042 U	***0.0021*** U	***0.0021*** U
Benzo(g,h,i)perylene	***0.73***	0.0036 U	0.018 U	0.00035 U *	0.0035 U	0.0036 U	0.0035 U	0.000179 U	0.00071 U	0.0014 U	0.00029 U	0.0014 U	0.0014 U
Benzo(k)fluoranthene	***0.013***	0.0017 U	0.008 U	0.00016 U *	0.0016 U	0.0016 U	0.0016 U	0.000208 U	0.00083 U	0.0017 U	0.00033 U	0.0017 U	0.0017 U
Benzyl Alcohol	***12***	0.0053 U	0.026 U *	0.00051 U *	0.0051 U	0.0052 U *	0.0051 U*	0.001 U	0.004 U *1	0.045 U	0.009 U *+	0.045 U *+	0.045 U
bis(2-Chloroethyl)ether	***0.00083***	***0.0019*** U	***0.009*** U	0.00018 U	***0.0018*** U	***0.0018*** U	***0.0018*** U	0.000187 U	***0.0014*** U	***0.0028*** U	0.00056 U	***0.0028*** U	***0.0028*** U
bis(2-Ethylhexyl)phthalate	***0.006***	***0.0061*** U	***0.03*** U	0.00059 U *	0.0059 U	0.006 U	0.0059 U	0.000348 U	0.0011 U	0.0022 U	0.00045 U	0.0022 U	0.0022 U
Butyl benzyl phthalate	***0.48***	0.0089 U	0.043 U	0.00085 U *	0.0085 U	0.0087 U	0.0085 U	0.000281 U	0.00075 U	0.0015 U	0.0003 U	0.0015 U	0.0015 U
Chrysene	***0.13***	0.0025 U	0.012 U	0.00024 U *	0.0024 U	0.0024 U	0.0024 U	0.000199 U	0.0008 U	0.0016 U	0.00032 U	0.0016 U	0.0016 U
Dibenzo(a,h)anthracene	***0.0002***	***0.003*** U	***0.015*** U	***0.00029*** U *	***0.0029*** U	***0.003*** U	***0.0029*** U	0.000184 U	***0.00074*** U	***0.0015*** U	***0.0003*** U	***0.0015*** U	***0.0015*** U
Dibenzofuran	***0.098***	0.021	0.028 J	0.0044	0.0047 J *	0.0026 J	0.0094 J	0.018	0.0017 U	0.018 J	0.0054	0.015 J	0.017 J
Di-n-butyl phthalate	***2.4***	0.019 U	0.094 U	0.0019 U	0.019 U	0.019 U	0.019 U	0.001 U	0.28 B	0.008 U	0.0016 U	0.008 U *+	0.008 U
Di-n-octyl phthalate	***0.49***	0.0017 U	0.008 U	0.00016 U *	0.0016 U	0.0016 U	0.0016 U	0.000212 U	0.00085 U	0.0017 U	0.00034 U	0.0017 U	0.0017 U
Fluoranthene	***0.98***	0.0072 J	0.016 U	0.0029	0.0031 U	0.0032 U	0.0053 J	0.00875	0.00074 U	0.01 J	0.0053	0.01 J	0.011 J
Fluorene	***0.98***	0.039	0.046 J	0.0094	0.0091 J *	0.0047 J	0.02	0.0408	0.012	0.043	0.016	0.036	0.049
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.003*** U	***0.015*** U	0.00029 U *	***0.0029*** U	***0.003*** U	***0.0029*** U	0.000179 U	0.00071 U	***0.0085*** U	***0.0017*** U	***0.0085*** U	***0.0085*** U
Naphthalene	***0.49***	0.0017 U	0.008 U	0.0031	0.0016 U	0.0016 U	0.0016 U	0.00175	0.004 U	0.0042 U	0.001 J	0.0042 U	0.0042 U
Phenanthrene	***0.73***	0.019	0.018 J	0.0051	0.0043 J	0.003 U	0.013 J	0.0259	0.0072	0.028	0.012	0.022	0.026
Phenol	***7.3***	0.0015 U	0.007 U	0.00014 U	0.0014 U	0.0014 U	0.0014 U	0.00115 J	0.004 U	0.002 U	0.0004 U	0.002 U	0.002 UJL
Pyrene	***0.73***	0.0045 J	0.017 U	0.0015 J	0.0033 U	0.0034 U	0.0033 U	0.0048	0.0022 J	0.0045 J	0.0031 J	0.0052 J	0.0061 J
Pyridine	***0.024***	0.0025 U	0.012 U	0.00024 U	0.0024 U *	0.0024 U	0.0024 U	0.000906 UF	0.0036 U *1	0.0072 U *1	0.0014 U	0.0072 U	0.0072 UJL
GC Semi-volatiles (SW846 8151) (mg/L)													
2,4-D	***0.07***	0.0013 J	0.0019	0.00089 H	0.00058	0.0079	0.000039 U	0.0000453 U	0.000026 U	0.000021 U	0.000027 U	0.000029 U	0.00016 U *1
Metals Analysis (SW 846 6010B) (mg/L)													
Lead	***0.015***	0.00088 J	0.0036 J	0.0035 J	0.0078	0.011	0.00081	0.00173 J	0.011	0.0048	0.0042	0.0012 J	0.0057
General Chemistry (415.1) (mg/L)													
Total Organic Carbon	***---***	---	---	---	---	---	---	---	---	---	---	---	---

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-2R | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-2R																															
SAMPLING PERIOD	(mg/L)	3rd Q 2016		1st Q 2017		3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																																	
1,1-Dichloroethylene	***0.007***	0.00019	U	0.00019	U	0.00019	U	0.00096	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.00074	U	0.00074	U
1,2,3-Trichloropropane	***0.00003***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.0015***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	0.00039	J	0.00015	U	0.00077	J	0.00077	U	0.00015	U	0.00029	J	0.00015	U	0.00024	J	0.00015	U	0.000236	U	0.00024	U	0.00024	U	0.00051	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.00012	U	0.00058	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.00059	J	0.00068	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U	0.00076	U	0.00076	U	0.0038	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0027	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U
4-Methyl-2-pentanone	***2.0***	0.00035	U	0.00035	U	0.00035	U	0.0017	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U
Acetone	***22***	0.00045	U	0.00045	U*	0.00045	U	0.0022	U	0.00045	U *	0.00045	U *	0.00045	U	0.00045	U	0.00045	U	0.0123	U	0.012	U *1	0.012	U	0.0065	J	0.0012	U	0.0012	U
Benzene	***0.005***	***0.022***		0.0011		***0.049***	B	***0.015***		0.0014		***0.01***		0.0016		***0.01***		0.00088	J	0.00123		0.00067	J	0.00055	J	0.0012		0.0046		0.00063	J
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.00022	U	0.0011	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U
Chlorobenzene	***0.1***	0.0048		0.0002	J	0.011		0.0041	J	0.00045	J	0.0036		0.00058	J	0.0026		0.00094	J	0.000159	U	0.00029	J	0.00016	U	0.00053	U	0.0015		0.00053	U
Chloroform	***0.24***	0.00015	U	0.00015	U	0.00015	U	0.00076	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00031	J	0.00026	U	0.00026	U	0.00064	U	0.00064	U	0.00064	U
Ethylbenzene	***0.7***	0.00021	U	0.00021	U	0.00021	U	0.0011	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000146	U	0.00051	U	0.00051	U	0.00041	U	0.00041	U	0.00041	U
n-Hexane	***2***	0.00026	U	0.00026	U	0.00026	U	0.0013	U	0.00032	J	0.00078	J	0.00026	U	0.00026	U	0.00026	U	0.000369	U	0.00037	U	0.00037	U	0.00052	U	0.00052	U	0.00052	U
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.0017	J B	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.00088	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.0024		0.00033	U	0.00033	U	0.0017	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U
Toluene	***1***	0.00059	J	0.0002	U	0.0013		0.00099	U	0.0002	U	0.00042	J	0.0002	U	0.00027	J	0.0002	U	0.0005	U	0.0005	U	0.0005	U	0.00048	U	0.00048	U	0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.00019	U	0.00019	U	0.00019	U	0.00096	U	0.00081	J	0.00041	J	0.00019	U	0.00019	U	0.00087	J	0.000256	U	0.00084	J	0.00026	U	0.00095	U	0.00095	U	0.00095	U
Trichloroethylene	***0.005***	0.00085	J	0.0002	J	0.00014	U	0.00069	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00049	J	0.00042	U	0.00079	U	0.00079	U	0.00079	U
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.027		0.0043	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.015		0.00357	U	0.0036	U *1	0.0036	U	0.0021	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.00025	U	***0.093***		***0.008***		***0.017***		***0.092***		***0.026***		***0.19***		***0.022***		***0.14***		***0.0358***		***0.074***		***0.067***		***0.078***		***0.022***		***0.08***	
Xylene (total)	***10***	0.0018	J	0.00037	U	0.0034		0.0018	U	0.00037	U	0.0013	J	0.00037	U	0.00098	J	0.00037	U	0.000192	U	0.00033	U	0.00033	U	0.0012	U	0.0012	U	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																																	
2,4,6-Trichlorophenol	***0.083***	0.0033	U	0.00033	U	0.00039	U	0.00033	U	0.00033	U	0.00033	U	0.033	U	0.00033	U	0.00033	U	0.000169	U	0.00014	U	0.00014	JL/UJL	0.00014	UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.0026	U	0.00026	U	0.00031	U	0.00026	U	0.00026	U	0.00026	U	0.026	U *	0.00026	U	0.00026	U	0.000143	U	0.00011	U	0.00011	JL/UJL	0.00011	UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.0018	U	0.00018	U	0.00056	J	0.00018	U *	0.00018	U	0.00018	U	0.018	U	0.00018	U	0.00018	U	0.000184	U	0.00015	U	0.00022	JL/UJL	0.00015	UJL	0.00015	U	0.00015	U
2-Methylnaphthalene	***0.098***	0.0042	J	0.00014	U	0.00017	U	0.00014	U	0.00014	U	0.0004	J	0.014	U	0.00052	J	0.00047	J	0.0006	U	0.00048	U	0.00048	JL/UJL	0.00048	U	0.00048	U *+	0.0027	U
2-Methylphenol	***1.2***	0.0019	U	0.00019	U	0.00023	U	0.00019	U	0.00019	U	0.00019	U	0.019	U	0.00019	U	0.00019	U	0.000199	U	0.00016	U	0.00016	JL/UJL	0.00016	UJL	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.0016	U	0.00016	U	0.001	J	0.00016	U	0.00016	U	0.00016	U	0.016	U	0.00016	U	0.00016	U	0.000203	U	0.00016	U	0.00016	JL/UJL	0.00016	U	0.00016	U	0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.0025***	U	***0.00025***	U	***0.0003***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U	***0.025***	U *	***0.00025***	U	***0.00025***	U	***0.000209***	U	***0.00017***	U	***0.00017***	JL/UJL	***0.00017***	U	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.018		0.0002	J	0.005		0.0035		0.0017		0.0043		0.016	U *	0.0037		0.00037	J	0.00175		0.00021	U	0.00055	U	0.0007	U	0.0032		0.0055	
Acenaphthylene	***1.5***	0.0016	U	0.00016	U	0.00019	J	0.00016	U	0.00016	U	0.00016	U	0.016	U *	0.00016	U	0.00016	U	0.000268	U	0.00034	U	0.00021	JL/UJL	0.00021	U	0.00021	U	0.00021	U
Aniline	***0.16***	0.0012	U	0.00012	U	0.00014	U	0.00012	U	0.00012	U	0.00012	U	0.012	U	0.00012	U	0.00012	U	0.000392	UF	0.00031	U	0.00031	JL/UJL	0.00031	U	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.0044	U	0.00044	U	0.00054	J	0.00044	U	0.00044	U	0.00048	J	0.044	U *	0.00051	J	0.00044	U	0.00075	J	0.00015	U	0.00027	U	0.00025	J	0.00056	J	0.0006	J
Benzo(a)anthracene	***0.0013***	***0.0025***	U	0.00025	U	0.0003	U	0.00025	U	0.00025	U	0.00025	U	***0.025***	U	0.00025	U	0.00025	U	0.000187	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	***0.0013***	U	0.00013	U	0.00015	U	0.00013	U	0.00013	U	0.00013	U *	***0.013***	U	0.00013	U	0.00013	U	0.000184	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	***0.0018***	U	0.00018	U	0.00021	U	0.00018	U	0.00018	U	0.00018	U *	***0.018***	U	0.00018	U	0.00018	U	0.000262	U	0.00021	U	0.00021	JL/UJL	0.00021	U	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.0035	U	0.00035	U	0.00042	U	0.00035	U	0.00035	U	0.00035	U *	0.035	U	0.00035	U	0.00035	U	0.000179	U	0.00014	U	0.00014	JL/UJL	0.00014	U	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.0016	U	0.00016	U	0.00019	U	0.00016	U	0.00016	U	0.00016	U *	***0.016***	U	0.00016	U	0.00016	U	0.000208	U	0.00017	U	0.00017	JL/UJL	0.00017	U	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.0051	U	0.00051	U	0.00061	U	0.00051	U	0.00051	U *	0.00051	U *	0.051	U	0.00051	U *	0.00051	U*	0.001	U	0.0033	B *+ *1	0.0045	JL/UJL	0.0045	U *+	0.0045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0018***	U	0.00018	U	0.00021	U	0.00018	U	0.00038	J	0.00018	U	***0.018***	U	0.00018	U	0.00018	U	0.000187	U	0.00028	U	0.00028	JL/UJL	0.00028	U	0.00028	U	0.00073	J
bis(2-Ethylhexyl)phthalate	***0.006***	0.0059	U	0.00066	J B	0.0011	J	0.00059	U	0.00059	U	0.00059	U *	***0.059***	U	0.00059	U	0.00059	U	0.000348	U	0.0016		0.00046	JL/UJL	0.00037	U	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.012	J	0.00085	U	0.001	U	0.00085	U	0.00085	U	0.00085	U *	0.085	U	0.00085	U	0.00085	U	0.000281	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U	0.00015	U
Chrysene	***0.13***	0.0024	U	0.00024	U	0.00029	U	0.00024	U	0.00024	U	0.00024	U *	0.024	U	0.00024	U	0.00024	U	0.000199	U	0.00016	U	0.00016	JL/UJL	0.00016	U	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0029***	U	***0.00029***	U	***0.00035***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U *	***0.029***	U	***0.00029***	U	***0.00029***	U	0.000184	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.0041	J	0.00016	U	0.00019	U	0.00016	U	0.00054	J	0.00016	U	0.016	U *	0.00025	J	0.00016	U	0.00042	U	0.00034	U	0.00038	U	0.00034	U	0.00034	U	0.0028	
Di-n-butyl phthalate	***2.4***	0.019	U	0.0019	U	0.0022	U	0.0019	U	0.0019	U	0.0019	U	0.19	U	0.0019	U	0.0019	U	0.001	U	0.17	B	0.0008	JL/UJL	0.0008	U	0.0022	*+ B	0.089	
Di-n-octyl phthalate	***0.49***	0.0016	U	0.00039	J	0.00019	U	0.00016	U	0.00016	U	0.00016	U *	0.016	U	0.00016	U	0.00016	U	0.000212	U	0.00017	U	0.00017	JL/UJL	0.00017	U	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.012	J	0.00038	J	0.0011	J	0.00088	J	0.0015	J	0.0015	J	0.031	U	0.0014	J	0.00047	J	0.0013		0.00015	U	0.00043	U	0.00077	J	0.0016	J	0.0013	J
Fluorene	***0.98***	0.0075	J	0.00012	U	0.0016	J	0.00085	J	0.00071	J	0.00094	J	0.012	U *	0.00066	J	0.00012	U	0.0003	J	0.0002	U	0.00028	U	0.00021	U	0.00021	U	0.0027	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.0029***	U	0.00029	U	0.00035	U	0.00029	U	0.00029	U	0.00029	U *	***0.029***	U	0.00029	U	0.00029	U	0.000179	U	0.00014	U	0.00085	JL/UJL	0.00085	U	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.015	J	0.00035	J	0.00019	U	0.0002	J	0.00016	U	0.002		0.016	U	0.0014	J	0.0013	J	0.001	U	0.0008	U	0.0017	U	0.00054	J	0.00062	J	0.012	
Phenanthrene	***0.73***	0.018		0.00029	U	0.00035	J	0.00029	U	0.00074	J	0.00029	U	0.029	U	0.00029	U	0.00029	U	0.0005	U	0.0004	U	0.00024	U	0.00018	U	0.00018	U	0.0026	
Phenol	***7.3***	0.0014	U	0.00014	U	0.0021	*	0.00014	U	0.00014	U	0.00014	U	0.014	U	0.00014	U	0.00014	U	0.001	U	0.0008	U	0.0002	JL/UJL	0.0002	UJL	0.0002	U	0.0002	UJL
Pyrene	***0.73***	0.007	J	0.00033	U	0.0006	J	0.0013	J	0.0011	J	0.0011	J	0.033	U	0.00084	J	0.00036	J	0.00095	J	0.00046	J	0.00043	U	0.00077	J	0.0012	J	0.0011	J
Pyridine	***0.024***	0.0024	U	0.00024	U	0.00029	U	0.00024	U	0.00024	U	0.00024	U	0.0024	U *	0.00024	U	0.00024	U	0.000906	UF	0.00072	U *1	0.00072	JL/UJL	0.00072	U	0.00072	U	0.00072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																																	
2,4-D	***0.07***	0.000039	U	0.00004	U	0.00004	U	0.00004	U	0.000039	U	0.000039	U	0.00004	U	0.00084		0.00004	U	0.0000453	U	0.00033		0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																																	
Lead	***0.015***	0.00073	U	0.00073	U	0.00073	U	0.001	J	0.00073	U	0.00073	U	0.00073	U	0.00017	U	0.00017	U	0.000152	U	0.00015	U	0.00047	U	0.00015	U	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																																	
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-3R | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-3R																											
SAMPLING PERIOD	(mg/L)	3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																													
1,1-Dichloroethylene	***0.007***	0.0038	U	0.0038	U	0.00096	U	0.00096	U	0.00096	U	0.00019	U	0.00019	U	0.00216	U	0.00022	U	0.00022	U	0.0037	U	0.0015	U	0.0037	U
1,2,3-Trichloropropane	***0.00013***	***0.013***	J	***0.0058***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.00029***	U	***0.00029***	U	***0.00283***	U	***0.00028***	U	***0.00028***	U	***0.0025***	U	***0.00098***	U	***0.0025***	U
1,2-Dichlorobenzene	***0.6***	0.024		0.026		0.013		0.012		0.01		0.012		0.012		0.0144		0.012		0.016		0.013		0.008		0.009	
1,2-Dichloroethane	***0.005***	0.0023	U	0.0023	U	0.00058	U	0.00058	U	0.00058	U	0.00012	U	0.00022	J	0.00285	U	0.00029	U	0.00029	U	0.003	U	0.0012	U	0.003	U
1,2-Dichloropropane	***0.005***	***0.0095***	J	0.0027	U	0.00068	U	0.00068	U	0.00068	U	0.0016		0.00014	U	0.00396	U	0.0004	U	0.0004	U	0.0033	U	0.0013	U	0.0033	U
Methyl ethyl ketone (2-Butanone)	***15***	0.015	U	0.015	U *	0.0038	U	0.0038	U	0.0046	J	0.00076	U	0.00076	U	0.0364	J	0.0027	U	0.0027	U	0.041	U	0.017	U	0.041	U
4-Methyl-2-pentanone	***2***	0.007	U	0.007	U *	0.0017	U	0.0017	U	0.0017	U	0.00035	U	0.00035	U	0.0106	U	0.0011	U	0.0011	U	0.037	U	0.015	U	0.037	U
Acetone	***22***	0.0089	U	0.0089	U *	0.0022	U	0.0022	U *	0.0022	U	0.00045	U	0.00045	U	0.123	U	0.012	U	0.012	U	0.006	U	0.0024	U	0.006	U
Benzene	***0.005***	***0.18***		***0.18***		***0.16***		***0.1***		***0.13***		***0.12***		***0.19***		***0.17***		***0.17***		***0.19***		***0.15***		***0.12***		***0.13***	
Carbon disulfide	***2.4***	0.0043	U	0.0043	U	0.0011	U	0.0011	U	0.0011	U	0.00022	U	0.00022	U	0.00373	U	0.00037	U	0.00037	U	0.0095	U	0.0038	U	0.0095	U
Chlorobenzene	***0.1***	0.071		0.088	B	0.068		0.05		0.051		0.041		0.06		0.0639		0.078		0.075		0.076		0.052		0.069	
Chloroform	***0.24***	0.003	U	0.003	U	0.00076	U	0.00076	U	0.00076	U	0.00015	U	0.00015	U	0.00259	U	0.00026	U	0.00026	U	0.0032	U	0.0057		0.0032	U
Ethylbenzene	***0.7***	0.42		0.34	B	0.096		0.11		0.073		0.11		0.092		0.117		0.1		0.14		0.12		0.085		0.09	
n-Hexane	***1.5***	0.0067	J	0.016	J	0.0059		0.011		0.0077		0.011		0.016		0.0125	J	0.018		0.026		0.018	J	0.019		0.0097	J
Methylene chloride	***0.005***	0.0035	U	0.0035	U	***0.0058***	J B	***0.006***	J B	0.001	J	0.00018	U	0.00018	U	***0.0301***	J	0.0019	U	0.0019	U	***0.0086***	U	0.0035	U	***0.0086***	U
Styrene	***0.1***	0.0035	U	0.0035	U	0.0021	J	0.0015	J	0.0012	J	0.0012		0.0016		0.00162	U	0.0023		0.00062	U	0.0033	U	0.0013	U	0.0033	U
Tetrachloroethylene	***0.005***	***0.0067***	U	***0.0067***	U	0.0017	U	0.0017	U	0.0017	U	0.00033	U	0.00033	U	0.005	U	0.0005	U	0.0005	U	0.004	U	0.0016	U	0.004	U
Toluene	***1***	0.15		0.18		0.11		0.077		0.033		0.03		0.024		0.022		0.018		0.021		0.022		0.012		0.017	
trans-1,2-Dichloroethylene	***0.1***	0.0038	U	0.021		0.012		0.0061		0.0064		0.0068		0.011		0.0074	J	0.0061		0.011		0.0096		0.0049		0.0055	
Trichloroethylene	***0.005***	0.0028	U	0.0028	U	0.00069	U	0.00069	U	0.00069	U	0.00014	U	0.00014	U	0.00424	U	0.00042	U	0.00042	U	0.004	U	0.0016	U	0.004	U
Vinyl Acetate	***24***	0.017	U	0.017	U	0.0043	U	0.0043	U	0.0043	U	0.00085	U	0.0064		0.0357	U	0.0036	U	0.0036	U	0.011	U	0.0043	U	0.011	U
Vinyl chloride	***0.002***	***4.6***		***3.1***		***0.039***		***0.025***		***0.029***		***0.043***		***0.017***		***0.00234***	U	***0.0029***		0.00023	U	***0.0032***	U	0.0013	U	***0.0037***	J
Xylene (total)	***10***	0.25		0.33		0.16		0.15		0.12		0.14		0.16		0.175		0.15		0.21		0.15		0.085		0.1	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																													
2,4,6-Trichlorophenol	***0.083***	0.017	U	0.0017	U	0.017	U	0.0033	U	0.0034	U	0.0033	U	0.0033	U	0.000169	U	0.00068	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U
2,4-Dichlorophenol	***0.073***	0.014	U	0.0014	U	0.014	U	0.0026	U	0.0027	U *	0.0026	U	0.0026	U	0.000143	U	0.00057	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
2,4-Dimethylphenol	***0.49***	0.019	J	0.031		0.047	J	0.032		0.02	J	0.034		0.023	J	0.0494		0.00074	U	0.024		0.021		0.02		0.033	
2-Methylnaphthalene	***0.098***	***0.12***		***0.29***		0.012	J	***0.2***		0.074		***0.13***		0.068		***0.124***	D	0.062		***0.12***		0.089		***0.15***	*+	***0.15***	
2-Methylphenol	***1.2***	0.015	J	0.017		0.0099	U	0.0019	U	0.0019	U	0.0023	J	0.0019	U	0.000199	U	0.0008	U	0.0016	U	0.0016	U	0.0016	U	0.0016	U
3&4-Methylphenol	***0.12***	0.021	J	0.014		0.0083	U	0.0016	U	0.0016	U	0.0021	J	0.0016	U	0.00085	J	0.00081	U	0.0016	U	0.0016	U	0.0016	U	0.0016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.013***	U	***0.0013***	U	***0.013***	U	***0.0025***	U	***0.0026***	U *	***0.0025***	U	***0.0025***	U	***0.000209***	U	***0.00084***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U
Acenaphthene	***1.5***	0.11		0.18		0.086		0.14		0.07	*	0.14		0.078		0.172	D	0.11		0.21		0.21		0.25		0.29	
Acenaphthylene	***1.5***	0.0083	U	0.0043	J	0.0083	U	0.0043	J	0.0016	U *	0.0031	J	0.0016	U	0.00375		0.0017	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U
Aniline	***0.16***	0.011	J	0.00063	U	0.0063	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.000392	UF	0.0016	U	0.0031	U *1	0.0031	UJL	0.0031	U	0.0031	UJL
Anthracene	***7.3***	0.023	U	0.0093		0.023	U	0.014	J	0.0045	U *	0.015		0.0061	J	0.0162		0.0062		0.019	J	0.015	J	0.027		0.025	
Benzo(a)anthracene	***0.0013***	***0.013***	U	0.0013	U	***0.013***	U	***0.0037***	J	***0.0026***	U	***0.0037***	J	***0.0025***	U	***0.00505***		0.0012	J	***0.0043***	J	***0.003***	J	***0.0072***	J	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***0.0068***	U	***0.00068***	U	***0.0068***	U	***0.0013***	J	***0.0013***	U	***0.0014***	J	***0.0017***	J	***0.00165***		***0.00074***	U	***0.0015***	U	***0.0015***	U	***0.0021***	J	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***0.0094***	U	0.00094	U	***0.0094***	U	***0.0023***	J B	***0.0018***	U	***0.0033***	J	***0.0019***	J	***0.0026***		0.001	U	***0.0021***	U	***0.0021***	U	***0.0028***	J	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.018	U	0.0018	U	0.018	U	0.0035	U	0.0036	U	0.0035	U	0.0035	U	0.0005	J	0.00071	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	0.0083	U	0.00083	U	0.0083	U	0.0016	U	0.0016	U	0.0016	U	0.0016	U	0.00085	J	0.00083	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U
Benzyl Alcohol	***12***	0.027	U	0.016		0.027	U *	0.051	U	0.0052	U	0.017	J *	0.0051	U*	0.001	U	0.004	U *1	0.045	U	0.045	U *+	0.045	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.016***	J	***0.031***		***0.026***	J	***0.044***		***0.018***		***0.033***		***0.025***		***0.0337***		***0.017***		***0.03***		***0.023***		***0.02***		***0.038***	
bis(2-Ethylhexyl)phthalate	***0.006***	***0.031***	U	0.0031	U	***0.031***	U	0.0059	U	0.006	U	0.0059	U	0.0059	U	***0.0439***		0.0011	U	0.00056	U	0.0022	U	0.0022	U	0.0022	U
Butyl benzyl phthalate	***0.48***	0.044	U	0.024		0.047	J	0.029		0.039		0.045		0.015	J	0.000281	U	0.0046		0.031		0.0061	J	0.017	J	0.0084	J
Chrysene	***0.13***	0.013	U	0.0013	U	0.013	U	0.0034	J	0.0024	U	0.0029	J	0.0024	U	0.00405		0.0008	U	0.0035	J	0.0023	J	0.0059	J	0.0024	J
Dibenzo(a,h)anthracene	***0.0002***	***0.015***	U	***0.0015***	U	***0.015***	U	***0.0029***	U	***0.003***	U	***0.0029***	U	***0.0029***	U	0.000184	U	***0.00074***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Dibenzofuran	***0.098***	0.055	J	0.085		0.05	J	0.077		0.037	*	0.077		0.048		0.0943		0.059		***0.12***		***0.11***		***0.14***		***0.16***	
Di-n-butyl phthalate	***2.4***	0.097	U	0.0097	U	0.097	U	0.019	U	0.019	U	0.019	U	0.019	U	0.001	U	0.064	B	0.008	U	0.008	U	0.008	U *	0.008	U
Di-n-octyl phthalate	***0.49***	0.0083	U	0.00083	U	0.0083	U	0.0016	U	0.0016	U	0.0018	J	0.0016	U	0.000212	U	0.00085	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U
Fluoranthene	***0.98***	0.016	J	0.01		0.032	J	0.03		0.0076	J	0.034		0.013	J	0.0388		0.0098		0.046		0.027		0.057		0.029	
Fluorene	***0.98***	0.056	J	0.084		0.056	J	0.079		0.037	*	0.08		0.044		0.098		0.056		0.12		0.11		0.14		0.14	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.015***	U	***0.0015***	U	***0.015***	U	***0.0029***	U	***0.003***	U	***0.0029***	U	***0.0029***	U	0.0004	J	0.00071	U	***0.0085***	U	***0.0085***	U	***0.0085***	U	***0.0085***	U
Naphthalene	***0.49***	***0.97***	B	***1.8***		0.0083	U	***1***		0.33		***0.58***		0.27		0.481	D	0.24		0.46		0.35		0.47		***0.62***	
Phenanthrene	***0.73***	0.074	J	0.08		0.073	J	0.099		0.039		0.091		0.046		0.112	D	0.055		0.13		0.12		0.18		0.13	
Phenol	***7.3***	0.0073	U	0.012		0.0073	U	0.0077	J	0.0014	U	0.01	J	0.0014	U	0.0126		0.0071	J	0.012	J	0.01	JL	0.003	J	0.0076	JL
Pyrene	***0.73***	0.017	U	0.0071	J	0.028	J	0.021		0.008	J	0.018	J	0.0082	J	0.0188		0.007		0.026		0.016	J	0.036		0.017	J
Pyridine	***0.024***	0.013	U	0.0013	U	0.013	U	0.0024	U	0.0024	U *	0.0024	U	0.0024	U	0.000906	UF	0.0036	U *1	0.0072	U *1	0.0072	UJL	0.0072	U	0.0072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																													
2,4-D	***0.07***	0.00004	U *	0.00039	U	0.00046	P	0.000039	U	0.00064		0.00056		0.000039	U	0.0000453	U	0.000051	U	0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																													
Lead	***0.015***	0.0008	J	0.0031	J	0.00073	U	0.00073	U	0.00084	J	0.00042	J	0.0014		0.00115	J	0.00062	J	0.00018	J	0.00043	J	0.00026	J	0.0022	
General Chemistry (415.1) (mg/L)																													
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-4R | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-4R																									
SAMPLING PERIOD	(mg/L)	1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																											
1,1-Dichloroethylene	***0.007***	0.0038	U	***0.0096***	U	***0.0096***	U	0.00019	U	0.00019	U	0.00088	J	0.00216	U	0.00216	U	0.001		0.0037	U	***0.015***	U	***0.074***	U
1,2,3-Trichloropropane	***0.00013***	***0.0058***	U	***0.015***	U	***0.015***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00283***	U	***0.00283***	U	***0.00028***	U	***0.0025***	U	***0.0098***	U	***0.049***	U
1,2-Dichlorobenzene	***0.6***	0.022		0.013	J	0.014	J	0.001		0.0073		0.011		0.0085	J	0.0085	J	0.0088		0.011		0.01	U	0.051	U
1,2-Dichloroethane	***0.005***	0.0023	U	***0.0058***	U	***0.0058***	U	0.00012	U	0.00012	U	0.00012	U	0.00285	U	0.00285	U	0.00029	U	0.003	U	***0.012***	U	***0.059***	U
1,2-Dichloropropane	***0.005***	0.0027	U	***0.0068***	U	***0.0068***	U	0.00014	U	0.00014	U	0.00014	U	0.00396	U	0.00396	U	0.0004	U	0.0033	U	***0.013***	U	***0.067***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.015	U	0.038	U	0.038	U	0.00076	U	0.00076	U	0.00076	U	0.027	U	0.027	U	0.0027	U	0.041	U	0.17	U	0.83	U
4-Methyl-2-pentanone	***2***	0.007	U	0.017	U	0.017	U	0.00035	U	0.00035	U	0.0021		0.0106	U	0.0106	U	0.0011	U	0.037	U	0.15	U	0.75	U
Acetone	***22***	0.0089	U	0.022	U	0.022	U *	0.00045	U	0.00045	U	0.00045	U	0.123	U	0.123	U	0.012	U	0.006	U	0.024	U	0.12	U
Benzene	***0.005***	***0.8***		***1.3***		***0.43***		***0.051***		***0.32***		***0.58***		***0.404***		***0.404***		***0.66***		***1.1***		***0.29***		***1.3***	
Carbon disulfide	***2.4***	0.0043	U	0.011	U	0.011	U	0.00022	U	0.00022	U	0.00022	U	0.00373	U	0.00373	U	0.0076		0.0095	U	0.038	U	0.19	U
Chlorobenzene	***0.1***	***0.11***		0.09		0.081		0.0047		0.045		0.084		0.0717		0.0717		0.071		0.093		0.035		0.053	U
Chloroform	***0.24***	0.003	U	0.0076	U	0.0076	U	0.00015	U	0.00015	U	0.00015	U	0.00259	U	0.00259	U	0.00026	U	0.0032	U	0.013	U	0.064	U
Ethylbenzene	***0.7***	0.35		0.27		0.23		0.015		0.11		0.13		0.097		0.097		0.12		0.15		0.053		0.15	
n-Hexane	***1.5***	0.014	J	0.93		0.019	J	0.0016		0.0098		0.025		0.0088	J	0.0088	J	0.013		0.0098	J	0.01	U	0.052	U
Methylene chloride	***0.005***	0.0035	U	***0.054***	J B	***0.082***	J B	0.00018	U	0.00018	U	0.00018	U	***0.0191***	U	***0.0191***	U	0.0019	U	***0.0086***	U	***0.035***	U	***0.17***	U
Styrene	***0.1***	0.0035	U	0.0088	U	0.0088	U	0.00018	U	0.00041	J	0.0008	J	0.0036	J	0.0036	J	0.00062	U	0.0033	U	0.013	U	0.066	U
Tetrachloroethylene	***0.005***	***0.0067***	U	***0.017***	U	***0.017***	U	0.00033	U	0.00042	J	0.00033	U	0.005	U	0.005	U	0.0028		0.004	U	***0.016***	U	***0.08***	U
Toluene	***1***	0.18		0.16		0.076		0.0057		0.028		0.065		0.058		0.058		0.09		0.14		0.049		0.23	
trans-1,2-Dichloroethylene	***0.1***	0.012	J	0.013	J	0.0096	U	0.00043	J	0.0044		0.011		0.0056	J	0.0056	J	0.0031		0.0047	U	0.019	U	0.095	U
Trichloroethylene	***0.005***	0.0028	U	***0.0069***	U	***0.0069***	U	0.00014	U	0.00014	U	0.00014	U	0.00424	U	0.00424	U	0.00042	U	0.004	U	***0.016***	U	***0.079***	U
Vinyl Acetate	***24***	0.017	U	0.043	U	0.043	U	0.00085	U	0.00085	U	0.0079		0.0357	U	0.0357	U	0.0036	U	0.011	U	0.043	U	0.21	U
Vinyl chloride	***0.002***	***3***		***10***		***1.5***		***0.43***		***0.33***		***4.3***		***1.67***	E	***1.67***	E	***5.3***		***4.5***		***1.7***		***14***	
Xylene (total)	***10***	0.28		0.26		0.14		0.012		0.052		0.12		0.0735		0.0735		0.12		0.15		0.061	J	0.12	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																											
2,4,6-Trichlorophenol	***0.083***	0.00034	U	0.017	U	0.00033	U	0.0034	U	0.00034	U	0.0033	U	0.000169	U	0.000169	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U
2,4-Dichlorophenol	***0.073***	0.00027	U	0.014	U	0.00026	U	0.0027	U *	0.00027	U	0.0026	U	0.000143	U	0.000143	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
2,4-Dimethylphenol	***0.49***	0.071		0.19		0.00018	U	0.0019	U	0.0071		0.017	J	0.0316		0.0316		0.021		0.059		0.011	J	0.15	
2-Methylnaphthalene	***0.098***	***0.15***		0.0073	U	***0.13***		0.0039	J	0.073	B	***0.1***		0.0709		0.0709		***0.1***		***0.15***		0.02	*+	***0.18***	
2-Methylphenol	***1.2***	0.014		0.024	J	0.00019	U	0.002	U	0.0012	J	0.0038	J	0.0062		0.0062		0.0025	J	0.016	J	0.0016	U	0.021	
3&4-Methylphenol	***0.12***	0.017		0.0083	U	0.0093		0.0017	U	0.0016		0.0016	J	0.0107		0.0107		0.0016	U	0.0016	U	0.0016	U	0.016	J
4-Bromophenyl phenyl ether	***0.000061***	***0.00026***	U	***0.013***	U	***0.00025***	U	***0.0026***	U *	***0.00026***	U	***0.0025***	U	***0.000209***	U	***0.000209***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U
Acenaphthene	***1.5***	0.11		0.063		0.12		0.007	J *	0.078		0.077		0.102	D	0.102	D	0.06		0.099		0.039		0.12	
Acenaphthylene	***1.5***	0.0025		0.0083	U	0.0033		0.0017	U *	0.0023		0.0016	U	0.00375		0.00375		0.0021	U	0.0021	U	0.0021	U	0.0021	U
Aniline	***0.16***	0.00013	U	0.0063	U	0.00012	U	0.0013	U	0.00012	U	0.0012	U	0.000392	UF	0.000392	UF	0.0031	U *1	0.0031	UJL	0.0031	U	0.0031	UJL
Anthracene	***7.3***	0.0049		0.023	U	0.0083		0.0046	U *	0.0077		0.0076	J	0.00765		0.00765		0.0063	J	0.0068	J	0.0035	J	0.0098	J
Benzo(a)anthracene	***0.0013***	0.00026	U	***0.013***	U	0.00025	U	***0.0026***	U	0.00026	U	***0.0025***	U	0.0004	J	0.0004	J	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Benzo(a)pyrene	***0.0002***	0.00014	U	***0.0068***	U	0.00013	U *	***0.0014***	U	0.00013	U	***0.0015***	J	0.000184	U	0.000184	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	0.00019	U	***0.0094***	U	0.00018	U *	***0.0019***	U	0.00018	U	***0.0018***	U	0.000262	U	0.000262	U	***0.0021***	U	***0.0021***	U	***0.0021***	U	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.00036	U	0.018	U	0.00035	U *	0.0036	U	0.00036	U	0.0035	U	0.000179	U	0.000179	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	0.00017	U	0.0083	U	0.00016	U *	0.0017	U	0.00016	U	0.0016	U	0.000208	U	0.000208	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U
Benzyl Alcohol	***12***	0.0052		0.027	U *	0.00051	U *	0.0053	U	0.00052	U *	0.0051	U*	0.001	U	0.001	U	0.045	U	0.045	U *+	0.045	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00019	U	***0.0094***	U	0.00018	U	***0.0019***	U	0.00018	U	***0.0018***	U	0.0006	J	0.000281	U	***0.0028***	U	***0.0028***	U	***0.0028***	U	***0.0028***	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.00061	U	***0.031***	U	0.00059	U *	***0.0061***	U	0.0006	U	0.0059	U	0.000348	U	0.000348	U	0.00056	U	0.0022	U	0.0022	U	0.0022	U
Butyl benzyl phthalate	***0.48***	0.00089	J	0.044	U	0.00085	U *	0.0089	U	0.00087	U	0.0085	U	0.000281	U	0.00060	J	0.0015	U	0.0015	U	0.0015	U	0.0015	U
Chrysene	***0.13***	0.00025	U	0.013	U	0.00024	U *	0.0025	U	0.00024	U	0.0024	U	0.0003	J	0.0003	J	0.0016	U	0.0016	U	0.0016	U	0.0016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0003***	U	***0.015***	U	***0.00029***	U *	***0.003***	U	***0.0003***	U	***0.0029***	U	0.000184	U	0.000184	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Dibenzofuran	***0.098***	0.068		0.021	J	0.077		0.0043	J *	0.052		0.053		0.07		0.07		0.043		0.068		0.02		0.082	
Di-n-butyl phthalate	***2.4***	0.0019	U	0.097	U	0.0019	U	0.019	U	0.0019	U	0.019	U	0.001	U	0.001	U	0.008	U	0.008	U	0.008	U *+	0.008	U
Di-n-octyl phthalate	***0.49***	0.00017	U	0.0083	U	0.00016	U *	0.0017	U	0.00016	U	0.0016	U	0.000212	U	0.000212	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U
Fluoranthene	***0.98***	0.0044		0.016	U	0.0087		0.0032	U	0.0076		0.0067	J	0.0083		0.0083		0.0059	J	0.0073	J	0.0043	J	0.0072	J
Fluorene	***0.98***	0.052		0.019	J	0.067		0.0036	J *	0.045		0.042		0.0621		0.0621		0.034		0.054		0.0097	J	0.061	
Indeno(1,2,3-cd)pyrene	***0.0013***	0.0003	U	***0.015***	U	0.00029	U *	***0.003***	U	0.0003	U	***0.0029***	U	0.000179	U	0.000179	U	***0.0085***	U	***0.0085***	U	***0.0085***	U	***0.0085***	U
Naphthalene	***0.49***	***0.7***		0.13		***0.61***		0.01	J	0.25	B	0.31		0.312	D	0.312	D	0.28		0.46		0.092		***0.51***	
Phenanthrene	***0.73***	0.051		0.015	U	0.072		0.003	U	0.039		0.047		0.0584		0.0584		0.035		0.053		0.01	J	0.051	
Phenol	***7.3***	0.039		0.048	J	0.0028	U	0.0015	U	0.012		0.0014	U	0.0214		0.0214		0.0091	J	0.013	JL	0.023	J	0.0063	J
Pyrene	***0.73***	0.0037		0.017	U	0.0047		0.0034	U	0.0032		0.0041	J	0.0036		0.0036		0.0029	J	0.004	J	0.0027	J	0.0047	J
Pyridine	***0.024***	0.00025	U	0.013	U	0.00024	U	0.0025	U *	0.00024	U	0.0024	U	0.000906	UF	0.000906	UF	0.0072	U *1	0.0072	UJL	0.0072	U	0.0072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																											
2,4-D	***0.07***	0.00039	U	0.000039	U	0.00004	U	0.000043	U	0.014		0.000039	U	0.0000453	U	0.0000453	U	0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																											
Lead	***0.015***	0.00074	J	0.00073	U	0.00073	U	0.00073	U	0.00017	U	0.0011		0.00106	J	0.00106	J	0.001	J	0.0018	J	0.00042	J	0.00063	J
General Chemistry (415.1) (mg/L)																											
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-5 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-6 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	MW-6							
SAMPLING PERIOD	(mg/L)	1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)									
1,1-Dichloroethylene	***0.007***	***0.011***	U	***0.015***	U	***0.074***	U	***0.037***	U
1,2,3-Trichloropropane	***0.00013***	***0.014***	U	***0.0098***	U	***0.049***	U	***0.025***	U
1,2-Dichlorobenzene	***0.6***	0.07		0.075		0.051	U	0.036	J
1,2-Dichloroethane	***0.005***	***0.014***	U	***0.012***	U	***0.059***	U	***0.03***	U
1,2-Dichloropropane	***0.005***	***0.02***	U	***0.013***	U	***0.067***	U	***0.033***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.14	U	0.17	U	0.83	U	0.41	U
4-Methyl-2-pentanone	***2***	0.053	U	0.15	U	0.75	U	0.37	U
Acetone	***22***	0.62	U	0.024	U	0.12	U	0.06	U
Benzene	***0.005***	***13***		***3.9***		***12***		***5.3***	
Carbon disulfide	***2.4***	0.019	U	0.038	U	0.19	U	0.095	U
Chlorobenzene	***0.1***	***0.15***		***0.15***		***0.13***		***0.18***	
Chloroform	***0.24***	0.013	U	0.013	U	0.064	U	0.032	U
Ethylbenzene	***0.7***	0.18		0.29		0.15		0.24	
n-Hexane	***1.5***	0.018	U	0.011	J	0.052	U	0.026	U
Methylene chloride	***0.005***	***0.096***	U	***0.035***	U	***0.17***	U	***0.086***	U
Styrene	***0.1***	0.031	U	0.013	U	0.066	U	0.033	U
Tetrachloroethylene	***0.005***	***0.025***	U	***0.016***	U	***0.08***	U	***0.04***	U
Toluene	***1***	0.18		0.034		0.051	J	0.034	J
trans-1,2-Dichloroethylene	***0.1***	0.013	U	0.019	U	0.095	U	0.047	U
Trichloroethylene	***0.005***	***0.021***	U	***0.016***	U	***0.079***	U	***0.04***	U
Vinyl Acetate	***24***	0.18	U	0.043	U	0.21	U	0.11	U
Vinyl chloride	***0.002***	***0.012***	U	***0.013***	U	***0.064***	U	***0.032***	U
Xylene (total)	***10***	0.37	J	0.49		0.15	J	0.31	J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)									
2,4,6-Trichlorophenol	***0.083***	0.0027	U	0.0014	U	0.0014	U	0.0014	U
2,4-Dichlorophenol	***0.073***	0.0023	U	0.0011	U	0.0011	U	0.0011	U
2,4-Dimethylphenol	***0.49***	0.0095	J	0.0015	U	0.0088	J	0.036	
2-Methylnaphthalene	***0.098***	0.022	J	0.05		0.024	*+	0.034	
2-Methylphenol	***1.2***	0.0032	U	0.0016	U	0.0016	U	0.0016	U
3&4-Methylphenol	***0.12***	0.0033	U	0.0021	J	0.08		0.0098	J
4-Bromophenyl phenyl ether	***0.000061***	***0.0033***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U
Acenaphthene	***1.5***	0.011	J	0.021		0.012	J	0.014	J
Acenaphthylene	***1.5***	0.0043	U	0.0021	U	0.0022	J	0.0021	U
Aniline	***0.16***	***0.53***		0.054		0.017	J	0.013	JL
Anthracene	***7.3***	0.0062	J	0.0049	J	0.0058	J	0.0015	U
Benzo(a)anthracene	***0.0013***	***0.003***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***0.003***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***0.0042***	U	***0.0021***	U	***0.0021***	U	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.0029	U	0.0014	U	0.0014	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	0.0033	U	0.0017	U	0.0017	U	0.0017	U
Benzyl Alcohol	***12***	0.09	U	0.045	U *+	0.045	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0056***	U	***0.0028***	U	***0.0044***	J	***0.0028***	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.0011	U	0.0022	U	0.0022	U	0.0022	U
Butyl benzyl phthalate	***0.48***	0.003	U	0.0015	U	0.0015	U	0.0015	U
Chrysene	***0.13***	0.0032	U	0.0016	U	0.0016	U	0.0016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.003***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Dibenzofuran	***0.098***	0.0073	J	0.011	J	0.0063	J	0.0077	J
Di-n-butyl phthalate	***2.4***	0.016	U	0.008	U	0.008	U *+	0.008	U
Di-n-octyl phthalate	***0.49***	0.0034	U	0.0017	U	0.0017	U	0.0017	U
Fluoranthene	***0.98***	0.003	U	0.0015	U	0.0015	U	0.0015	U
Fluorene	***0.98***	0.0081	J	0.012	J	0.0075	J	0.0099	J
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.017***	U	***0.0085***	U	***0.0085***	U	***0.0085***	U
Naphthalene	***0.49***	0.21		***0.54***		0.28		0.41	
Phenanthrene	***0.73***	0.0082	J	0.0087	J	0.0062	J	0.0082	J
Phenol	***7.3***	0.038	J	0.031	J	0.055		0.011	JL
Pyrene	***0.73***	0.0032	U	0.0016	U	0.0016	U	0.0016	U
Pyridine	***0.024***	0.014	U *1	0.0072	U	0.0072	U	0.0072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)									
2,4-D	***0.07***	0.000021	U	0.000027	U	0.000029	U	0.00015	U *1
Metals Analysis (SW 846 6010B) (mg/L)									
Lead	***0.015***	0.0032		0.0098		0.0091		0.0083	
General Chemistry (415.1) (mg/L)									
Total Organic Carbon	***---***	---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-7 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-7				
SAMPLING PERIOD	(mg/L)	3rd Q 2021	1st Q 2022	3rd Q 2022	1st Q 2023	3rd Q 2023
GC/MS Volatiles (SW846 8260B) (mg/L)						
1,1-Dichloroethylene	***0.007***	***0.011*** U	0.0011 U	0.00074 U	***0.0074*** U	***0.0074*** U
1,2,3-Trichloropropane	***0.00013***	***0.014*** U	***0.0014*** U	***0.00049*** U	***0.0049*** U	***0.0049*** U
1,2-Dichlorobenzene	***0.6***	0.012 U	0.0012 U	0.00051 U	0.0051 U	0.0051 U
1,2-Dichloroethane	***0.005***	***0.014*** U	0.0014 U	0.00059 U	***0.0059*** U	***0.0059*** U
1,2-Dichloropropane	***0.005***	***0.02*** U	0.002 U	0.00067 U	***0.0067*** U	***0.0067*** U
Methyl ethyl ketone (2-Butanone)	***15***	0.14 U	0.014 U	0.0083 U	0.083 U	0.083 U
4-Methyl-2-pentanone	***2***	0.053 U	0.0053 U	0.0075 U	0.075 U	0.075 U
Acetone	***22***	0.62 U	0.062 U	0.013 J	0.012 U	0.012 U
Benzene	***0.005***	***1.2***	***0.51***	***0.2***	***1.3***	***0.82***
Carbon disulfide	***2.4***	0.019 U	0.0019 U	0.0019 U	0.019 U	0.019 U
Chlorobenzene	***0.1***	***0.13***	***0.13***	***0.17***	***0.2***	***0.19***
Chloroform	***0.24***	0.013 U	0.0013 U	0.00064 U	0.0064 U	0.0064 U
Ethylbenzene	***0.7***	0.49	0.12	0.016	0.52	0.27
n-Hexane	***1.5***	0.018 U	0.015 J	0.0066	0.0095 J	0.0052 U
Methylene chloride	***0.005***	***0.096*** U	***0.0096*** U	0.0017 U	***0.017*** U	***0.017*** U
Styrene	***0.1***	0.031 U	0.0031 U	0.00066 U	0.0066 U	0.0066 U
Tetrachloroethylene	***0.005***	***0.025*** U	0.0025 U	0.0008 U	***0.008*** U	***0.008*** U
Toluene	***1***	0.2	0.05	0.0072	0.17	0.033
trans-1,2-Dichloroethylene	***0.1***	0.013 U	0.0013 U	0.00095 U	0.0095 U	0.0095 U
Trichloroethylene	***0.005***	***0.021*** U	0.0021 U	0.00079 U	***0.0079*** U	***0.0079*** U
Vinyl Acetate	***24***	0.18 U	0.018 U	0.0021 U	0.021 U	0.021 U
Vinyl chloride	***0.002***	***0.012*** U	0.0012 U	0.00064 U	***0.0064*** U	***0.0064*** U
Xylene (total)	***10***	0.96	0.59	0.22	0.91	0.38
GC/MS Semi-volatiles (SW846 8270C) (mg/L)						
2,4,6-Trichlorophenol	***0.083***	0.0034 U	0.0068 U	0.0027 U	0.0068 U	0.0014 U
2,4-Dichlorophenol	***0.073***	0.0029 U	0.0057 U	0.0023 U	0.0057 U	0.0011 U
2,4-Dimethylphenol	***0.49***	0.0037 U	0.082 J	0.055	0.077 J	0.075
2-Methylnaphthalene	***0.098***	***1.3***	***0.56***	***0.24*** J	***0.44*** *+	***0.32***
2-Methylphenol	***1.2***	0.004 U	0.008 U	0.0032 U	0.008 U	0.0016 U
3&4-Methylphenol	***0.12***	0.0041 U	0.0081 U	0.0085 J	0.0081 U	0.016 J
4-Bromophenyl phenyl ether	***0.000061***	***0.0042*** U	***0.0084*** U	***0.0033*** U	***0.0084*** U	***0.0017*** U
Acenaphthene	***1.5***	0.4	0.24 J	0.19	0.15	0.12
Acenaphthylene	***1.5***	0.026	0.011 U	0.0043 U	0.011 U	0.0021 U
Aniline	***0.16***	0.0078 U	0.016 U *1	0.0063 UJL	0.016 U	0.0031 UJL
Anthracene	***7.3***	0.12	0.078 J	0.053	0.024 J	0.017 J
Benzo(a)anthracene	***0.0013***	***0.059***	***0.037*** J	***0.023*** J	***0.0075*** U	***0.0015*** U
Benzo(a)pyrene	***0.0002***	***0.019*** J	***0.012*** J	***0.0074*** J	***0.0074*** U	***0.0015*** U
Benzo(b)fluoranthene	***0.0013***	***0.029***	***0.018*** J	***0.011*** J	***0.01*** U	***0.0021*** U
Benzo(g,h,i)perylene	***0.73***	0.0036 U	0.0071 U	0.0029 J	0.0071 U	0.0014 U
Benzo(k)fluoranthene	***0.013***	0.011 J	0.0083 U	0.0044 J	0.0083 U	0.0017 U
Benzyl Alcohol	***12***	0.02 U *1	0.23 U	0.09 U *+	0.23 U *+	0.045 U
bis(2-Chloroethyl)ether	***0.00083***	***0.084***	***0.014*** U	***0.05***	***0.061*** J	***0.05***
bis(2-Ethylhexyl)phthalate	***0.006***	***0.016*** J	***0.011*** U	0.0049 J	***0.011*** U	0.0022 U
Butyl benzyl phthalate	***0.48***	0.12	0.061 J	0.039 J	0.028 J	0.01 J
Chrysene	***0.13***	0.052	0.035 J	0.022 J	0.008 U	0.0016 U
Dibenzo(a,h)anthracene	***0.0002***	***0.0037*** U	***0.0074*** U	***0.003*** U	***0.0074*** U	***0.0015*** U
Dibenzofuran	***0.098***	***0.25***	***0.14***	0.088	0.064 J	0.041
Di-n-butyl phthalate	***2.4***	0.15 B	0.04 U	0.016 U	0.04 U *+	0.008 U
Di-n-octyl phthalate	***0.49***	0.0042 U	0.0085 U	0.0034 U	0.0085 U	0.0017 U
Fluoranthene	***0.98***	0.33	0.21 J	0.15	0.055 J	0.025
Fluorene	***0.98***	0.31	0.19 J	0.14	0.093 J	0.07
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.0036*** U	***0.043*** U	***0.017*** U	***0.043*** U	***0.0085*** U
Naphthalene	***0.49***	***0.73***	0.062 J	0.026 J	***0.5***	0.37
Phenanthrene	***0.73***	0.65	0.41 J	0.26	0.12	0.067
Phenol	***7.3***	0.035 J	0.047 J	0.012 JL	0.01 U	0.002 UJL
Pyrene	***0.73***	0.27	0.14	0.094	0.032 J	0.016 J
Pyridine	***0.024***	0.018 U *1	***0.036*** U *1	0.014 UJL	***0.036*** U	0.0072 UJL
GC Semi-volatiles (SW846 8151) (mg/L)						
2,4-D	***0.07***	0.000026 U	0.000021 U	0.0011	0.000029 U	0.00016 U *1
Metals Analysis (SW 846 6010B) (mg/L)						
Lead	***0.015***	0.0036	0.0031	0.0049	0.00062 J	0.00046 J
General Chemistry (415.1) (mg/L)						
Total Organic Carbon	***---***	---	---	---	---	---

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-8 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-8																					
SAMPLING PERIOD	(mg/L)	1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																									
1,1-Dichloroethylene	***0.007***	***0.096***	U	***0.019***	U	***0.019***	U	***0.019***	U	***0.019***	U	***0.019***	U	***0.433***	U	***0.011***	U	***0.011***	U	***0.37***	U	***0.74***	U	***0.74***	U
1,2,3-Trichloropropane	***0.00013***	***0.15***	U	***0.029***	U	***0.029***	U *	***0.029***	U	***0.029***	U	***0.029***	U	***0.567***	UD	***0.014***	U	***0.014***	U	***0.25***	U	***0.49***	U	***0.49***	U
1,2-Dichlorobenzene	***0.6***	***1.1***		0.53		***0.89***		***0.78***		***0.77***		***0.74***		***0.98***	JD	***0.87***		***1.2***		***1***		***1.1***		***0.64***	J
1,2-Dichloroethane	***0.005***	***0.058***	U	***0.012***	U	***0.012***	U	***0.012***	U	***0.012***	U	***0.012***	U	***2.52***		***0.014***	U	***0.014***	U	***0.3***	U	***0.59***	U	***0.59***	U
1,2-Dichloropropane	***0.005***	***0.068***	U	***0.047***	J	***0.04***	J	***0.014***	U	***0.014***	U	***0.014***	U	***0.791***	U	***0.02***	U	***0.028***	J	***0.33***	U	***0.67***	U	***0.67***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.38	U *	0.076	U	0.076	U *	0.076	U	0.076	U	0.076	U	5.4	U	0.14	U	0.14	U	4.1	U	8.3	U	8.3	U
4-Methyl-2-pentanone	***2***	0.97	J *	1.8		1.2		1.1		0.94		0.77		***2.13***	U	0.3	J	0.15	J	***3.7***	U	***7.5***	U	***7.5***	U
Acetone	***22***	0.22	U *	0.045	U	0.045	U *	0.045	U *	0.045	U	0.045	U	***24.6***	U	0.62	U	0.62	U	0.6	U	1.2	U	1.2	U
Benzene	***0.005***	***120***		***110***		***120***		***120***		***120***		***130***		***105***	D	***120***		***93***		***150***		***110***		***130***	
Carbon disulfide	***2.4***	0.11	U	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.747	U	0.019	U	0.019	U	0.95	U	1.9	U	1.9	U
Chlorobenzene	***0.1***	***2.6***	B	***1.2***		***1.7***		***1.7***		***1.6***		***1.8***		***1.82***	J	***2.5***		***2.4***		***2***		***2.3***		***2.5***	
Chloroform	***0.24***	0.076	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	***0.517***	U	0.013	U	0.013	U	***0.32***	U	***0.64***	U	***0.64***	U
Ethylbenzene	***0.7***	***3.3***	B	***1.6***		***2.7***		***2.4***		***1.6***		***1.8***		***1.46***	J	***2.3***		***2.1***		***2.3***		***2.1***		***1.9***	
n-Hexane	***1.5***	0.13	U	0.026	U	0.026	U	0.026	U	0.026	U	0.026	U	0.738	U	0.018	U	0.026	J	0.26	U	0.52	U	0.52	U
Methylene chloride	***0.005***	***0.088***	U	***0.033***	J B	***0.018***	U	***0.037***	J	***0.018***	U	***0.018***	U	***3.82***	U	***0.096***	U	***0.096***	U	***0.86***	U	***1.7***	U	***1.7***	U
Styrene	***0.1***	0.088	U	0.018	U	0.018	U	0.042	J	0.043	J	0.018	U	***0.325***	U	0.067		0.069		***0.33***	U	***0.66***	U	***0.66***	U
Tetrachloroethylene	***0.005***	***0.17***	U	***0.033***	U	***0.033***	U	***0.033***	U	***0.033***	U	***0.033***	U	***1***	U	***0.025***	U	***0.025***	U	***0.4***	U	***0.8***	U	***0.8***	U
Toluene	***1***	***32***		***17***		***25***		***21***		***25***		***17***		***14.1***		***23***		***26***		***27***		***28***		***23***	
trans-1,2-Dichloroethylene	***0.1***	0.096	U	***0.12***		0.034	J	0.019	U	0.032	J	0.019	U	***0.512***	UH	0.015	J	0.013	U	***0.47***	U	***0.95***	U	***0.95***	U
Trichloroethylene	***0.005***	***0.069***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.848***	U	***0.021***	U	***0.021***	U	***0.4***	U	***0.79***	U	***0.79***	U
Vinyl Acetate	***24***	0.43	U	0.085	U	0.085	U	0.085	U	0.085	U	0.085	U	7.14	U	0.18	U	0.18	U	1.1	U	2.1	U	2.1	U
Vinyl chloride	***0.002***	***5.7***		***8.7***		***7.1***		***13***		***3.9***		***8.4***		***6.16***		***3.9***		***4.9***		***4.8***		***6.6***		***9.1***	
Xylene (total)	***10***	4.2		2		3.2		2.7		2		2.1		1.78	J	2.5		2.9		2.6	J	2.6	J	1.2	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																									
2,4,6-Trichlorophenol	***0.083***	0.0069	U	0.017	U	0.0066	U	0.0069	U	0.0033	U	0.0066	U	0.000845	U	0.00068	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U
2,4-Dichlorophenol	***0.073***	0.0054	U	0.013	U	0.0052	U	0.0054	U *	0.0026	U	0.0072	J	0.000717	U	0.00057	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
2,4-Dimethylphenol	***0.49***	***5.5***		***10***		***7.7***		***0.55***		***7.3***		***5.8***		***7.24***	D	***0.99***		***3.8***		***7.4***		***7.3***		***10***	
2-Methylnaphthalene	***0.098***	0.032		0.027	J	0.087		0.067		0.056	B	0.059		0.0845		0.069		0.052		0.076		***0.1***	*+	0.075	
2-Methylphenol	***1.2***	0.85		***2***		***2.1***		0.13	J	1.2		0.82		***1.4***	D	0.95		0.62		0.98		***1.3***		1.1	
3&4-Methylphenol	***0.12***	***5.6***		***13***		***13***		***0.86***		***10***		***7.8***		***12.2***	D	***10***		***7.7***		***4.8***		***10***		***12***	
4-Bromophenyl phenyl ether	***0.000061***	***0.0052***	U	***0.013***	U	***0.005***	U	***0.0052***	U *	***0.0025***	U	***0.005***	U	***0.00104***	U	***0.00084***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U	***0.0017***	U
Acenaphthene	***1.5***	0.014	J	0.008	U	0.036		0.055	*	0.036		0.038		0.0485		0.037		0.028		0.043		0.051		0.043	
Acenaphthylene	***1.5***	0.0033	U	0.008	U	0.0049	J	0.0033	U *	0.0042	J	0.0037	J	0.00575		0.0046		0.0035	J	0.0059	J	0.0063	J	0.0052	J
Aniline	***0.16***	0.0025	U	0.006	U	0.0024	U	0.0025	U	0.0012	U	0.0024	U	0.00196	UF	0.015		0.0063	U	0.0031	U	0.019	J	0.0031	UJL
Anthracene	***7.3***	0.0092	U	0.022	U	0.0088	U	0.0092	U *	0.0044	U	0.0088	U	0.002	J	0.00077	U	0.0015	U	0.0017	J	0.0015	U	0.0025	J
Benzo(a)anthracene	***0.0013***	***0.0052***	U	***0.013***	U	***0.005***	U	***0.0052***	U	***0.0025***	U	***0.005***	U	0.000937	U	0.00075	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***0.0027***	U	***0.0065***	U	***0.0026***	U *	***0.0027***	U	***0.0013***	U	***0.0026***	U	***0.000922***	U	***0.00074***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***0.0038***	U	***0.009***	U	***0.0036***	U *	***0.0038***	U	***0.0018***	U	***0.0036***	U	***0.00131***	U	0.001	U	***0.0021***	U	***0.0021***	U	***0.0021***	U	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.0073	U	0.018	U	0.007	U	0.0073	U	0.0035	U	0.007	U	0.000893	U	0.00071	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	0.0033	U	0.008	U	0.0032	U *	0.0033	U	0.0016	U	0.0032	U	0.00104	U	0.00083	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U
Benzyl Alcohol	***12***	0.011	U	0.026	U *	0.01	U *	0.011	U	0.0051	U *	0.01	U*	0.005	U	0.004	U *1	0.045	U	0.045	U *+	0.045	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.036***		***0.061***	J	***0.13***		***0.098***		***0.09***		***0.11***		***0.000937***	U	***0.093***		***0.06***		***0.089***		***0.099***		***0.081***	
bis(2-Ethylhexyl)phthalate	***0.006***	***0.012***	U	***0.03***	U	***0.012***	U *	***0.012***	U	0.0059	U	***0.012***	U	***0.123***		0.0011	U	0.00056	U	0.0022	U	0.0022	U	0.0022	U
Benzyl Butyl phthalate	***0.48***	0.018	U	0.043	U	0.017	U *	0.018	U	0.0085	U	0.017	U	0.0014	U	0.00075	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U
Chrysene	***0.13***	0.005	U	0.012	U	0.0048	U *	0.005	U	0.0024	U	0.0048	U	0.000997	U	0.0008	U	0.0016	U	0.0016	U	0.0016	U	0.0016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.006***	U	***0.015***	U	***0.0058***	U	***0.006***	U	***0.0029***	U	***0.0058***	U	***0.000922***	U	***0.00074***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U	***0.0015***	U
Dibenzofuran	***0.098***	0.01	J	0.011	J	0.028	J	0.022	J *	0.027		0.024	J	0.037		0.029		0.025		0.036		0.042		0.04	
Di-n-butyl phthalate	***2.4***	0.039	U	0.094	U	0.037	U	0.039	U	0.019	U	0.037	U	0.005	U	0.13	B	0.008	U	0.008	U	0.008	U *+	0.008	U
Di-n-octyl phthalate	***0.49***	0.0033	U	0.008	U	0.0032	U *	0.0033	U	0.0016	U	0.0032	U	0.00106	U	0.00085	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U
Fluoranthene	***0.98***	0.0065	U	0.016	U	0.0062	U	0.0065	U	0.0031	U	0.0062	U	0.000922	U	0.00074	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U
Fluorene	***0.98***	0.0065	J	0.006	U	0.018	J	0.011	J *	0.017		0.015	J	0.0245		0.018		0.014	J	0.022		0.027		0.024	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.006***	U	***0.015***	U	***0.0058***	U *	***0.006***	U	***0.0029***	U	***0.0058***	U	0.000893	U	0.00071	U	***0.0085***	U	***0.0085***	U	***0.0085***	U	***0.0085***	U
Naphthalene	***0.49***	0.29		0.45		***0.97***	J	0.095	J	***0.73***	J B	***0.67***		***1***	D	***0.69***		***0.53***		***1***		***1.1***		***0.98***	
Phenanthrene	***0.73***	0.006	U	0.015	U	0.012	J	0.0063	J	0.0083	J	0.0065	J	0.0105		0.0075		0.0058	J	0.0093	J	0.01	J	0.0095	J
Phenol	***7.3***	0.1		0.42	J	0.35		0.25		0.24	J	0.29		0.397		0.27		0.23		0.31		0.3		0.36	JL
Pyrene	***0.73***	0.0069	U	0.017	U	0.0066	U	0.0069	U	0.0033	U	0.0066	U	0.000997	U	0.0008	U	0.0016	U	0.0016	U	0.0016	U	0.0016	U
Pyridine	***0.024***	0.005	U	0.012	U	0.0048	U	0.005	U *	0.0024	U	0.0048	U	0.00453	UF	0.0036	U *1	0.0072	U *1	0.0072	U	0.0072	U	0.0072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																									
2,4-D	***0.07***	0.00004	U	0.00004	U	0.000039	U	0.000042	U	0.0014		0.000039	U	0.0000453	U	0.000026	U	0.000021	U	0.0017		0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																									
Lead	***0.015***	0.0047	J	0.00073	U	0.00073	U	0.00073	U	0.00017	U	0.00017	U	0.000152	U	0.00015	U	0.00015	U	0.00015	U	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																									
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-9 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-9																							
SAMPLING PERIOD	(mg/L)	1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																									
1,1-Dichloroethylene	***0.007***	0.00018	U	0.00026	J	0.00018	U	0.00018	U	0.00018	U	0.00069	J	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.00074	U	0.00074	U
1,2,3-Trichloropropane	***0.00013***	***0.00014***	U	***0.00014***	U	***0.00014***	U	***0.00014***	U	***0.00014***	U	***0.00014***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	0.00049	U
1,2-Dichlorobenzene	***0.6***	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.000236	U	0.00037	J	0.00028	J	0.00051	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.00045	U *	***0.0056***		0.00045	U *	0.00045	U	0.0032	J	***0.0086***		0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U
4-Methyl-2-pentanone	***2***	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.0027	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U
Acetone	***22***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U
Benzene	***0.005***	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	***0.0123***	U	***0.012***	U *1	***0.012***	U	0.0012	U	0.0012	U	0.0012	U
Carbon disulfide	***2.4***	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000214	U	0.00021	U	0.00021	U	0.00053	U	0.00053	U	0.00046	U
Chlorobenzene	***0.1***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00048	J	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U
Chloroform	***0.24***	0.00076	U *	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00084	J	0.0015		0.0012		0.0011		0.00053	U	0.0013	
Ethylbenzene	***0.7***	0.0017	B	0.0015		0.0012		0.0016		0.0012		0.0014		0.000259	U	0.00026	U	0.00026	U	0.00064	U	0.00064	U	0.00064	U
Methyl ethyl ketone	***15***	0.00015	U	0.00028	J	0.00039	J	0.00039	J	0.00031	J	0.00043	J	0.000146	U	0.00051	U	0.00051	U	0.00041	U	0.00041	U	0.00041	U
Methylene chloride	***0.005***	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00081	J	0.00037	U	0.00037	U	0.00052	U	0.00052	U *+	0.00052	U
n-Hexane	***1.5***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.0005	U	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U
Toluene	***1***	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.00048	U	0.00048	U	0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.0033		0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.00038	J	0.000256	U	0.00026	U	0.00026	U	0.00095	U	0.00095	U	0.00095	U
Trichloroethylene	***0.005***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000424	U	0.00042	U	0.00042	U	0.00079	U	0.00079	U	0.00079	U
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00357	U	0.0036	U *1	0.0036	U	0.0021	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.000234	U	0.00023	U	0.00023	U	0.00064	U	0.00064	U	0.00064	U
Xylene (total)	***10***	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.000192	U	0.00033	U	0.00033	U	0.0012	U	0.0012	U	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																									
2,4,6-Trichlorophenol	***0.083***	0.00026	U	0.00024	U	0.00024	U	0.00025	U *	0.00024	U	0.00024	U	0.000135	U	0.0027	U	0.00014	U	0.00014	JL/UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00092	U	0.0014	J	0.00085	U *	0.00089	U	0.00087	U	0.00085	U	0.000115	U	0.0023	U	0.00011	U	0.00011	JL/UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00026	U	0.00024	U	0.00024	U *	0.00025	U	0.00024	U	0.00024	U	0.00088		0.052		0.0023		0.0014	JL/UJL	0.00061	J	0.00015	U
2-Methylnaphthalene	***0.098***	0.00017	U	0.00016	U	0.00016	U *	0.00017	U	0.00016	U	0.00016	U	0.0048		0.045		0.00062	J	0.00048	JL/UJL	0.00048	U *+	0.00048	U
2-Methylphenol	***1.2***	0.00034	U	0.00031	U	0.00031	U	0.00032	U	0.00032	U	0.00031	U	0.000159	U	0.11		0.00038	J	0.00033	JL/UJL	0.00029	J	0.00016	U
3&4-Methylphenol	***0.12***	0.00013	U	0.00012	U	0.00012	U	0.00013	U *	0.00012	U	0.00012	U	0.00148		***0.47***		0.0037		0.00079	JL/UJL	0.0014	J	0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.00014***	U	***0.00013***	U	***0.00013***	U *	***0.00014***	U *	***0.00013***	U	***0.00013***	U	***0.000167***	U	***0.0033***	U	***0.00017***	U	***0.00017***	JL/UJL	***0.00017***	U	0.00017	U
Acenaphthene	***1.5***	0.00036	U	0.00033	U	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00672		0.03		0.0005	J	0.00043	JL/UJL	0.00044	J	0.00021	U
Acenaphthylene	***1.5***	0.00028	U	0.00026	U	0.00026	U	0.00027	U *	0.00027	U	0.00026	U	0.000215	U	0.0069	U	0.00021	U	0.00021	JL/UJL	0.00021	U	0.00021	U
Aniline	***0.16***	0.0002	U	0.00018	U	0.00018	U	0.0015	J	0.00027	J	0.0007	J	0.000314	UL	0.0063	U	0.00031	U *1	0.00031	JL/UJL	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.00015	U	0.00036	J	0.0005	J	0.00054	J	0.0002	J B	0.00019	J	0.00248		0.032		0.00025	J	0.00015	JL/UJL	0.00017	J	0.00015	U
Benzo(a)anthracene	***0.0013***	0.00021	U	0.00019	U	0.00019	U	0.0002	U	0.00019	U	0.00019	U	0.0012		***0.0094***	J	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	0.00017	U	***0.00049***	J	0.00016	U	***0.0026***		***0.00044***	J	***0.00092***	J	***0.00028***	J	***0.003***	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00027	U	0.00025	U	0.00025	U	0.00026	U *	0.00026	U	0.00025	U	0.00048	J	***0.0042***	U	0.00021	U	0.00021	JL/UJL	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00017	J	0.00016	U	0.00044	J	0.00027	J *	0.00027	J	0.00018	J	0.000143	U	0.0029	U	0.00014	U	0.00014	JL/UJL	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00017	U	0.00016	U	0.00016	U	0.00017	U *	0.00016	U	0.00016	U	0.0002	J	0.0033	U	0.00017	U	0.00017	JL/UJL	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.00013	U	0.00012	U	0.00012	U	0.00013	U	0.00012	U	0.00012	U	0.0008	U	0.03	J B *+ *1	0.0045	U	0.0045	JL/UJL	0.0045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00048	U	0.00044	U	0.00044	U	0.00046	U *	0.00045	U	0.00044	U	0.00015	U	***0.0056***	U	0.00028	U	0.00028	JL/UJL	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.00027	U	0.00025	U	0.00025	U	0.00026	U	0.00026	U	0.00025	U	0.000278	U	0.0045	U	0.00022	U	0.00022	JL/UJL	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.0002	U	0.00018	U	0.00018	U *	0.00019	U *	0.00018	U	0.00018	U	0.000225	U	0.018		0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Chrysene	***0.13***	0.00038	U	0.00035	U	0.00035	U *	0.00036	U *	0.00036	U	0.00035	U	0.00088		0.0032	U	0.00016	U	0.00016	JL/UJL	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	0.00017	U	0.00016	U	0.00016	U *	0.00017	U *	0.00016	U	0.00016	U	0.000148	U	***0.003***	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.00055	U	0.00051	U *	0.00051	U *	0.00053	U	0.00052	U *	0.00051	U*	0.00676		0.026		0.00034	U	0.00034	JL/UJL	0.00034	U	0.00034	U
Di-n-butyl phthalate	***2.4***	0.0002	U	0.00018	U	0.00018	U	0.00019	U	0.00018	U	0.00018	U	0.0008	U	0.086	B	0.0008	U	0.0008	JL/UJL	0.0008	U *+	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00064	U	0.00059	U	0.00059	U *	0.001	J	0.0006	U	0.00059	U	0.000169	U	0.0034	U	0.00017	U	0.00017	JL/UJL	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.00032	U	0.00029	U	0.00029	U *	0.0003	U *	0.0003	U	0.00029	U	0.00744		0.04		0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Fluorene	***0.98***	0.00017	U	0.00016	U	0.00016	U	0.0002	J *	0.00016	U	0.00016	U	0.00736		0.043		0.00021	J	0.00021	JL/UJL	0.00021	U	0.00021	U
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.002***	U	***0.0019***	U	***0.0019***	U	***0.0019***	U	***0.0019***	U	***0.0019***	U	0.000143	U	***0.0029***	U	0.00085	U	0.00085	JL/UJL	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.00032	U	0.00029	U	0.00029	U *	0.0003	U *	0.0003	U	0.00029	U	0.00332		0.29		0.0016	J	0.001	JL/UJL	0.0015	J	0.00071	J
Phenanthrene	***0.73***	0.00017	U	0.00097	J	0.0026		0.0032		0.00088	J B	0.0009	J	0.0172		0.058		0.00018	U	0.00018	JL/UJL	0.00018	U	0.00018	U
Phenol	***7.3***	0.00032	U	0.00029	U	0.00029	J	0.0003	U	0.0003	U	0.00029	U	0.0008	U	0.024	J	0.0002	U	0.00021	JL/UJL	0.0002	U	0.0002	UJL
Pyrene	***0.73***	0.00015	U	0.00014	U	0.00014	U	0.00015	U	0.00014	U	0.00014	U	0.00376		0.033		0.00016	U	0.00016	JL/UJL	0.00016	U	0.00016	U
Pyridine	***0.024***	0.00036	U	0.00033	U	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.000725	U	0.014	U *1	0.00072	U *1	0.00072	JL/UJL	0.00072	U	0.0021	U
GC Semi-volatiles (SW846 8151) (mg/L)																									
2,4-D	***0.07***	0.000039	U	0.00004	U	0.000039	U	0.000042	U	0.00004	U	0.000039	U	0.000152		0.000026	U	0.000021	U	0.000027	U	0.000033	J	0.00016	U *
Metals Analysis (SW 846 6010B) (mg/L)																									
Lead	***0.015***	0.0028	J	0.00073	U	0.00097	J	0.00073	U	0.00017	U	0.00017	U	0.0000453	U	0.00021	J	0.00015	U	0.00015	U	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																									
Total Organic Carbon	**---**	---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-10																																	
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006		1st Q 2009		3rd Q 2009		1st Q 2016		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																																			
1,1-Dichloroethylene	***0.007***	***5***	U	***2.5***	U	***0.68***	U	***0.025***	U	***0.1***	U	***0.19***	U	0.0038	U	***0.0096***	U	***0.019***	U	***0.019***	U	***0.019***	U	***0.216***	U	***0.011***	U	***0.043***	U	***0.74***	U	***1.5***	U	***1.5***	U
1,2,3-Trichloropropane	***0.00013***	***5***	U	***2.5***	U	***0.52***	U	***0.025***	U	***0.1***	U	***0.29***	U	***0.0058***	U	***0.015***	U	***0.029***	U	***0.029***	U	***0.014***	U	***0.283***	U	***0.057***	U	***0.057***	U	***0.49***	U	***0.98***	U	***0.98***	U
1,2-Dichlorobenzene	***0.6***	***3***	U	0.06	U	0.299		0.01	U	0.1	U	0.2	J	0.058		0.04	J	0.043	J	0.061	J	0.063	J	0.236	U	0.048	J	0.047	U	0.51	U	***1***	U	***1***	U
1,2-Dichloroethane	***0.005***	***5***	U	***2.5***	U	***0.53***	U	***0.025***	U	***0.1***	U	***0.12***	U	0.0023	U	***0.0058***	U	***0.012***	U	***0.012***	U	***0.012***	U	***0.285***	U	***0.014***	U	***0.057***	U	***0.59***	U	***1.2***	U	***1.2***	U
1,2-Dichloropropane	***0.005***	***5***	U	***2.5***	U	***0.59***	U	***0.025***	U	***0.1***	U	***0.14***	U	***0.011***	J	***0.0068***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.396***	U	***0.02***	U	***0.079***	U	***0.67***	U	***1.3***	U	***1.3***	U
Methyl ethyl ketone (2-Butanone)	***15***	10	U	15	U	***3***	U	0.25	U	1	U	0.76	U	0.038	J	0.038	U	0.076	U	0.076	U	0.076	U	3.58	J	0.14	U	0.54	U	8.3	U	***17***	U	***17***	U
4-Methyl-2-pentanone	***2***	***10***	U	***13***	U	***7.3***	U	0.25	U	***5.08***		1.3	J	0.91		0.7		1.8		***2.7***		1.9		1.25	J	1.7	J	***2.1***	J	***7.5***	U	***15***	U	***15***	U
Acetone	***22***	***50***	U	***23***	U	2.8	U	0.5	U	2		0.45	U	0.74		0.022	U *	1.2		2		1.8		12.3	U	1.1	J	2.5	U	1.2	U	2.4	U	2.4	U
Benzene	***0.005***	***321***		***171***		***114***		***17.9***		***261***		***190***		***160***		***190***		***190***		***290***		***220***		***193***	D	***190***		***450***		***530***		***220***		***220***	
Carbon disulfide	***2.4***	***5***	U	***2.5***	U	0.62	U	0.25	U	1	U	0.22	U	0.0058	J	0.011	U	0.022	U	0.022	U	0.022	U	0.373	U	0.019	U	0.075	U	1.9	U	***3.8***	U	***3.8***	U
Chlorobenzene	***0.1***	***5***	U	***2.5***	U	***0.54***	U	***1.09***		0.1	U	***0.19***	U	0.046		0.038	J	0.041	J	0.058	J	0.076	J	***0.159***	U	0.065		0.032	U	***0.53***	U	***1.1***	U	***1.1***	U
Chloroform	***0.24***	***5***	U	***2.5***	U	***0.66***	U	0.025	U	0.1	U	0.15	U	0.003	U	0.0076	U	0.015	U	0.015	U	0.015	U	***0.259***	U	0.013	U	0.052	U	***0.64***	U	***1.3***	U	***1.3***	U
Ethylbenzene	***0.7***	***62.2***		***10***		***11.6***		0.182		***3.51***		***5.1***		***2***		***2.5***		***1.9***		***1.7***		***1.7***		***1.31***		***2.4***		***2.2***		***1.8***		***2.4***		***1.5***	J
n-Hexane	***1.5***	---		***5***	U	0.61	U	---		0.437		0.26	U	0.0091	J	0.015	J	0.026	U	0.026	U	0.026	U	0.369	U	0.018	U	0.074	U	0.52	U	1	U	1	U
Methylene chloride	***0.005***	***5***	U	***2.73***		***0.67***	U	***0.025***	U	***0.1***	U	***0.18***	U	***0.0051***	J B	***0.089***	J B	***0.018***	U	***0.018***	U	***0.018***	U	***1.91***	U	***0.096***	U	***0.38***	U	***1.7***	U	***3.5***	U	***3.5***	U
Styrene	***0.1***	***5***	U	***2.5***	U	***0.5***	U	0.025	U	***0.289***		***0.18***	U	***0.19***		***0.24***		***0.12***		***0.16***		***0.18***		***0.17***	J	***0.23***		***0.29***		***0.66***	U	***1.3***	U	***1.3***	U
Tetrachloroethylene	***0.005***	***5***	U	***2.5***	U	***0.74***	U	***0.025***	U	***0.1***	U	***0.33***	U	***0.0067***	U	***0.017***	U	***0.033***	U	***0.033***	U	***0.033***	U	***0.5***	U	***0.025***	U	***0.1***	U	***0.8***	U	***1.6***	U	***1.6***	U
Toluene	***1***	***85.4***		***63***		***52.8***		0.137		***21.8***		***16***		***12***		***17***		***9.4***		***13***		***7.3***		***6.79***		***10***		***9.1***		***12***		***6.9***		***5.7***	
trans-1,2-Dichloroethylene	***0.1***	***5***	U	***2.5***	U	***0.75***	U	0.025	U	0.1	U	***0.19***	U	0.0038	U	0.0096	U	0.019	U	0.019	U	0.019	U	***0.256***	U	0.013	U	0.051	U	***0.95***	U	***1.9***	U	***1.9***	U
Trichloroethylene	***0.005***	***5***	U	***2.5***	U	***0.63***	U	***0.025***	U	***0.1***	U	***0.14***	U	0.0049	J	***0.0069***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.424***	U	***0.021***	U	***0.085***	U	***0.79***	U	***1.6***	U	***1.6***	U
Vinyl Acetate	***24***	---		13	U	2.1	U	0.25	U	1	U	0.85	U	0.017	U	0.043	U	0.085	U	0.085	U	0.085	U	3.57	U	0.18	U	0.71	U	2.1	U	4.3	U	4.3	U
Vinyl chloride	***0.002***	***2***	U	***5***	U	***0.42***	U	***0.01***	U	***0.553***		***0.37***	J	***0.25***		***0.21***		***0.49***		***0.39***		***0.45***		***0.234***	U	***0.19***		***0.61***		***0.75***	J	***1.3***	U	***1.3***	U
Xylene (total)	***10***	***77.8***		***11.6***		***15***		0.133		4.22		5.1		2		2.3		1.8		1.6		1.7		1.08		2		2		1.2	U	2.5	U	2.5	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																																			
2,4,6-Trichlorophenol	***0.083***	***3***	U	0.04	U	0.059	U	0.01	U	***0.538***	U	***0.17***	U	0.017	U	0.0033	U	0.017	U	0.0069	U	0.017	U	0.0027	U	0.0034	U	0.0068	U	0.0014	U	0.0068	U	0.0027	U
2,4-Dichlorophenol	***0.073***	---		0.02	U	0.051	U	0.01	U	***0.538***	U	***0.13***	U	0.013	U	0.051		0.013	U *	0.0054	U	0.017	J	0.00229	U	0.0029	U	0.0057	U	0.018	J	0.0057	U	0.0023	U
2,4-Dimethylphenol	***0.49***	---		0.0606		0.143J	J	0.01	U	***2.68***		***3.9***		0.17		***2.5***		***2.2***		***2.2***		***1.4***		***1.57***		0.21		***1.6***		***2.3***		***2.2***		***3.2***	
2-Methylnaphthalene	***0.098***	***30.2***		***1.24***		***16.4***		0.005	U	***0.86***		***2.1***		***0.28***		***0.34***		***0.52***		***0.3***	B	***0.24***		***0.194***		***0.15***		***0.51***		***0.15***		***0.76***	*+	***0.3***	
2-Methylphenol	***1.2***	***3***	U	0.02	U	0.053	U	0.01	U	0.886		0.67	J	0.43		0.89		1.2		0.88		0.45		0.598		0.59		0.75		1		0.62		0.66	
3&4-Methylphenol	***0.12***	***3***	U	0.0574		***0.43***		0.01	U	***7.47***		***9.8***		***5.5***		***5.8***		***4.3***		***4.8***		***1.8***		***3.69***	D	***3.2***		***3.8***		***1***		***3.8***		***4.2***	
4-Bromophenyl phenyl ether	***0.000061***	***3***	U	***0.08***	U	***0.16***	U	***0.01***	U	***0.538***	U	***0.13***	U	***0.013***	U	***0.0025***	U	***0.013***	U *	***0.0052***	U	***0.013***	U	***0.00334***	U	***0.0042***	U	***0.0084***	U	***0.0017***	U	***0.0084***	U	***0.0033***	U
Acenaphthene	***1.5***	***14.7***		0.576		***7.87***		0.005	U	0.481		1.2		0.31		0.17		0.4	*	0.22		0.14		0.106		0.099		0.36		0.11		0.43		0.14	
Acenaphthylene	***1.5***	***3***	U	0.0454		0.532		0.005	U	0.269	U	0.08	U	0.025	J	0.011		0.019	J *	0.015	J	0.0094	J	0.0072	J	0.0086	U	0.011	U	0.0066	J	0.011	U	0.011	J
Aniline	***0.16***	---		0.06	U	***0.17***	U	0.02	U	***1.08***	U	0.06	U	0.042	J	0.033		0.11		0.021	J	0.06	J	0.0784	L	0.09		***0.24***		***0.23***		0.14	J	0.16	JL
Anthracene	***7.3***	6.66		0.253		3.01		0.005	U	0.269	U	0.5	J	0.086		0.042		0.13	*	0.11		0.055	J	0.162		0.13		0.13		0.037		0.16		0.03	J
Benzo(a)anthracene	***0.0013***	***3***	U	***0.081***		***1.36***		***0.005***	U	***0.269***	U	***0.17***	J	***0.045***	J	***0.011***	J	***0.045***	J	***0.032***	J	***0.017***	J	***0.0216***		***0.031***		***0.052***	J	***0.0089***	J	***0.06***	J	***0.0082***	J
Benzo(a)pyrene	***0.0002***	***3***	U	***0.04***	U	***0.415***		***0.005***	U	***0.269***	U	***0.065***	U	***0.0065***	U	***0.0038***	J B *	***0.0066***	U	***0.01***	J	***0.011***	J	***0.0056***	J	***0.0037***	U	***0.017***	J	***0.003***	J	***0.018***	J	***0.003***	U
Benzo(b)fluoranthene	***0.0013***	***3***	U	***0.06***	U	***0.583***		***0.005***	U	***0.269***	U	***0.09***	U	***0.009***	U	***0.0071***	J B *	***0.024***	J	***0.016***	J	***0.014***	J	***0.0072***	J	***0.0052***	U	***0.023***	J	***0.0036***	J	***0.024***	J	***0.0042***	U
Benzo(g,h,i)perylene	***0.73***	***3***	U	0.04	U	0.128	J	0.005	U	0.269	U	0.18	U	0.018	U	0.0035	U *	0.018	U	0.0073	U	0.018	U	0.00286	U	0.0036	U	0.0071	U		U	0.0071	U	0.0029	U
Benzo(k)fluoranthene	***0.013***	***3***	U	***0.02***	U	***0.229***	J	0.005	U	***0.269***	U	***0.08***	U	0.008	U	0.0016	U *	0.0082	U	0.0056	J	0.008	U	0.00332	U	0.0062	J	0.013	J	0.0017	J	0.009	J	0.0033	U
Benzyl Alcohol	***12***	3	U	0.0303		0.25	U	0.01	U	0.538	U	0.26	U	0.026	U *	0.0051	U *	0.026	U	0.24	*	0.3	*	0.17		0.16	B *+ *1	0.27	J	0.16	*+	0.23	U *+	0.1	J
bis(2-Chloroethyl)ether	***0.00083***	***3***	U	***0.02***	U	***0.07***	U	***0.01***	U	***0.538***	U	***0.09***	U	***0.015***	J	***0.056***		***0.035***	J	***0.041***		***0.026***	J	***0.0168***		***0.028***		***0.014***	U	***0.044***		***0.046***	J	***0.048***	
bis(2-Ethylhexyl)phthalate	***0.006***	***3***	U	***0.04***	U	***0.214***	J	0.005	U	***0.269***	U	***0.3***	U	***0.03***	U	0.0059	U *	***0.03***	U	***0.012***	U	***0.03***	U	***0.04***		0.0056	U	0.0028	U	0.0022	U	***0.011***	U	0.0045	U
Butyl benzyl phthalate	***0.48***	***19.7***		***0.682***		***11.2***		0.005	U	0.292		***0.71***	J	0.13		0.17	U *	0.15		0.053		0.048	J	0.00449	U	0.063		0.11		0.013	J	0.16		0.029	J
Chrysene	***0.13***	***3***	U	***0.0734***		***1.09***		0.005	U	***0.269***	U	0.12	U	0.037	J	0.0099	J *	0.012	U	0.03	J	0.013	J	0.0176		0.031		0.054	J	0.0084	J	0.049	J	0.0063	J
Dibenzo(a,h)anthracene	***0.0002***	***3***	U	***0.04***	U	***0.079***	U	***0.005***	U	***0.269***	U	***0.15***	U	***0.015***	U	***0.0029***	U *	***0.015***	U	***0.006***	U	***0.015***	U	***0.00295***	U	***0.0037***	U	***0.0074***	U	***0.0015***	U	***0.0074***	U	***0.003***	U
Dibenzofuran	***0.098***	***11.2***		***0.497***		***6.47***		0.01	U	***0.538***	U	***0.95***		***0.18***		***0.12***		***0.27***	*	***0.17***		***0.1***		***0.112***		0.091		***0.28***		0.078		***0.32***		***0.1***	
Di-n-butyl phthalate	***2.4***	***3***	U	0.04	U	0.083	U	0.005	U	0.269	U	0.94	U	0.094	U	0.019	U	0.095	U	0.039	U	0.094	U	0.016	U	0.11	B	0.04	U	0.008	U	0.04	U *+	0.016	U
Di-n-octyl phthalate	***0.49***	***3***	U	0.02	U	0.067	U	0.005	U	0.269	U	0.08	U	0.008	U	0.0016	U *	0.0082	U	0.0033	U	0.008	U	0.00339	U	0.0042	U	0.0085	U	0.0017	U	0.0085	U	0.0034	U
Fluoranthene	***0.98***	***13.2***		0.554		***7.44***		0.005	U	0.395		***1***	J	0.2		0.067		0.25		0.19		0.093	J	0.104		0.14		0.38		0.052		0.38		0.048	
Fluorene	***0.98***	***15.4***		0.556		***8.19***		0.005	U	0.389		***1.1***		0.21		0.12		0.33	*	0.21		0.13		0.21		0.15		0.33		0.088		0.4		0.1	
Indeno(1,2,3-cd)pyrene	***0.0013***	***3***	U	***0.04***	U	***0.121***		***0.005***	U	***0.269***	U	***0.15***	U	***0.015***	U	***0.0029***	U *	***0.015***	U	***0.006***	U	***0.015***	U	***0.00286***	U	***0.0036***	U	***0.043***	U	***0.0085***	U	***0.043***	U	***0.017***	U
Naphthalene	***0.49***	***63.4***		***3.88***		***35***		0.005	U	***2.95***		***7***		***0.9***		***2.4***		***2.6***		***1.6***	B	***1.2***		***1.35***		***1***		***1.7***		***1.1***		***2.9***		***2.4***	
Phenanthrene	***0.73***	***27.8***		***1.05***		***15.1***		0.005	U	***0.847***		***2.4***		0.5		0.18		***0.76***		0.35		0.23		0.18		0.2		0.68		0.13		***0.81***		0.15	
Phenol	***7.3***	3	U	0.02	U	0.026	U	0.01	U	0.538	U	0.34	J	0.15		0.35		0.22		0.28		0.16		0.265		0.23		0.24		0.35		0.19	J	0.26	BJL
Pyrene	***0.73***	***8.76***		0.33		***5.83***		0.005	U	0.269	U	0.62	J	0.13		0.043		0.28		0.12		0.064	J	0.0672		0.12		0.24		0.038		0.23		0.032	J
Pyridine	***0.024***			***0.04***		***0.075***	U	0.01	U	***0.538***	U	***0.12***	U*	0.012	U	0.0024	U	0.012	U *	0.02	J	0.022	J	0.0145	U	0.018	U *1	***0.036***	U *1	0.014	J	***0.036***	U	0.014	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																																			
2,4-D	***0.07***	0.02	U	0.0041		0.0012	U	0.000505	U	0.000923		0.000038	U	0.065		***0.26***		0.029	*	0.000041	U	0.0002	U	0.000226	U	0.000026	U	0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																																			
Lead	***0.015***	***0.0252***		***0.808***		***0.572***		0.002	U	***0.032***		***0.037***		0.0037	J	0.0028	J	0.0075		0.0077		0.007		***0.0303***		0.0048		0.009		0.0073		0.003		0.0057	
General Chemistry (415.1) (mg/L)																																			
Total Organic Carbon	***---***	72		108		35		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits
BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-11 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-11																											
SAMPLING PERIOD	(mg/L)	3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																													
1,1-Dichloroethylene	***0.007***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.00074	U	0.00074	U
1,2,3-Trichloropropane	***0.00013***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	0.00053	J	0.00015	U	0.00015	U	0.00029	J	0.0002	J	0.00015	J	0.00031	J	0.000236	U	0.00039	J	0.00024	U	0.00051	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U	0.00076	U *	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0027	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U
4-Methyl-2-pentanone	***2***	0.00035	U	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U
Acetone	***22***	0.0055		0.00045	U *	0.022		0.00045	U *	0.0057		0.0033	J	0.0055		0.0123	U	0.012	U *1	0.012	U	0.0075	J	0.0012	U	0.0064	J
Benzene	***0.005***	0.0029		0.00018	U	0.00019	J	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000214	U	0.00021	U	0.00021	U	0.00053	U	0.00053	U	0.00046	U
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000373	UX	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U
Chlorobenzene	***0.1***	0.00021	J	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000159	U	0.00016	U	0.00016	U	0.00053	U	0.00053	U	0.00053	U
Chloroform	***0.24***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000259	U	0.00026	U	0.00026	U	0.00064	U	0.00064	U	0.00064	U
Ethylbenzene	***0.7***	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000146	U	0.00051	U	0.00051	U	0.00041	U	0.00041	U	0.00041	U
n-Hexane	***1.5***	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.000369	UX	0.00037	U	0.00037	U	0.00052	U	0.00052	U *+	0.00052	U
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.0005	UX	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U
Toluene	***1***	0.0008	J	0.0013		0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0005	U	0.0005	U	0.0005	U	0.00048	U	0.00048	U	0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000256	UX	0.00026	U	0.00026	U	0.00095	U	0.00095	U	0.00095	U
Trichloroethylene	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.00042	U	0.00079	U	0.00079	U	0.00079	U
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00357	UX	0.0036	U *1	0.0036	U	0.0021	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.00044	J	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.000234	U	0.00023	U	0.00023	U	0.00064	U	0.00064	U	0.00064	U
Xylene (total)	***10***	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.000192	U	0.00033	U	0.00033	U	0.0012	U	0.0012	U	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																													
2,4,6-Trichlorophenol	***0.083***	0.00075	U	0.00033	U	0.00036	U	0.00033	U	0.0033	U	0.00033	U	0.00033	U	0.000135	U	0.00014	U	0.00014	JL/UJL	0.00014	JL/UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00059	U	0.00026	U	0.00028	U	0.00026	U	0.0026	U *	0.00026	U	0.00026	U	0.000115	U	0.00011	U	0.00011	JL/UJL	0.00011	JL/UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00041	U	0.00048	J	0.00045	J	0.00018	U	0.0018	U	0.00028	J	0.0016	J	0.00076	J	0.00015	U	0.0046	JL/UJL	0.00055	JL/UJL	0.00015	U	0.00015	U
2-Methylnaphthalene	***0.098***	0.00032	U	0.00014	U	0.0003	J	0.00076	J	0.02		0.00031	J B	0.00087	J	0.00084		0.00048	U	0.00081	JL/UJL	0.00048	JL/UJL	0.00048	U *+	0.00048	U
2-Methylphenol	***1.2***	0.00043	U	0.00019	U	0.00021	U	0.00019	U	0.0019	U	0.00019	U	0.00032	J	0.000159	U	0.00016	U	0.001	JL/UJL	0.00025	JL/UJL	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.00036	U	0.00032	J	0.0026		0.00016	U	0.0016	U	0.0005	J	0.0022		0.00124		0.00016	U	0.0031	JL/UJL	0.00031	JL/UJL	0.00077	J	0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.00057***	U	***0.00025***	U	***0.00027***	U	***0.00025***	U	***0.0025***	U *	***0.00025***	U	***0.00025***	U	***0.000167***	U	***0.00017***	U	***0.00017***	JL/UJL	***0.00017***	JL/UJL	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.00066	J	0.0018		0.00039	J	0.0029		0.0094	J *	0.0015		0.00096	J	0.0014		0.0016		0.0021	JL/UJL	0.0024	JL/UJL	0.0043		0.0018	J
Acenaphthylene	***1.5***	0.00036	U	0.00016	U	0.00017	U	0.00016	U	0.0016	U *	0.00016	U	0.00016	U	0.000215	U	0.00034	U	0.00021	JL/UJL	0.00021	JL/UJL	0.00021	J	0.00049	J
Aniline	***0.16***	0.00027	U	0.00012	U	0.00088	J	0.00012	U	0.0012	U	0.00012	U	0.00012	U	0.000314	UL	0.00031	U	0.00031	JL/UJL	0.00031	JL/UJL	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.001	U	0.00052	J	0.00058	J	0.00083	J	0.0044	U *	0.00081	J	0.00054	J	0.00116		0.0013		0.0024	JL/UJL	0.0018	JL/UJL	0.002		0.0048	
Benzo(a)anthracene	***0.0013***	0.00057	U	0.00025	U	0.00054	J	0.00027	J	***0.0025***	U	0.00025	U	0.00025	U	0.00015	U	0.00015	U	0.00015	JL/UJL	0.00015	JL/UJL	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	***0.0003***	U	0.00013	U	0.00014	U	0.00013	U *	***0.0013***	U	0.00013	U	0.00013	U	0.000148	U	0.00015	U	0.00015	JL/UJL	0.00015	JL/UJL	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00041	U	0.00018	U	0.0002	U	0.00018	U *	***0.0018***	U	0.00018	U	0.00018	U	0.00021	U	0.00021	U	0.00021	JL/UJL	0.00021	JL/UJL	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.0008	U	0.00035	U	0.00038	U	0.00035	U *	0.0035	U	0.00035	U	0.00035	U	0.000143	U	0.00014	U	0.00014	JL/UJL	0.00014	JL/UJL	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00036	U	0.00016	U	0.00017	U	0.00016	U *	0.0016	U	0.00016	U	0.00016	U	0.000166	U	0.00017	U	0.00017	JL/UJL	0.00017	JL/UJL	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.0012	U	0.00051	U	0.00055	U *	0.00051	U *	0.0051	U	0.00051	U *	0.00051	U*	0.0008	U	0.0022	B *+ *1	0.0045	JL/UJL	0.0045	JL/UJL	0.0045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00041	U	0.00018	U	0.0002	U	0.00018	U	***0.0018***	U	0.00018	U	0.00018	U	0.00015	U	0.00028	U	0.00028	JL/UJL	0.00028	JL/UJL	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.0013	U	0.00059	U	0.00064	U	0.00059	U *	0.0059	U	0.00059	U	0.00059	U	0.000278	U	0.00084		0.00022	JL/UJL	0.00022	JL/UJL	0.00022	U	0.00022	U
Benzyl Butyl phthalate	***0.48***	0.0019	U	0.00085	U	0.0022	J	0.00085	U *	0.0085	U	0.00085	U	0.00085	U	0.000225	U	0.00015	U	0.00015	JL/UJL	0.00015	JL/UJL	0.00015	U	0.00015	U
Chrysene	***0.13***	0.00055	U	0.00024	U	0.00046	J	0.00024	U *	0.0024	U	0.00024	U	0.00024	U	0.000159	U	0.00016	U	0.00016	JL/UJL	0.00016	JL/UJL	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.00066***	U	***0.00029***	U	***0.00032***	U	***0.00029***	U *	***0.0029***	U	***0.00029***	U	***0.00029***	U	0.000148	U	0.00015	U	0.00015	JL/UJL	0.00015	JL/UJL	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.00036	U	0.00016	U	0.00038	J	0.00029	J	0.004	J *	0.00016	U	0.00018	J	0.000336	U	0.00034	U	0.00039	JL/UJL	0.00034	JL/UJL	0.00034	U	0.00034	U
Di-n-butyl phthalate	***2.4***	0.0043	U	0.0019	U	0.002	U	0.0019	U	0.019	U	0.0019	U	0.0019	U	0.0008	U	0.11	B	0.0008	JL/UJL	0.0008	JL/UJL	0.0008	U *+	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00036	U	0.00016	U	0.00017	U	0.00016	U *	0.0016	U	0.00016	U	0.00016	U	0.000169	U	0.00017	U	0.00017	JL/UJL	0.00017	JL/UJL	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.0007	U	0.00031	U	0.0019	J	0.0016	J	0.0031	U	0.00031	U	0.00031	U	0.0002	J	0.00015	U	0.00046	JL/UJL	0.00025	JL/UJL	0.00047	J	0.00015	U
Fluorene	***0.98***	0.00027	U	0.00021	J	0.00059	J	0.00064	J	0.0037	J *	0.00021	J	0.00021	J	0.00036	J	0.0002	U	0.00043	JL/UJL	0.00022	JL/UJL	0.00026	J	0.00031	J
Indeno(1,2,3-cd)pyrene	***0.0013***	0.00066	U	0.00029	U	0.00032	U	0.00029	U *	***0.0029***	U	0.00029	U	0.00029	U	0.000143	U	0.00014	U	0.00085	JL/UJL	0.00085	JL/UJL	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.00036	U	0.00016	U	0.00093	J	0.0034		0.033		0.002	B	0.002		0.00268		0.0019		0.002	JL/UJL	0.00094	JL/UJL	0.00078	J	0.0014	J
Phenanthrene	***0.73***	0.00066	U	0.00029	U	0.0025		0.0019		0.0029	J	0.00029	U	0.0003	J	0.0004	U	0.0004	U	0.00057	JL/UJL	0.00021	JL/UJL	0.0003	J	0.00018	U
Phenol	***7.3***	0.00032	U	0.00014	U	0.00015	U	0.00014	U	0.0014	U	0.00014	U	0.0002	J	0.0008	U	0.0008	U	0.0002	JL/UJL	0.0002	JL/UJL	0.0002	U	0.0002	UJL
Pyrene	***0.73***	0.00075	U	0.00033	U	0.0012	J	0.0011	J	0.0033	U	0.00033	U	0.00033	U	0.000159	U	0.00016	U	0.00025	JL/UJL	0.00017	JL/UJL	0.00028	J	0.00016	U
Pyridine	***0.024***	0.00055	U	0.00024	U	0.00026	U	0.00024	U	0.0024	U *	0.00024	U	0.00024	U	0.000725	U	0.00072	U *1	0.00072	JL/UJL	0.00072	JL/UJL	0.00072	U	0.002	U
GC Semi-volatiles (SW846 8151) (mg/L)																													
2,4-D	***0.07***	0.00004	U	0.00049	U	0.000039	U	0.000039	U	0.00004	U	0.0024	P	0.00004	U	0.0000453	U	0.00044		0.000021	U	0.000056	J	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																													
Lead	***0.015***	0.00073	U	0.00073	U	0.00093	J	0.00073	U	0.00073	U	0.00017	U	0.00017	U	0.000152	U	0.00015	U	0.00015	U	0.00015	U	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																													
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-12																					
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																							
1,1-Dichloroethylene	***0.007***	0.005	U	***0.5***	U	***0.034***	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.0037	U	0.0015	U	0.00074	U
1,2,3-Trichloropropane	***0.00013***	***0.005***	U	***0.5***	U	***0.026***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.0025***	U	***0.00098***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	***1.3***	U	0.06	U	0.0052	U	0.0011		0.0042		0.00236		0.0023		0.0021		0.0025	U	0.0012	J	0.00094	J
1,2-Dichloroethane	***0.005***	0.005	U	***0.5***	U	***0.027***	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.003	U	0.0012	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.005	U	***0.5***	U	***0.03***	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.0004	U	0.0033	U	0.0013	U	0.00067	U
Methyl ethyl ketone	***15***	0.01	U	3.	U	0.15	U	0.00097	J	0.00076	U	0.00536	J	0.0027	U	0.0027	U	0.041	U	0.017	U	0.0083	U
4-Methyl-2-pentanone	***2***	0.0875		***2.5***	U	0.36	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.037	U	0.015	U	0.0075	U
Acetone	***22***	0.05	U	4.5	U	0.14	U	0.00045	U	0.00045	U	0.0123	U	0.012	U	0.012	U	0.006	U	0.0024	U	0.0097	J
Benzene	***0.005***	***6.26***		***6.8***		***6.44***		***0.19***		***0.15***		***0.128***		***0.14***		***0.15***		***0.15***		***0.11***		***0.13***	
Carbon disulfide	***2.4***	0.005	U	0.5	U	0.031	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.00037	U	0.0095	U	0.0038	U	0.0019	U
Chlorobenzene	***0.1***	0.0455		***0.5***	U	0.027	U	0.036		0.068		0.056		0.062		0.062		0.057		0.047		0.045	
Chloroform	***0.24***	0.005	U	***0.5***	U	0.033	U	0.00015	U	0.00015	U	0.000259	U	0.00044	J	0.00026	U	0.0032	U	0.0013	U	0.00064	U
Ethylbenzene	***0.7***	***13.1***		***14***		***16***		0.13		0.0083		0.148		0.013		0.079		0.086		0.061		0.037	
n-Hexane	***1.5***	---		1.	U	0.031	U	0.0066		0.004		0.0101		0.0025	J	0.016		0.011	J	0.0059	J	0.0036	J
Methylene chloride	***0.005***	0.005	U	***0.5***	U	***0.034***	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	***0.0086***	U	0.0035	U	0.0017	U
Styrene	***0.1***	0.005	U	***0.5***	U	0.025	U	0.00051	J	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.0033	U	0.0013	U	0.00066	U
Tetrachloroethylene	***0.005***	***0.0168***		***0.5***	U	***0.037***	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.004	U	0.0016	U	0.0008	U
Toluene	***1***	0.726		***1.98***		***1.15***		0.0039		0.005		0.0044		0.0047		0.0056		0.006		0.0049		0.0046	
trans-1,2-Dichloroethylene	***0.1***	0.0079		***0.5***	U	0.038	U	0.00028	J	0.00019	U	0.000256	U	0.00026	U	0.00026	U	0.0047	U	0.0019	U	0.00095	U
Trichloroethylene	***0.005***	***0.0067***		***0.5***	U	***0.032***	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.00042	U	0.004	U	0.0016	U	0.00079	U
Vinyl Acetate	***24***	---		2.5	U	0.11	U	0.00085	U	0.0091		0.00357	U	0.0036	U	0.0036	U	0.011	U	0.0043	U	0.0021	U
Vinyl chloride	***0.002***	***0.0234***		***1.***	U	***0.216***		0.0012	J	0.0011	J	0.000234	U	0.00044	J	0.00023	U	***0.0032***	U	0.0013	U	0.0007	J
Xylene (total)	***10***	2.6		3.24		2.46		0.17		0.021		0.068		0.015		0.046		0.038	J	0.031		0.023	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																							
2,4,6-Trichlorophenol	***0.083***	***1.3***	U	0.04	U	0.0024	U	0.0066	U	0.017	U	0.00027	U	0.00027	U	0.0027	U	0.0014	U	0.00068	U	0.0014	U
2,4-Dichlorophenol	***0.073***	---		0.02	U	0.002	U	0.0052	U	0.013	U	0.000229	U	0.00023	U	0.0023	U	0.0011	U	0.00057	U	0.0011	U
2,4-Dimethylphenol	***0.49***	---		***6.4***		***13.4***		0.24		0.18		0.138	D	0.0049		0.14		0.054		0.027		0.025	
2-Methylnaphthalene	***0.098***	***2.98***		***0.343***		***0.484***		***0.17***	B	0.055	J	0.0784		0.017		0.096		0.0048	U	0.055	*+	0.06	
2-Methylphenol	***1.2***	***1.3***	U	0.0227		0.0332		0.0038	U	0.0095	U	0.000319	U	0.00032	U	0.0032	U	0.0016	U	0.0008	U	0.0016	U
3&4-Methylphenol	***0.12***	***1.3***	U	***0.245***		***0.632***		0.0033	J	0.008	U	0.000326	U	0.00033	U	0.0033	U	0.0016	U	0.0032	J	0.0016	U
4-Bromophenyl phenyl ether	***0.000061***	***1.3***	U	***0.08***	U	***0.0064***	U	***0.005***	U	***0.013***	U	***0.000334***	U	***0.00033***	U	***0.0033***	U	***0.0017***	U	***0.00084***	U	***0.0017***	U
Acenaphthene	***1.5***	1.31		0.124		0.183		0.088		0.065		0.0529		0.019		0.069		0.033		0.044		0.052	
Acenaphthylene	***1.5***	1.3	U	0.04	U	0.0106		0.0035	J	0.008	U	0.000429	U	0.00069	U	0.0043	U	0.0027	J	0.0026	J	0.0021	U
Aniline	***0.16***	---		0.06	U	0.0066	U	0.0024	U	0.006	U	0.000628	UL	0.00063	U	0.0063	U *1	0.0031	UJL	0.0016	U	0.0031	UJL
Anthracene	***7.3***	1.3	U	0.06	U	0.0418		0.024	J	0.031	J	0.00984		0.008		0.0031	U	0.0049	J	0.013		0.0078	J
Benzo(a)anthracene	***0.0013***	***1.3***	U	***0.02***	U	***0.0168***		***0.01***	J	***0.024***	J	***0.00368***		***0.0053***		***0.003***	U	***0.0027***	J	***0.0059***	J	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***1.3***	U	***0.04***	U	***0.0076***	J	***0.0045***	J	***0.015***	J	***0.00152***	J	***0.0023***		***0.003***	U	***0.0015***	U	***0.0035***	J	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***1.3***	U	***0.06***	U	***0.0086***	J	***0.0073***	J	***0.017***	J	***0.00232***		***0.0036***		***0.0042***	U	***0.0021***	U	***0.0033***	J	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	***1.3***	U	0.04	U	0.0025	U	0.007	U	0.018	U	0.00048	J	0.00029	U	0.0029	U	0.0014	U	0.00071	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	***1.3***	U	***0.02***	U	0.0044	J	0.0032	U	0.008	U	0.00072	J	0.00033	U	0.0033	U	0.0017	U	0.002	J	0.0017	U
Benzyl Alcohol	***12***	1.3	U	0.02	U	0.0026	U	0.01	U *	0.026	U*	0.0016	U	0.0048	*+ B *1	0.09	U	0.045	U	0.023	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***1.3***	U	***0.02***	U	***0.0028***	U	***0.0036***	U	***0.009***	U	0.0004	J	0.00056	U	***0.0056***	U	***0.0028***	U	***0.0014***	U	***0.0028***	U
bis(2-Ethylhexyl)phthalate	***0.006***	***1.3***	U	***0.04***	U	***0.0062***	J	***0.012***	U	***0.03***	U	0.000556	U	0.0013	J	0.0011	U	0.0022	U	0.0011	U	0.0022	U
Butyl benzyl phthalate	***0.48***	***1.3***	U	0.04	U	0.0027	U	0.017	U	0.043	U	0.000449	U	0.0003	U	0.003	U	0.0015	U	0.00075	U	0.0015	U
Chrysene	***0.13***	***1.3***	U	0.04	U	0.0144		0.0088	J	0.015	J	0.00296		0.0044		0.0037	J	0.0017	J	0.0047	J	0.0016	U
Dibenzo(a,h)anthracene	***0.0002***	***1.3***	U	***0.04***	U	***0.0031***	U	***0.0058***	U	***0.015***	U	***0.000295***	U	***0.0003***	U	***0.003***	U	***0.0015***	U	***0.00074***	U	***0.0015***	U
Dibenzofuran	***0.098***	***1.3***	U	***0.102***		***0.152***		0.063		0.041	J	0.0338		0.011		0.04		0.014	J	0.029		0.026	
Di-n-butyl phthalate	***2.4***	1.3	U	0.04	U	0.0033	U	0.037	U	0.094	U	0.0016	U	0.091	B	0.016	U	0.008	U	0.004	U *+	0.008	U
Di-n-octyl phthalate	***0.49***	***1.3***	U	0.02	U	0.0027	U	0.0032	U	0.008	U	0.000339	U	0.00034	U	0.0034	U	0.0017	U	0.00085	U	0.0017	U
Fluoranthene	***0.98***	***1.3***	U	0.04	U	0.091		0.056		0.094	J	0.021		0.027		0.032	J	0.014	J	0.04		0.015	J
Fluorene	***0.98***	***1.3***	U	0.0901		0.151		0.064		0.064	J	0.0358		0.017		0.046		0.015	J	0.043		0.033	
Indeno(1,2,3-cd)pyrene	***0.0013***	***1.3***	U	***0.04***	U	***0.0025***	U	***0.0058***	U	***0.015***	U	0.00056	J	***0.0021***		***0.017***	U	***0.0085***	U	***0.0043***	U	***0.0085***	U
Naphthalene	***0.49***	***9.47***		***1.28***		***1.49***		***0.89***	B	0.053	J	0.265	D	0.033		0.24		0.066		0.12		0.23	
Phenanthrene	***0.73***	***1.93***		0.0913		0.238		0.11		0.16		0.0582		0.036		0.065		0.0028	J	0.056		0.031	
Phenol	***7.3***	1.3	U	0.0277		0.0396		0.0028	U	0.007	U	0.002	J	0.0016	U	0.004	U	0.002	UJL	0.0013	J	0.002	UJL
Pyrene	***0.73***	***1.3***	U	0.02	U	0.0721		0.033	J	0.065	J	0.0134		0.015		0.016	J	0.0091	J	0.023		0.01	J
Pyridine	***0.024***	---		***0.04***	U	0.003	U	0.0048	U	0.012	U	0.00145	U	0.0014	U *1	0.014	U *1	0.0072	UJL	0.0036	U	0.0072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																							
2,4-D	***0.07***	0.0051	U	0.0011	U	0.0011	U	0.0007		0.00004	U	0.0000453	U	0.000051	U	0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																							
Lead	***0.015***	0.0076		0.0117		0.0129		***0.053***		***0.029***		***0.0402***		***0.073***		***0.053***		***0.039***		***0.026***		0.015	
General Chemistry (415.1) (mg/L)																							
Total Organic Carbon	***---***	61		159		71		---		---		---		---		---		---					

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-13																																	
SAMPLING PERIOD	(mg/L)	3rd Q 2008		1st Q 2009		3rd Q 2009		1st Q 2010		3rd Q 2010		1st Q 2011		1st Q 2012		3rd Q 2012		1st Q 2013		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																																							
1,1-Dichloroethylene	***0.007***	0.005	U	0.005	U	0.005	U	0.001	U	0.001	U	0.000333	U	0.00095	0.00095	U	0.00095	U	***0.067***		***0.059***		***0.094***		***0.058***		***0.039***		0.00108	U	0.00022	U	0.0011	U	0.0037	U	0.0015	U	0.0037	U
1,2,3-Trichloropropane	***0.00013***	***0.007***		***0.005***	U	***0.005***	U	***0.001***	U	***0.001***	U	***0.000588***	U	***0.0015***	***0.0015***	U	***0.0015***	U	***0.00096***	U	***0.0047***	J	***0.0038***	U	***0.00096***	U	***0.0038***	U	***0.00142***	U	***0.0013***		***0.0014***	U	***0.0025***	U	***0.00098***	U	***0.0025***	U
1,2-Dichlorobenzene	***0.6***	0.526	U	0.105	U	0.005	U	0.002	J	0.001	J	0.00187	J	0.0022	0.0019	J	0.0029	J	0.0017	U	0.007	U	0.007	U	0.0017	U	0.007	U	0.00595		0.0017		0.0042	J	0.0026	J	0.0017	J	0.0025	U
1,2-Dichloroethane	***0.005***	0.005	U	0.005	U	0.005	U	0.001	U	0.001	U	0.000268	U	0.00070	0.00070	U	0.00070	U	0.0022	U	***0.0089***	U *	***0.0089***	U *	0.0022	U	***0.0089***	U	0.00143	U	0.00029	U	0.0014	U	0.003	U	0.0012	U	0.003	U
1,2-Dichloropropane	***0.005***	0.005	U	0.005	U	0.005	U	0.001	U	0.001	U	0.000368	U	0.00080	0.00080	U	0.00080	U	***0.0067***		***0.063***		***0.0072***	J	***0.007***		***0.012***	J	0.00198	U	0.0004	U	0.002	U	0.0033	U	0.0013	U	0.0033	U
4-Methyl-2-pentanone	***2***	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.00275	U	0.0023	0.0023	U	0.0023	U	0.0021	J	0.046		0.0051	U	0.0013	U	0.0051	U	NR		0.0027	U	0.014	U	0.041	U	0.017	U	0.041	U
Acetone	***22***	0.1	U	0.1	U	0.1	U	0.02	U	0.02	U	0.00968	J	0.0050	0.0050	U	0.0050	U	0.00096	U	0.0038	U	0.0038	U	0.00096	U	0.0038	U	0.00532	U	0.0011	U	0.0053	U	0.037	U	0.015	U	0.037	U
Benzene	***0.005***	***0.919***		***0.747***		***0.159***		***0.192***		***0.221***		***0.451***		***0.19***	***0.13***		***0.058***		0.0015	U	***0.0058***	U	***0.0058***	U	0.0015	U	***0.0058***	U	***0.0616***	U	***0.012***	U	***0.062***	U	***0.006***	U	0.0024	U	***0.006***	U
Carbon disulfide	***2.4***	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.00126	U	0.0012	0.0012	U	0.0012	U	0.00058	U	0.0023	U	0.0023	U	0.00058	U	0.0023	U	0.0201		0.058		0.021	B	0.021		0.03		0.022	
Chlorobenzene	***0.1***	0.017		0.021		0.01		0.018		0.012		0.014		0.016	0.011		0.0085		0.00068	U	0.0027	U	0.0027	U	0.00068	U	0.0027	U	0.00187	U	0.00037	U	0.0019	U	0.0095	U	0.0038	U	0.0095	U
Chloroform	***0.24***	0.005	U	0.005	U	0.005	U	0.001	U	0.001	U	0.000618	U	0.00065	0.00065	U	0.00065	U	0.0038	U	0.015	U	0.015	U	0.0038	U	0.015	U	0.00975		0.008		0.0065		0.0075		0.0073		0.0062	
Ethylbenzene	***0.7***	***1.44***		***0.973***		0.226		0.286		0.225		***1.49***		***0.77***	0.090		0.053		0.00076	U	0.003	U	0.003	U	0.00076	U	0.003	U	0.00129	U	0.00026	U	0.0013	U	0.0032	U	0.0013	U	0.0032	U
Methyl ethyl ketone	***15***	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.00408	U	0.0038	0.0038	U	0.0038	U	0.0017	J	0.085		0.0031	U	0.0023	J	0.0031	U	0.0212		0.021		0.0083		0.0049	J	0.0085		0.0077	
Methylene chloride	***0.005***	0.005	U	***0.014***		0.005	U	***0.007***		***0.009***		0.0017	J	0.00075	0.0021	J	0.00075	U	***0.047***		***0.44***		***0.11***		***0.075***		***0.062***		***0.0057***	BJ	0.00073	J	0.0018	U	0.0026	U	0.001	U	0.0026	U
n-Hexane	***1.5***	0.01	U	---		0.01	U	0.005	U	0.005	U	0.005	U	0.0038	0.0027	J	0.0011	J	0.082		0.41		0.1		0.08		0.094		0.00956	U	0.0019	U	0.0096	U	0.0086	U	0.0035	U	0.0086	U
Styrene	***0.1***	0.005	U	0.005	U	0.005	U	0.001	U	0.001	U	0.000142	U	0.00035	0.056		0.00035	U	0.0046	J B	0.047	J B	0.014	J	0.00088	U	0.0035	U	0.000812	U	0.00062	U	0.0031	U	0.0033	U	0.0013	U	0.0033	U
Tetrachloroethylene	***0.005***	0.005	U	0.005	U	0.005	U	0.001	U	0.001	U	0.000586	U	0.00065	***0.039***		0.00065	U	0.00088	U	0.0035	U	0.0035	U	0.00088	U	0.0035	U	0.0025	U	0.002		0.0025	U	0.004	U	0.0016	U	0.004	U
Toluene	***1***	0.005	U	0.014		0.005	U	0.006		0.009		0.0051		0.0045	0.0014	J	0.0013	J	0.0017	U	0.0067	U	0.0067	U	0.0017	U	0.0067	U	0.0025	U	0.0016		0.0025	U	0.0024	U	0.00095	U	0.0024	U
trans-1,2-Dichloroethylene	***0.1***	0.005	U	0.005	U	0.005	U	0.001	J	0.001	U	0.00058	J	0.00045	0.00045	U	0.00045	U	0.0011	U	0.0043	U	0.0043	U	0.0011	U	0.0043	U	0.00128	U	0.00064	J	0.0013	U	0.0047	U	0.0019	U	0.0047	U
Trichloroethylene	***0.005***	0.005	U	0.005	U	0.005	U	0.002	J	0.001	U	0.00082	J	0.00090	0.0010	J	0.0012	J	0.0012	J	***0.013***	J	0.004	U	0.0017	J	0.004	U	0.00212	U	0.00049	J	0.0021	U	0.004	U	0.0016	U	0.004	U
Vinyl Acetate	***24***	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.00598		0.0011	0.0011	U	0.0011	U	0.0043	U	0.017	U	0.017	U	0.0043	U	0.018	J	0.0178	U	0.0036	U	0.018	U	0.011	U	0.0043	U	0.011	U
Vinyl chloride	***0.002***	***0.007***		***0.008***		***0.006***		***0.027***		***0.006***		***0.01***	U	***0.015***	***0.0089***	J	***0.0083***	J	***0.04***		***0.084***		***0.043***		***0.04***		***0.029***	J	***0.023***		***0.021***		0.0012	U	***0.014***		***0.016***		***0.017***	
Xylene (total)	***10***	0.119		0.103		0.076		0.105		0.110		0.1967		0.15	0.095		0.034		0.00069	U	0.0053	J	0.0028	U	0.00069	U	0.0028	U	0.0285		0.06		0.018	J	0.022	J	0.035		0.024	J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																																							
2,4,6-Trichlorophenol	***0.083***	***0.526***	U	***0.105***	U	***2.5***	U	***0.027***	U	***0.106***	U	0.036	U	***0.090***	0.0017	U	***0.13***	U	0.012	U	0.06	U	***0.13***	U *	0.012	U	0.036	U	***0.135***	U	0.0068	U	0.0068	U	0.0027	U	0.014	U	0.0027	U
2,4-Dichlorophenol	***0.073***	***0.526***	U	***0.105***	U	***2.5***	U	***0.027***	U	***0.106***	U	0.0374	U	***0.075***	0.0014	U	***0.11***	U	0.03	U	***0.32***	J *	***0.32***	U	0.04	J	***0.12***	J	***0.115***	U	0.0057	U	0.0057	U	0.0023	U	0.011	U	0.0023	U
2,4-Dimethylphenol	***0.49***	***0.526***	U	***0.167***		***2.5***	U	0.091	J	***1.04***	J	0.0934	U	0.16	0.071		0.22	U	0.043	U	0.21	U *	0.46	U	0.071	J	0.13	U	0.148	U	0.0074	U	0.0074	U	0.003	U	0.015	U	0.003	U
2-Methylnaphthalene	***0.098***	***0.678***		***1.1***		***3.1***		***1.04***		***1.04***		***2.18***		***43***	***0.20***		***4.1***		0.008	U	0.04	U *	0.087	U	0.0082	U	0.024	U	***274***	D	***3.4***		***12***		***0.18***		***2.5***	*+	0.06	
2-Methylphenol	***1.2***	0.526	U	***0.105***	U	***2.5***	U	0.035	U	0.141	U	0.0683	U	0.060	0.0074	J	0.087	U	***2.2***		***64***		***3.1***		***8.1***		***20***		0.159	U	0.008	U	0.008	U	0.0032	U	0.016	U	0.0032	U
3&4-Methylphenol	***0.12***	***0.526***	U	***0.105***	U	***2.5***	U	0.04	U	***0.474***	J	0.0921	U	0.10	0.011		***0.14***	U	***2***		***41***		***2.6***	*	***5.5***		***14***		***0.163***	U	0.0081	U	0.0081	U	0.0033	U	0.016	U	0.0033	U
4-Bromophenyl phenyl ether	***0.000061***	***0.526***	U	***0.105***	U	***2.5***	U	***0.027***	U	***0.106***	U	***0.0283***	U	***0.060***	***0.00096***	U	***0.072***	U	***0.15***		***3.8***	J B *	***2.7***		***0.56***		***1.4***		***0.167***	U	***0.0084***	U	***0.0084***	U	***0.0033***	U	***0.017***	U	***0.0033***	U
Acenaphthene	***1.5***	0.492		0.818		1.25	U	***1.54***		0.805		***3.26***		***53***	0.74		***7.3***		0.017	U	0.083	U	0.18	U	0.017	U	0.05	U	***496***	D	***6***		***24***		0.74		***6.7***		0.56	
Acenaphthylene	***1.5***	0.263	U	0.025		1.25	U	0.037	J	0.106	U	0.0891	J	0.030	0.00058	U	0.043	U	0.013	U	0.065	U	0.14	U *	0.013	U	0.039	U	***9.88***		0.14		0.55		0.0043	U	0.021	U	0.0043	U
Aniline	***0.16***	***1.05***	U	***0.211***	U	***5***	U	0.027	U	0.106	U	0.0948	U	0.040	0.00077	U	0.058	U	0.009	U	0.045	U	0.098	U	0.015	J	0.027	U	***0.314***	UL	0.016	U	0.016	U *1	0.0063	UJL	0.031	U	0.0063	UJL
Anthracene	***7.3***	0.263	U	0.236		1.25	U	0.446		0.24	J	1.14		***19***	0.20		3.0		0.85		***22***		2.2		3.6	B	***8.8***		***195***	D	2.4		***9.8***		0.23		2.7		0.13	
Benzo(a)anthracene	***0.0013***	***0.068***	U	***0.12***		***1.25***	U	***0.244***		***0.139***	J	***0.58***	J	***6.6***	***0.095***		***1.5***		***0.016***	J	***0.048***	U	***0.1***	U	***0.0097***	U	***0.029***	U	***123***	D	***1.5***		***5.4***		***0.12***		***1.6***		***0.058***	
Benzo(a)pyrene	***0.0002***	***0.027***	U	***0.021***		***1.25***	U	***0.066***	J	***0.106***	U	***0.166***	J	***2.1***	***0.030***		***0.77***	J	***0.085***		***0.04***	U	***0.087***	U	***0.011***	J	***0.024***	U	***39.1***		***0.47***		***1.8***		***0.037***	J	***0.55***		***0.02***	J
Benzo(b)fluoranthene	***0.0013***	***0.068***	U	***0.052***		***1.25***	U	***0.093***	J	***0.106***	U	***0.248***	J	***2.9***	***0.055***		***0.91***	J	***0.013***	U	***0.063***	U	***0.14***	U *	***0.013***	U	***0.038***	U	***58.6***		***0.76***		***2.4***		***0.054***		***0.64***		***0.03***	J
Benzo(g,h,i)perylene	***0.73***	0.263	U	***0.053***	U	***1.25***	U	0.027	U	0.106	U	0.0273	U	0.040	0.0088	J	0.35	J	0.008	U	0.55		0.087	U *	0.092		0.2		***8.16***		0.12		0.4		0.0092	J	0.13	J	0.0049	J
Benzo(k)fluoranthene	***0.013***	***0.068***	U	***0.053***	U	***1.25***	U	***0.047***	J	***0.106***	U	***0.104***	J	***1.6***	***0.023***		***0.37***	J	***1.9***		***40***		***2.6***	*	***5.6***		***14***		***22***		***0.34***		***1.1***		***0.023***	J	***0.34***		0.012	J
Benzyl Alcohol	***12***	0.526	U	0.105	U	2.5	U	0.027	U	0.106	U	0.0902	U	0.085	0.0016	U	0.12	U	0.006	U	0.03	U	0.065	U	0.0061	U	0.018	U	0.8	U	0.04	U *1	0.23	U	0.09	U	0.45	U *+	0.09	U
bis(2-Chloroethyl)ether	***0.00083***	***0.044***	U	***0.105***	U	***2.5***	U	***0.027***	U	***0.106***	U	***0.0429***	U	***0.075***	***0.0014***	U	***0.11***	U	***0.32***		***10***		***4.7***		***1.2***		***3***		***1.28***		***0.014***	U	***0.014***	U	***0.0056***	U	***0.028***	U	***0.0056***	U
bis(2-Ethylhexyl)phthalate	***0.006***	***0.263***	U	***0.039***		***1.25***	U	***0.029***	J	***0.551***		***0.0297***	U	***0.73***	***0.010***	J	***0.59***	J	***0.096***		***2.6***	J B *	***1.4***		***0.43***		***0.82***		***0.278***	U	***0.1***		***0.011***	U	0.0045	U	***0.022***	U	0.0045	U
Butyl benzyl phthalate	***0.48***	0.263	U	***0.053***	U	***1.25***	U	0.027	U	***1.48***		0.0264	U	0.060	0.0012	U	0.087	U	***0.55***		***25***		***8***	*	***2.2***		***5.5***		0.225	U	0.0075	U	0.0075	U	0.003	U	0.015	U	0.003	U
Chrysene	***0.13***	***0.263***	U	***0.104***		***1.25***	U	***0.204***		0.13	J	***0.547***	J	***6.7***	0.081		***1.5***		0.018	U	0.088	U *	***0.19***	U	0.091	J	***0.17***	J	***96.8***	D	***1.3***		***5.2***		0.11		***1.4***		0.054	
Dibenzo(a,h)anthracene	***0.0002***	***0.022***	U	***0.053***	U	***1.25***	U	***0.027***	U	***0.106***	U	***0.0188***	U	***0.040***	***0.0082***	J	***0.52***	J	***0.068***	J	***2.7***	J B *	***1.1***		***0.23***		***0.5***		***3.24***		***0.043***		***0.15***		***0.003***	U	***0.038***	J	***0.003***	U
Dibenzofuran	***0.098***	***0.526***	U	***0.774***		***2.5***	U	***1.29***		***0.58***	J	***2.52***		***40***	***0.54***		***5.7***		0.026	U *	***0.13***	U *	***0.28***	U	0.026	U *	0.077	U*	***362***	D	***4.2***		***18***		***0.49***		***4.9***		***0.36***	
Di-n-butyl phthalate	***2.4***	0.263	U	0.053	U	1.25	U	0.07	U	0.281	U	0.0262	U	0.055	0.0011	U	0.079	U	0.009	U	0.045	U	0.098	U	0.0092	U	0.027	U	0.8	U	0.26	B	0.04	U	0.016	U	0.08	U *+	0.016	U
Di-n-octyl phthalate	***0.49***	0.263	U	***0.053***	U	***1.25***	U	0.027	U	0.106	U	0.0346	U	0.080	0.0015	U	0.12	U	0.27		***9.5***	*	***4.5***		***1.3***		***1.9***		0.169	U	0.0085	U	0.0085	U	0.0034	U	0.017	U	0.0034	U
Fluoranthene	***0.98***	0.263	U	0.770		***3.250***		***1.47***		0.891		***3.77***		***62***	0.58		***9.0***		0.015	U	0.13	J *	0.16	U	0.043	J	0.082	J	***716***	D	***9.2***		***36***		0.84		***11***		0.39	
Fluorene	***0.98***	***0.339***		***0.817***		***1.25***	U	***1.35***		0.698		***2.99***		***54***	0.058		***7.1***		***1.6***		***29***		***2.1***	*	***4.1***		***11***		***502***	D	***5.9***		***27***		0.68		***6.5***		0.46	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.068***		***0.012***		***1.25***	U	***0.027***	U	***0.106***	U	***0.0319***	U	***54***	***0.0093***	J	***0.73***	J	***0.094***	U	***0.47***	U	***1***	U	***0.095***	U	***0.28***	U	***8.8***		***0.13***		***0.45***		***0.017***	U	***0.11***	J	***0.017***	U
Naphthalene	***0.49***	***3.28***		***3.73***		***4.22***		0.189		***2.44***		***3.45***		***37***	0.0054	J	***1.3***	J	0.02	J	0.39	J *	0.16	U	0.095	J	0.2	J	***136***	D	***0.54***		***5.2***		0.017	J	0.43		0.0085	U
Phenanthrene	***0.73***	0.449		***1.28***		***5.87***		***2.61***		***1.75***		***7.44***		***120***	***1.3***		***15***		0.28		***14***		***1.9***		***0.74***	B	***4.7***		***1460***	D	***15***		***67***		***1.5***		***17***		***1.2***	
Phenol	***7.3***	0.526	U	0.105	U	2.5	U	0.027	U	0.106	U	0.0463	U	0.020	0.017		0.029	U	3.9		***120***		5.3		***13***		***38***		0.8	U	0.04	U	0.01	U	0.028	JL	0.031	J	0.016	JL B
Pyrene	***0.73***	0.263	U	0.501		***2.32***		***0.937***		0.539		***2.37***		***42***	0.39		***5.5***		0.007	U	0.035	U	0.076	U	0.035	J	0.021	U	***468***	D	***5.4***		***26***		0.5		***5.4***		0.25	
Pyridine	***0.024***	***0.526***	U	***0.105***	U	***2.5***	U	***0.094***	U	***0.374***	U	***0.147***	U	0.020	0.00038	U	***0.029***	U	***1.7***		***42***		***1.8***		***4.7***		***12***		***0.725***	U	***0.036***	U *1	***0.036***	U *1	0.014	UJL	***0.072***	U	0.014	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																																							
2,4-D	***0.07***	0.0005	U	0.0005	U	0.00521	U	0.00031	U	0.00028	U	0.00137	U	0.000038	0.00039	U	0.00037	U	0.000039	U	0.0004	U	0.00021	U *	0.00004	U	0.000039	U	0.000953	U	0.000026	U	0.000021	U	0.000027	U	0.000029	U	0.00015	U *1
Metals Analysis (SW 846 6010B) (mg/L)																																							
Lead	***0.015***	***0.002***		0.002	U	0.002	U	0.001		0.001	U	0.003		0.00073	0.00073	U	0.0021	J	0.0014	J	***0.03***	J	0.0074		0.0046		0.0069		***0.0157***		0.0058	J	0.0012	J	0.00059	J	0.0017	J	0.00037	U
General Chemistry (415.1) (mg/L)																																							
Total Organic Carbon	---	---		---		---		---		---		---		---	---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits

BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-14 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-14																			
SAMPLING PERIOD	(mg/L)	3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																					
1,1-Dichloroethylene	***0.007***	0.00088	U	0.00018	U	0.0039		0.000216	U	0.00022	U	0.00022	U	0.0037	U	0.00074	U	0.00074	U
1,2,3-Trichloropropane	***0.00013***	***0.00069***	U	***0.00014***	U	***0.00014***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.0025***	U	***0.00049***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	0.0017	U	0.0013	J	0.0012	J	0.000236	U	0.00024	U	0.00024	U	0.0025	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.0022	U	0.00045	U	***0.012***		0.000285	U	0.00029	U	0.00029	U	0.003	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.0011	U	0.00022	U	0.00022	U	0.000396	U	0.0004	U	0.0004	U	0.0033	U	0.00067	U	0.00067	U
4-Methyl-2-pentanone	***2***	0.0013	U	0.00026	U	0.00026	U	0.0027	U	0.0027	U	0.0027	U	0.041	U	0.0083	U	0.0083	U
Acetone	***22***	0.00096	U	0.00019	U	0.00019	U	0.00106	U	0.0011	U	0.0011	U	0.037	U	0.0075	U	0.0075	U
Benzene	***0.005***	0.0015	U	0.00029	U	0.00029	U	***0.0123***	U	***0.012***	U *1	***0.012***	U	***0.006***	U	0.0012	U	0.0012	U
Carbon disulfide	***2.4***	0.00058	U	0.00012	U	0.00012	U	0.00648		0.045		0.00021	U	0.0027	U	0.0055		0.00046	U
Chlorobenzene	***0.1***	0.00068	U	0.00014	U	0.00014	U	0.000373	U	0.00037	U	0.00037	U	0.0095	U	0.0019	U	0.0019	U
Chloroform	***0.24***	0.0038	U	0.00076	U	0.00076	U	0.000159	U	0.00016	U	0.00016	U	0.0027	U	0.00053	U	0.00053	U
Ethylbenzene	***0.7***	0.00093	U	0.00019	U	0.00019	U	0.00061	J	0.00026	U	0.00026	U	0.0032	U	0.00064	U	0.00064	U
Methyl ethyl ketone	***15***	0.00077	U	0.00025	J	0.00015	U	0.00062	J	0.00051	U	0.00051	U	0.0021	U	0.00067	J	0.00041	U
Methylene chloride	***0.005***	0.0011	U	0.00027	J	0.00058	J	0.00175	J	0.00037	U	0.00037	U *+	0.0026	U	0.0019	J	0.00052	U
n-Hexane	***1.5***	0.00076	U	0.00015	U	0.00015	U	0.00191	U	0.0019	U	0.0019	U	0.0086	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.0012	J	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.0033	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.00088	U	0.00018	U	0.00018	U	0.0005	U	0.0005	U	0.0005	U	0.004	U	0.0008	U	0.0008	U
Toluene	***1***	0.0017	U	0.00033	U	0.00033	U	0.00205		0.0005	U	0.0005	U	0.0024	U	0.0018		0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.00099	U	0.0002	U	0.0069		0.000256	U	0.00026	U	0.00026	U	0.0047	U	0.00095	U	0.00095	U
Trichloroethylene	***0.005***	0.00096	U	0.00019	U	0.00019	U	0.000424	U	0.00042	U	0.00042	U	0.004	U	0.00079	U	0.00079	U
Vinyl Acetate	***24***	0.0043	U	0.00085	U	0.00085	U	0.00357	U	0.0036	U *1	0.0036	U	0.011	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.0012	U	0.00025	U	0.00025	U	0.000234	U	0.00023	U	0.00023	U	***0.0032***	U	0.00064	U	0.00064	U
Xylene (total)	***10***	0.0018	U	0.00037	U	0.0013	J	0.00318		0.00085	J	0.00041	J	0.0062	U	0.0034	J	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																					
2,4,6-Trichlorophenol	***0.083***	0.0048	U *	0.0024	U	0.00024	U	0.000135	U	0.00027	U	0.00014	U	0.00014	JL/UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.017	U	0.0085	U	0.00085	U	0.000115	U	0.00023	U	0.00011	U	0.00011	JL/UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.0048	U	0.0024	U	0.00024	U	0.00092		0.0003	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
2-Methylnaphthalene	***0.098***	0.0032	U	0.0016	U	0.00016	U	0.0137		0.00096	U	0.002		0.00048	JL/UJL	0.00069	J *+	0.00048	U
2-Methylphenol	***1.2***	0.0062	U	0.0031	U	0.00031	U	0.000159	U	0.00032	U	0.00016	U	0.00016	JL/UJL	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.019	J *	0.0016	J	0.00012	U	0.000163	U	0.00033	U	0.00016	U	0.00016	JL/UJL	0.0023		0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.0026***	U	***0.0013***	U	***0.00013***	U	***0.000167***	U	***0.00033***	U	***0.00017***	U	***0.00017***	JL/UJL	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.0066	U	0.0033	U	0.00033	U	0.0112		0.002		0.0025		0.00095	JL/UJL	0.0037		0.00021	U
Acenaphthylene	***1.5***	0.0052	U *	0.0026	U	0.00026	U	0.0004	J	0.00069	U	0.00021	U	0.00021	JL/UJL	0.00021	U	0.00021	U
Aniline	***0.16***	0.056		0.0018	U	0.00018	U	0.000314	UL	0.00063	U	0.00031	U	0.0012	JL/UJL	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.075		0.0021	J B	0.00014	J	0.00096		0.00031	U	0.00069	J	0.00038	JL/UJL	0.00093	J	0.00081	J
Benzo(a)anthracene	***0.0013***	***0.0038***	U	***0.0019***	U	0.00021	J	0.00015	U	0.0003	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	***0.017***	J	***0.0016***	U	0.00018	J	0.000148	U	***0.0003***	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	***0.005***	U *	***0.0025***	U	0.00025	U	0.00021	U	0.00042	U	0.00021	U	0.00021	JL/UJL	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.046	*	0.002	J	0.00016	U	0.000143	U	0.00029	U	0.00014	U	0.00014	JL/UJL	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.0032	U *	0.0016	U	0.00016	U	0.000166	U	0.00033	U	0.00017	U	0.00017	JL/UJL	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.79		0.0012	U	0.00012	U	0.0008	U	0.0031	J *+ B *1	0.0045	U	0.0045	JL/UJL	0.0045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0088***	U *	***0.0044***	U	0.00044	U	0.00015	U	0.00056	U	0.00028	U	0.00028	JL/UJL	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.005	U	0.0025	U	0.00025	U	0.000278	U	0.0018		0.00022	U	0.00022	JL/UJL	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.0036	U	0.0018	U	0.00018	U	0.000225	U	0.0003	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Chrysene	***0.13***	0.007	U	0.0035	U	0.00035	U	0.000159	U	0.00032	U	0.00016	U	0.00016	JL/UJL	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0032***	U	***0.0016***	U	0.00016	U	0.000148	U	***0.0003***	U	0.00015	U	0.00015	JL/UJL	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.01	U	0.0051	U *	0.00051	U	0.00592		0.00067	U	0.0012	J	0.00034	JL/UJL	0.00057	J	0.00034	U
Di-n-butyl phthalate	***2.4***	0.031		0.0018	U	0.00018	U	0.0008	U	0.12	B	0.0008	U	0.0008	JL/UJL	0.0008	U *+	0.0008	U
Di-n-octyl phthalate	***0.49***	0.012	U	0.0059	U	0.0013	J	0.000169	U	0.00034	U	0.00017	U	0.00017	JL/UJL	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.0058	U	0.0029	U	0.00029	U	0.00056	J	0.0003	U	0.00034	J	0.00015	JL/UJL	0.00028	J	0.00015	U
Fluorene	***0.98***	0.017	J *	0.0016	U	0.00016	U	0.00572		0.00041	U	0.0015	J	0.00046	JL/UJL	0.0023		0.00021	U
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.037***	U	***0.019***	U	***0.0032***	J	0.000143	U	0.00029	U	0.00085	U	0.00085	JL/UJL	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.0058	U	0.0029	U	0.00029	U	0.013		0.0016	U	0.002		0.00061	JL/UJL	0.0024		0.00042	U
Phenanthrene	***0.73***	***0.84***		0.0019	J B	0.0005	J	0.00376		0.0008	U	0.0015	J	0.00018	JL/UJL	0.00018	U	0.00018	U
Phenol	***7.3***	0.016	J	0.0029	J	0.00029	U	0.0008	U	0.0016	U	0.0002	U	0.0002	JL/UJL	0.0002	U	0.0002	UJL
Pyrene	***0.73***	0.15		0.0014	U	0.00027	J	0.0004	J	0.00094	J	0.00019	J	0.00016	JL/UJL	0.00024	J	0.00016	U
Pyridine	***0.024***	0.0066	U	0.0033	U	0.00033	U	0.000725	U	0.0014	U *1	0.00084	J *- *1	0.00072	JL/UJL	0.00072	U	0.0025	U
GC Semi-volatiles (SW846 8151) (mg/L)																					
2,4-D	***0.07***	0.000042	U *	***1.3***		0.000039	U * 1	0.0000453	U	0.000026	U	0.000021	U	0.000027	U	0.000029	U	0.00015	U *1
Metals Analysis (SW 846 6010B) (mg/L)																					
Lead	***0.015***	0.0081		0.0079	B	***0.059***		0.0105		***0.028***		0.0099		0.0095		0.013		0.0016	J
General Chemistry (415.1) (mg/L)																					
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-15 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-15																					
SAMPLING PERIOD	(mg/L)	3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																							
1,1-Dichloroethylene	***0.007***	***0.038***	U	***0.038***	U	***0.019***	U	***0.019***	U	***0.019***	U	***0.0433***	U	0.00022	U	0.0043	U	***0.018***	U	***0.018***	U	***0.018***	U *1
1,2,3-Trichloropropane	***0.00013***	***0.058***	U	***0.058***	U	***0.029***	U	***0.029***	U	***0.029***	U	***0.0567***	U	***0.00028***	U	***0.0057***	U	***0.012***	U	***0.012***	U	***0.012***	U *1
1,2-Dichlorobenzene	***0.6***	0.031	U	0.031	U	0.015	U	0.015	U	0.015	U	0.0471	U	0.00024	U	0.0047	U	0.013	U	0.013	U	0.013	U *1
1,2-Dichloroethane	***0.005***	***0.023***	U	***0.023***	U	***0.012***	U	***0.012***	U	***0.012***	U	***0.057***	U	0.00029	U *1	***0.0057***	U	***0.015***	U	***0.015***	U	***0.015***	U *1
1,2-Dichloropropane	***0.005***	***0.027***	U	***0.027***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.0791***	U	0.0004	U	***0.0079***	U	***0.017***	U	***0.017***	U	***0.017***	U *1
Methyl ethyl ketone (2-Butanone	***15***	0.15	U	0.15	U	0.076	U	0.076	U	0.076	U	0.54	U	0.0027	U	0.054	U	0.21	U	0.21	U	0.21	U *1
4-Methyl-2-pentanone	***2***	0.07	U	0.07	U	0.035	U	0.035	U	0.035	U	0.213	U	0.0011	U	0.021	U	0.19	U	0.19	U	0.19	U *1
Acetone	***22***	0.089	U	0.089	U *	0.045	U	0.045	U	0.045	U	2.46	U	0.012	U *1	0.25	U	0.03	U	0.03	U	0.03	U *1
Benzene	***0.005***	***21***		***13***		***11***		***8.2***		***8.1***	F1	***6.41***	D	***7.4***		***4.6***		***4.0***		***3***		***2.4***	F1
Carbon disulfide	***2.4***	0.043	U	0.043	U	0.022	U	0.022	U	0.022	U	0.0747	U	0.00037	U	0.0075	U	0.048	U	0.048	U	0.048	U *1
Chlorobenzene	***0.1***	0.037	U	0.037	U	0.019	U	0.019	U	0.019	U	0.0318	U	0.00016	U	0.0032	U	0.013	U	0.013	U	0.013	U *1
Chloroform	***0.24***	0.03	U	0.03	U	0.015	U	0.015	U	0.015	U	0.0517	U	0.00026	U	0.0052	U	0.016	U	0.016	U	0.016	U *1
Ethylbenzene	***0.7***	0.099	J	0.12	J	0.11		0.11		0.085	J	0.0291	U	0.11		0.1		0.11		0.064		0.081	F2 F1
n-Hexane	***1.5***	0.051	U	0.051	U	0.026	U	0.026	U	0.026	U	0.0738	U	0.0018	J	0.0074	U	0.013	U	0.013	U	0.013	U *1
Methylene chloride	***0.005***	***0.053***	J B	***0.36***	J B	***0.018***	J B	***0.032***	J	***0.018***	U	***0.382***	U	0.0019	U	***0.038***	U	***0.043***	U	***0.043***	U	***0.043***	U *1
Styrene	***0.1***	0.035	U	0.035	U	0.018	U	0.018	U	0.018	U	0.0325	U	0.003		0.012	U	0.016	U	0.016	U	0.016	U *1
Tetrachloroethylene	***0.005***	***0.067***	U	***0.067***	U	***0.033***	U	***0.033***	U	***0.033***	U	***0.1***	U	0.0005	U	***0.01***	U	***0.02***	U	***0.02***	U	***0.02***	U *1
Toluene	***1***	0.099	J	0.082	J	0.066	J	0.084	J	0.037	J	0.1	U	0.061		0.058		0.053		0.038		0.05	F2 F1
trans-1,2-Dichloroethylene	***0.1***	0.038	U	0.038	U	0.019	U	0.019	U	0.019	U	0.0512	UH	0.00026	U	0.0051	U	0.024	U	0.024	U	0.024	U *1
Trichloroethylene	***0.005***	***0.028***	U	***0.028***	U	***0.014***	U	***0.014***	U	***0.014***	U	***0.0848***	U	0.00042	U	***0.0085***	U	***0.02***	U	***0.02***	U	***0.02***	U *1
Vinyl Acetate	***24***	0.17	U	0.17	U	0.085	U	0.085	U	0.085	U	0.714	U	0.0036	U *1	0.071	U	0.053	U	0.053	U	0.053	U *1
Vinyl chloride	***0.002***	***0.05***	U	***0.05***	U	***0.025***	U	***0.025***	U	***0.025***	U	***0.0467***	U	0.00023	U	***0.0047***	U	***0.035***	J	***0.076***		***0.016***	U *1
Xylene (total)	***10***	0.12	J	0.15	J	0.18	J	0.16	J	0.14	J	0.132	J	0.17		0.17	J	0.16	J	0.11	J	0.086	J F2 F1
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																							
2,4,6-Trichlorophenol	***0.083***	0.00034	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U F2 F1	0.000135	UX	0.00014	U	0.00014	UJ/UJL	0.00014	UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00027	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U F1	0.000115	U	0.00011	U	0.00011	UJ/UJL	0.00011	UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00019	U	0.00018	U	0.0031		0.00018	U	0.00084	X	0.00015	U	0.00015	UJ/UJL	0.00015	UJL	0.00015	U	0.00015	UJ *1		
2-Methylnaphthalene	***0.098***	0.0039		0.01		0.0044	B	0.0045	B	0.0018		0.00244	X	0.0046		0.0027	UJ/UJL	0.0029		0.00067	J	0.00048	UJ *1
2-Methylphenol	***1.2***	0.0002	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U F1	0.000159	U	0.00016	U	0.00016	UJ/UJL	0.00016	UJL	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.00017	U	0.00016	U	0.00016	U	0.00035	J	0.00016	U F1	0.000163	U	0.00016	U	0.00016	UJ/UJL	0.00016	UJL/UJ	0.00016	U	0.00016	UJ *1
4-Bromophenyl phenyl ether	***0.000061***	***0.00026***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U F2 F1	***0.000167***	U	***0.00017***	U	***0.00017***	UJ/UJL	***0.00017***	U	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.00031	J	0.00093	J	0.00051	J B	0.0016		0.00016	U F2 F1	0.00028	JX	0.0019		0.00056	UJ/UJL	0.00063	JL	0.00045	J	0.00078	J F2 F1
Acenaphthylene	***1.5***	0.00017	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U F2 F1	0.000215	UX	0.00034	U	0.00021	JL	0.00021	U	0.00021	U	0.00021	U
Aniline	***0.16***	0.00013	U	0.00012	U	0.00012	U *	0.00012	U	0.00012	U F1	0.000314	ULXF	0.00031	U *1	0.00031	UJ/UJL	0.00031	UJL/UJ	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.00046	U	0.00075	J	0.00044	U	0.00051	J	0.00044	U F1	0.000154	U	0.00047	J	0.00015	UJ/UJL	0.00015	U	0.00022	J	0.00015	U *1
Benzo(a)anthracene	***0.0013***	0.00026	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00015	U	0.00015	U	0.00015	UJ/UJL	0.00015	U	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	0.00014	U	0.00013	U *	0.00013	U	0.00013	U	0.00013	U	0.000148	U	0.00015	U	0.00015	UJ/UJL	0.00015	U	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00019	U	0.00018	U *	0.00018	U	0.00018	U	0.00018	U	0.00021	U	0.00021	U	0.00021	UJ/UJL	0.00021	U	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00036	U	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.000143	U	0.00014	U	0.00014	UJ/UJL	0.00014	U	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00017	U	0.00016	U *	0.00016	U	0.00016	U	0.00016	U	0.000166	U	0.00017	U	0.00017	UJ/UJL	0.00017	U	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.00053	U *	0.00051	U *	0.00051	U	0.00051	U *	0.00051	U F1	0.0008	U	0.0021	*+ B *1	0.0045	UJ/UJL	0.0045	U	0.0045	U *+	0.0045	UJ *1
bis(2-Chloroethyl)ether	***0.00083***	0.00019	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U F1	0.00015	U	0.00028	U	0.00028	UJ/UJL	0.00028	UJ	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.00061	U	0.00059	U *	0.00059	U	0.00059	U	0.00059	U	0.000278	UF	0.00022	U	0.00022	UJ/UJL	0.0005	J	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.00089	U	0.00085	U *	0.00085	U	0.00085	U	0.00085	U	0.000225	U	0.00015	U	0.00015	UJL	0.00015	U	0.00015	U	0.00015	U
Chrysene	***0.13***	0.00025	U	0.00024	U *	0.00024	U	0.00024	U	0.00024	U F1	0.000159	U	0.00016	U	0.00016	UJL	0.00016	U	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0003***	U	***0.00029***	U *	***0.00029***	U	***0.00029***	U	***0.00029***	U	0.000148	U	0.00015	U	0.00015	UJL	0.00015	U	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.00045	J	0.001	J	0.00051	J B	0.0013	J	0.00016	U F2 F1	0.000336	UX	0.0013		0.00045	JL	0.00059	JL	0.00037	J	0.00034	UJ *1
Di-n-butyl phthalate	***2.4***	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0008	U	0.063	B	0.0008	UJL	0.0008	U	0.0008	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00017	U	0.00016	U *	0.00016	U	0.0003	J B	0.00016	U	0.000169	U	0.00017	U	0.00017	UJ/UJL	0.00017	U	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.00032	U	0.0029		0.00031	U	0.0007	J	0.00031	U F1	0.000148	U	0.00015	U	0.00015	UJ/UJL	0.00015	U	0.00015	U *- *1	0.00015	UJ *1
Fluorene	***0.98***	0.00054	J	0.0014	J	0.00053	J B	0.0014	J	0.00015	J F1	0.00024	JX	0.0013		0.00053	JL	0.00067	JL	0.00046	J	0.00078	J F2 F1
Indeno(1,2,3-cd)pyrene	***0.0013***	0.0003	U	0.00029	U *	0.00029	U	0.00029	U	0.00029	U	0.000143	U	0.00014	U	0.00085	UJL	0.00085	U	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.013		0.056		0.012	B	0.028	B	0.013	F1	0.019	X	0.023	F1	0.023	JL	0.027	JL	0.021		0.018	J F2 F1
Phenanthrene	***0.73***	0.0003	U	0.0041		0.00039	J	0.0022		0.00029	U F2 F1	0.0004	U	0.0017		0.00055	JL	0.00052	J	0.00038	J	0.00044	J F2 F1
Phenol	***7.3***	0.086		0.00014	U	0.016		0.02		0.014	F1	0.0207	X	0.023		0.018	JL	0.022	JL	0.029	F1	0.0081	U
Pyrene	***0.73***	0.00034	U	0.0017	J	0.00033	U	0.0004	J	0.00033	U	0.000159	U	0.00016	U	0.00016	UJL	0.00016	U	0.00016	U *- *1	0.00016	U *1
Pyridine	***0.024***	0.00025	U	0.00024	U	0.00024	U *	0.00024	U	0.00024	U	0.000725	U	0.00072	U *1	0.00072	UJ/UJL	0.00072	UJL/UJ	0.00072	U	0.00072	UJL F2
GC Semi-volatiles (SW846 8151) (mg/L)																							
2,4-D	***0.07***	0.000039	U	0.000039	U	0.000041	U *	0.00044		0.000039	U F2	0.0000453	U	0.000026	U F2 U	0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																							
Lead	***0.015***	0.00073	U	0.00073	U	0.0011	J	0.0015	B	0.00039	J	0.000352	J	0.0006	J	0.00042	J	0.00083	J	0.00032	J	0.00081	J
General Chemistry (415.1) (mg/L)																							
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-16 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-16																											
SAMPLING PERIOD	(mg/L)	3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																													
1,1-Dichloroethylene	***0.007***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.0037	U	***0.0074***	U
1,2,3-Trichloropropane	***0.00013***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.0025***	U	***0.0049***	U
1,2-Dichlorobenzene	***0.6***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000236	U	0.00024	U	0.00024	U	0.00051	U	0.0025	U	0.0051	U
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.003	U	***0.0059***	U
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.0013		0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.0033	U	***0.0067***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U *	0.00076	U *	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00519	J	0.0027	U	0.0027	U	0.0083	U	0.041	U	0.083	U
4-Methyl-2-pentanone	***2***	0.00035	U *	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.037	U	0.075	U
Acetone	***22***	0.00045	U	0.00045	U *	0.00045	U	0.00045	U *	0.00045	U	0.00045	U	0.00045	U	0.0123	U	0.012	U	0.012	U	0.0012	U	0.006	U	0.012	U
Benzene	***0.005***	0.0041	B	***1.3***		***0.48***		***0.28***		***0.084***		***0.16***		***0.3***		***0.146***		***0.14***		***0.55***		***0.68***		***0.6***		***0.66***	
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.00037	U	0.0019	U	0.0095	U	0.019	U
Chlorobenzene	***0.1***	0.00019	U	0.0011	B	0.00056	J	0.00041	J	0.00034	J	0.00044	J	0.00064	J	0.00041	J	0.00038	J	0.0007	J	0.00053	U	0.0027	U	0.0053	U
Chloroform	***0.24***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000259	U	0.00026	U	0.00026	U	0.00064	U	0.0032	U	0.0064	U
Ethylbenzene	***0.7***	0.00023	J	0.0043	B	0.015		0.0074		0.00095	J	0.0015		0.00072	J	0.00151		0.0011		0.014		0.0075		0.0075		0.0055	J
n-Hexane	***1.5***	0.00026	U	0.001		0.00039	J	0.0004	J	0.00047	J	0.00031	J	0.00026	U	0.00092	J	0.00037	U	0.00037	U *+	0.00052	U	0.0026	U	0.0052	U
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	***0.0086***	U	***0.017***	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.0033	U	0.0066	U
Tetrachloroethylene	***0.005***	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.0008	U	0.004	U	***0.008***	U
Toluene	***1***	0.00029	J	0.019		0.0039		0.0032		0.0014		0.0021		0.0031		0.00209		0.0027		0.02		0.029		0.037		0.043	
trans-1,2-Dichloroethylene	***0.1***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000256	U	0.00026	U	0.00026	U	0.00095	U	0.0047	U	0.0095	U
Trichloroethylene	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.00042	U	0.00079	U	0.004	U	***0.0079***	U
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.0051		0.00357	U	0.0036	U	0.0036	U	0.0021	U	0.011	U	0.021	U
Vinyl chloride	***0.002***	0.00025	U	0.00025	U	0.00081	J	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.000234	U	0.00023	U	0.00023	U	0.00064	U	***0.0032***	U	***0.0064***	U
Xylene (total)	***10***	0.00037	U	0.016		0.012		0.0088		0.0022		0.0081		0.0059		0.00687		0.0043	J	0.025		0.015		0.024	J	0.014	J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																													
2,4,6-Trichlorophenol	***0.083***	0.00079	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.000135	U	0.00014	U	0.00014	UJL	0.00014	UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00062	U	0.00027	U	0.00026	U	0.00026	U	0.00027	U	0.00027	U	0.00026	U	0.000115	U	0.00011	U	0.00011	UJL	0.00011	UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00043	U	0.00038	J	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00084		0.00015	U	0.0046	JL	0.00015	UJL	0.0004	J	0.0018	J
2-Methylnaphthalene	***0.098***	0.00033	U	0.00015	U	0.00064	J	0.0015		0.0013	J B	0.00042	J B	0.00019	J	0.0034		0.00048	U	0.0014	J	0.00066	J	0.00048	U	0.00048	U
2-Methylphenol	***1.2***	0.00045	U	0.0002	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000159	U	0.00016	U	0.00016	UJL	0.00016	UJL	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.00038	U	0.00017	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000163	U	0.00016	U	0.00016	UJL	0.00016	U	0.00016	U	0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.0006***	U	***0.00026***	U	***0.00025***	U	***0.00025***	U	***0.00026***	U	***0.00026***	U	***0.00025***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.0017	J	0.011		0.0058		0.011		0.0066	B	0.01		0.0045		0.0094		0.0055		0.016		0.0069		0.0053		0.006	
Acenaphthylene	***1.5***	0.00038	U	0.00017	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000215	U	0.00034	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U
Aniline	***0.16***	0.00029	U	0.00013	U	0.00012	U	0.00012	U	0.00012	U *	0.00012	U	0.00012	U	0.000314	UL	0.00031	U	0.00031	U *1	0.00031	UJL	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.001	U	0.00046	U	0.00044	U	0.00044	U	0.00045	U	0.00045	U	0.00044	U	0.00048	J	0.00015	U	0.00044	J	0.00018	J	0.00015	J	0.00015	U
Benzo(a)anthracene	***0.0013***	0.0006	U	0.00026	U	0.00025	U	0.00025	U	0.00026	U	0.00026	U	0.00025	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	***0.00031***	U	0.00014	U	0.00013	U	0.00013	U *	0.00013	U	0.00013	U	0.00013	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00043	U	0.00019	U	0.00018	U	0.00018	U *	0.00018	U	0.00018	U	0.00018	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00083	U	0.00036	U	0.00035	U	0.00035	U *	0.00036	U	0.00036	U	0.00035	U	0.000143	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00038	U	0.00017	U	0.00016	U	0.00016	U *	0.00016	U	0.00016	U	0.00016	U	0.000166	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.0012	U	0.00053	U	0.00051	U *	0.00051	U *	0.00052	U	0.00052	U *	0.00051	U*	0.00352		0.0027	B *+	0.0045	U	0.0045	U	0.0045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00043	U	0.00019	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00015	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.0014	U	0.00061	U	0.00059	U	0.00059	U *	0.0006	U	0.0006	U	0.00059	U	0.000278	U	0.0011		0.00022	U	0.00037	J	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.002	U	0.00089	U	0.00085	U	0.00085	U *	0.00087	U	0.00087	U	0.00085	U	0.000225	U	0.00015	U	0.00015	U	0.00015	U	0.00037	J	0.00015	U
Chrysene	***0.13***	0.00057	U	0.00025	U	0.00024	U	0.00024	U *	0.00024	U	0.00024	U	0.00024	U	0.000159	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.00069***	U	***0.0003***	U	***0.00029***	U	***0.00029***	U *	***0.0003***	U	***0.0003***	U	***0.00029***	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.00038	U	0.00019	J	0.00055	J	0.0011	J	0.00036	J B	0.00042	J	0.00016	U	0.0018		0.00034	U	0.0012	J	0.00068	J	0.00078	J	0.00096	J
Di-n-butyl phthalate	***2.4***	0.0045	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0008	U	0.17	B	0.0008	U	0.0008	U	0.0008	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00038	U	0.00017	U	0.00016	U	0.00016	U *	0.00016	U	0.00016	U	0.00021	J	0.000169	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.00074	U	0.00032	U	0.00031	U	0.00054	J	0.00032	U	0.00032	U	0.00031	U	0.00052	J	0.00015	U	0.00018	J	0.00015	U	0.00015	U	0.00015	U
Fluorene	***0.98***	0.00038	J	0.0023		0.0018		0.0027		0.0011	J B	0.0018		0.00059	J	0.00224		0.0002	U	0.0028		0.0005	J	0.00066	J	0.00055	J
Indeno(1,2,3-cd)pyrene	***0.0013***	0.00069	U	0.0003	U	0.00029	U	0.00029	U *	0.0003	U	0.0003	U	0.00029	U	0.000143	U	0.00014	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.00038	U	0.00046	J	0.0027		0.005		0.0021	B	0.0012	J B	0.00058	J	0.0054		0.0011		0.0024		0.00099	J	0.00083	J	0.0015	J
Phenanthrene	***0.73***	0.00069	U	0.0003	U	0.00029	U	0.0014	J	0.0003	U	0.00034	J	0.00029	U	0.00204		0.0004	U	0.00088	J	0.0002	J	0.00018	U	0.00018	U
Phenol	***7.3***	0.00033	U	0.011		0.0063		0.00014	U	0.00014	U	0.00059	J	0.00092	J	0.0008	J	0.0012	J	0.0038	JL	0.0025	JL	0.00072	J	0.0016	JL B
Pyrene	***0.73***	0.00079	U	0.00034	U	0.00033	U	0.00047	J	0.00034	U	0.00034	U	0.00033	U	0.00036	J	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Pyridine	***0.024***	0.00057	U	0.00025	U	0.00024	U	0.00024	U	0.0005	J *	0.00024	U	0.00024	U	0.000725	U	0.00072	U *1	0.00072	U *1	0.00072	UJL	0.00072	U	0.0018	U
GC Semi-volatiles (SW846 8151) (mg/L)																													
2,4-D	***0.07***	0.00004	U	0.0004	U	0.000039	U	0.000039	U	0.000041	U *	0.00004	U	0.000039	U	0.0000453	U	0.000026	U	0.000021	U	0.000027	U	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																													
Lead	***0.015***	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.0004	J B	0.00017	U	0.000152	U	0.00015	U	0.00028	J	0.00015	U	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																													
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---		---			

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-17 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-17																													
SAMPLING PERIOD	(mg/L)	1st Q 2017		3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																															
1,1-Dichloroethylene	***0.007***	0.0038	U	0.00384	U	0.0019	U	0.0019	U	0.0019	U	0.0038	U	0.0038	U	0.0038	U	***0.108***	U	0.0043	U	***0.011***	U	***0.015***	U	***0.018***	U	***0.0074***	U
1,2,3-Trichloropropane	***0.00013***	***0.0058***	U	***0.0058***	U	***0.0029***	U	***0.0029***	U	***0.0029***	U	***0.0058***	U	***0.0058***	U	***0.0058***	U	***0.142***	U	***0.0057***	U	***0.014***	U	***0.0098***	U	***0.012***	U	***0.0049***	U
1,2-Dichlorobenzene	***0.6***	0.0031	U	0.00306	U	0.0015	U	0.0015	U	0.0015	U	0.0031	U	0.0031	U	0.0031	U	0.118	U	0.0047	U	0.012	U	0.01	U	0.013	U	0.0051	U
1,2-Dichloroethane	***0.005***	0.0023	U	0.00232	U	0.0012	U	0.0012	U	0.0012	U	0.0023	U	0.0023	U	0.0023	U	***0.143***	U	***0.0057***	U	***0.014***	U	***0.012***	U	***0.015***	U	***0.0059***	U
1,2-Dichloropropane	***0.005***	0.0027	U	0.00272	U	0.0014	U	0.0014	U	0.0014	U	0.0027	U	0.0027	U	0.0027	U	***0.198***	U	***0.0079***	U	***0.02***	U	***0.013***	U	***0.017***	U	***0.0067***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.015	U	0.0152	U	0.0076	U	0.0076	U	0.0076	U	0.015	U	0.015	U	0.015	U	1.35	U	0.054	U	0.14	U	0.17	U	0.21	U	0.083	U
4-Methyl-2-pentanone	***2***	0.007	U	0.00696	U	0.0035	U	0.0035	U	0.0035	U	0.007	U	0.007	U	0.007	U	0.532	U	0.021	U	0.053	U	0.15	U	0.19	U	0.075	U
Acetone	***22***	0.0089	U*	0.00894	U	0.0045	U	0.0045	U	0.0045	U *	0.0089	U	0.0089	U	0.29		6.16	U	0.25	U	0.62	U	0.024	U	0.03	U	0.012	U
Benzene	***0.005***	***1.2***		***5.71***		***4.3***		***13***		***11***		***19***		***17***		***25***		***12.5***	D	***120***		***10***		***10***		***2.5***		***0.86***	
Carbon disulfide	***2.4***	0.0043	U	0.00432	U	0.0022	U	0.0022	U	0.0022	U	0.0043	U	0.0043	U	0.0043	U	0.187	U	0.0075	U	0.019	U	0.038	U	0.048	U	0.019	U
Chlorobenzene	***0.1***	0.0037	U	0.0037	U	0.0019	U	0.0019	U	0.0019	U	0.0037	U	0.0037	U	0.0037	U	0.0795	UD	0.0072	J	0.008	U	0.011	U	0.013	U	0.0053	U
Chloroform	***0.24***	0.003	U	0.00302	U	0.0015	U	0.0015	U	0.0015	U	0.003	U	0.003	U	0.003	U	0.129	U	0.0052	U	0.013	U	0.013	U	0.016	U	0.0064	U
Ethylbenzene	***0.7***	0.0045	J	0.00751	J	0.0061	J	0.012		0.011		0.023		0.025		0.032		0.0728	UD	0.061		0.038	J	0.059		0.033		0.061	
n-Hexane	***1.5***	0.0095	J	0.00512	U	0.013		0.008	J	0.015		0.0086	J	0.011	J	0.0051	U	0.185	U	0.02	J	0.018	U *+	0.01	U	0.013	U	0.0052	U
Methylene chloride	***0.005***	0.0035	U	0.00352	U	0.0018	U	0.0038	J B	***0.017***	J B	0.0036	J B	***0.007***	J	0.0035	U	***0.956***	U	***0.038***	U	***0.096***	U	***0.035***	U	***0.043***	U	***0.017***	U
Styrene	***0.1***	0.0035	U	0.0035	U	0.0018	U	0.0018	U	0.0018	U	0.0035	U	0.0035	U	0.0035	U	0.0812	UD	0.012	U	0.031	U	0.013	U	0.016	U	0.0066	U
Tetrachloroethylene	***0.005***	***0.0067***	U	***0.0215***		0.0033	U	0.0033	U	0.0033	U	***0.0067***	U	***0.0067***	U	***0.0067***	U	***0.25***	UD	***0.01***	U	***0.025***	U	***0.016***	U	***0.02***	U	***0.008***	U
Toluene	***1***	0.0055	J	0.0237		0.021		0.025		0.03		0.035		0.041		0.033		0.25	UD	0.065		0.043	J	0.048		0.034		0.03	
trans-1,2-Dichloroethylene	***0.1***	0.0038	U	0.00384	U	0.0019	U	0.0019	U	0.0019	U	0.0038	U	0.0038	U	0.0038	U	***0.128***	UH	0.0051	U	0.013	U	0.019	U	0.024	U	0.0095	U
Trichloroethylene	***0.005***	0.0028	U	***0.0365***		0.0014	U	0.0014	U	0.0014	U	0.0028	U	0.0028	U	0.0028	U	***0.212***	U	***0.0085***	U	***0.021***	U	***0.016***	U	***0.02***	U	***0.0079***	U
Vinyl Acetate	***24***	0.017	U	0.0171	U	0.0085	U	0.0085	U	0.0085	U	0.017	U	0.017	U	0.017	U	1.78	U	0.071	U	0.18	U	0.043	U	0.053	U	0.021	U
Vinyl chloride	***0.002***	***0.005***	U	***0.00496***	U	***0.0025***	U	***0.0025***	U	***0.0025***	U	***0.005***	U	***0.005***	U	***0.005***	U	***0.117***	UD	***0.0047***	U	***0.012***	U	***0.013***	U	***0.016***	U	***0.0064***	U
Xylene (total)	***10***	0.053		0.0601		0.078		0.054		0.067		0.071		0.069		0.07		0.0958	U	0.12	J	0.079	J	0.08	J	0.051	J	0.072	J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																															
2,4,6-Trichlorophenol	***0.083***	0.00033	U	0.00033	U *	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.0034	U	0.000135	U	0.00014	U	0.00014	U	0.0014	U	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00026	U	0.00026	U *	0.00027	U	0.00026	U	0.00026	U	0.00027	U	0.00026	U	0.0027	U	0.000115	U	0.00011	U	0.00011	U	0.0011	U	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.0022	J	0.00018	U *	0.00019	U	0.00018	U	0.00018	U	0.0071		0.00052	J	0.0074	J	0.00184		0.00015	U	0.00015	U	0.0015	U	0.0013	J	0.00015	U
2-Methylnaphthalene	***0.098***	0.00014	U	0.00092	J	0.00015	U	0.00075	J	0.0021		0.0016	B	0.0018	B	0.0015	U	0.0272		0.0016		0.0028		0.0048	U	0.00048	U	0.00048	U
2-Methylphenol	***1.2***	0.00019	U	0.00019	U *	0.0002	U	0.00019	U	0.00019	U	0.0022		0.00022	J	0.002	U	0.000159	U	0.00016	U	0.00016	U	0.0016	U	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.00033	J	0.00016	U	0.00017	U	0.00016	U	0.00016	U	0.0026		0.0002	J	0.0017	U	0.000163	U	0.00016	U	0.00016	U	0.0016	U	0.00016	U	0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.00025***	U	***0.00025***	U	***0.00026***	U	***0.00025***	U	***0.00025***	U	***0.00026***	U	***0.00025***	U	***0.0026***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.0017***	U	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.0019		0.00139		0.00017	U	0.0011		0.0018		0.0023	B	0.0016		0.0017	U	0.0194		0.0018		0.0034		0.0025	J	0.0018	J	0.0029	
Acenaphthylene	***1.5***	0.00016	U	0.00016	U	0.00017	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.0017	U	0.000215	U	0.00034	U	0.00021	U	0.0021	U	0.00021	U	0.00021	U
Aniline	***0.16***	0.00012	U	0.00012	U	0.00013	U	0.00012	U	0.00012	U	0.00012	U *	0.00012	U	0.0013	U	0.000314	UL	0.00031	U	0.00031	U *1	0.0031	UJL	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.00044	U	0.00044	U	0.00046	U	0.00044	U	0.00044	U	0.00045	U	0.00044	U	0.0046	U	0.00096		0.00015	U	0.00048	J	0.0015	U	0.00027	J	0.00082	J
Benzo(a)anthracene	***0.0013***	0.00025	U	0.00025	U *	0.00026	U	0.00025	U	0.00025	U	0.00026	U	0.00025	U	***0.0026***	U	0.00015	U	0.00015	U	0.00015	U	***0.0015***	U	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	0.00013	U	0.00013	U	0.00014	U	0.00013	U	0.00013	U *	0.00013	U	0.00013	U	***0.0014***	U	0.000148	U	0.00015	U	0.00015	U	***0.0015***	U	0.00015	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00018	U	0.00018	U	0.00019	U	0.00018	U	0.00018	U *	0.00018	U	0.00018	U	***0.0019***	U	0.00021	U	0.00021	U	0.00021	U	***0.0021***	U	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00035	U	0.00035	U	0.00036	U	0.00035	U	0.00035	U *	0.00036	U	0.00035	U	0.0036	U	0.000143	U	0.00014	U	0.00014	U	0.0014	U	0.00014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00016	U	0.00016	U *	0.00017	U	0.00016	U	0.00016	U *	0.00016	U	0.00016	U	0.0017	U	0.000166	U	0.00017	U	0.00017	U	0.0017	U	0.00017	U	0.00017	U
Benzyl Alcohol	***12***	0.00051	U	0.00051	U *	0.00053	U	0.00051	U *	0.00051	U *	0.00052	U	0.00051	U *	0.0053	U	0.0008	U	0.0035	B *+ *1	0.0045	U	0.045	U	0.0045	U *	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00018	U	0.00018	U	0.00019	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	***0.0019***	U	0.00015	U	0.00028	U	0.00028	U	***0.0028***	U	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.00059	U	0.00059	U	0.00061	U	0.00059	U	0.00059	U *	0.0006	U	0.00063	J	***0.0061***	U	0.000278	U	0.0011		0.00022	U	0.0022	U	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.00085	U	0.00085	U	0.00089	U	0.00085	U	0.00085	U *	0.00087	U	0.00085	U	0.0089	U	0.000225	U	0.00015	U	0.00015	U	0.0015	U	0.00015	U	0.00015	U
Chrysene	***0.13***	0.00024	U	0.00024	U	0.00025	U	0.00024	U	0.00024	U *	0.00024	U	0.00024	U	0.0025	U	0.000159	U	0.00016	U	0.00016	U	0.0016	U	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.00029***	U	***0.00029***	U	***0.0003***	U	***0.00029***	U	***0.00029***	U *	***0.0003***	U	***0.00029***	U	***0.003***	U	0.000148	U	0.00015	U	0.00015	U	***0.0015***	U	0.00015	U	0.00015	U
Dibenzofuran	***0.098***	0.0017		0.00122	J	0.00017	U	0.00088	J	0.0014	J	0.00083	J B	0.00059	J	0.0017	U	0.0111		0.00034	U	0.0013	J	0.0034	U	0.00034	U	0.00034	U
Di-n-butyl phthalate	***2.4***	0.0019	U	0.00187	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.019	U	0.0008	U	0.11	B	0.0008	U	0.008	U	0.0008	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00039	J B	0.00016	U *	0.00017	U	0.00016	U	0.00016	U *	0.00016	U	0.00016	U	0.0017	U	0.000169	U	0.00017	U	0.00017	U	0.0017	U	0.00017	U	0.00017	U
Fluoranthene	***0.98***	0.00031	U	0.00031	U	0.00032	U	0.00031	U	0.00031	U	0.00032	U	0.00031	U	0.0032	U	0.00076	J	0.00015	U	0.00019	J	0.0015	U	0.00015	U	0.00015	U
Fluorene	***0.98***	0.0023		0.00164		0.00018	J	0.0017		0.0025		0.0027	B	0.0019		0.0013	U	0.0098		0.0022		0.0044		0.0025	J	0.0019	J	0.0031	
Indeno(1,2,3-cd)pyrene	***0.0013***	0.00029	U	0.00029	U	0.0003	U	0.00029	U	0.00029	U *	0.0003	U	0.00029	U	***0.003***	U	0.000143	U	0.00014	U	0.00085	U	***0.0085***	U	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.0015	J	0.00183	J	0.00017	U	0.0012	J	0.0072		0.0067	B	0.0049	B	0.0023	J	0.0276		0.0055		0.0063		0.0059	J	0.0036		0.0059	
Phenanthrene	***0.73***	0.00036	J	0.00029	U	0.0003	U	0.00065	J	0.001	J	0.0004	J	0.00052	J	0.003	U	0.00632		0.0004	U	0.0017	J	0.0018	U	0.00061	J	0.00018	U
Phenol	***7.3***	0.032		0.013	*	0.0095		0.15		0.33		0.18		0.02		0.069		0.0326		0.038		0.08		0.092	JL	0.045		0.0038	JL B
Pyrene	***0.73***	0.00033	U	0.00033	U	0.00025	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.0034	U	0.0004	J	0.00016	U	0.00016	U	0.0016	U	0.00016	U	0.00016	U
Pyridine	***0.024***	0.00061	J	0.00024	U	0.00034	U	0.00024	U	0.00024	U	0.00024	U *	0.00024	U	0.0025	U	0.000725	U	0.00072	U *1	0.00072	U *1	0.0072	UJL	0.00072	U	0.00072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																															
2,4-D	***0.07***	0.000039	U	0.0000396	U	0.00039	U	0.000039	U *	0.000039	U	0.00004	U *	0.000039	U	0.000039	U	0.0000453	U	0.000026	U	0.000021	U	0.000027	UJL	0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																															
Lead	***0.015***	0.00089	J	0.000733	U	0.0008	J	0.0011	J	0.0012	J	0.0016	J	0.0016		0.00085		0.00136	J	0.0018	J	0.0017	J	0.0015	J	0.0015	J	0.0015	J
General Chemistry (415.1) (mg/L)																															
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-18																									
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006		1st Q 2007		1st Q 2008		3rd Q 2008		1st Q 2011		1st Q 2012		1st Q 2015		1st Q 2017		3rd Q 2018		3rd Q 2020	
GC/MS Volatiles (SW846 8260B) (mg/L)																											
1,1-Dichloroethylene	***0.007***	0.005	U	0.005	U	0.0068	U	0.005	U	0.005	U	0.005	U	0.000333	U	0.00095	U	0.0036	U	0.0038	U	0.0038	U	0.0019	U
1,2,3-Trichloropropane	***0.00013***	***0.005***	U	***0.005***	U	***0.0052***	U	***0.005***	U	***0.005***	U	***0.005***	U	***0.000588***	U	***0.0015***	U	***0.0039***	U	***0.0058***	U	***0.0058***	U	***0.0029***	U
1,2-Dichlorobenzene	***0.6***	0.01	U	0.012	U	0.0051	U	0.011	U	0.05	U	0.053	U	0.0003	J	0.00050	U	0.0037	U	0.0031	U	0.0031	U	0.0015	U
1,2-Dichloroethane	***0.005***	0.005	U	0.005	U	***0.0053***	U	0.005	U	0.005	U	0.005	U	0.000268	U	0.00070	U	0.005	U	0.0023	U	0.0023	U	0.0012	U
1,2-Dichloropropane	***0.005***	0.005	U	0.005	U	***0.0059***	U	0.005	U	0.005	U	0.005	U	0.000368	U	0.00080	J	***0.0067***	U	0.0027	U	0.0027	U	0.0014	U
Methyl ethyl ketone	***15***	0.01	U	0.03	U	0.03	U	0.05	U	0.05	U	0.05	U	0.0145	J	0.0038	U	0.034	U	0.015	U*	0.015	U	0.044	
4-Methyl-2-pentanone	***2***	0.01	U	0.025	U	0.073	U	0.05	U	0.05	U	0.05	U	0.009	J	0.0023	U	0.021	U	0.007	U	0.007	U	0.0094	J
Acetone	***22***	0.05	U	0.045	U	0.028	U	0.1	U	0.1	U	0.1	U	0.0126	J	0.0050	U	0.07	U	0.0089	U	0.0089	U	0.52	
Benzene	***0.005***	***1.43***		***1.71***		***0.783***		***0.411***		***0.473***		***1.76***		***0.503***		***0.11***		***1.5***		***1.6***		***2.9***		***2.2***	
Carbon disulfide	***2.4***	0.005	U	0.005	U	0.0062	U	0.05	U	0.05	U	0.05	U	0.00126	U	0.0012	U	0.01	U	0.0043	U	0.0043	U	0.0022	U
Chlorobenzene	***0.1***	0.005	U	0.005	U	0.0054	U	0.005	U	0.005	U	0.005	U	0.00034	J	0.00060	U	0.0026	U	0.0037	U	0.0037	U	0.0019	U
Chloroform	***0.24***	0.005	U	0.005	U	0.0066	U	0.005	U	0.005	U	0.005	U	0.000618	U	0.00065	U	0.005	U	0.003	U	0.003	U	0.0015	U
Ethylbenzene	***0.7***	0.0994		0.105		0.0048	U	0.005	U	0.009		0.048		0.0238		0.0045	J	0.096		0.2		0.089		0.066	
n-Hexane	***1.5***	---		0.0118		0.0061	U	0.01	U	0.012		0.01	U	0.0131		0.0034	J	0.02	J	0.016	J	0.0083	J	0.013	
Methylene chloride	***0.005***	0.005	U	0.005	U	***0.0067***	U	0.005	U	0.005	U	0.005	U	0.000753	U	***0.0066***	J	***0.025***	U	0.0035	U	0.0035	U	0.0018	U
Styrene	***0.1***	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.000142	U	0.00035	U	0.0027	U	0.0035	U	0.0035	U	0.0018	U
Tetrachloroethylene	***0.005***	0.005	U	0.005	U	***0.0074***	U	0.005	U	0.005	U	0.005	U	0.000586	U	0.00065	U	***0.0074***	U	***0.0067***	U	***0.0067***	U	0.0033	U
Toluene	***1***	0.0162		0.0169		0.0054	U	0.005	U	0.008		0.009		0.00571		0.0019	J	0.028		0.041		0.041		0.018	
trans-1,2-Dichloroethylene	***0.1***	0.005	U	0.005	U	0.0075	U	0.005	U	0.005	U	0.005	U	0.00043	J	0.00045	U	0.0037	U	0.0038	U	0.0038	U	0.0019	U
Trichloroethylene	***0.005***	0.005	U	0.005	U	***0.0063***	U	0.005	U	0.005	U	0.005	U	0.00039	U	0.00090	U	0.0048	U	0.0028	U	0.0028	U	0.0014	U
Vinyl Acetate	***24***	---		0.025	U	0.021	U	0.05	U	0.05	U	0.05	U	0.00086	J	0.0011	U	0.0081	U	0.017	U	0.017	U	0.0085	U
Vinyl chloride	***0.002***	***0.0026***		***0.0302***		***0.0042***	U	0.002	U	0.002	U	0.002	U	***0.01***	U	0.00055	U	***0.005***	U	***0.005***	U	***0.005***	U	***0.0025***	U
Xylene (total)	***10***	0.179		0.139		0.109		0.073		0.098		0.078		0.0712		0.0072		0.094		0.25		0.14		0.12	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																											
2,4,6-Trichlorophenol	***0.083***	0.01	U	0.008	U	0.0023	U	0.011	U	0.05	U	0.053	U	0.0036	U	0.035	U	0.033	U	0.0033	U	0.017	U	0.017	U
2,4-Dichlorophenol	***0.073***	---		0.004	U	0.002	U	0.011	U	0.05	U	0.053	U	0.00374	U	0.029	U	0.026	U	0.0026	U	0.013	U	0.013	U
2,4-Dimethylphenol	***0.49***	---		0.0236		0.0317		0.026		0.05	U	0.053	U	0.0146	J	0.060	U	0.10	J	0.058		0.009	U	0.075	J
2-Methylnaphthalene	***0.098***	0.0937		***0.14***		0.01		0.023		0.025	U	0.037		0.058	J	0.014	U	0.043	J	0.017		0.043	J	0.025	J
2-Methylphenol	***1.2***	0.01	U	0.004	U	0.0021	U	0.011	U	0.05	U	0.053	U	0.00683	U	0.023	U	0.019	U	0.0019	U	0.0095	U	0.058	J
3&4-Methylphenol	***0.12***	0.01	U	0.008	U	0.0039	U	0.011	U	0.05	U	0.053	U	0.00921	U	0.091	J	0.016	U	0.0016	U	0.008	U	0.024	J
4-Bromophenyl phenyl ether	***0.000061***	***0.01***	U	***0.016***	U	***0.0063***	U	***0.011***	U	***0.05***	U	***0.053***	U	***0.00283***	U	***0.020***	U	***0.025***	U	***0.0025***	U	***0.013***	U	***0.013***	U
Acenaphthene	***1.5***	0.0694		0.0562		0.0391		0.039		0.040		0.040		0.0739	J	0.078	J	0.035	J	0.033		0.025	J	0.042	J
Acenaphthylene	***1.5***	0.01	U	0.008	U	0.0032	U	0.006	U	0.025	U	0.026	U	0.00324	U	0.012	U	0.016	U	0.0016	U	0.008	U	0.008	U
Aniline	***0.16***	---		0.012	U	0.0065	U	0.022	U	0.1	U	0.105	U	0.00948	U	0.016	U	0.012	U	0.0012	U	0.006	U	0.006	U
Anthracene	***7.3***	0.01	U	0.012	U	0.0046	J	0.006	U	0.025	U	0.026	U	0.0104	J	0.0098	U	0.044	U	0.0044	U	0.022	U	0.022	U
Benzo(a)anthracene	***0.0013***	***0.01***	U	***0.004***	U	***0.0021***	U	0.001	U	***0.007***	U	***0.007***	U	***0.00758***	J	***0.016***	U	***0.025***	U	***0.0025***	U	***0.013***	U	***0.013***	U
Benzo(a)pyrene	***0.0002***	***0.01***	U	***0.008***	U	***0.0025***	U	***0.001***	U	***0.003***	U	***0.003***	U	***0.0019***	U	***0.016***	U	***0.013***	U	***0.0013***	U	***0.0065***	U	***0.0065***	U
Benzo(b)fluoranthene	***0.0013***	***0.01***	U	***0.012***	U	***0.0057***	U	0.001	U	***0.007***	U	***0.007***	U	***0.00357***	U	***0.014***	U	***0.018***	U	***0.0018***	U	***0.009***	U	***0.009***	U
Benzo(g,h,i)perylene	***0.73***	0.01	U	0.008	U	0.0024	U	0.006	U	0.025	U	0.026	U	0.00273	U	0.016	U	0.035	U	0.0035	U	0.018	U	0.018	U
Benzo(k)fluoranthene	***0.013***	0.01	U	0.004	U	0.0018	U	0.001	U	0.007	U	0.007	U	0.00487	U	***0.018***	U	***0.016***	U	0.0016	U	0.008	U	0.008	U
Benzyl Alcohol	***12***	0.01	U	0.004	U	0.0026	U	0.011	U	0.05	U	0.053	U	0.00902	U	0.033	U	0.051	U	0.01	J	0.026	U *	0.026	U
bis(2-Chloroethyl)ether	***0.00083***	***0.01***	U	***0.0154***		***0.0176***		***0.001***	U	***0.015***		***0.022***		***0.0209***	J	***0.029***	U	***0.026***	J	***0.025***		***0.009***	U	***0.016***	J
bis(2-Ethylhexyl)phthalate	***0.006***	***0.01***	U	***0.008***	U	0.0034	J	0.006	U	***0.025***	U	***0.026***	U	0.00297	U	***0.072***	U	***0.059***	U	0.0059	U	***0.03***	U	***0.03***	U
Butyl benzyl phthalate	***0.48***	0.01	U	0.008	U	0.0026	U	0.006	U	0.025	U	0.026	U	0.00578	J	0.11	J	0.085	U	0.0085	U	0.043	U	0.043	U
Chrysene	***0.13***	0.01	U	0.008	U	0.0032	U	0.006	U	0.025	U	0.026	U	0.00219	U	0.016	U	0.024	U	0.0024	U	0.012	U	0.012	U
Dibenzo(a,h)anthracene	***0.0002***	***0.01***	U	***0.008***	U	***0.0031***	U	***0.00042***	U	***0.025***	U	***0.002***	U	***0.00188***	U	***0.016***	U	***0.029***	U	***0.0029***	U	***0.015***	U	***0.015***	U
Dibenzofuran	***0.098***	0.0319		0.0325		0.0157		0.011	U	0.05	U	0.053	U	0.0179	J	0.016	U	0.016	U	0.0086	J	0.017	J	0.012	J
Di-n-butyl phthalate	***2.4***	0.01	U	0.008	U	0.0033	U	0.006	U	0.025	U	0.026	U	0.00262	U	0.075	J	0.19	U	0.019	U	0.094	U	0.094	U
Di-n-octyl phthalate	***0.49***	0.01	U	0.004	U	0.0026	U	0.006	U	0.025	U	0.026	U	0.00346	U	0.031	U	0.016	U	0.0016	U	0.008	U	0.008	U
Fluoranthene	***0.98***	0.0162		0.01		0.0139		0.006	U	0.025	U	0.026	U	0.0491	J	0.025	J	0.031	U	0.0031	U	0.016	U	0.016	U
Fluorene	***0.98***	0.0424		0.036		0.0213		0.012		0.025	U	0.026	U	0.0301	J	0.014	U	0.012	U	0.011	J	0.019	J	0.018	J
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.01***	U	***0.008***	U	***0.0024***	U	0.001	U	***0.007***	U	***0.007***	U	***0.00319***	U	***0.014***	U	***0.029***	U	***0.0029***	U	***0.015***	U	***0.015***	U
Naphthalene	***0.49***	0.238		0.265		0.0271		0.075		0.025	U	0.067		0.0698	J	0.074	J	0.06	J	0.013	J	0.087	J	0.043	J
Phenanthrene	***0.73***	0.0322		0.0298		0.0075	J	0.006	U	0.025	U	0.026	U	0.0274	J	0.012	U	0.029	U	0.007	J	0.015	J	0.015	U
Phenol	***7.3***	0.0112		0.0085		0.0131		0.011	U	0.05	U	0.053	U	0.00463	U	0.0078	U	0.014	U	0.064		0.007	U	0.025	J
Pyrene	***0.73***	0.0121		0.0059		0.0119		0.006	U	0.025	U	0.026	U	0.0454	J	0.035	J	0.033	U	0.0033	U	0.017	U	0.017	U
Pyridine	***0.024***	---		0.008	U	0.0029	U	0.011	U	***0.05***	U	***0.053***	U	0.0147	U	0.0078	U	0.024	U	0.0024	U	0.012	U	0.012	U
GC Semi-volatiles (SW846 8151) (mg/L)																											
2,4-D	***0.07***	0.0027		0.0011	U	0.0043	U	0.00111	U	0.0005	U	0.0005	U	0.00439		0.000067	U	0.000038	U	0.00004	U	0.000039	U *	0.00004	U
Metals Analysis (SW 846 6010B) (mg/L)																											
Lead	***0.015***	0.0058		0.0106		0.005		0.003		0.004		0.012		0.0023		0.0057		0.0021	J	0.0022	J	0.00073	U	0.00056	
General Chemistry (415.1) (mg/L)																											
Total Organic Carbon	---	32		92		33		22.9		---		---		---		---		---		---		---		---			

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits

BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-19 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-19																					
SAMPLING PERIOD	(mg/L)	1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																									
1,1-Dichloroethylene	***0.007***	***0.0096***	U	***0.0096***	U	0.0019	U	0.0038	U	0.0038	U	0.0038	U	***0.216***	U	***0.11***	U	***0.022***	U	***0.037***	U	***0.37***	U	***0.37***	U
1,2,3-Trichloropropane	***0.00013***	***0.015***	U	***0.015***	U	***0.0029***	U	***0.0058***	U	***0.0058***	U	***0.0058***	U	***0.283***	U	***0.14***	U	***0.028***	U	***0.025***	U	***0.25***	U	***0.25***	U
1,2-Dichlorobenzene	***0.6***	0.0077	U	0.0077	U	0.0015	U	0.0031	U	0.0031	U	0.0031	U	0.236	U	0.12	U	0.024	U	0.025	U	0.25	U	0.25	U
1,2-Dichloroethane	***0.005***	***0.0058***	U	***0.0058***	U	0.0012	U	0.0023	U	0.0023	U	0.0023	U	***0.285***	U	***0.14***	U	***0.029***	U	***0.03***	U	***0.3***	U	***0.3***	U
1,2-Dichloropropane	***0.005***	***0.0068***	U	***0.0068***	U	0.0014	U	0.0027	U	0.0027	U	0.0027	U	***0.396***	U	***0.2***	U	***0.04***	U	***0.033***	U	***0.33***	U	***0.33***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.038	U	0.038	U	0.0076	U	0.015	U	0.015	U	0.015	U	2.7	U	1.4	U	0.27	U	0.41	U	4.1	U	4.1	U
4-Methyl-2-pentanone	***2***	0.017	U	0.036	J	0.04		0.007	U	0.014	J	0.007	U	1.06	U	0.53	U	0.11	U	0.37	U	***3.7***	U	***3.7***	U
Acetone	***22***	0.022	U	0.022	U	0.0045	U *	0.0089	U *	0.0089	U	0.0089	U	12.3	U	6.2	U	1.2	U	0.06	U	0.6	U	0.6	U
Benzene	***0.005***	***2.6***		***7.1***		***16***		***7.9***		***24***		***60***	B	***79.5***	D	***88***		***47***	B	***24***		***35***		***48***	
Carbon disulfide	***2.4***	0.011	U	0.011	U	0.0022	U	0.0043	U	0.0043	U	0.0043	U	0.373	U	0.19	U	0.037	U	0.095	U	0.95	U	0.95	U
Chlorobenzene	***0.1***	0.036	J	0.031	J	0.036		0.015	J	0.018	J	0.012	J	***0.159***	U	0.08	U	0.016	U	0.027	U	***0.27***	U	***0.27***	U
Chloroform	***0.24***	0.0076	U	0.0076	U	0.0015	U	0.003	U	0.003	U	0.003	U	***0.259***	U	0.13	U	0.026	U	0.032	U	***0.32***	U	***0.32***	U
Ethylbenzene	***0.7***	0.35		0.13		0.3		0.19		0.43		0.29		0.146	U	0.26	U	0.28		0.13		0.21	U	0.21	U
n-Hexane	***1.5***	0.013	U	0.013	U	0.0031	J	0.0051	U	0.0051	U	0.0051	U	0.369	U	0.18	U	0.037	U	0.026	U	0.26	U	0.26	U
Methylene chloride	***0.005***	***0.023***	J B	***0.016***	J B	***0.015***	J B	***0.011***	J	***0.006***	J	***0.024***	J	***1.91***	U	***0.96***	U	***0.19***	U	***0.086***	U	***0.86***	U	***0.86***	U
Styrene	***0.1***	0.0088	U	0.0088	U	0.0018	U	0.0035	U	0.0035	U	0.0035	U	***0.162***	U	***0.31***	U	0.062	U	0.033	U	***0.33***	U	***0.33***	U
Tetrachloroethylene	***0.005***	***0.017***	U	***0.017***	U	0.0033	U	***0.0067***	U	***0.0067***	U	***0.0067***	U	***0.5***	U	***0.25***	U	***0.05***	U	***0.04***	U	***0.4***	U	***0.4***	U
Toluene	***1***	0.014	J	0.053		0.16		0.047		0.13		0.091		0.5	U	0.25	U	0.05	U	0.024	U	0.24	U	0.24	U
trans-1,2-Dichloroethylene	***0.1***	0.0096	U	0.0096	U	0.0019	U	0.0038	U	0.0038	U	0.0038	U	***0.256***	UH	***0.13***	U	0.026	U	0.047	U	***0.47***	U	***0.47***	U
Trichloroethylene	***0.005***	***0.0069***	U	***0.0069***	U	0.0014	U	0.0028	U	0.0028	U	0.0028	U	***0.424***	U	***0.21***	U	***0.042***	U	***0.04***	U	***0.4***	U	***0.4***	U
Vinyl Acetate	***24***	0.043	U	0.043	U	0.0085	U	0.017	U	0.017	U	0.017	U	3.57	U	1.8	U	0.36	U	0.11	U	1.1	U	1.1	U
Vinyl chloride	***0.002***	***0.012***	U	***0.012***	U	***0.0095***	J	***0.005***	U	***0.012***	J	***0.0066***	J	***0.234***	U	***0.12***	U	***0.023***	U	***0.032***	U	***0.32***	U	***0.32***	U
Xylene (total)	***10***	0.34		0.13		0.26		0.18		0.32		0.22		0.192	U	0.16	U	0.18	J	0.11	J	0.62	U	0.62	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																									
2,4,6-Trichlorophenol	***0.083***	0.0033	U	0.017	U *	0.0066	U	0.0066	U	0.0034	U	0.017	U	0.00135	U	0.0014	U	0.0027	U	0.0014	U	0.0027	U	0.0027	U
2,4-Dichlorophenol	***0.073***	0.0026	U	0.013	U *	0.0052	U	0.0052	U	0.0027	U	0.013	U	0.00115	U	0.0011	U	0.0023	U	0.0011	U	0.0023	U	0.0023	U
2,4-Dimethylphenol	***0.49***	***5.6***	*	***4***	B *	***6.3***		***1.9***		***1.2***		***1.3***		***2.45***	D	0.3		***6***		***5.3***		***4.9***		***4.5***	
2-Methylnaphthalene	***0.098***	0.035		0.02	J *	0.053		0.03	B	0.036	B	0.031	J	0.0332		0.024		0.043		0.028		0.036	J	0.027	J
2-Methylphenol	***1.2***	0.024		0.093	*	0.17		0.051		0.11		0.047	J	0.0252		0.03		0.0032	U	0.012	J	0.011	J	0.0032	U
3&4-Methylphenol	***0.12***	0.022		0.077	*	0.0032	U	0.011	J	0.11		0.02	J	0.0144		0.026		0.0089	J	0.0016	U	0.0033	U	0.0033	U
4-Bromophenyl phenyl ether	***0.000061***	***0.0025***	U	***0.013***	U *	***0.005***	U	***0.005***	U	***0.0026***	U	***0.013***	U	***0.00167***	U	***0.0017***	U	***0.0033***	U	***0.0017***	U	***0.0033***	U	***0.0033***	U
Acenaphthene	***1.5***	0.056		0.054	B *	0.069		0.048	B	0.051		0.057		0.0396		0.039		0.057		0.04		0.061		0.053	
Acenaphthylene	***1.5***	0.0016	U	0.008	U *	0.0032	U	0.0032	U	0.0016	U	0.008	U	0.00215	U	0.0034	U	0.0043	U	0.0021	U	0.0043	U	0.0043	U
Aniline	***0.16***	0.0012	U	0.006	U *	0.0024	U	0.0024	U *	0.0012	U	0.006	U	0.0124	L	0.023	*-	0.021	J	0.0031	UJL	0.013	J	0.015	JL
Anthracene	***7.3***	0.0044	U	0.022	U *	0.0088	U	0.0088	U	0.0045	U	0.022	U	0.0028	J	0.0023	J	0.0048	J	0.0015	U	0.005	J	0.0031	U
Benzo(a)anthracene	***0.0013***	***0.0025***	U	***0.013***	U *	***0.005***	U	***0.005***	U	***0.0026***	U	***0.013***	U	***0.0015***	U	***0.0015***	U	***0.003***	U	***0.0015***	U	***0.003***	U	***0.003***	U
Benzo(a)pyrene	***0.0002***	***0.0013***	U	***0.0065***	U *	***0.0026***	U *	***0.0026***	U	***0.0013***	U	***0.0065***	U	***0.00148***	U	***0.0015***	U	***0.003***	U	***0.0015***	U	***0.003***	U	***0.003***	U
Benzo(b)fluoranthene	***0.0013***	***0.0018***	U	***0.009***	U *	***0.0036***	U *	***0.0036***	U	***0.0018***	U	***0.009***	U	***0.0021***	U	***0.0021***	U	***0.0042***	U	***0.0021***	U	***0.0042***	U	***0.0042***	U
Benzo(g,h,i)perylene	***0.73***	0.0035	U	0.018	U *	0.007	U	0.007	U	0.0036	U	0.018	U	0.00143	U	0.0014	U	0.0029	U	0.0014	U	0.0029	U	0.0029	U
Benzo(k)fluoranthene	***0.013***	0.0016	U	0.008	U *	0.0032	U *	0.0032	U	0.0016	U	0.008	U	0.00166	U	0.0017	U	0.0033	U	0.0017	U	0.0033	U	0.0033	U
Benzyl Alcohol	***12***	0.0051	U	0.026	U *	0.01	U *	0.01	U	0.0052	U *	0.086	J	0.008	U	0.043	B *+	0.09	U	0.045	U	0.09	U *+	0.09	U
bis(2-Chloroethyl)ether	***0.00083***	***0.36***		***0.23***	*	***0.38***	J	***0.15***		***0.17***		***0.19***		***0.0015***	U	***0.12***		***0.24***		***0.25***		***0.19***		***0.14***	
bis(2-Ethylhexyl)phthalate	***0.006***	0.0059	U	***0.03***	U *	***0.012***	U *	***0.012***	U	***0.0062***	J	***0.03***	U	***0.126***		0.0022	U	0.0011	U	0.0022	U	0.0045	U	0.0045	U
Butyl benzyl phthalate	***0.48***	0.0085	U	0.043	U *	0.017	U *	0.017	U	0.0087	U	0.043	U	0.00225	U	0.0015	U	0.003	U	0.0015	U	0.003	U	0.003	U
Chrysene	***0.13***	0.0024	U	0.012	U *	0.0048	U *	0.0048	U	0.0024	U	0.012	U	0.00159	U	0.0016	U	0.0032	U	0.0016	U	0.0032	U	0.0032	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0029***	U	***0.015***	U *	***0.0058***	U	***0.0058***	U	***0.003***	U	***0.015***	U	***0.00148***	U	***0.0015***	U	***0.003***	U	***0.0015***	U	***0.003***	U	***0.003***	U
Dibenzofuran	***0.098***	0.029		0.021	J *	0.036		0.023	J B	0.024		0.026	J	0.0204		0.017		0.026	J	0.017	J	0.027	J	0.022	J
Di-n-butyl phthalate	***2.4***	0.019	U	0.094	U	0.037	U	0.037	U	0.019	U	0.094	U	0.008	U	0.12	B *+ *1	0.016	U	0.008	U	0.016	U	0.016	U
Di-n-octyl phthalate	***0.49***	0.0016	U	0.008	U *	0.0032	U *	0.0032	U	0.0016	U	0.008	U	0.00169	U	0.0017	U	0.0034	U	0.0017	U	0.0034	U	0.0034	U
Fluoranthene	***0.98***	0.0031	U	0.016	U	0.0064	J	0.0062	U	0.0034	J	0.016	U	0.0024	J	0.0015	U	0.003	J	0.0015	U	0.0033	J	0.003	U
Fluorene	***0.98***	0.025		0.021	J *	0.032		0.024	J B	0.026		0.026	J	0.022		0.02		0.03	J	0.019	J	0.032	J	0.03	J
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.0029***	U	***0.015***	U *	***0.0058***	U *	***0.0058***	U	***0.003***	U	***0.015***	U	***0.00143***	U	***0.0014***	U	***0.017***	U	***0.0085***	U	***0.017***	U	***0.017***	U
Naphthalene	***0.49***	0.35		0.14	*	***0.51***	J	0.23	B	0.4	B	0.35		0.276		0.26		0.37		0.31		0.31		0.22	
Phenanthrene	***0.73***	0.017		0.03	J *	0.031		0.014	J	0.02		0.024	J	0.016		0.014		0.021	J	0.013	J	0.026	J	0.024	J
Phenol	***7.3***	0.021		0.049	J *	0.15		0.082		0.091		0.11		0.0808		0.078	*1	0.051	J	0.076	JL	0.048	J	0.077	JL B
Pyrene	***0.73***	0.0033	U	0.017	U	0.0066	U	0.0066	U	0.0034	U	0.017	U	0.00159	U	0.0016	U	0.0032	U	0.0016	U	0.0032	U	0.0032	U
Pyridine	***0.024***	0.0024	U	0.012	U	0.0048	U	0.0048	U *	0.0024	U	0.012	U	0.00725	U	0.0072	U *1	0.014	U *1	0.0072	UJL	0.014	U	0.014	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																									
2,4-D	***0.07***	0.000039	U	0.000039	U	0.0073		0.000041	U *	0.0016		0.000039	U	0.0000453	U	0.000026	U	0.000021	U	0.0009		0.000029	U	0.00016	U *1
Metals Analysis (SW 846 6010B) (mg/L)																									
Lead	***0.015***	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.00034	J	0.00019	J	0.000216	J	0.00031	J	0.00031	J	0.00027	J	0.00012	J	0.00037	U
General Chemistry (415.1) (mg/L)																									
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-20					
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006	
GC/MS Volatiles (SW846 8260B) (mg/L)							
1,1-Dichloroethylene	***0.007***	***5***	U	***10***	U	***14.00***	U
1,2,3-Trichloropropane	***0.00013***	***5***	U	***10***	U	***10.00***	U
1,2-Dichlorobenzene	***0.6***	***11***	U	***1***	U	***1.60***	U
1,2-Dichloroethane	***0.005***	***5***	U	***10***	U	***11.00***	U
1,2-Dichloropropane	***0.005***	***5***	U	***10***	U	***11.00***	U
4-Methyl-2-pentanone	***2***	***12.2***		***50***	U	***150.00***	U
Acetone	***22***	***50***	U	***90***	U	***56.00***	U
Benzene	***0.005***	***4,690***		***586***		***606***	
Carbon disulfide	***2.4***	***5***	U	***10***	U	***12.00***	U
Chlorobenzene	***0.1***	***5***	U	***10***	U	***11.00***	U
Chloroform	***0.24***	***5***	U	***10***	U	***13.00***	U
Ethylbenzene	***0.7***	***10.5***		***10***	U	***9.60***	U
Methyl ethyl ketone	***15***	10	U	***60***	U	***60.00***	U
Methylene chloride	***0.005***	***5***	U	***10***	U	***13.00***	U
n-Hexane	***1.5***	---		***20***	U	***12.00***	U
Styrene	***0.1***	***65.8***		***10***	U	***10.00***	U
Tetrachloroethylene	***0.005***	***5***	U	***10***	U	***15.00***	U
Toluene	***1***	***818***		***21***		***22.3***	J
trans-1,2-Dichloroethylene	***0.1***	***5***	U	***10***	U	***15.00***	U
Trichloroethylene	***0.005***	***5***	U	***10***	U	***13.00***	U
Vinyl Acetate	***24***	---		***50***	U	***42.00***	U
Vinyl chloride	***0.002***	***2***	U	***20***	U	***8.40***	U
Xylene (total)	***10***	***40.8***		***20***	U	***40.00***	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)							
2,4,6-Trichlorophenol	***0.083***	***11***	U	***1***	U	***0.71***	U
2,4-Dichlorophenol	***0.073***	---		***0***	U	***0.61***	U
2,4-Dimethylphenol	***0.49***	---		***5***		***4.4***	
2-Methylnaphthalene	***0.098***	***112***		***21***		***111***	
2-Methylphenol	***1.2***	***11***	U	1		0.63	U
3&4-Methylphenol	***0.12***	***11***	U	***1***		***1.20***	U
4-Bromophenyl phenyl ether	***0.000061***	***11***	U	***1***	U	***1.90***	U
Acenaphthene	***1.5***	***73.3***		***14***		***75.7***	
Acenaphthylene	***1.5***	***11***	U	1		***3.29***	
Aniline	***0.16***	---		***1***	U	***2.00***	U
Anthracene	***7.3***	***42.3***		***8***		***28.1***	
Benzo(a)anthracene	***0.0013***	***11***	U	***3***		***11***	
Benzo(a)pyrene	***0.0002***	***11***	U	***1***		***3.28***	
Benzo(b)fluoranthene	***0.0013***	***11***	U	***1***		***5.02***	
Benzo(g,h,i)perylene	***0.73***	***11***	U	1	U	***0.74***	U
Benzo(k)fluoranthene	***0.013***	***11***	U	***0***		***2.16***	J
Benzyl Alcohol	***12***	11	U	0	U	0.79	U
bis(2-Chloroethyl)ether	***0.00083***	***11***	U	***1***		***0.83***	U
bis(2-Ethylhexyl)phthalate	***0.006***	***11***	U	***1***	U	***0.97***	U
Butyl benzyl phthalate	***0.48***	***11***	U	***2***		***6.45***	
Chrysene	***0.13***	***11***	U	***2***		***9.95***	
Dibenzo(a,h)anthracene	***0.0002***	***11***	U	***1***	U	***0.94***	U
Dibenzofuran	***0.098***	***58***		***12***		***57.7***	
Di-n-butyl phthalate	***2.4***	***11***	U	1	U	1.00	U
Di-n-octyl phthalate	***0.49***	***11***	U	0	U	***0.80***	U
Fluoranthene	***0.98***	***80***		***16***		***73.4***	
Fluorene	***0.98***	***78***		***14***		***72.5***	
Indeno(1,2,3-cd)pyrene	***0.0013***	***11***	U	***1***	U	***0.74***	U
Naphthalene	***0.49***	***370***		***64***		***333***	
Phenanthrene	***0.73***	***162***		***29***		***171***	
Phenol	***7.3***	***11***	U	1		0.31	U
Pyrene	***0.73***	***45.8***		***10***		***44.1***	
Pyridine	***0.024***	---		***1***	U	***0.90***	U
GC Semi-volatiles (SW846 8151) (mg/L)							
2,4-D	***0.07***	0.022	U	0		0.00	U
Metals Analysis (SW 846 6010B) (mg/L)							
Lead	***0.015***	***0.189***		***0***		***0.0507***	
General Chemistry (415.1) (mg/L)							
Total Organic Carbon	***---***	195		300		179	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits

BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-21 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-21																			
SAMPLING PERIOD	(mg/L)	1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																					
1,1-Dichloroethylene	***0.007***	0.0019	U	0.0038	U	0.0038	U	0.0038	U	***0.108***	U	***0.011***	U	***0.011***	U	***0.015***	U	***0.074***	U	***0.015***	U
1,2,3-Trichloropropane	***0.00013***	***0.0029***	U	***0.0058***	U	***0.0058***	U	***0.0058***	U	***0.142***	U	***0.014***	U	***0.014***	U	***0.0098***	U	***0.049***	U	***0.0098***	U
1,2-Dichlorobenzene	***0.6***	0.0015	U	0.0031	U	0.0031	U	0.0031	U	0.118	U	0.012	U	0.012	U	0.01	U	0.051	U	0.01	U
1,2-Dichloroethane	***0.005***	0.0012	U	0.0023	U	0.0023	U	0.0023	U	***0.143***	U	***0.014***	U	***0.014***	U	***0.012***	U	***0.059***	U	***0.012***	U
1,2-Dichloropropane	***0.005***	0.0014	U	0.0027	U	0.0027	U	0.0027	U	***0.198***	U	***0.02***	U	***0.02***	U	***0.013***	U	***0.067***	U	***0.013***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.0076	U	0.015	U	0.015	U	0.015	U	1.35	U	0.14	U	0.14	U	0.17	U	0.83	U	0.17	U
4-Methyl-2-pentanone	***2***	0.0035	U	0.007	U	0.007	U	0.007	U	0.532	U	0.053	U	0.053	U	0.15	U	0.75	U	0.15	U
Acetone	***22***	0.0045	U *	0.0089	U *	0.0089	U	0.0089	U	6.16	U	0.62	U	0.62	U	0.024	U	0.12	U	0.024	U
Benzene	***0.005***	***5.2***		***6***		***4.8***		***4.8***		***8.81***		***8.2***	B	***11***	B	***7.2***		***11***		***2.7***	
Carbon disulfide	***2.4***	0.0022	U	0.0043	U	0.0043	U	0.0043	U	0.187	U	0.019	U	0.019	U	0.038	U	0.19	U	0.038	U
Chlorobenzene	***0.1***	0.022		0.024		0.034		0.031		0.0795	U	0.027	J	0.008	U	0.011	U	0.053	U	0.015	J
Chloroform	***0.24***	0.0015	U	0.003	U	0.003	U	0.003	U	0.129	U	0.013	U	0.013	U	0.013	U	0.064	U	0.013	U
Ethylbenzene	***0.7***	0.3		0.27		0.58		0.42		0.275	J	0.37		0.42		0.2		0.42		0.24	
n-Hexane	***1.5***	0.0026	U	0.0051	U	0.0051	U	0.0051	U	0.185	U	0.018	U	0.018	U	0.07	J	0.052	U	0.01	U
Methylene chloride	***0.005***	***0.018***	J B	***0.013***	J	***0.0068***	J	***0.026***	J	***0.956***	U	***0.096***	U	***0.096***	U	***0.035***	U	***0.17***	U	***0.035***	U
Styrene	***0.1***	0.0018	U	0.0035	U	0.0035	U	0.0035	U	0.0812	U	0.031	U	0.031	U	0.013	U	0.066	U	0.013	U
Tetrachloroethylene	***0.005***	0.0033	U	***0.0067***	U	***0.0067***	U	***0.0067***	U	***0.25***	U	***0.025***	U	***0.025***	U	***0.016***	U	***0.08***	U	***0.016***	U
Toluene	***1***	0.1		0.049		0.059		0.054		0.25	U	0.059		0.05		0.015	J	0.048	U	0.0095	U
trans-1,2-Dichloroethylene	***0.1***	0.0019	U	0.0038	U	0.0038	U	0.0038	U	***0.128***	U	0.013	U	0.013	U	0.019	U	0.095	U	0.019	U
Trichloroethylene	***0.005***	0.0014	U	0.0028	U	0.0028	U	0.0028	U	***0.212***	U	***0.021***	U	***0.021***	U	***0.016***	U	***0.079***	U	***0.016***	U
Vinyl Acetate	***24***	0.0085	U	0.017	U	0.017	U	0.017	U	1.78	U	0.18	U	0.18	U	0.043	U	0.21	U	0.043	U
Vinyl chloride	***0.002***	***0.0069***	J	***0.005***	U	***0.017***	J	***0.011***	J	***0.135***	J	***0.012***	U	***0.012***	U	***0.013***	U	***0.064***	U	***0.013***	U
Xylene (total)	***10***	0.16		0.11		0.15		0.087		0.0958	U	0.12	J	0.13	J	0.056	J	0.12	U	0.046	J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																					
2,4,6-Trichlorophenol	***0.083***	0.0033	U	0.0066	U	0.00033	U	0.0033	U	0.000135	U	0.00014	U	0.0014	U *1	0.0014	U	0.00068	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.0026	U	0.0052	U	0.00026	U	0.0026	U	0.000115	U	0.00011	U	0.0011	U	0.0011	U	0.00057	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.29	*	0.21		0.2		0.06		0.167	D	0.014		0.43		***0.52***		0.05		0.11	
2-Methylnaphthalene	***0.098***	0.036		0.037	B	0.055	J B	0.015		0.0258		0.025		0.054		0.047		0.058		0.054	
2-Methylphenol	***1.2***	0.0019	U	0.0038	U	0.00019	U	0.0019	U	0.00232		0.00016	U	0.0016	U	0.0016	U	0.0008	U	0.00016	U
3&4-Methylphenol	***0.12***	0.0016	U *	0.0032	U	0.00033	J	0.0016	U	0.0104		0.001		0.0016	U	0.0016	U	0.00081	U	0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.0025***	U	***0.005***	U	***0.00025***	U	***0.0025***	U	***0.000167***	U	***0.00017***	U	***0.0017***	U	***0.0017***	U	***0.00084***	U	***0.00017***	U
Acenaphthene	***1.5***	0.056		0.061	B	0.094		0.029		0.055		0.056		0.09		0.081		0.089		0.098	
Acenaphthylene	***1.5***	0.0016	U	0.0032	U	0.0014		0.0016	U	0.000215	U	0.00096		0.0021	U	0.0021	U	0.0011	U	0.00021	U
Aniline	***0.16***	0.0097	J	0.0024	U *	0.00012	U	0.0012	U	0.0968	DL	0.00084	*-	0.0031	U	0.0031	UJL	0.0016	U	0.0011	JL
Anthracene	***7.3***	0.0044	U	0.0088	U	0.0034		0.0044	U	0.000154	U	0.0023		0.0015	U	0.0026	J	0.0035	J	0.0049	
Benzo(a)anthracene	***0.0013***	***0.0025***	U	***0.005***	U	0.00025	U	***0.0025***	U	0.00015	U	0.00015	U	***0.0015***	U	***0.0015***	U	0.00075	U	0.00015	U
Benzo(a)pyrene	***0.0002***	***0.0013***	U	***0.0026***	U	0.00013	U	***0.0013***	U	0.000148	U	0.00015	U	***0.0015***	U	***0.0015***	U	***0.00074***	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	***0.0018***	U	***0.0036***	U	0.00018	U	***0.0018***	U	0.00021	U	0.00021	U	***0.0021***	U	***0.0021***	U	0.001	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.0035	U	0.007	U	0.00035	U	0.0035	U	0.000143	U	0.00014	U	0.0014	U	0.0014	U	0.00071	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.0016	U	0.0032	U	0.00016	U	0.0016	U	0.000166	U	0.00017	U	0.0017	U	0.0017	U	0.00083	U	0.00017	U
Benzyl Alcohol	***12***	0.0051	U *	0.01	U	0.00051	U *	0.0051	U	0.00436		0.0031	*+ B	0.045	U	0.045	U	0.023	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.041***		***0.024***	J	***0.028***	J	***0.0094***	J	0.00015	U	***0.015***		***0.039***		***0.038***		***0.031***		***0.028***	
bis(2-Ethylhexyl)phthalate	***0.006***	0.0059	U	***0.012***	U	0.00059	U	0.0059	U	***0.0226***		0.001		0.0022	U	0.0022	U	0.0011	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.0085	U	0.017	U	0.00085	U	0.0085	U	0.000225	U	0.00015	U	0.0015	U	0.0015	U	0.00075	U	0.00015	U
Chrysene	***0.13***	0.0024	U	0.0048	U	0.00024	U	0.0024	U	0.000159	U	0.00016	U	0.0016	U	0.0016	U	0.0008	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0029***	U	***0.0058***	U	***0.00029***	U	***0.0029***	U	0.000148	U	0.00015	U	***0.0015***	U	***0.0015***	U	***0.00074***	U	0.00015	U
Dibenzofuran	***0.098***	0.021		0.023	J B	0.038	J	0.011	J	0.0189		0.022		0.037		0.03		0.034		0.033	
Di-n-butyl phthalate	***2.4***	0.019	U	0.037	U	0.0019	U	0.019	U	0.0008	U	0.11	B *+ *1	0.008	U	0.008	U	0.004	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.0016	U	0.0032	U	0.00016	U	0.0016	U	0.000169	U	0.00017	U	0.0017	U	0.0017	U	0.00085	U	0.00017	U
Fluoranthene	***0.98***	0.0031	U	0.0062	U	0.00064	J	0.0031	U	0.00048	J	0.00015	U	0.0015	U	0.0015	U	0.00074	U	0.00062	J
Fluorene	***0.98***	0.023		0.026	J B	0.038	J	0.013	J	0.0227		0.024		0.032		0.033		0.037		0.039	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.0029***	U	***0.0058***	U	0.00029	U	***0.0029***	U	0.000143	U	0.00014	U	***0.0085***	U	***0.0085***	U	***0.0043***	U	0.00085	U
Naphthalene	***0.49***	0.17	B	0.2	B	0.28	B	0.058		0.0982	D	0.13		0.47		***0.6***		0.31		0.42	
Phenanthrene	***0.73***	0.0054	J	0.0058	U	0.0071		0.0039	J	0.00456		0.0043		0.0018	U	0.0049	J	0.0062	J	0.0071	
Phenol	***7.3***	0.056		0.03		0.011		0.0076	J	0.0401		0.019	*1	0.021	J	0.024	JL	0.01	J	0.0061	JL B
Pyrene	***0.73***	0.0033	U	0.0066	U		U	0.0033	U	0.0002	J	0.00016	U	0.0016	U	0.0016	U	0.0008	U	0.00016	U
Pyridine	***0.024***	0.0024	U *	0.0048	U *	0.00026	J	0.0024	U	0.00184		0.0015	B *1	0.0072	U *1	0.0072	UJL	0.0036	U	0.0015	JLB
GC Semi-volatiles (SW846 8151) (mg/L)																					
2,4-D	***0.07***	0.000039	U	0.000041	U *	0.00004	U	0.000039	U	0.0000453	U	0.000026	U	0.000021	U	0.000027	UJL	0.000029	U	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)																					
Lead	***0.015***	0.00077	J	0.00073	U	0.00017	U	0.00017	U	0.000152	U	0.00053	J	0.00041	J	0.00022	J	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																					
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-22 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-22																					
SAMPLING PERIOD	(mg/L)	3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																							
1,1-Dichloroethylene	***0.007***	0.00096	U	0.00096	U	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.0011	U	0.00074	U	0.0015	U	0.0037	U
1,2,3-Trichloropropane	***0.00013***	***0.0015***	U	***0.0015***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.0014***	U	***0.00049***	U	***0.00098***	U	***0.0025***	U
1,2-Dichlorobenzene	***0.6***	0.00077	U	0.00077	U	0.00015	U	0.00015	U	0.00015	U	0.000236	U	0.00024	U	0.0012	U	0.00051	U	0.001	U	0.0025	U
1,2-Dichloroethane	***0.005***	0.00058	U	0.00058	U	0.00012	U	0.00012	U	0.00012	U	0.00448		0.00029	U	0.0014	U	0.00059	U	0.0012	U	0.003	U
1,2-Dichloropropane	***0.005***	0.00068	U	0.00068	U	0.00014	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.002	U	0.00067	U	0.0013	U	0.0033	U
Methyl ethyl ketone (2-Butanone)	***15***	0.0038	U	0.0038	U	0.00076	U	0.00076	U	0.00076	U	0.0027	U	0.0027	U	0.014	U	0.0083	U	0.017	U	0.041	U
4-Methyl-2-pentanone	***2***	0.0017	U	0.0017	U	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0053	U	0.0075	U	0.015	U	0.037	U
Acetone	***22***	0.0022	U	0.0022	U *	0.00045	U *	0.00045	U	0.00045	U	0.0123	U	0.012	U	0.062	U	0.012	J	0.0024	U	0.006	U
Benzene	***0.005***	***0.3***		***0.54***		***0.22***		***0.21***		***0.12***		***0.159***	D	***0.081***		***0.3***		***0.068***		***0.2***		***0.079***	
Carbon disulfide	***2.4***	0.0011	U	0.0011	U	0.00022	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.0019	U	0.0019	U	0.0038	U	0.0095	U
Chlorobenzene	***0.1***	0.00093	U	0.00093	U	0.00019	U	0.00019	U	0.00019	U	0.000159	U	0.00021	J	0.0008	U	0.00053	U	0.0011	U	0.0027	U
Chloroform	***0.24***	0.00076	U	0.00076	U	0.00015	U	0.00015	U	0.00015	U	0.000259	U	0.00026	U	0.0013	U	0.00064	U	0.0013	U	0.0032	U
Ethylbenzene	***0.7***	0.048		0.04		0.022		0.0076		0.012		0.0141		0.011		0.012		0.0047		0.0089		0.0079	
n-Hexane	***1.5***	0.015		0.032		0.017		0.021		0.016		0.0152		0.015		0.02	J	0.0071		0.014		0.009	J
Methylene chloride	***0.005***	0.0048	J B	***0.0057***	J B	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	***0.0096***	U	0.0017	U	0.0035	U	***0.0086***	U
Styrene	***0.1***	0.00088	U	0.00088	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.0013		0.0031	U	0.00066	U	0.0013	U	0.0033	U
Tetrachloroethylene	***0.005***	0.0017	U	0.0017	U	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0025	U	0.0008	U	0.0016	U	0.004	U
Toluene	***1***	0.01		0.01		0.01		0.0074		0.0093		0.00754		0.01		0.012		0.0069		0.0081		0.0089	
trans-1,2-Dichloroethylene	***0.1***	0.00096	U	0.00096	U	0.00019	U	0.00019	U	0.00019	U	0.000256	U	0.00026	U	0.0013	U	0.00095	U	0.0019	U	0.0047	U
Trichloroethylene	***0.005***	0.00069	U	0.00069	U	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.0021	U	0.00079	U	0.0016	U	0.004	U
Vinyl Acetate	***24***	0.0043	U	0.0043	U	0.00085	U	0.00085	U	0.0046		0.00357	U	0.0036	U	0.018	U	0.0021	U	0.0043	U	0.011	U
Vinyl chloride	***0.002***	0.0012	U	0.0012	U	0.0016	J	0.00071	J	0.00082	J	0.00049	J	0.00023	U	0.0012	U	0.00064	U	0.0013	U	***0.0032***	U
Xylene (total)	***10***	0.05		0.089		0.052		0.039		0.037		0.043		0.049		0.058		0.028		0.041		0.041	J
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																							
2,4,6-Trichlorophenol	***0.083***	0.0069	U *	0.0033	U	0.0066	U	0.00034	U	0.0033	U	0.000135	U	0.00068	U	0.00068	U *1	0.0014	U	0.00068	U	0.0014	U
2,4-Dichlorophenol	***0.073***	0.0054	U *	0.0026	U	0.0052	U	0.00061	J	0.0026	U	0.000115	U	0.00057	U	0.00057	U	0.0011	U	0.00057	U	0.0011	U
2,4-Dimethylphenol	***0.49***	0.01	J B *	0.0018	U *	0.0036	U	0.00018	U	0.0018	U	0.000148	U	0.00074	U	0.0036	J	0.0015	U	0.00074	U	0.006	J
2-Methylnaphthalene	***0.098***	0.011	J *	0.0014	U	0.0028	U	0.01	B	0.0038	J	0.0151		0.045		0.023		0.019	J	0.028		0.039	
2-Methylphenol	***1.2***	0.004	U *	0.0019	U	0.0038	U	0.00019	U	0.0019	U	0.000159	U	0.0008	U	0.0008	U	0.0016	U	0.0008	U	0.0016	U
3&4-Methylphenol	***0.12***	0.0033	U *	0.0016	U *	0.0032	U	0.0016		0.0016	U	0.00328		0.00081	U	0.00081	U	0.0016	U	0.00081	U	0.0016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.0052***	U *	***0.0025***	U	***0.005***	U	***0.00026***	U	***0.0025***	U	***0.000167***	U	***0.00084***	U	***0.00084***	U	***0.0017***	U	***0.00084***	U	***0.0017***	U
Acenaphthene	***1.5***	0.014	J B *	0.0016	U	0.0032	U	0.0067		0.0052	J	0.00696		0.015		0.0092	J	0.013	J	0.011		0.014	J
Acenaphthylene	***1.5***	0.0033	U *	0.0016	U	0.0032	U	0.00074	J	0.0016	U	0.000215	U	0.0017	U	0.0011	U	0.0021	U	0.0011	U	0.0021	U
Aniline	***0.16***	0.0025	U *	0.0033	J	0.0024	U *	0.00012	U	0.0012	U	0.000314	UL	0.0016	U *-	0.0016	U	0.0031	UJL	0.0016	U	0.0031	UJL
Anthracene	***7.3***	0.0092	U *	0.0044	U	0.0088	U	0.00084	J	0.0044	U	0.00112		0.0015	J	0.0016	J	0.0017	J	0.0016	J	0.0024	J
Benzo(a)anthracene	***0.0013***	***0.0052***	U *	***0.0025***	U	***0.005***	U	0.00026	U	***0.0025***	U	0.00015	U	0.00075	U	0.00075	U	***0.0015***	U	0.00075	U	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***0.0027***	U *	***0.0013***	U	***0.0026***	U	0.00013	U	***0.0013***	U	0.000148	U	***0.00074***	U	***0.00074***	U	***0.0015***	U	***0.00074***	U	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***0.0038***	U *	***0.0018***	U	***0.0036***	U	0.0002	J	***0.0018***	U	0.00021	U	0.001	U	0.001	U	***0.0021***	U	0.001	U	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.0073	U *	0.0035	U	0.007	U	0.00036	U	0.0035	U	0.000143	U	0.00071	U	0.00071	U	0.0014	U	0.00071	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	0.0033	U *	0.0016	U	0.0032	U	0.00016	U	0.0016	U	0.000166	U	0.00083	U	0.00083	U	0.0017	U	0.00083	U	0.0017	U
Benzyl Alcohol	***12***	0.011	U *	0.0051	U *	0.01	U	0.00052	U *	0.0051	U	0.0008	U	0.0045	J B *+	0.023	U	0.045	U	0.023	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0038***	U *	***0.0018***	U	***0.0036***	U	0.00018	U	***0.0018***	U	0.00015	U	***0.0014***	U	***0.0014***	U	***0.0028***	U	***0.0042***	J	***0.0028***	U
bis(2-Ethylhexyl)phthalate	***0.006***	***0.012***	U *	0.0059	U	***0.012***	U	0.0006	U	0.0059	U	0.000278	U	0.0011	U	0.0011	U	0.0022	U	0.0011	U	0.0022	U
Butyl benzyl phthalate	***0.48***	0.018	U *	0.0085	U	0.017	U	0.00087	U	0.0085	U	0.000225	U	0.00075	U	0.00075	U	0.0015	U	0.00075	U	0.0015	U
Chrysene	***0.13***	0.005	U *	0.0024	U	0.0048	U	0.00024	U	0.0024	U	0.000159	U	0.0008	U	0.0008	U	0.0016	U	0.0008	U	0.0016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.006***	U *	***0.0029***	U	***0.0058***	U	***0.0003***	U	***0.0029***	U	0.000148	U	***0.00074***	U	***0.00074***	U	***0.0015***	U	***0.00074***	U	***0.0015***	U
Dibenzofuran	***0.098***	0.0079	J *	0.0016	U	0.0032	U	0.0026		0.0028	J	0.0042		0.0089		0.0063	J	0.0061	J	0.0065	J	0.0093	J
Di-n-butyl phthalate	***2.4***	0.039	U	0.019	U	0.037	U	0.0019	U	0.019	U	0.0008	U	0.12	B *+ *1	0.004	U	0.008	U	0.004	U	0.008	U
Di-n-octyl phthalate	***0.49***	0.0033	U *	0.0016	U	0.0032	U	0.00016	U	0.0016	U	0.000169	U	0.00085	U	0.00085	U	0.0017	U	0.00085	U	0.0017	U
Fluoranthene	***0.98***	0.0065	U	0.0031	U	0.0062	U	0.0016	J	0.0031	U	0.0012		0.00074	U	0.00094	J	0.0015	J	0.0015	J	0.0024	J
Fluorene	***0.98***	0.009	J *	0.0012	U	0.0024	U	0.0039		0.003	J	0.0046		0.0089		0.0065	J	0.0071	J	0.0076	J	0.0095	J
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.006***	U *	***0.0029***	U	***0.0058***	U	0.0003	U	***0.0029***	U	0.000143	U	0.00071	U	***0.0043***	U	***0.0085***	U	***0.0043***	U	***0.0085***	U
Naphthalene	***0.49***	0.027	J *	0.0016	U	0.0032	U	0.074	B	0.012	J	0.0621		0.064		0.018		0.0076	J	0.013		0.0098	J
Phenanthrene	***0.73***	0.0096	J *	0.0029	U	0.0058	U	0.0026		0.0029	U	0.00424		0.0083		0.0051	J	0.0044	J	0.0066	J	0.0099	J
Phenol	***7.3***	0.0029	U *	0.0014	U	0.0028	U	0.0082		0.0014	U	0.00808		0.004	U *1	0.0098	J	0.0046	JL	0.001	U	0.002	UJL
Pyrene	***0.73***	0.0069	U	0.0033	U	0.0066	U	0.0012	J	0.0033	U	0.00112		0.0018	J	0.0011	J	0.0016	U	0.0011	J	0.0017	J
Pyridine	***0.024***	0.005	U	0.0024	U *	0.0048	U *	0.0006	J	0.0024	U	0.000725	U	0.0036	U *1	0.0036	U *1	0.0072	UJL	0.0036	U	0.0072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																							
2,4-D	***0.07***	0.000039	U *	0.000039	U	0.00004	U *	0.0007		3.9E-05	U	0.0000453	U	0.00059		0.0033		0.008	JL	0.0051		0.0034	
Metals Analysis (SW 846 6010B) (mg/L)																							
Lead	***0.015***	0.00073	U	0.00073	U	0.00073	U	0.00072		0.00021	J	0.000278	J	0.00091	J	0.00069	J	0.0095		0.00081	J	0.0019	J
General Chemistry (415.1) (mg/L)																							
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	MW-23					
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006	
GC/MS Volatiles (SW846 8260B) (mg/L)							
1,1-Dichloroethylene	***0.007***	0.005	U	***1***	U	***0.14***	U
1,2,3-Trichloropropane	***0.00013***	***0.005***	U	***1***	U	***0.1***	U
1,2-Dichlorobenzene	***0.6***	0.5	U	0.03	U	0.0137	
1,2-Dichloroethane	***0.005***	0.005	U	***1***	U	***0.11***	U
1,2-Dichloropropane	***0.005***	0.005	U	***1***	U	***0.11***	U
4-Methyl-2-pentanone	***2***	***6.18***		***5***	U	1.75	J
Acetone	***22***	0.231		9	U	0.56	U
Benzene	***0.005***	***58.1***		***46.1***		***37.2***	
Carbon disulfide	***2.4***	0.005	U	1	U	0.12	U
Chlorobenzene	***0.1***	0.005	U	***1***	U	***0.11***	U
Chloroform	***0.24***	0.005	U	***1***	U	0.13	U
Ethylbenzene	***0.7***	***6.26***		***6.16***		***5.4***	
Methyl ethyl ketone	***15***	0.01	U	6	U	0.6	U
Methylene chloride	***0.005***	0.005	U	***1***	U	***0.13***	U
n-Hexane	***1.5***	---		***2***	U	0.12	U
Styrene	***0.1***	0.005	U	***1***	U	0.1	U
Tetrachloroethylene	***0.005***	***0.0053***		***1***	U	***0.15***	U
Toluene	***1***	***27***		***17.1***		***9.92***	
trans-1,2-Dichloroethylene	***0.1***	0.005	U	***1***	U	***0.15***	U
Trichloroethylene	***0.005***	0.005	U	***1***	U	***0.13***	U
Vinyl Acetate	***24***	---		5	U	0.42	U
Vinyl chloride	***0.002***	***0.0651***		***2***	U	***0.084***	U
Xylene (total)	***10***	6.16		6.58		5.35	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)							
2,4,6-Trichlorophenol	***0.083***	***0.5***	U	0.02	U	0.0024	U
2,4-Dichlorophenol	***0.073***	---		0.01	U	0.002	U
2,4-Dimethylphenol	***0.49***	---		***0.554***		***0.78***	
2-Methylnaphthalene	***0.098***	***0.5***	U	***0.526***		***0.452***	
2-Methylphenol	***1.2***	0.5	U	0.049		0.0457	
3&4-Methylphenol	***0.12***	***8.05***		***0.574***		***0.431***	
4-Bromophenyl phenyl ether	***0.000061***	***0.5***	U	***0.04***	U	***0.0064***	U
Acenaphthene	***1.5***	0.5	U	0.195		0.201	
Acenaphthylene	***1.5***	0.5	U	0.0206		0.0204	
Aniline	***0.16***	---		0.03	U	***0.181***	
Anthracene	***7.3***	0.5	U	0.0502		0.0443	
Benzo(a)anthracene	***0.0013***	***0.5***	U	***0.0132***		***0.0118***	
Benzo(a)pyrene	***0.0002***	***0.5***	U	***0.02***	U	***0.0044***	J
Benzo(b)fluoranthene	***0.0013***	***0.5***	U	***0.03***	U	***0.0058***	U
Benzo(g,h,i)perylene	***0.73***	0.5	U	0.02	U	0.0025	U
Benzo(k)fluoranthene	***0.013***	***0.5***	U	0.01	U	0.0025	J
Benzyl Alcohol	***12***	0.5	U	0.034		0.0796	
bis(2-Chloroethyl)ether	***0.00083***	***0.5***	U	***0.0169***		***0.0213***	
bis(2-Ethylhexyl)phthalate	***0.006***	***0.5***	U	***0.02***	U	0.0057	J
Butyl benzyl phthalate	***0.48***	***0.5***	U	0.139		0.146	
Chrysene	***0.13***	***0.5***	U	0.02	U	0.0102	
Dibenzo(a,h)anthracene	***0.0002***	***0.5***	U	***0.02***	U	***0.0031***	U
Dibenzofuran	***0.098***	***0.5***	U	***0.156***		***0.157***	
Di-n-butyl phthalate	***2.4***	0.5	U	0.02	U	0.0033	U
Di-n-octyl phthalate	***0.49***	***0.5***	U	0.01	U	0.0027	U
Fluoranthene	***0.98***	0.5	U	0.0879		0.0776	
Fluorene	***0.98***	0.5	U	0.156		0.154	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.5***	U	***0.02***	U	***0.0025***	U
Naphthalene	***0.49***	***3.07***		***2.82***		***2.49***	
Phenanthrene	***0.73***	0.5	U	0.23		0.248	
Phenol	***7.3***	0.5	U	0.0468		0.0727	
Pyrene	***0.73***	0.5	U	0.0509		0.058	
Pyridine	***0.024***	---		0.02	U	0.003	U
GC Semi-volatiles (SW846 8151) (mg/L)							
2,4-D	***0.07***	0.0054	U	0.0011	U	0.0011	U
Metals Analysis (SW 846 6010B) (mg/L)							
Lead	***0.015***	0.0092		***0.0162***		0.0096	
General Chemistry (415.1) (mg/L)							
Total Organic Carbon	---	92		84		25	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits
BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-24R																																	
SAMPLING PERIOD	(mg/L)	3rd Q 2008		1st Q 2009		3rd Q 2009		3rd Q 2010		3rd Q 2012		3rd Q 2018		3rd Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																																			
1,1-Dichloroethylene	***0.007***	***0.1***	U	0.005	U	***0.05***	U	***0.013***	J	***0.019***	J	***260***		***250***		***160***		***340***		***450***		***0.108***	U	***0.022***	U	***0.011***	U	***0.74***	U	***1.5***	U	***1.5***	U
1,2,3-Trichloropropane	***0.00013***	***0.1***	U	***0.005***	U	***0.05***	U	***0.023***	J	***0.015***	U	***0.014***	J	***0.019***	U	***0.019***	U	***0.019***	U	***0.096***	U	***0.142***	U	***0.092***	J	***0.014***	U	***0.49***	U	***0.98***	U	***0.98***	U
1,2-Dichlorobenzene	***0.6***	***1***	U	***1.02***	U	0.05	U	0.033	J	0.053		***2.8***		***1.1***		0.58		***1.8***		***1.4***		0.118	U	0.076	J	0.059		0.51	U	***1***	U	***1***	U
1,2-Dichloroethane	***0.005***	***0.1***	U	0.005	U	***0.05***	U	***0.01***	U	***0.0070***	U	***0.41***		***0.045***	U *	***0.045***	U	***0.045***	U	***0.22***	U	***0.143***	U	***0.029***	U	***0.014***	U	***3.9***		***1.2***	U	***1.2***	U
1,2-Dichloropropane	***0.005***	***0.1***	U	0.005	U	***0.05***	U	***0.023***	J	***0.0430***	J	***0.063***		***0.099***	J	***0.062***	J	***0.11***		***0.093***	U	***0.198***	U	***0.04***	U	***0.031***	J	***0.67***	U	***1.3***	U	***1.3***	U
4-Methyl-2-pentanone	***2***	***2.55***		0.05	U	***2.31***		***3.39***		***3.8***		0.0082	J	0.029	J	0.026	U	0.027	J	0.13	U	1.35	U	0.27	U	0.14	U	***8.3***	U	***17***	U	***17***	U
Acetone	***22***	2	U	0.1	U	1	U	2.13		1.9		0.0055	J	0.019	U	0.019	U	0.019	U	0.096	U	1.31	J	1	J	0.72	J	7.5	U	15	U	15	U
Benzene	***0.005***	***387***		***18.4***		***544***		***638***		***640***		***0.029***		***0.029***	U	***0.029***	U	***0.029***	U	***0.15***	U	***6.16***	U	***1.2***	U	***0.62***	U	***1.2***	U	***2.4***	U	***2.4***	U
Carbon disulfide	***2.4***	1	U	0.05	U	0.5	U	0.1	U	0.012	U	0.0023	U	0.012	U	0.012	U	0.012	U	0.058	U	***327***	D	***230***		***290***		***120***		***200***		***140***	
Chlorobenzene	***0.1***	0.1	U	***1.33***		0.05	U	0.021	J	0.049	J	0.032		0.014	U	0.023	J	0.014	U	0.068	U	***0.187***	U	0.037	U	0.019	U	***1.9***	U	***3.8***	U	***3.8***	U
Chloroform	***0.24***	0.1	U	0.005	U	0.05	U	0.01	U	0.031	J	0.031	J	0.076	U	0.076	U	0.076	U	***0.38***	U	0.09	J	0.099	J	0.085		***0.53***	U	***1.1***	U	***1.1***	U
Ethylbenzene	***0.7***	***2.07***		0.184		***2.94***		***2.15***		***2.4***		0.003	U	0.015	U	0.015	U	0.015	U	0.076	U	0.129	U	0.026	U	0.013	U	0.64	U	***1.3***	U	***1.3***	U
Methyl ethyl ketone	***15***	1	U	0.05	U	0.5	U	0.1	U	0.11		0.046		0.1		0.057	J	0.13		0.077	U	1.37		2.3		1.6		0.82	J	1.3	J	1.1	J
Methylene chloride	***0.005***	***0.1***	U	***0.015***		***0.05***	U	***0.01***	U	***0.075***	J	***1.9***		***3.4***		***1.7***		***3.2***		***1.3***		***0.335***	J	***0.037***	U	***0.018***	U	***0.52***	U	***1***	U	***1***	U
n-Hexane	***1.5***	0.2	U	---		0.1	U	0.135		0.12		***1.6***		***3.6***		***1.7***		***3.7***		***1.6***		0.956	U	0.19	U	0.096	U	***1.7***	U	***3.5***	U	***3.5***	U
Styrene	***0.1***	***0.266***		0.005	U	***0.276***		***0.702***		***0.67***		0.0035	U	***0.13***	J B	0.018	U	0.018	U	0.088	U	***0.19***	J	***0.15***		***0.13***		***0.66***	U	***1.3***	U	***1.3***	U
Tetrachloroethylene	***0.005***	***0.1***	U	0.005	U	***0.05***	U	***0.01***	U	***0.0065***	U	***0.54***		***0.57***		***0.099***	J	***0.21***		***0.088***	U	***0.25***	U	***0.12***		***0.025***	U	***0.8***	U	***1.6***	U	***1.6***	U
Toluene	***1***	***15.6***		0.133		***22.8***		***16.0***		***18***		0.0067	U	0.033	U	0.033	U	0.033	U	0.17	U	***11.6***		***14***		***10***		***6.7***		***10***		***6.5***	
trans-1,2-Dichloroethylene	***0.1***	0.1	U	0.005	U	0.05	U	0.033	J	0.091	J	0.0091	J	0.022	U	0.022	U	0.022	U	***0.11***	U	***0.128***	U	0.026	U	0.013	U	***0.95***	U	***1.9***	U	***1.9***	U
Trichloroethylene	***0.005***	***0.1***	U	0.005	U	***0.056***		***0.120***		***0.20***		***16***		***20***		***9.4***		***19***		***10***		***0.212***	U	***0.042***	U	***0.021***	U	***0.79***	U	***1.6***	U	***1.6***	U
Vinyl Acetate	***24***	1	U	0.05	U	0.5	U	0.1	U	0.011	U	0.017	U	0.085	U	0.085	U	0.085	U	0.43	U	1.78	U	0.36	U	0.18	U	2.1	U	4.3	U	4.3	U
Vinyl chloride	***0.002***	***1.17***		0.002		***1.04***		***2.43***		***3.6***		***0.89***		***0.84***		***1.3***		***1.9***		***1.8***		***1.24***		***0.8***		***1.2***		***0.64***	U	***1.3***	U	***1.3***	U
Xylene (total)	***10***	1.648		0.126		2.398		2.037		2.5		0.045		0.037	J	0.014	U	0.04	J	0.069	U	1.35		2.3		1.7		1.2	U	2.5	U	2.5	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																																			
2,4,6-Trichlorophenol	***0.083***	***1***	U	***1.02***	U	***0.556***	U	0.025	U	0.0350	U	0.0048	U	0.012	U *	0.0049	U *	0.025	U	0.017	J	0.0006	J	0.0014	U	0.0027	U *1	0.0014	U	0.0027	U	0.0014	U
2,4-Dichlorophenol	***0.073***	***1***	U	***1.02***	U	***0.556***	U	0.025	U	0.029	U	0.018	J *	***0.15***		0.022	J	0.061	U	0.07	J	0.0185		0.0011	U	0.0023	U	0.0011	U	0.016	J	0.01	J
2,4-Dimethylphenol	***0.49***	***4.56***		***3.94***		***2.11***		***3.28***		***4.8***		0.027	J *	0.11	J	0.017	U	0.089	U	0.044	U	***3.31***	D	0.26		***4.2***		***3.7***		***3.3***		***4.4***	
2-Methylnaphthalene	***0.098***	***0.603***		***0.51***	U	***0.278***	U	***0.335***		***0.29***		0.0032	U *	0.011	J	0.0033	U	0.017	U	0.0083	U	0.0479		***0.2***		***0.16***		0.088		***0.17***		***0.11***	
2-Methylphenol	***1.2***	***2.03***		1.02	U	0.8		***1.57***		***1.9***		0.02	J	0.29		0.03	J	0.21		0.13		1.03	D	1		1.1		0.91		0.93		0.64	
3&4-Methylphenol	***0.12***	***6.52***		***1.02***	U	***2.02***		***4.06***		***7.6***		0.047	*	***0.21***		0.049	B	***0.17***		0.11		***4.98***	D	***5***		***5.3***		***1.5***		***2.4***		***2.3***	JL
4-Bromophenyl phenyl ether	***0.000061***	***1***	U	***1.02***	U	***0.556***	U	***0.025***	U	***0.020***	U	***0.0036***	U *	***0.021***	J	***0.0037***	U	***0.029***	J	***0.014***	J	***0.000167***	U	***0.0017***	U	***0.0033***	U	***0.0017***	U	***0.0033***	U	***0.0017***	U
Acenaphthene	***1.5***	0.570		0.510	U	0.278	U	0.223		0.21		0.0066	U *	0.017	U	0.0067	U	0.034	U	0.017	U	0.0218		0.094		0.064		0.039		0.058		0.055	
Acenaphthylene	***1.5***	0.5	U	0.51	U	0.278	U	0.025	U	0.0120	U	0.036	J *	0.033	J	0.0088	J	0.027	U	0.014	U	0.00204		0.0095		0.0043	U	0.0039	J	0.0054	J	0.0052	J
Aniline	***0.16***	***2***	U	0.127		***1.11***	U	***0.583***		0.016	U	***3***	B *	***3***	*	***1.8***		***4.8***		***1.8***		0.000314	UL	0.16	*-	***0.19***		0.0031	UJL	0.1		0.063	JL
Anthracene	***7.3***	0.5	U	0.51	U	0.278	U	0.052	J	0.055	U	0.1	*	0.39		0.13	B	0.25		0.15		0.00888		0.075		0.033	J	0.018	J	0.1		0.02	
Benzo(a)anthracene	***0.0013***	***0.13***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.028***	J	***1.2***	*	***1.3***		***0.75***		***1.1***		***0.53***	J	0.00108		***0.018***		***0.003***	U	***0.0031***	J	***0.0099***	J	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***0.051***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.016***	U	***3.8***	*	***4.6***	*	***2.6***		***8***		***2.3***		***0.00032***	J	***0.0015***	U	***0.003***	U	***0.0015***	U	***0.003***	U	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***0.13***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.014***	U	***0.005***	U *	***0.013***	U	***0.0051***	U	***0.026***	U	***0.013***	U	0.00044	J	***0.01***		***0.0042***	U	***0.0021***	U	***0.0042***	U	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.5	U	0.51	U	0.278	U	0.025	U	0.016	U	0.0032	U *	0.008	U	0.0033	U	0.017	U	0.0083	U	0.000143	U	0.0014	U	0.0029	U	0.0014	U	0.0029	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	***0.13***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.018***	U	***0.065***	B *	***0.23***		***0.059***	B	***0.16***		***0.11***		0.000166	U	0.0043	J	0.0033	U	0.0033	U	0.0017	U	0.0017	U
Benzyl Alcohol	***12***	1	U	1.02	U	0.556	U	0.176	J	0.11	J	0.1	*	0.12		0.022	J *	0.013	U	0.0063	U	0.0008	U	0.017	J *+ B	0.09	U	0.045	U	0.09	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.087***		***1.02***	U	***0.556***	U	***0.095***	J	***0.056***	J	***0.005***	U *	***0.046***	J	***0.0051***	U	***0.03***	J	***0.028***	J	***0.0014***		***0.063***		***0.13***		***0.15***		***0.097***		***0.073***	
bis(2-Ethylhexyl)phthalate	***0.006***	***0.5***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.072***	U	0.0026	U *	***0.016***	J	0.0027	U	***0.014***	U	***0.009***	J	***0.0495***		***0.079***		***0.029***	J	***0.011***	J	***0.071***		0.0022	U
Butyl benzyl phthalate	***0.48***	***0.5***	U	***0.51***	U	0.278	U	0.101	J	0.20	J	0.0088	U *	0.12		0.017	J	0.11	J	0.055	J	0.000225	U	0.0068	J	0.0031	J	0.002	J	0.003	U	0.0015	U
Chrysene	***0.13***	***0.5***	U	***0.51***	U	***0.278***	U	0.025	U	0.020	J	0.007	U *	0.018	U	0.0071	U	0.036	U	0.018	U	0.00096		0.019		0.0058	J	0.0027	J	0.01	J	0.0034	J
Dibenzo(a,h)anthracene	***0.0002***	***0.042***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.016***	U	***0.0032***	U *	***0.013***	J	***0.0033***	U	***0.017***	U	***0.008***	U	0.000148	U	***0.0015***	U	***0.003***	U	***0.0015***	U	***0.003***	U	***0.0015***	U
Dibenzofuran	***0.098***	***1***	U	***1.02***	U	***0.556***	U	***0.144***	J	***0.13***	J	***0.35***	J *	0.026	U *	0.01	U	0.053	U	0.027	U	0.0157		0.075		0.053		0.027		0.08		0.038	
Di-n-butyl phthalate	***2.4***	0.5	U	0.51	U	0.278	U	0.067	U	0.021	U	0.052	*	0.06	J	0.029	J	0.044	J	0.076	J	0.0008	U	0.12	*+ B *1	0.016	U	0.008	U	0.016	U	0.008	U
Di-n-octyl phthalate	***0.49***	***0.5***	U	***0.51***	U	0.278	U	0.025	U	0.031	U	0.0048	U *	0.047	J	0.0049	U	0.03	J	0.021	J	0.000169	U	0.0017	U	0.0034	U	0.0017	U	0.0034	U	0.0017	U
Fluoranthene	***0.98***	0.545		0.51	U	0.278	U	0.121	J	0.12	J	0.0058	U *	0.015	U	0.0059	U	0.03	U	0.015	U	0.00884		0.11		0.032	J	0.024		0.089		0.027	
Fluorene	***0.98***	0.5	U	0.51	U	0.278	U	0.146		0.14	J	0.045	*	0.17		0.041	B	0.13	J	0.088		0.0215		0.11		0.068		0.042		0.18		0.046	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.13***	U	***0.51***	U	***0.278***	U	***0.025***	U	***0.014***	U	***0.037***	U	***0.094***	U	***0.038***	U	***0.19***	U	***0.097***	U	0.000143	U	***0.0014***	U	***0.017***	U	***0.0085***	U	***0.017***	U	***0.0085***	U
Naphthalene	***0.49***	***1.82***		0.117		***1.03***		***1.59***		***1.5***		0.0058	U *	0.015	U	0.0059	U	0.03	U	0.015	U	0.399	D	***1.2***		***1.1***		***0.79***		***1***		***0.8***	
Phenanthrene	***0.73***	***1.08***		0.51	U	0.278	U	0.281		0.30		***1***	*	***1.5***	B	0.66	B	***0.95***		0.58		0.0234		0.17		0.077		0.036		0.099		0.066	
Phenol	***7.3***	1	U	1.02	U	0.556	U	0.171	J	0.14	J	0.059	*	0.52		0.078		0.36		0.28		0.181	D	0.11	*1	0.23		0.28	JL	0.13		0.19	JL
Pyrene	***0.73***	0.5	U	0.51	U	0.278	U	0.077	J	0.082	J	0.21	*	0.21		0.094		0.12	J	0.34		0.0062		0.056		0.025	J	0.015	J	0.059		0.017	J
Pyridine	***0.024***	***1***	U	***1.02***	U	***0.556***	U	***0.089***	U	0.0078	U	0.0099	J	***0.21***		0.018	J	***0.13***	J	***0.09***	J	0.000725	U	0.012	B *1	0.014	U *1	0.0072	UJL	0.014	U	0.0072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)																																			
2,4-D	***0.07***	0.00761		0.0005	U	0.00317		0.00674		0.00039	U	0.000039	U *	0.000039	U	0.00021	U *	0.018	p	0.026	p *1	0.0101	D	0.0051		0.0034	UJL	0.000027	UJL	0.00029	U	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)																																			
Lead	***0.015***	0.003		0.002	U	0.003		0.003		0.0016	J	0.0012	J	0.0037	J	0.0034	J	0.014		0.0044		0.00644		0.0063		0.0034		0.0038		***0.092***		0.0045	
General Chemistry (415.1) (mg/L)																																			
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits

BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-25 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-25															
SAMPLING PERIOD	(mg/L)	3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																	
1,1-Dichloroethylene	***0.007***	0.0019	U	0.000216	U	0.00022	U	***0.011***	U	***0.74***	U	***0.15***	U	***0.15***	U
1,2,3-Trichloropropane	***0.00013***	***0.0029***	U	***0.000283***	U	***0.00028***	U	***0.014***	U	***0.49***	U	***0.098***	U	***0.098***	U
1,2-Dichlorobenzene	***0.6***	0.0015	U	0.00032	J	0.00024	U	0.012	U	0.51	U	0.1	U	0.1	U
1,2-Dichloroethane	***0.005***	0.0012	U	0.000285	U	0.00029	U	***0.014***	U	***2.2***		***0.12***	U	***0.12***	U
1,2-Dichloropropane	***0.005***	0.0014	U	0.000396	U	0.0004	U	***0.02***	U	***0.67***	U	***0.13***	U	***0.13***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.0076	U	0.0027	U	0.0027	U	0.14	U	8.3	U	1.7	U	1.7	U
4-Methyl-2-pentanone	***2***	0.0035	U	0.00106	U	0.0011	U	0.053	U	***7.5***	U	1.5	U	1.5	U
Acetone	***22***	0.0045	U	0.0123	U	0.012	U	0.62	U	1.2	U	0.24	U	0.24	U
Benzene	***0.005***	***3.3***		***0.0121***		0.00058	J	***4.1***		***120***		***11***		***12***	
Carbon disulfide	***2.4***	0.0022	U	0.000373	U	0.00037	U	0.019	U	1.9	U	0.38	U	0.38	U
Chlorobenzene	***0.1***	0.066		0.00422		0.00016	U	***0.73***		***1.3***		***0.11***	U	***0.25***	
Chloroform	***0.24***	0.0015	U	0.000259	U	0.00026	U	0.013	U	***0.64***	U	0.13	U	0.13	U
Ethylbenzene	***0.7***	0.02		0.00128		0.00051	U	0.073		0.41	U	0.082	J	0.082	U
n-Hexane	***1.5***	0.0026	U	0.000369	U	0.00037	U	0.018	U	0.52	U	0.1	U	0.1	U
Methylene chloride	***0.005***	0.0018	U	0.00191	U	0.0019	U	***0.096***	U	***1.7***	U	***0.35***	U	***0.35***	U
Styrene	***0.1***	0.0018	U	0.000162	U	0.00062	U	0.031	U	***0.66***	U	***0.13***	U	***0.13***	U
Tetrachloroethylene	***0.005***	0.0033	U	0.0005	U	0.0005	U	***0.025***	U	***0.8***	U	***0.16***	U	***0.16***	U
Toluene	***1***	0.023		0.00051	J	0.0005	U	0.025	U	***3.9***		0.53		0.34	
trans-1,2-Dichloroethylene	***0.1***	0.0019	U	0.000256	U	0.00026	U	0.013	U	***0.95***	U	***0.19***	U	***0.19***	U
Trichloroethylene	***0.005***	0.0014	U	0.000424	U	0.00042	U	***0.021***	U	***0.79***	U	***0.16***	U	***0.16***	U
Vinyl Acetate	***24***	0.0085	U	0.00357	U	0.0036	U	0.18	U	2.1	U	0.43	U	0.43	U
Vinyl chloride	***0.002***	***0.0025***	U	0.000234	U	0.00023	U	***0.012***	U	***0.64***	U	***0.13***	U	***0.13***	U
Xylene (total)	***10***	0.02		0.00152		0.0011	J	0.054	J	1.2	U	0.25	U	0.25	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																	
2,4,6-Trichlorophenol	***0.083***	0.0033	U	0.000135	U	0.00014	U	0.00014	U *1	0.0014	U	0.00068	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.0026	U	0.000115	U	0.00011	U	0.00011	U	0.0011	U	0.00057	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.0018	U	0.00516		0.00015	U	0.14		***0.98***		0.057		0.048	
2-Methylnaphthalene	***0.098***	0.0014	U	0.00152		0.00048	U	0.013		0.021		0.0043	J	0.0024	
2-Methylphenol	***1.2***	0.0019	U	0.00044	J	0.00016	U	0.00016	U	0.2		0.02		0.015	
3&4-Methylphenol	***0.12***	0.0016	U	0.00104		0.00016	U	0.00016	U	***0.59***		0.015		0.012	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.0025***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.0017***	U	***0.00084***	U	***0.00017***	U
Acenaphthene	***1.5***	0.0016	U	0.0064		0.00021	U	0.039		0.043		0.016		0.017	
Acenaphthylene	***1.5***	0.0016	U	0.000215	U	0.00034	U	0.00021	U	0.0021	U	0.0011	U	0.00021	U
Aniline	***0.16***	0.0012	U	0.000314	UL	0.00031	U *-	0.00089	J	0.052	JL	0.0016	U	0.00031	UJL
Anthracene	***7.3***	0.0044	U	0.00156		0.00015	U	0.0023		0.0025	J	0.0014	J	0.0011	J
Benzo(a)anthracene	***0.0013***	***0.0025***	U	0.00044	J	0.00015	U	0.00015	U	***0.0015***	U	0.00075	U	0.00015	U
Benzo(a)pyrene	***0.0002***	***0.0013***	U	0.000148	U	0.00015	U	0.00015	U	***0.0015***	U	***0.00074***	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	***0.0018***	U	0.00021	U	0.00021	U	0.00021	U	***0.0021***	U	0.001	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.0035	U	0.000143	U	0.00014	U	0.00014	U	0.0014	U	0.00071	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.0016	U	0.000166	U	0.00017	U	0.00017	U	0.0017	U	0.00083	U	0.00017	U
Benzyl Alcohol	***12***	0.0051	U	0.0008	U	0.0063	*+ B	0.0045	U	0.052	J	0.023	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0018***	U	***0.00124***		0.00028	U	***0.023***		***0.03***		***0.0016***	J	***0.0022***	
bis(2-Ethylhexyl)phthalate	***0.006***	0.0059	U	0.000278	U	0.0025		0.0011	U	0.0022	U	***0.078***		0.00022	U
Butyl benzyl phthalate	***0.48***	0.0085	U	0.000225	U	0.00015	U	0.0011	J	0.0028	J	0.002	J	0.00015	U
Chrysene	***0.13***	0.0024	U	0.00032	J	0.00016	U	0.00016	U	0.0016	U	0.0008	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0029***	U	0.000148	U	0.00015	U	0.00015	U	***0.0015***	U	***0.00074***	U	0.00015	U
Dibenzofuran	***0.098***	0.0016	U	0.00484		0.00034	U	0.013		0.016	J	0.0074	J	0.0064	
Di-n-butyl phthalate	***2.4***	0.019	U	0.00232		0.17	B *+ *1	0.0008	U	0.008	U	0.004	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.0016	U	0.000169	U	0.00017	U	0.00017	U	0.0017	U	0.0014	J	0.00017	U
Fluoranthene	***0.98***	0.0031	U	0.00248		0.00015	U	0.0029		0.002	J	0.0024	J	0.001	J
Fluorene	***0.98***	0.0012	U	0.00492		0.0002	U	0.013		0.014	J	0.0075	J	0.0032	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.0029***	U	0.000143	U	0.00014	U	0.00085	U	***0.0085***	U	***0.0043***	U	0.00085	U
Naphthalene	***0.49***	0.0016	U	0.00404		0.0008	U	0.12		0.29		0.039		0.0016	J
Phenanthrene	***0.73***	0.0029	U	0.00624		0.0004	U	0.0084		0.0091	J	0.0051	J	0.0032	
Phenol	***7.3***	0.0014	U	0.00108	J	0.0008	U *1	0.07		0.21	JL	0.071		0.064	JL
Pyrene	***0.73***	0.0033	U	0.00168		0.00016	U	0.0016	J	0.0016	U	0.0016	J	0.00095	J
Pyridine	***0.024***	0.0024	U	0.000725	U	0.004	B *1	0.00072	UJL	0.0072	UJL	0.0036	U	0.00072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)																	
2,4-D	***0.07***	0.000039	U *1	0.0000453	U	0.000026	U	0.000021	UJL	0.000027	UJL	0.000029	U	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)																	
Lead	***0.015***	***0.054***		0.0107		***0.027***		0.0019	J	***0.02***		***0.074***		0.0037	
General Chemistry (415.1) (mg/L)																	
Total Organic Carbon	***---***	---		---		---		---		---							

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-26 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	MW-26					
SAMPLING PERIOD	(mg/L)	1st Q 2022		3rd Q 2022		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)							
1,1-Dichloroethylene	***0.007***	0.00022	U	0.0037	U	***0.037***	U
1,2,3-Trichloropropane	***0.00013***	***0.00028***	U	***0.0025***	U	***0.025***	U
1,2-Dichlorobenzene	***0.6***	0.00024	U	0.026		0.025	U
1,2-Dichloroethane	***0.005***	0.00029	U	0.003	U	***0.03***	U
1,2-Dichloropropane	***0.005***	0.0004	U	0.0033	U	***0.033***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.0027	U	0.041	U	0.41	U
4-Methyl-2-pentanone	***2***	0.0011	U	0.037	U	0.37	U
Acetone	***22***	0.012	U	0.058	J	0.06	U
Benzene	***0.005***	***0.033***		***0.038***		***4.2***	
Carbon disulfide	***2.4***	0.00037	U	0.0095	U	0.095	U
Chlorobenzene	***0.1***	0.012		***0.15***		***0.16***	
Chloroform	***0.24***	0.00026	U	0.0032	U	0.032	U
Ethylbenzene	***0.7***	0.0019		0.1		0.075	
n-Hexane	***1.5***	0.00037	U	0.0026	U	0.026	U
Methylene chloride	***0.005***	0.0019	U	***0.0086***	U	***0.086***	U
Styrene	***0.1***	0.00062	U	0.0033	U	0.033	U
Tetrachloroethylene	***0.005***	0.0005	U	0.004	U	***0.04***	U
Toluene	***1***	0.0022		0.0059		0.17	
trans-1,2-Dichloroethylene	***0.1***	0.00026	U	0.0047	U	0.047	U
Trichloroethylene	***0.005***	0.00042	U	0.004	U	***0.04***	U
Vinyl Acetate	***24***	0.0036	U	0.011	U	0.11	U
Vinyl chloride	***0.002***	0.00023	U	***0.0032***	U	***0.032***	U
Xylene (total)	***10***	0.002	J	0.12		0.062	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)							
2,4,6-Trichlorophenol	***0.083***	0.00014	JL/UJL	0.0014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00011	JL/UJL	0.0011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00073	JL/UJL	0.021		0.22	
2-Methylnaphthalene	***0.098***	0.001	JL/UJL	0.015	J	0.011	
2-Methylphenol	***1.2***	0.00016	JL/UJL	0.0016	U	0.018	
3&4-Methylphenol	***0.12***	0.00016	JL/UJL	0.0016	U	0.014	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.00017***	JL/UJL	***0.0017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.0036	JL/UJL	0.2		0.033	
Acenaphthylene	***1.5***	0.00021	JL/UJL	0.0021	U	0.00021	U
Aniline	***0.16***	0.00031	JL/UJL	0.0031	UJL	0.00031	UJL
Anthracene	***7.3***	0.00037	JL/UJL	0.0044	J	0.0016	J
Benzo(a)anthracene	***0.0013***	0.00015	JL/UJL	***0.0015***	U	0.00015	U
Benzo(a)pyrene	***0.0002***	0.00015	JL/UJL	***0.0015***	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00021	JL/UJL	***0.0021***	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00014	JL/UJL	0.0014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00017	JL/UJL	0.0017	U	0.00017	U
Benzyl Alcohol	***12***	0.0045	JL/UJL	0.045	U	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0049***	JL/UJL	***0.013***	J	***0.067***	
bis(2-Ethylhexyl)phthalate	***0.006***	***0.01***	JL/UJL	***0.13***		0.00022	U
Butyl benzyl phthalate	***0.48***	0.00025	JL/UJL	0.0015	U	0.00015	U
Chrysene	***0.13***	0.00016	JL/UJL	0.0016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	0.00015	JL/UJL	***0.0015***	U	0.00015	U
Dibenzofuran	***0.098***	0.0014	JL/UJL	0.065		0.016	
Di-n-butyl phthalate	***2.4***	0.0008	JL/UJL	0.008	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00017	JL/UJL	0.0033	J	0.00017	U
Fluoranthene	***0.98***	0.00039	JL/UJL	0.0015	U	0.0017	J
Fluorene	***0.98***	0.0023	JL/UJL	0.079		0.016	
Indeno(1,2,3-cd)pyrene	***0.0013***	0.00085	JL/UJL	***0.0085***	U	0.00085	U
Naphthalene	***0.49***	0.0032	JL/UJL	0.0055	J	0.072	
Phenanthrene	***0.73***	0.0014	JL/UJL	0.018	J	0.0052	
Phenol	***7.3***	0.0002	JL/UJL	0.002	UJL	0.046	JL
Pyrene	***0.73***	0.0003	JL/UJL	0.0016	U	0.00097	J
Pyridine	***0.024***	0.00072	JL/UJL	0.0072	UJL	0.00072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)							
2,4-D	***0.07***	0.000021	UJL	0.000027	UJL	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)							
Lead	***0.015***	***5.7***		***1.3***		***0.18***	
General Chemistry (415.1) (mg/L)							
Total Organic Carbon	---	---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	MW-27											
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006		1st Q 2007		1st Q 2008		3rd Q 2008	
GC/MS Volatiles (SW846 8260B) (mg/L)													
1,1-Dichloroethylene	***0.007***	0.005	U	***0.01***	U	***0.014***	U	0.005	U	0.005	U	0.005	U
1,2,3-Trichloropropane	***0.00013***	***0.005***	U	***0.01***	U	***0.01***	U	***0.005***	U	***0.005***	U	***0.005***	U
1,2-Dichlorobenzene	***0.6***	0.01	U	0.0055		0.0047	J	0.01	U	0.05	U	0.1	U
1,2-Dichloroethane	***0.005***	0.005	U	***0.01***	U	***0.011***	U	0.005	U	0.005	U	0.005	U
1,2-Dichloropropane	***0.005***	0.005	U	***0.01***	U	***0.012***	U	0.005	U	0.005	U	0.005	U
4-Methyl-2-pentanone	***2***	0.06		0.05	U	0.15	U	0.05	U	0.05	U	0.05	U
Acetone	***22***	0.05	U	0.09	U	0.056	U	0.1	U	0.1	U	0.1	U
Benzene	***0.005***	***1.71***		***1.28***		***1.12***		***0.705***		***2.10***		***2.8***	
Carbon disulfide	***2.4***	0.005	U	0.01	U	0.012	U	0.05	U	0.05	U	0.05	U
Chlorobenzene	***0.1***	0.005	U	0.01	U	0.011	U	0.005	U	0.005	U	0.005	U
Chloroform	***0.24***	0.005	U	0.01	U	0.013	U	0.005	U	0.005	U	0.005	U
Ethylbenzene	***0.7***	0.0579		0.0317		0.0096	U	0.005	U	0.019		0.021	
Methyl ethyl ketone	***15***	0.01	U	0.06	U	0.06	U	0.05	U	0.05	U	0.05	U
Methylene chloride	***0.005***	0.005	U	***0.018***		***0.013***	U	0.005	U	0.005	U	0.005	U
n-Hexane	***1.5***	---		0.02	U	0.012	U	0.01	U	0.01	U	0.01	U
Styrene	***0.1***	0.005	U	0.01	U	0.01	U	0.005	U	0.005	U	0.005	U
Tetrachloroethylene	***0.005***	0.005	U	***0.01***	U	***0.015***	U	0.005	U	0.005	U	0.005	U
Toluene	***1***	0.0187		0.01	U	0.011	U	0.005	U	0.010		0.01	
trans-1,2-Dichloroethylene	***0.1***	0.005	U	0.01	U	0.015	U	0.005	U	0.005	U	0.005	U
Trichloroethylene	***0.005***	0.005	U	***0.01***	U	***0.013***	U	0.005	U	0.005	U	0.005	U
Vinyl Acetate	***24***	---		0.05	U	0.042	U	0.05	U	0.05	U	0.05	U
Vinyl chloride	***0.002***	***0.0021***		***0.02***	U	***0.0084***	U	0.002	U	0.002	U	0.002	U
Xylene (total)	***10***	0.0521		0.02	U	0.0636	J	0.014		0.050		0.054	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)													
2,4,6-Trichlorophenol	***0.083***	0.01	U	0.002	U	0.0012	U	0.01	U	0.05	U	***0.1***	U
2,4-Dichlorophenol	***0.073***	---		0.001	U	0.001	U	0.01	U	0.05	U	***0.1***	U
2,4-Dimethylphenol	***0.49***	---		0.001	U	0.0042	J	0.01	U	0.05	U	0.1	U
2-Methylnaphthalene	***0.098***	0.01	U	0.003	U	0.0026	U	0.005	U	0.025	U	0.05	U
2-Methylphenol	***1.2***	0.01	U	0.001	U	0.0011	U	0.01	U	0.05	U	0.1	U
3&4-Methylphenol	***0.12***	0.01	U	0.002	U	0.002	U	0.01	U	0.05	U	0.1	U
4-Bromophenyl phenyl ether	***0.000061***	***0.01***	U	***0.004***	U	***0.0032***	U	***0.01***	U	***0.05***	U	***0.1***	U
Acenaphthene	***1.5***	0.0453		0.0346		0.0381		0.005	U	0.033		0.107	
Acenaphthylene	***1.5***	0.01	U	0.004		0.0016	U	0.005	U	0.025	U	0.05	U
Aniline	***0.16***	---		0.003	U	0.0033	U	0.02	U	0.1	U	***0.2***	U
Anthracene	***7.3***	0.01	U	0.006		0.003	J	0.005	U	0.025	U	0.05	U
Benzo(a)anthracene	***0.0013***	***0.01***	U	***0.006***		***0.0038***	J	0.001	U	***0.007***	U	***0.02***	
Benzo(a)pyrene	***0.0002***	***0.01***	U	***0.0025***		***0.0018***	J	***0.001***	U	***0.003***	U	***0.009***	
Benzo(b)fluoranthene	***0.0013***	***0.01***	U	***0.0037***		***0.0029***	U	0.001	U	***0.007***	U	***0.013***	
Benzo(g,h,i)perylene	***0.73***	0.01	U	0.002	U	0.0012	U	0.005	U	0.025	U	0.05	U
Benzo(k)fluoranthene	***0.013***	0.01	U	0.0016		0.001	J	0.001	U	0.007	U	0.013	U
Benzyl Alcohol	***12***	0.01	U	0.001	U	0.0013	U	0.01	U	0.05	U	0.1	U
bis(2-Chloroethyl)ether	***0.00083***	***0.01***	U	***0.001***	U	***0.0014***	U	***0.001***	U	***0.004***	U	***0.008***	U
bis(2-Ethylhexyl)phthalate	***0.006***	***0.01***	U	0.0021		0.0042	J	0.005	U	***0.025***	U	***0.05***	U
Butyl benzyl phthalate	***0.48***	0.01	U	0.0028		0.0025	J	0.005	U	0.025	U	0.05	U
Chrysene	***0.13***	0.01	U	0.0036		0.0026	J	0.005	U	0.025	U	0.05	U
Dibenzo(a,h)anthracene	***0.0002***	***0.01***	U	***0.002***	U	***0.0016***	U	***0.00042***	U	***0.025***	U	***0.004***	U
Dibenzofuran	***0.098***	0.0143		0.0151		0.0112		0.01	U	0.05	U	***0.1***	U
Di-n-butyl phthalate	***2.4***	0.01	U	0.002	U	0.0017	U	0.005	U	0.025	U	0.05	U
Di-n-octyl phthalate	***0.49***	0.01	U	0.001	U	0.0013	U	0.005	U	0.025	U	0.05	U
Fluoranthene	***0.98***	0.0481		0.0332		0.0224		0.005	U	0.025	U	0.115	
Fluorene	***0.98***	0.0166		0.0181		0.0124		0.005	U	0.025	U	0.062	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.01***	U	***0.002***	U	0.0012	U	0.001	U	***0.007***	U	***0.013***	U
Naphthalene	***0.49***	0.01	U	0.0033		0.0027	J	0.005	U	0.025	U	0.05	U
Phenanthrene	***0.73***	0.01	U	0.0079		0.0029	J	0.005	U	0.025	U	0.05	U
Phenol	***7.3***	0.0112		0.001	U	0.0224		0.01	U	0.05	U	0.1	U
Pyrene	***0.73***	0.040		0.0296		0.0255		0.005	U	0.025	U	0.113	
Pyridine	***0.024***	---		0.002	U	0.0015	U	0.01	U	***0.05***	U	***0.1***	U
GC Semi-volatiles (SW846 8151) (mg/L)													
2,4-D	***0.07***	0.001	U	0.0011	U	0.0011	U	0.00111	U	0.001	U	0.000505	U
Metals Analysis (SW 846 6010B) (mg/L)													
Lead	***0.015***	***0.0953***		0.0142		0.0124		0.013		***0.116***		***0.097***	
General Chemistry (415.1) (mg/L)													
Total Organic Carbon	**---**	71		93		38		32.1		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-29																																					
SAMPLING PERIOD	(mg/L)	1st Q 2004		1st Q 2005		1st Q 2006		1st Q 2007		1st Q 2008		3rd Q 2008		1st Q 2009		3rd Q 2009		1st Q 2010		3rd Q 2010		1st Q 2011		3rd Q 2011		1st Q 2012		3rd Q 2012		1st Q 2013		1st Q 2014		3rd Q 2014		1st Q 2015		3rd Q 2015		1st Q 2016	
GC/MS Volatiles (SW846 8260B) (mg/L)																																							
1,1-Dichloroethylene	***0.007***	0.005	U	0.001	U	0.00068	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000333	U	0.000201	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00036	U	0.00019	U	0.00019	U
1,2,3-Trichloropropane	***0.00013***	***0.005***	U	***0.001***	U	***0.00052***	U	***0.005***	U	***0.005***	U	***0.005***	U	***0.01***	U	***0.01***	U	***0.001***	U	***0.001***	U	***0.000588***	U	0.000049	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00039***	U	***0.00029***	U	***0.00029***	U
1,2-Dichlorobenzene	***0.6***	0.005	U	0.003	U	0.0026	U	0.011	U	0.01	U	0.01	U	***1.02***	U	0.005	U	0.001	U	0.001	U	0.000242	U	0.000042	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00037	U	0.0035		0.00015	U
1,2-Dichloroethane	***0.005***	0.005	U	0.001	U	0.00053	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000268	U	0.000062	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.0005	U	0.00012	U	0.00012	U
1,2-Dichloropropane	***0.005***	0.005	U	0.001	U	0.00059	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000368	U	0.000046	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00067	U	0.00014	U	0.00014	U
Methyl ethyl ketone (2-Butanone)	***15***	0.01	U	0.006	U	0.003	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.001	U	0.01	U	0.00408	U	0.000693	U	0.00076	U	0.00076	U	0.00076	U	0.001	U	0.001	U	0.003	U	0.0008	U	0.00076	U
4-Methyl-2-pentanone	***2***	0.01	U	0.005	U	0.0073	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.00275	U	0.000422	U	0.00045	U	0.00045	U	0.00045	U	0.00045	U	0.00045	U	0.00045	U	0.00034	U	0.00035	U
Acetone	***22***	0.05	U	0.009	U	0.0028	U	0.1	U	0.319		0.1	U	0.1	U	0.1	U	0.02	U	0.02	U	0.00703	U	0.00851	J	0.00099	U	0.00099	U	0.00099	U	0.00099	U	0.003100	J	0.007	U	0.000	U	0.00045	U
Benzene	***0.005***	***0.0291***		0.001	U	0.00047	U	0.005	U	***0.007***		0.01	U	0.01	U	0.01	U	0.001	U	0.001	U	0.00026	U	0.000142	U	0.0013		0.00018	J	0.00011	J	0.000370	J	0.000080	U	0.0025		***0.056***		0.00018	U
Carbon disulfide	***2.4***	0.005	U	0.001	U	0.00062	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.001	U	0.01	U	0.00126	U	0.00126	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.001	U	0.00022	J	0.00022	U
Chlorobenzene	***0.1***	0.005	U	0.001	U	0.00054	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000274	U	0.000038	U	0.00012	U	0.00012	U	0.00012	U	0.0001	U	0.0001	U	0.0003	U	0.0038		0.00019	U
Chloroform	***0.24***	0.005	U	0.001	U	0.00066	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000618	U	0.000059	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.0005	U	0.00015	U	0.00015	U
Ethylbenzene	***0.7***	0.005	U	0.001	U	0.00048	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000084	U	0.000035	U	0.00011	U	0.00011	U	0.00011	U	0.000	U	0.000	U	0.000	J	0.0082		0.00021	U
n-Hexane	***1.5***	---		0.002	U	0.00061	U	0.01	U	0.01	U	0.01	U	---		0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00076	U	0.00026	U	0.00026	U
Methylene chloride	***0.005***	0.005	U	0.001	U	0.00067	U	0.005	U	0.005	U	0.005	U	***0.017***	U	0.005	U	0.005		***0.008***	J	0.000753	U	0.000206	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U*	0.0025	U	0.00018	U	0.00018	U
Styrene	***0.1***	0.005	U	0.001	U	0.0005	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000142	U	0.000039	U	0.000070	U	0.000070	U	0.000070	U	0.00007	U	0.00007	U	0.00027	U	0.00017	U	0.00018	U
Tetrachloroethylene	***0.005***	0.005	U	0.001	U	0.00074	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000586	U	0.00059	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00048	U	0.00051	U	0.00033	U
Toluene	***1***	0.005	U	0.001	U	0.00054	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000492	U	0.000057	U	0.00015	U	0.00015	U	0.00015	U	0.000	J	0.000	U	0.000	J	0.039		0.0002	U
trans-1,2-Dichloroethylene	***0.1***	0.005	U	0.001	U	0.00075	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.000338	U	0.000091	U	0.000090	U	0.000090	U	0.000090	U	0.00009	U	0.00009	U	0.00037	U	0.00019	U	0.00019	U
Trichloroethylene	***0.005***	0.005	U	0.001	U	0.00063	U	0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.001	U	0.001	U	0.00039	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00074	U*	0.00014	U	0.00014	U
Vinyl Acetate	***24***	---		0.005	U	0.0021	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.000306	U	0.000353	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00081	U	0.00085	U	0.00085	U
Vinyl chloride	***0.002***	0.002	U	0.002	U	0.00042	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.001	U	0.001	U	***0.01***	U	0.00013	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.0005	U	***0.002***		0.00025	U
Xylene (total)	***10***	0.01	U	0.002	U	0.002	U	0.015	U	0.01	U	0.01	U	0.01	U	0.01	U	0.002	U	0.002	U	0.000784	U	0.000038	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00027	J	0.0079		0.00037	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																																							
2,4,6-Trichlorophenol	***0.083***	0.005	U	0.002	U	0.0012	U	0.011	U	0.01	U	0.01	U	***1.02***	U	***0.204***	U	0.001	U	0.001	U	0.000369	U	0.00038	U	0.00018	U	0.00017	U	0.00017	U	0.00033	U	0.00033	U*	0.00033	U	0.00033	U	0.00033	U
2,4-Dichlorophenol	***0.073***	---		0.001	U	0.001	U	0.011	U	0.01	U	0.01	U	***1.02***	U	***0.204***	U	0.001	U	0.001	U	0.000383	U	0.000263	U	0.00015	U	0.00014	U	0.00014	U	0.00026	U	0.00026	U	0.00043	J	0.00026	U	0.00026	U
2,4-Dimethylphenol	***0.49***	---		0.001	U	0.0012	U	0.011	U	0.01	U	0.01	U	***5.61***		0.204	U	0.001	U	0.001	U	0.00108	J	0.000985	U	0.00055	U	0.00029	U	0.00073	J	0.0025		0.00018	U	0.00018	U	0.0011	J	0.00018	U
2-Methylnaphthalene	***0.098***	0.005	U	0.003	U	0.0026	U	0.005	U	0.005	U	0.005	U	***0.51***	U	***0.102***	U	0.001	U	0.006		0.00048	U	0.000494	U	0.00052	U	0.000066	U	0.000067	U	0.000	U	0.00014	U*	0.0005	J	0.00019	J	0.00014	U
2-Methylphenol	***1.2***	0.005	U	0.001	U	0.0011	U	0.011	U	0.01	U	0.01	U	1.02	U	0.204	U	0.001	U	0.001	U	0.0007	U	0.000721	U	0.00012	U	0.00011	U	0.00029	J	0.0005	J	0.00019	U	0.00019	U	0.00019	U	0.00019	U
3&4-Methylphenol	***0.12***	0.005	U	0.002	U	0.002	U	0.011	U	0.01	U	0.01	U	0.104		***0.204***	U	0.002	U	0.002	U	0.000944	U	0.000972	U	0.00020	U	0.00021	J	0.0020		0.0052		0.00016	U	0.00016	U	0.0017		0.00016	U
4-Bromophenyl phenyl ether	***0.000061***	***0.005***	U	***0.004***	U	***0.0032***	U	***0.011***	U	***0.01***	U	***0.01***	U	***1.02***	U	***0.204***	U	***0.001***	U	***0.001***	U	***0.00029***	U	***0.000299***	U	***0.00010***	U	***0.000094***	U	***0.000095***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U
Acenaphthene	***1.5***	0.005	U	0.003	U	0.0024	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.002	J	0.000357	U	0.000368	U	0.00024	U	0.000075	U	0.000076	U	0.00016	U	0.0006	J	0.00054	J	0.00016	U	0.00016	U
Acenaphthylene	***1.5***	0.005	U	0.002	U	0.0016	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.000332	U	0.000342	U	0.000060	U	0.000057	U	0.000057	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Aniline	***0.16***	---		0.003	U	0.0033	U	0.021	U	0.02	U	0.02	U	***0.168***		***0.408***	U	0.001	U	0.001	U	0.000971	U	0.001	U	0.000080	U	0.000075	U	0.000076	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U
Anthracene	***7.3***	0.005	U	0.003	U	0.0021	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.000159	U	0.00018	J	0.000050	U	0.00013	J	0.000048	U	0.00044	U	0.00044	U	0.00044	U	0.00044	U	0.00044	U
Benzo(a)anthracene	***0.0013***	***0.005***	U	0.001	U	0.0011	U	0.001	U	0.001	U	0.001	U	***0.51***	U	***0.102***	U	0.001	U	0.001	U	0.000241	U	0.000248	U	0.000080	U	0.000075	U	0.000076	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U
Benzo(a)pyrene	***0.0002***	***0.005***	U	***0.002***	U	***0.0013***	U	***0.001***	U	***0.001***	U	***0.001***	U	***0.51***	U	***0.102***	U	***0.001***	U	***0.001***	U	0.000194	U	0.0002	U	0.000080	U	0.000075	U	0.000076	U	0.00013	U	0.00013	U*	0.00013	U	0.00013	U	0.00013	U
Benzo(b)fluoranthene	***0.0013***	***0.005***	U	***0.003***	U	***0.0029***	U	0.001	U	0.001	U	0.001	U	***0.51***	U	***0.102***	U	0.001	U	0.001	U	0.000366	U	0.000377	U	0.000070	U	0.000066	U	0.000067	U	0.00018	U	0.00018	U*	0.00018	U	0.00018	U	0.00018	U
Benzo(g,h,i)perylene	***0.73***	0.005	U	0.002	U	0.0012	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.00028	U	0.000288	U	0.000080	U	0.000075	U	0.000076	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U
Benzo(k)fluoranthene	***0.013***	0.005	U	0.001	U	0.00094	U	0.001	U	0.001	U	0.001	U	***0.51***	U	***0.102***	U	0.001	U	0.001	U	0.000499	U	0.000514	U	0.000090	U	0.000085	U	0.000086	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Benzyl Alcohol	***12***	0.005	U	0.001	U	0.0013	U	0.011	U	0.01	U	0.01	U	1.02	U	0.204	U	0.001	U	0.001	U	0.000924	U	0.000952	U	0.00017	U	0.00016	U	0.00016	U	0.00051	U*	0.00051	U	0.00051	U	0.00051	U	0.00051	U
bis(2-Chloroethyl)ether	***0.00083***	***0.005***	U	***0.001***	U	***0.0014***	U	***0.001***	U	***0.001***	U	***0.001***	U	***0.118***		***0.204***	U	***0.001***	U	***0.001***	U	0.00044	U	0.000453	U	0.00015	U	0.00014	U	0.00014	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.005	U	0.002	U	0.0016	U	0.005	U	0.005	U	***0.012***		***0.51***	U	***0.102***	U	0.001	U	0.001	U	0.000304	U	0.000313	U	0.00037	U	0.0017	J	0.00035	U	0.00059	U	0.0007	JB*	0.00059	U	0.00059	U	0.00059	U
Butyl benzyl phthalate	***0.48***	0.005	U	0.002	U	0.0013	U	0.005	U	0.005	U	0.005	U	***0.51***	U	***0.102***	U	0.001	U	0.001	U	0.00027	U	0.000278	U	0.00012	U	0.00011	U	0.00072	J	0.00098	J	0.00085	U*	0.00087	J	0.00085	U	0.00085	U
Chrysene	***0.13***	0.005	U	0.002	U	0.0016	U	0.005	U	0.005	U	0.005	U	***0.51***	U	0.102	U	0.001	U	0.001	U	0.000224	U	0.000231	U	0.000080	U	0.000075	U	0.000076	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U
Dibenzo(a,h)anthracene	***0.0002***	***0.005***	U	***0.002***	U	***0.0016***	U	***0.00042***	U	***0.005***	U	***0.0004***	U	***0.51***	U	***0.102***	U	***0.001***	U	***0.001***	U	0.000192	U	0.000198	U	0.000080	U	0.000075	U	0.000076	U	***0.00029***	U	***0.00029***	U*	***0.00029***	U	***0.00029***	U	***0.00029***	U
Dibenzofuran	***0.098***	0.005	U	0.002	U	0.00099	U	0.011	U	0.01	U	0.01	U	***1.02***	U	***0.204***	U	0.001	U	0.002	J	0.000335	U	0.000345	U	0.000080	U	0.000075	U	0.000076	U	0.00016	U	0.0006	J	0.00031	J	0.00016	U	0.00016	U
Di-n-butyl phthalate	***2.4***	0.005	U	0.002	U	0.0017	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.003	U	0.003	U	0.000268	U	0.000276	U	0.00011	U	0.00010	U	0.00017	J	0.0019	U	0.0019	U*	0.0019	U	0.0019	U	0.0019	U
Di-n-octyl phthalate	***0.49***	0.005	U	0.001	U	0.0013	U	0.005	U	0.005	U	0.005	U	***0.51***	U	0.102	U	0.001	U	0.001	U	0.000354	U	0.000365	U	0.00016	U	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Fluoranthene	***0.98***	0.005	U	0.002	U	0.0012	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.000246	U	0.000253	U	0.00042	U	0.000066	U	0.000067	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U
Fluorene	***0.98***	0.005	U	0.002	U	0.00096	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.000299	U	0.000308	U	0.00018	U	0.000066	U	0.000067	U	0.00012	U	0.00028	J	0.00031	J	0.00012	U	0.00012	U
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.005***	U	***0.002***	U	0.0012	U	0.001	U	0.001	U	0.001	U	***0.51***	U	***0.102***	U	0.001	U	0.001	U	0.000327	U	0.000337	U	0.000070	U	0.000066	U	0.000067	U	0.00029	U	0.00029	U*	0.00029	U	0.00029	U	0.00029	U
Naphthalene	***0.49***	0.005	U	0.002	U	0.0015	U	0.005	U	0.006		0.005	U	0.257		0.102	U	0.001	U	0.046		0.000308	U	0.000317	U	0.00036	U	0.000075	U	0.00018	J	0.00039	J	0.00016	U*	0.0021		0.0012	J	0.00016	U
Phenanthrene	***0.73***	0.005	U	0.002	U	0.002	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.000269	U	0.000277	U	0.00043	U	0.000057	U	0.000057	U	0.00029	U	0.00029	U*	0.0003	J	0.00029	U	0.00029	U
Phenol	***7.3***	0.005	U	0.001	U	0.00051	U	0.011	U	0.01	U	0.01	U	0.120		0.204	U	0.001	U	0.001	U	0.000474	U	0.000488	U	0.000040	U	0.000038	U	0.000038	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U
Pyrene	***0.73***	0.005	U	0.001	U	0.0013	U	0.005	U	0.005	U	0.005	U	0.51	U	0.102	U	0.001	U	0.001	U	0.000273	U	0.000281	U	0.00011	U	0.00010	U	0.00010	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U
Pyridine	***0.024***	---		0.002	U	0.0015	U	0.011	U	0.01	U	0.01	U	***1.02***	U	***0.204***	U	0.004	U	0.004	U	0.0015	U	0.00155	U	0.000040	U	0.000038	U	0.000038	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U*
GC Semi-volatiles (SW846 8151) (mg/L)																																							
2,4-D	***0.07***	0.0011	U	0.0011	U	0.0012	U	0.00111	U	0.0005	U	0.0005	U	0.0005	U	0.000515	U	0.000113		0.000054	U	0.000138	U	0.00145	U	0.000062	U	0.000040	U	0.000038	U	0.000038	U	0.000039	U	0.00084		0.00023	p	0.000038	U
Metals Analysis (SW 846 6010B) (mg/L)																																							
Lead	***0.015***	0.0058		0.0037		0.0029		0.002	U	0.002	U	0.003		0.002	U	0.002	U	0.001	U	0.008		0.0017		0.000217	U	0.00073	U	0.00073	U	0.0024	J	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.00073	U
General Chemistry (415.1) (mg/L)																																							
Total Organic Carbon	---	7		36		4		2.49		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-29																													
SAMPLING PERIOD	(mg/L)	3rd Q 2016		1st Q 2017		3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																															
1,1-Dichloroethylene	***0.007***	0.00019	U	0.00019	U	0.000168	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.00074	U	0.00074	U
1,2,3-Trichloropropane	***0.00013***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	0.00015	U	0.00015	U	0.000153	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000236	U	0.00024	U	0.00024	U	0.00051	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.000116	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.000136	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U	0.00076	U*	0.00076	U	0.00076	U *	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0027	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U
4-Methyl-2-pentanone	***2***	0.00035	U	0.00035	U	0.000348	U	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U
Acetone	***22***	0.00045	U	0.00045	U	0.000447	U	0.00045	U *	0.00045	U	0.00045	U *	0.00045	U	0.00045	U	0.012		0.0123	U	0.012	U	0.012	U	0.0012	U	0.0012	U	0.0012	U
Benzene	***0.005***	0.00018	U	0.00023	J	0.000176	U	0.0017		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.0021		0.00296		0.00021	U	0.00021	U	0.00053	U	0.00053	U	0.00046	U
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.000216	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U
Chlorobenzene	***0.1***	0.00019	U	0.00019	U	0.000185	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000159	U	0.00016	U	0.00016	U	0.00053	U	0.00053	U	0.00053	U
Chloroform	***0.24***	0.00015	U	0.00015	U	0.000151	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000259	U	0.00026	U	0.00026	U	0.00064	U	0.00064	U	0.00064	U
Ethylbenzene	***0.7***	0.00021	U	0.00021	U	0.000212	U	0.00076	J B	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000146	U	0.00051	U	0.00051	U	0.00041	U	0.00041	U	0.00041	U
n-Hexane	***1.5***	0.00026	U	0.00026	U	0.000256	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.000369	U	0.00037	U	0.00037	U	0.00052	U *+	0.00052	U	0.00052	U
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.000176	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.000175	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.00033	U	0.00033	U	0.000333	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U
Toluene	***1***	0.0002	U	0.0002	U	0.000198	U	0.0021		0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0005	U	0.0005	U	0.0005	U	0.00048	U	0.00048	U	0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.00019	U	0.00019	U	0.000192	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000256	U	0.00026	U	0.00026	U	0.00095	U	0.00095	U	0.00095	U
Trichloroethylene	***0.005***	0.00014	U	0.00014	U	0.000138	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.00042	U	0.00079	U	0.00079	U	0.00079	U
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.000854	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00357	U	0.0036	U	0.0036	U	0.0021	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.00025	U	0.00025	U	0.000248	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.000234	U	0.00023	U	0.00023	U	0.00064	U	0.00064	U	0.00064	U
Xylene (total)	***10***	0.00037	U	0.00037	U	0.000366	U	0.00057	J	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.000192	U	0.00033	U	0.00033	U	0.0012	U	0.0012	U	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																															
2,4,6-Trichlorophenol	***0.083***	0.00034	U	0.00034	U	0.00033	U *	0.00034	U	0.00033	U *	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.000135	U	0.00014	U	0.00014	UJL	0.00014	UJL	0.00014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00027	U	0.00027	U	0.00026	U *	0.00027	U	0.00026	U *	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.000115	U	0.00011	U	0.00011	UJL	0.00011	UJL	0.00011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00019	U	0.00095	J	0.00018	U *	0.0075		0.003	B *	0.00018	U *	0.00049	J	0.00018	U	0.00018	U	0.0006	J	0.00015	U	0.00015	UJL	0.0009	JL	0.00015	U	0.00015	U
2-Methylnaphthalene	***0.098***	0.00015	U	0.00015	U	0.00014	U	0.00015	U	0.00066	J *	0.00056	J	0.00028	J B	0.00019	J	0.00021	J	0.00176		0.00048	U	0.00048	U	0.00048	U	0.00048	U	0.00048	U
2-Methylphenol	***1.2***	0.0002	U	0.0002	U	0.00019	U *	0.0027		0.00032	J *	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000159	U	0.00016	U	0.00016	UJL	0.00032	JL	0.00016	U	0.00016	U
3&4-Methylphenol	***0.12***	0.00017	U	0.00017	U	0.00016	U	0.012		0.00016	U *	0.00016	U *	0.00068	J	0.00016	U	0.00016	U	0.00088		0.00016	U	0.00016	UJL	0.00041	JL	0.00016	U	0.00072	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.00026***	U	***0.00026***	U	***0.00025***	U	***0.00026***	U	***0.00025***	U *	***0.00025***	U	***0.00025***	U	***0.00025***	U	***0.00025***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.00017	U	0.00017	U	0.00016	U	0.00017	U	0.00063	J B *	0.00026	J	0.00016	U	0.00017	J	0.00016	U	0.00124		0.00021	U	0.00033	J	0.0005	J	0.00021	U	0.00081	J
Acenaphthylene	***1.5***	0.00017	U	0.00017	U	0.00016	U	0.00017	U	0.00016	U *	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000215	U	0.00034	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U
Aniline	***0.16***	0.00013	U	0.00013	U	0.00012	U	0.00013	U	0.00012	U *	0.00012	U	0.00012	U *	0.00012	U	0.00012	U	0.000314	UL	0.00031	U *-	0.00031	U	0.00031	UJL	0.00031	U	0.00031	UJL
Anthracene	***7.3***	0.00046	U	0.00046	U	0.00044	U	0.00046	U	0.00044	U *	0.00044	U	0.00044	U	0.00044	U	0.00044	U	0.00044	J	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Benzo(a)anthracene	***0.0013***	0.00026	U	0.00026	U	0.00025	U *	0.00026	U	0.00044	J *	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00024	J	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Benzo(a)pyrene	***0.0002***	0.00014	U	0.00014	U	0.00013	U	0.00014	U	0.00013	U *	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	0.00016	J	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00019	U	0.00019	U	0.00018	U	0.00019	U	0.00049	J *	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00036	U	0.00036	U	0.00035	U	0.00036	U	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.000143	U	0.00014	U	0.00014	U	0.00014	U	0.00047	J	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00017	U	0.00017	U	0.00016	U *	0.00017	U	0.00048	J *	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000166	U	0.00017	U	0.00017	U	0.00017	U	0.00023	J	0.00017	U
Benzyl Alcohol	***12***	0.00053	U	0.00053	U	0.00051	U *	0.00053	U	0.00051	U *	0.00051	U *	0.00051	U	0.00051	U	0.00051	U	0.0036		0.0035	*+ B	0.0045	U	0.0045	U	0.0045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00019	U	0.00019	U	0.00018	U	0.00019	U	0.00031	J *	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00036	J	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.00061	U	0.0021	J B	0.00059	U	0.00061	U	0.00081	J *	0.00059	U	0.00059	U	0.00059	U	0.00059	U	0.000278	U	0.00022	U	0.00022	U	0.00046	J	0.00022	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.00089	U	0.00089	U	0.00085	U	0.00089	U	0.001	J *	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.000225	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Chrysene	***0.13***	0.00025	U	0.00025	U	0.00024	U	0.00025	U	0.00051	J *	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.000159	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0003***	U	***0.0003***	U	***0.00029***	U	***0.0003***	U	***0.00037***	J *	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	***0.00099***	J	0.00015	U
Dibenzofuran	***0.098***	0.00017	U	0.00017	U	0.00016	U	0.00017	U	0.00071	J *	0.00017	J	0.00016	U	0.00016	U	0.00016	U	0.00156		0.00034	U	0.00034	U	0.00034	U	0.00034	U	0.00038	J
Di-n-butyl phthalate	***2.4***	0.0019	U	0.0019	U	0.00187	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.00128	J	0.065	*+ B *1	0.0008	U	0.0008	U	0.0008	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00017	U	0.00017	U	0.00016	U *	0.00017	U	0.00057	J *	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000169	U	0.00017	U	0.00017	U	0.00017	U	0.00038	J	0.00017	U
Fluoranthene	***0.98***	0.00032	U	0.00032	U	0.00031	U	0.00032	U	0.00039	J	0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.001		0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U
Fluorene	***0.98***	0.00013	U	0.00013	U	0.00012	U	0.00013	U	0.00046	J *	0.00013	J	0.00013	J B	0.00012	U	0.00012	U	0.00132		0.0002	U	0.00025	J	0.00023	J	0.00021	U	0.00032	J
Indeno(1,2,3-cd)pyrene	***0.0013***	0.0003	U	0.0003	U	0.00029	U	0.0003	U	0.00041	J *	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.000143	U	0.00014	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U
Naphthalene	***0.49***	0.00017	U	0.00043	J	0.00016	U	0.0013	J	0.0016	J *	0.0022	B	0.0015	J B	0.0012	J	0.00085	J	0.00388		0.0016		0.0016	J	0.0018	J	0.00042	U	0.0017	J
Phenanthrene	***0.73***	0.0003	U	0.0003	U	0.00029	U *	0.0003	U	0.00089	J *	0.00029	U	0.00033	J	0.00029	U	0.00029	U	0.00264		0.0004	U	0.00029	J	0.00018	U	0.00018	U	0.00024	J
Phenol	***7.3***	0.00015	U	0.00015	U	0.00014	U	0.00046	J	0.0007	J *	0.00014	U	0.00014	U	0.00014	U	0.00015	J	0.0008	U *1	0.0008	U *1	0.0002	UJL	0.0002	UJL	0.0002	U	0.0002	UJL
Pyrene	***0.73***	0.00034	U	0.00034	U	0.00033	U *	0.00034	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00064	J	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Pyridine	***0.024***	0.00025	U	0.00025	U	0.00024	U *	0.00025	U	0.00024	U	0.00024	U *	0.00024	U *	0.00024	U	0.00024	U	0.000725	U	0.0031	B *1	0.00072	UJL	0.0012	JL	0.00072	U	0.00072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)																															
2,4-D	***0.07***	0.000038	U	0.000039	U	0.00004	U	0.0037		0.000039	U	0.000039	U	0.0036	*	0.00004	U	0.00004	U *1	0.0000453	U	0.000026	U	0.000021	UJL	0.000027	UJL	0.000029	U	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)																															
Lead	***0.015***	0.00073	U	0.00073	U	0.000733	U	0.00073	U	0.00073	U	0.00073	U	0.0024	J	0.00017	U	0.00017	U	0.000205	J	0.0002	J	0.001	J	0.00085	J	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																															
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-30 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-30																			
SAMPLING PERIOD	(mg/L)	1st Q 2019		1st Q 2020		1st Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																					
1,1-Dichloroethylene	***0.007***	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.00074	U	0.00074	U		
1,2,3-Trichloropropane	***0.00013***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	***0.00049***	U		
1,2-Dichlorobenzene	***0.6***	0.00015	U	0.00015	U	0.00015	U	0.0005	J	0.0015		0.00072	J	0.00051	U	0.00088	J	0.00051	U		
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U		
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U		
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U	0.00076	U	0.00076	U	0.0027	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U		
4-Methyl-2-pentanone	***2***	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U		
Acetone	***22***	0.0098	*	0.00045	U	0.00045	U	0.0123	U	0.012	U	0.012	U	0.0073	J	0.0012	U	0.0012	U		
Benzene	***0.005***	0.0013		***0.023***		0.0011		***0.0282***		0.0012		***0.037***		***0.042***		***0.031***		***0.0074***	
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U		
Chlorobenzene	***0.1***	0.00024	J	0.0013		0.00019	J	0.00164		0.001		0.0023		0.0011		0.0015		0.001			
Chloroform	***0.24***	0.00015	U	0.00015	U	0.00015	U	0.000259	U	0.00026	U	0.00026	U	0.00064	U	0.00064	U	0.00064	U		
Ethylbenzene	***0.7***	0.00021	U	0.00021	U	0.00021	U	0.00089	J	0.00091	J	0.0013		0.00044	J	0.0019		0.00041	U		
n-Hexane	***1.5***	0.00026	U	0.00026	U	0.00026	U	0.000369	U	0.00037	U	0.00037	U	0.00052	U	0.00052	U	0.00052	U		
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U		
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U		
Tetrachloroethylene	***0.005***	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U		
Toluene	***1***	0.00047	J	0.0011		0.0002	U	0.00559		0.002		0.0055		0.0017		0.0061		0.00048	U		
trans-1,2-Dichloroethylene	***0.1***	0.00019	U	0.00019	U	0.00019	U	0.000256	U	0.00026	U	0.00026	U	0.00095	U	0.00095	U	0.00095	U		
Trichloroethylene	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.00042	U	0.00079	U	0.00079	U	0.00079	U		
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.00085	U	0.00357	U	0.0036	U	0.0036	U	0.0021	U	0.0021	U	0.0021	U		
Vinyl chloride	***0.002***	0.00025	U	***0.0035***		0.00025	U	***0.00204***		0.00023	U	***0.003***		0.00099	J	0.0013	J	0.0014	J		
Xylene (total)	***10***	0.00037	U	0.00077	J	0.00037	U	0.00166		0.004	J	0.0013	J	0.0014	J	0.0035	J	0.0012	U		
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																					
2,4,6-Trichlorophenol	***0.083***	0.00033	U	0.0069	U	0.00034	U	0.000135	U	0.0014	U	0.00014	U *1	0.0014	U	0.00068	U	0.00014	U		
2,4-Dichlorophenol	***0.073***	0.00026	U	0.0054	U	0.00027	U	0.000115	U	0.0011	U	0.00011	U	0.0011	U	0.00057	U	0.00011	U		
2,4-Dimethylphenol	***0.49***	0.00018	U *	0.017	J	0.00019	U	0.00276		0.0015	U	0.0013	J	0.02		0.00074	U	0.0048			
2-Methylnaphthalene	***0.098***	0.00016	J	0.0029	U	0.00015	U	0.00096		0.0048	U	0.00048	U	0.0048	U	0.0024	U	0.00071	J		
2-Methylphenol	***1.2***	0.00019	U	0.0063	J	0.0002	U	0.00112		0.0016	U	0.00016	U	0.0016	U	0.0008	U	0.00016	U		
3&4-Methylphenol	***0.12***	0.00016	U *	0.027		0.00017	U	0.00532		0.0016	U	0.0015	J	0.012	J	0.00081	U	0.0096	JL		
4-Bromophenyl phenyl ether	***0.000061***	***0.00025***	U	***0.0052***	U	***0.00026***	U	***0.000167***	U	***0.0017***	U	***0.00017***	U	***0.0017***	U	***0.00084***	U	***0.00017***	U		
Acenaphthene	***1.5***	0.00016	U	0.0033	U	0.00017	U	0.0006	J	0.0021	U	0.00038	J	0.0021	U	0.002	J	0.00089	J		
Acenaphthylene	***1.5***	0.00016	U	0.0033	U	0.00017	U	0.000215	U	0.0034	U	0.00021	U	0.0021	U	0.0011	U	0.00021	U		
Aniline	***0.16***	0.00012	U	0.0025	U	0.00013	U	0.000314	UL	0.0031	U *-	0.00031	U	0.0031	UJL	0.0016	U	0.00031	UJL		
Anthracene	***7.3***	0.00044	U	0.0092	U	0.00046	U	0.0002	J	0.0015	U	0.00026	J	0.0015	U	0.00077	U	0.00043	J		
Benzo(a)anthracene	***0.0013***	0.00025	U	***0.0052***	U	0.00026	U	0.00015	U	***0.0015***	U	0.00015	U	***0.0015***	U	0.00075	U	0.00015	U		
Benzo(a)pyrene	***0.0002***	0.00013	U	***0.0027***	U	0.00014	U	0.000148	U	***0.0015***	U	0.00015	U	***0.0015***	U	***0.00074***	U	0.00015	U		
Benzo(b)fluoranthene	***0.0013***	0.00018	U	***0.0038***	U	0.00019	U	0.00021	U	***0.0021***	U	0.00021	U	***0.0021***	U	0.001	U	0.00021	U		
Benzo(g,h,i)perylene	***0.73***	0.00035	U	0.0073	U	0.00036	U	0.000143	U	0.0014	U	0.00014	U	0.0014	U	0.00071	U	0.00014	U		
Benzo(k)fluoranthene	***0.013***	0.00016	U	0.0033	U	0.00017	U	0.000166	U	0.0017	U	0.00017	U	0.0017	U	0.00083	U	0.00017	U		
Benzyl Alcohol	***12***	0.00051	U *	0.011	U	0.00053	U	0.00268		0.008	U *+	0.0045	U	0.045	U	0.023	U *+	0.0045	U		
bis(2-Chloroethyl)ether	***0.00083***	0.00018	U	***0.0038***	U	0.00019	U	0.0004	J	***0.0028***	U	0.00028	U	***0.0028***	U	***0.0014***	U	0.00028	U		
bis(2-Ethylhexyl)phthalate	***0.006***	0.00059	U	***0.012***	U	0.0038		0.000278	U	***0.096***		0.00022	U	0.0022	U	0.0011	U	0.00022	U		
Butyl benzyl phthalate	***0.48***	0.00085	U	0.018	U	0.00089	U	0.000225	U	0.0015	U	0.00015	U	0.0021	J	0.0023	J	0.00015	U		
Chrysene	***0.13***	0.00024	U	0.005	U	0.00025	U	0.000159	U	0.0016	U	0.00016	U	0.0016	U	0.0008	U	0.00016	U		
Dibenzo(a,h)anthracene	***0.0002***	***0.00029***	U	***0.006***	U	***0.0003***	U	0.000148	U	***0.0015***	U	0.00015	U	***0.0015***	U	***0.00074***	U	0.00015	U		
Dibenzofuran	***0.098***	0.00016	U	0.0033	U	0.00017	U	0.00048	J	0.0034	U	0.00036	J	0.0034	U	0.0017	J	0.00056	J		
Di-n-butyl phthalate	***2.4***	0.0019	U	0.039	U	0.0019	U	0.0008	U	0.26	B *+ *1	0.0008	U	0.008	U	0.004	U	0.0008	U		
Di-n-octyl phthalate	***0.49***	0.00016	U	0.0033	U	0.0003	J	0.000169	U	0.0017	U	0.00017	U	0.0017	U	0.00085	U	0.00017	U		
Fluoranthene	***0.98***	0.00031	U	0.0065	U	0.00032	U	0.0004	J	0.0015	U	0.00029	J	0.0015	U	0.0011	J	0.00054	J		
Fluorene	***0.98***	0.00012	U	0.0025	U	0.00013	U	0.00052	J	0.002	U	0.00039	J	0.0021	U	0.0024	J	0.00083	J		
Indeno(1,2,3-cd)pyrene	***0.0013***	0.00029	U	***0.006***	U	0.0003	U	0.000143	U	***0.0014***	U	0.00085	U	***0.0085***	U	***0.0043***	U	0.00085	U		
Naphthalene	***0.49***	0.00022	J B	0.0065	J	0.00017	U	0.00428		0.008	U	0.0012	J	0.0042	U	0.0047	J	0.0021			
Phenanthrene	***0.73***	0.00029	U	0.006	U	0.0003	U	0.00096		0.004	U	0.0007	J	0.0021	J	0.0039	J	0.0015	J		
Phenol	***7.3***	0.00014	U	0.0029	U	0.00015	U	0.0008	J	0.008	U *1	0.0002	U	0.002	UJL	0.001	U	0.0002	UJL		
Pyrene	***0.73***	0.00033	U	0.0069	U	0.00034	U	0.00028	J	0.0016	U	0.00021	J	0.0016	U	0.0008	U	0.00034	J		
Pyridine	***0.024***	0.00024	U *	0.005	U	0.00025	U	0.000725	U	0.0072	U *1	0.00072	UJL	0.0072	UJL	0.0036	U	0.00085	JL *1		
GC Semi-volatiles (SW846 8151) (mg/L)																					
2,4-D	***0.07***	0.000039	U	0.021		0.000039	U *1	0.0000503	U	0.000026	U	0.000021	UJL	0.000027	UJL	0.000029	U	0.00016	U		
Metals Analysis (SW 846 6010B) (mg/L)																					
Lead	***0.015***	***0.77***		***0.14***		***0.029***		***0.0293***		***0.45***		0.001	J	0.00023	J	***0.018***		0.00065	J		
General Chemistry (415.1) (mg/L)																					
Total Organic Carbon	***---***	---		---		---		---		---		---		---		---		---			

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-31 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-31																					
SAMPLING PERIOD	(mg/L)	1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																									
1,1-Dichloroethylene	***0.007***	0.00056	J	0.006		***0.012***		***0.013***		***0.0093***		***0.015***		***0.0138***	J	***0.018***		***0.03***		***0.027***		***0.01***		***0.019***	
1,2,3-Trichloropropane	***0.00013***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00567***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00471	U	0.00024	U	0.00024	U	0.00051	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	***0.0057***	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	***0.00791***	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.054	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U
4-Methyl-2-pentanone	***2***	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.0213	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U
Acetone	***22***	0.00045	U	0.00045	U	0.00045	U *	0.00045	U	0.00045	U	0.021		0.246	U	0.012	U	0.012	U	0.0012	U	0.0012	U	0.011	J
Benzene	***0.005***	0.00018	U	0.0045		***0.0055***		***0.011***		***0.0062***		***0.0099***		***0.0124***	J	***0.012***		***0.017***		***0.01***		0.0046		***0.0097***	
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00747	U	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U
Chlorobenzene	***0.1***	0.0063		0.0019		0.0037		0.0021		0.0036		0.0012		0.0044	J	0.0032		0.0014		0.0014		0.015		0.002	
Chloroform	***0.24***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00517	U	0.00026	U	0.00026	U	0.00064	U	0.0017		0.00064	U
Ethylbenzene	***0.7***	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00291	U	0.00051	U	0.00051	U	0.00041	U	0.00041	U	0.00041	U
n-Hexane	***1.5***	0.00026	U	0.00057	J	0.0013		0.0016		0.00066	J	0.0044		0.00738	U	0.0076		0.006		0.016		0.0025	J	0.0011	J
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	***0.0382***	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00325	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	***0.01***	U	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U
Toluene	***1***	0.0002	U	0.00021	J	0.0002	U	0.00029	J	0.00029	J	0.00021	J	0.01	U	0.0007	J	0.00083	J	0.00061	J	0.00048	U	0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.001		0.0085		0.013		0.026		0.016		0.055		0.021		0.057		***0.12***		0.071		0.02		***0.11***	
Trichloroethylene	***0.005***	0.00095	J	***0.0073***		***0.0096***		***0.01***		***0.0067***		***0.01***		***0.00848***	U	***0.0094***		***0.013***		***0.0092***		0.0035	J	***0.0067***	
Vinyl Acetate	***24***	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.0032		0.0714	U	0.0036	U	0.0036	U	0.0021	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.00025	U	***0.071***		***0.059***		***0.17***		***0.043***		***0.17***		***0.071***		***0.14***		***0.13***		***0.082***		***0.084***		***0.19***	
Xylene (total)	***10***	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00383	U	0.00033	U	0.00033	U	0.0012	U	0.0012	U	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																									
2,4,6-Trichlorophenol	***0.083***	0.00034	U	0.00036	U *	0.00034	U	0.00034	U	0.00034	U	0.00034	U	0.000135	U	0.00014	U	0.00014	U *1	0.00014	UJL	0.00027	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.00027	U	0.00028	U *	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.000115	U	0.00011	U	0.00011	U	0.00011	UJL	0.00023	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.00019	U	0.0002	U *	0.00019	U *	0.00063	J	0.00018	U	0.00019	U	0.000148	U	0.00015	U	0.00015	U	0.00015	UJL	0.0003	U	0.0081	
2-Methylnaphthalene	***0.098***	0.00015	U	0.00015	U *	0.00023	J	0.00042	J B	0.00014	U	0.00015	J	0.0074		0.00048	U	0.00048	U	0.00048	U	0.00096	U	0.00048	U
2-Methylphenol	***1.2***	0.0002	U	0.00021	U *	0.0002	U	0.00026	J	0.00019	U	0.0002	U	0.000159	U	0.00016	U	0.00016	U	0.00016	UJL	0.00032	U	0.0018	J
3&4-Methylphenol	***0.12***	0.00017	U	0.00017	U *	0.00017	U *	0.0016		0.00016	U	0.00017	U	0.000163	U	0.00016	U	0.00016	U	0.00016	UJL	0.00033	U	0.018	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.00026***	U	***0.00027***	U *	***0.00026***	U	***0.00026***	U	***0.00026***	U	***0.00026***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U	***0.00033***	U	***0.00017***	U
Acenaphthene	***1.5***	0.00017	U	0.00017	U *	0.00017	U	0.00018	J B	0.00016	U	0.00017	U	0.007		0.00021	U	0.00021	U	0.00021	U	0.00072	J	0.00021	U
Acenaphthylene	***1.5***	0.00017	U	0.00017	U *	0.00017	U	0.00016	U	0.00016	U	0.00017	U	0.000215	U	0.00034	U	0.00021	U	0.00021	U	0.00043	U	0.00021	U
Aniline	***0.16***	0.00013	U	0.00013	U *	0.00013	U	0.00012	U *	0.00012	U	0.00013	U	0.000314	UL	0.00031	U *-	0.00031	U	0.00031	UJL	0.00063	U	0.00031	UJL
Anthracene	***7.3***	0.00046	U	0.00048	U *	0.00046	U	0.00045	U	0.00045	U	0.00046	U	0.00148		0.00015	U	0.00015	U	0.00015	U	0.00031	U	0.00015	U
Benzo(a)anthracene	***0.0013***	0.00026	U	0.00027	U *	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00052	J	0.00015	U	0.00015	U	0.00015	U	0.0003	U	0.00015	U
Benzo(a)pyrene	***0.0002***	0.00014	U	0.00014	U *	0.00014	U *	0.00013	U	0.00013	U	0.00014	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	***0.0003***	U	0.00015	U
Benzo(b)fluoranthene	***0.0013***	0.00019	U	0.0002	U *	0.00019	U *	0.00018	U	0.00018	U	0.00019	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00042	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.00036	U	0.00038	U *	0.00036	U *	0.00036	U	0.00036	U	0.00036	U	0.000143	U	0.00014	U	0.00014	U	0.00014	U	0.00029	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.00017	U	0.00017	U *	0.00017	U *	0.00016	U	0.00016	U	0.00017	U	0.000166	U	0.00017	U	0.00017	U	0.00017	U	0.00033	U	0.00017	U
Benzyl Alcohol	***12***	0.00053	U	0.00055	U *	0.00053	U *	0.00052	U	0.00052	U	0.00053	U	0.003		0.0039	*+ B	0.0045	U	0.0045	U	0.009	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	0.00019	U	0.0002	U *	0.00019	U	0.00018	U	0.00018	U	0.00019	U	0.00015	U	0.00028	U	0.00028	U	0.00028	U	0.00056	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.00061	U	0.00064	U *	0.00061	U	0.0006	U	0.0006	U	0.00061	U	0.000278	U	0.00022	U	0.00022	U	0.0024		0.00045	U	0.00022	U
Butyl benzyl phthalate	***0.48***	0.00089	U	0.0012	J *	0.00089	U	0.00087	U	0.00087	U	0.00089	U	0.000225	U	0.00015	U	0.00015	U	0.00015	U	0.0003	U	0.00015	U
Chrysene	***0.13***	0.00025	U	0.00026	U *	0.00025	U	0.00024	U	0.00024	U	0.00025	U	0.0004	J	0.00016	U	0.00016	U	0.00016	U	0.00032	U	0.00016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0003***	U	***0.00032***	U *	***0.0003***	U *	***0.0003***	U	***0.0003***	U	***0.0003***	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	***0.0003***	U	0.00015	U
Dibenzofuran	***0.098***	0.00017	U	0.00017	U *	0.00017	U	0.00016	U	0.00016	U	0.00017	U	0.00712		0.00034	U	0.00034	U	0.00034	U	0.00067	U	0.00034	U
Di-n-butyl phthalate	***2.4***	0.0019	U	0.002	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0008	U	0.12	B *+ *1	0.0008	U	0.0008	U	0.0016	U	0.0008	U
Di-n-octyl phthalate	***0.49***	0.00017	U	0.00017	U *	0.00017	U	0.00016	U	0.00016	U	0.00017	U	0.000169	U	0.00017	U	0.00017	U	0.00017	U	0.00034	U	0.00017	U
Fluoranthene	***0.98***	0.00032	U	0.00034	U	0.00032	U	0.00032	U	0.00032	U	0.00032	U	0.00348		0.00015	U	0.00015	U	0.00015	U	0.0005	J	0.00015	U
Fluorene	***0.98***	0.00013	U	0.00013	U *	0.00013	U	0.00012	U	0.00012	U	0.00013	U	0.00592		0.0002	U	0.00021	U	0.00021	U	0.00061	J	0.00026	J
Indeno(1,2,3-cd)pyrene	***0.0013***	0.0003	U	0.00032	U *	0.0003	U *	0.0003	U	0.0003	U	0.0003	U	0.000143	U	0.00014	U	0.00085	U	0.00085	U	***0.0017***	U	0.00085	U
Naphthalene	***0.49***	0.00017	U	0.00017	U *	0.0015	J B	0.002	B	0.00059	J	0.00064	J	0.0066		0.0024		0.00067	J	0.00056	J	0.00085	U	0.0026	
Phenanthrene	***0.73***	0.0003	U	0.00032	U *	0.0003	U	0.0003	U	0.0003	U	0.0003	U	0.0107		0.0004	U	0.00018	U	0.00018	U	0.00097	J	0.00018	U
Phenol	***7.3***	0.00015	U	0.00015	U *	0.00015	U	0.00014	U	0.00014	U	0.00015	U	0.0008	U	0.0008	U *1	0.0002	U	0.0002	UJL	0.0004	U	0.00035	JL
Pyrene	***0.73***	0.00034	U	0.00036	U	0.00034	U	0.00034	U	0.00034	U	0.00034	U	0.00216		0.00016	U	0.00016	U	0.00016	U	0.00032	U	0.00016	U
Pyridine	***0.024***	0.00025	U	0.00026	U	0.00025	U *	0.00024	U *	0.00024	U	0.00025	U	0.000725	U	0.0026	B *1	0.00078	J *1	0.00094	JL	0.0014	U	0.00072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)																									
2,4-D	***0.07***	0.000039	U	0.000039	U *	0.000039	U	0.000043	U *	0.00004	U	0.000039	U *1	0.0000453	U	0.000026	U	0.000021	UJL	0.000027	UJL	0.000029	U	0.00015	U
Metals Analysis (SW 846 6010B) (mg/L)																									
Lead	***0.015***	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.00023	J	0.00025	J	0.000152	U	0.00091	J	0.00015	J	0.0038		0.0003	J	0.00037	U
General Chemistry (415.1) (mg/L)																									
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-32 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	MW-32																											
SAMPLING PERIOD	(mg/L)	3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)																													
1,1-Dichloroethylene	***0.007***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000216	U	0.00022	U	0.00022	U	0.00074	U	0.00074	U	0.00074	U
1,2,3-Trichloropropane	***0.00013***	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.00029***	U	***0.000283***	U	***0.00028***	U	***0.00028***	U	***0.00049***	U	***0.00049***	U	***0.00049***	U
1,2-Dichlorobenzene	***0.6***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000236	U	0.00024	U	0.00024	U	0.00051	U	0.00051	U	0.00051	U
1,2-Dichloroethane	***0.005***	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000285	U	0.00029	U	0.00029	U	0.00059	U	0.00059	U	0.00059	U
1,2-Dichloropropane	***0.005***	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000396	U	0.0004	U	0.0004	U	0.00067	U	0.00067	U	0.00067	U
Methyl ethyl ketone (2-Butanone)	***15***	0.00076	U	0.00076	U *	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0027	U	0.0027	U	0.0027	U	0.0083	U	0.0083	U	0.0083	U
4-Methyl-2-pentanone	***2***	0.00035	U	0.00035	U *	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00106	U	0.0011	U	0.0011	U	0.0075	U	0.0075	U	0.0075	U
Acetone	***22***	0.00045	U	0.00045	U * F2	0.0055		0.00045	U *	0.00045	U	0.0042	J	0.004	J	0.0123	U	0.012	U	0.012	U	0.0083	J	0.0012	U	0.0012	U
Benzene	***0.005***	0.0018		0.00037	J	0.00018	U	0.00021	J	0.00018	U	0.00042	J	0.00018	U	0.000214	U	0.00021	U	0.00055	J	0.00053	U	0.00053	U	0.00046	U
Carbon disulfide	***2.4***	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000373	U	0.00037	U	0.00037	U	0.0019	U	0.0019	U	0.0019	U
Chlorobenzene	***0.1***	0.0061		0.013	B	0.012		0.012		0.0099		0.006		0.0078		0.00132		0.0022		0.0051		0.019		0.0098		0.0068	
Chloroform	***0.24***	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000259	U	0.00026	U	0.00026	U	0.00064	U	0.00064	U	0.00064	U
Ethylbenzene	***0.7***	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000146	U	0.00051	U	0.00051	U	0.00041	U	0.00041	U	0.00041	U
n-Hexane	***1.5***	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.000369	U	0.00037	U	0.00037	U	0.00052	U *+	0.00052	U	0.00052	U
Methylene chloride	***0.005***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00191	U	0.0019	U	0.0019	U	0.0017	U	0.0017	U	0.0017	U
Styrene	***0.1***	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000162	U	0.00062	U	0.00062	U	0.00066	U	0.00066	U	0.00066	U
Tetrachloroethylene	***0.005***	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.0005	U	0.0005	U	0.0005	U	0.0008	U	0.0008	U	0.0008	U
Toluene	***1***	0.00024	J	0.00052	J	0.00025	J	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0005	U	0.0005	U	0.0005	U	0.00048	U	0.00048	U	0.00048	U
trans-1,2-Dichloroethylene	***0.1***	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000256	U	0.00026	U	0.00026	U	0.00095	U	0.00095	U	0.00095	U
Trichloroethylene	***0.005***	0.00014	U	0.00025	J	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.000424	U	0.00042	U	0.00042	U	0.00079	U	0.00079	U	0.00079	U
Vinyl Acetate	***24***	0.00085	U *	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.00357	U	0.0036	U	0.0036	U	0.0021	U	0.0021	U	0.0021	U
Vinyl chloride	***0.002***	0.0004	J	0.00025	U	0.0006	J	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.000234	U	0.00023	U	***0.0042***		0.00064	U	0.00064	U	0.00064	U
Xylene (total)	***10***	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.00037	U	0.000192	U	0.00033	U	0.00043	J	0.0012	U	0.0012	U	0.0012	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																													
2,4,6-Trichlorophenol	***0.083***	0.00038	U	0.00033	U F2	0.00036	U *	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.000135	U	0.00014	U	0.00014	U *1	0.00014	UJL	0.00027	U	0.00014	UJL
2,4-Dichlorophenol	***0.073***	0.0003	U	0.00026	U F2 F1	0.00028	U *	0.00026	U	0.00027	U	0.00027	U	0.00026	U	0.000115	U	0.00011	U	0.00011	U	0.00011	UJL	0.00023	U	0.00011	UJL
2,4-Dimethylphenol	***0.49***	0.0002	U	0.00018	U F2	0.0002	U *	0.0011	J *	0.00029	J	0.00019	U	0.00031	J	0.00076	J	0.00017	J	0.00015	U	0.00015	UJL	0.0003	U	0.00015	UJL
2-Methylnaphthalene	***0.098***	0.00016	U	0.00014	U F2	0.00044	J *	0.00033	J	0.0003	J B	0.0004	J	0.00082	J	0.00068	J	0.0025		0.00048	U	0.00048	U	0.00096	U	0.00048	UJL
2-Methylphenol	***1.2***	0.00022	U	0.00019	U F2 F1	0.00021	U *	0.00019	U	0.0002	U	0.0002	U	0.00024	J	0.000159	U	0.00016	U	0.00016	U	0.00016	UJL	0.00032	U	0.00016	UJL
3&4-Methylphenol	***0.12***	0.00018	U	0.00016	U F2	0.00017	U *	0.00016	U *	0.00027	J	0.00017	U	0.0002	J	0.00192		0.00016	U	0.00016	U	0.00016	U	0.00033	U	0.0011	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.00028***	U	***0.00025***	U F1	***0.00027***	U *	***0.00025***	U	***0.00026***	U	***0.00026***	U	***0.00025***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.00017***	U	***0.00033***	U	***0.00017***	UJL
Acenaphthene	***1.5***	0.00018	U	0.00016	U F2 F1	0.00056	J B *	0.00016	U	0.00018	J B	0.0003	J	0.00078	J	0.00056	J	0.0021		0.00021	U	0.00021	U	0.00042	U	0.00021	UJL
Acenaphthylene	***1.5***	0.00018	U	0.00016	U F2 F1	0.00017	U *	0.00016	U	0.00017	U	0.00017	U	0.00016	U	0.000215	U	0.00034	U	0.00021	U	0.00021	U	0.00043	U	0.00021	UJL
Aniline	***0.16***	0.00014	U	0.00012	U F2	0.00013	U *	0.00012	U	0.00013	U *	0.00013	U	0.00012	U	0.000314	UL	0.00031	U *-	0.00031	U	0.00031	UJL	0.00063	U	0.00031	UJL
Anthracene	***7.3***	0.0005	U	0.00044	U	0.00048	U *	0.00044	U	0.00046	U	0.00046	U	0.00044	U	0.000154	U	0.00015	U	0.00016	J	0.00015	U	0.00031	U	0.00015	UJL
Benzo(a)anthracene	***0.0013***	0.00028	U	0.00025	U	0.00027	U *	0.00025	U	0.00026	U	0.00026	U	0.00025	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.0003	U	0.00015	UJL
Benzo(a)pyrene	***0.0002***	0.00015	U	0.00013	U	0.00014	U *	0.00013	U	0.00014	U	0.00014	U	0.00016	J	0.000148	U	0.00015	U	0.00015	U	0.00015	U	***0.0003***	U	0.00015	UJL
Benzo(b)fluoranthene	***0.0013***	0.0002	U	0.00018	U	0.0002	U *	0.00018	U	0.00019	U	0.00019	U	0.00018	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00042	U	0.00021	UJL
Benzo(g,h,i)perylene	***0.73***	0.0004	U	0.00035	U	0.00038	U *	0.00035	U	0.00036	U	0.00036	U	0.00035	U	0.000143	U	0.00014	U	0.00014	U	0.00014	U	0.00029	U	0.00014	UJL
Benzo(k)fluoranthene	***0.013***	0.00018	U	0.00016	U	0.00017	U *	0.00016	U	0.00017	U	0.00017	U	0.00016	U	0.000166	U	0.00017	U	0.00017	U	0.00017	U	0.00033	U	0.00017	UJL
Benzyl Alcohol	***12***	0.00058	U	0.00051	U	0.00055	U *	0.00051	U *	0.00053	U	0.00053	U	0.00051	U	0.00236		0.0023	*+ B	0.0045	U	0.0045	U	0.009	U *+	0.0045	UJL
bis(2-Chloroethyl)ether	***0.00083***	0.0002	U	0.00018	U F2	0.0002	U *	0.00018	U	0.00019	U	0.00019	U	0.00018	U	0.00015	U	0.00028	U	0.00028	U	0.00028	U	0.00056	U	0.00028	UJL
bis(2-Ethylhexyl)phthalate	***0.006***	0.0026	J	0.00059	U	0.00064	U *	0.00059	U	0.00061	U	0.00061	U	0.00059	U	0.000278	U	0.00022	U	0.00022	U	0.00042	J	0.00045	U	0.00022	UJL
Butyl benzyl phthalate	***0.48***	0.001	J	0.00085	U	0.0033	*	0.00085	U	0.00089	U	0.00089	U	0.00085	U	0.000225	U	0.00015	U	0.00015	U	0.00015	U	0.0003	U	0.00015	UJL
Chrysene	***0.13***	0.00027	U	0.00024	U	0.00026	U *	0.00024	U	0.00025	U	0.00025	U	0.00024	U	0.000159	U	0.00016	U	0.00016	U	0.00016	U	0.00032	U	0.00016	UJL
Dibenzo(a,h)anthracene	***0.0002***	***0.00033***	U	***0.00029***	U	***0.00032***	U *	***0.00029***	U	***0.0003***	U	***0.0003***	U	***0.00029***	U	0.000148	U	0.00015	U	0.00015	U	***0.0003***	U	0.00015	UJL
Dibenzofuran	***0.098***	0.00018	U	0.00016	U F2 F1	0.00041	J *	0.00016	U	0.00017	U	0.00018	J	0.00052	J	0.0004	J	0.0014		0.00034	U	0.00034	U	0.00067	U	0.00034	UJL
Di-n-butyl phthalate	***2.4***	0.0021	U	0.0019	U	0.002	U	0.0019	U	0.0019	U	0.0019	U	0.0019	U	0.0008	U	0.067	*+ B *1	0.0008	U	0.0008	U	0.0016	U	0.0008	UJL
Di-n-octyl phthalate	***0.49***	0.00028	J	0.00016	U	0.00017	U *	0.00016	U	0.00017	U	0.00017	U	0.0002	J	0.000169	U	0.00017	U	0.00017	U	0.00017	U	0.00034	U	0.00017	UJL
Fluoranthene	***0.98***	0.00035	U	0.00031	U	0.00062	J	0.00031	U	0.00032	U	0.00032	U	0.00031	U	0.000148	U	0.00015	U	0.00015	U	0.00015	U	0.0003	U	0.00015	UJL
Fluorene	***0.98***	0.00014	U	0.00012	U F2 F1	0.00045	J *	0.00012	U	0.00013	U	0.00022	J	0.00046	J	0.00032	J	0.0013		0.00021	U	0.00021	U	0.00041	U	0.00024	JL
Indeno(1,2,3-cd)pyrene	***0.0013***	0.00033	U	0.00029	U	0.00032	U *	0.00029	U	0.0003	U	0.0003	U	0.00029	U	0.000143	U	0.00014	U	0.00085	U	0.00085	U	***0.0017***	U	0.00085	UJL
Naphthalene	***0.49***	0.00018	U	0.00016	U F2	0.0012	J *	0.0023	B	0.0018	J B	0.001	J	0.002		0.00188		0.0066		0.00051	J	0.00067	J	0.00085	U	0.0012	JL
Phenanthrene	***0.73***	0.00033	U	0.00029	U	0.0018	*	0.00029	U	0.0003	U	0.00036	J	0.00058	J	0.0004	J	0.0018		0.00018	U	0.00018	U	0.00035	U	0.00018	UJL
Phenol	***7.3***	0.00016	U *	0.00014	U F2	0.00015	U *	0.00014	U	0.00015	U	0.00015	U	0.00014	U	0.0008	U	0.0008	U *1	0.0002	U	0.0002	UJL	0.0004	U	0.0002	UJL
Pyrene	***0.73***	0.00038	U	0.00033	U	0.00036	U	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.000159	U	0.00016	U	0.00016	U	0.00016	U	0.00032	U	0.00016	UJL
Pyridine	***0.024***	0.00027	U	0.00024	U F2	0.00026	U	0.00024	U *	0.00025	U *	0.00025	U	0.00024	U	0.000725	U	0.002	B *1	0.00072	UJL	0.0009	JL	0.0014	U	0.00073	JL *1
GC Semi-volatiles (SW846 8151) (mg/L)																													
2,4-D	***0.07***	3.9E-05	U	0.000039	U	0.000039	U *	0.000039	U	0.000041	U *	0.00004	U	0.000039	U *1	0.0000453	U	0.000026	U	0.000021	UJL	0.000027	UJL	0.000029	U	0.00019	J
Metals Analysis (SW 846 6010B) (mg/L)																													
Lead	***0.015***	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.00073	U	0.00017	U	0.00017	U	0.000152	U	0.00042	J	0.00034	J	0.00015	U	0.00011	U	0.00037	U
General Chemistry (415.1) (mg/L)																													
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---		---			

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-33 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	MW-33									
SAMPLING PERIOD	(mg/L)	3rd Q 2021		1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)											
1,1-Dichloroethylene	***0.007***	***0.016***		***0.019***		***0.037***	U	***0.037***	U	***0.037***	U
1,2,3-Trichloropropane	***0.00013***	***3.2***		***1.2***		***0.5***		***0.57***		***0.24***	
1,2-Dichlorobenzene	***0.6***	0.019		0.021		0.025	U	0.025	U	0.025	U
1,2-Dichloroethane	***0.005***	0.0029	U	0.0014	U	***0.03***	U	***0.03***	U	***0.03***	U
1,2-Dichloropropane	***0.005***	0.004	U	***0.0074***	J	***0.033***	U	***0.033***	U	***0.033***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.027	U	0.014	U	0.41	U	0.41	U	0.41	U
4-Methyl-2-pentanone	***2***	0.011	U	0.017	J	0.37	U	0.37	U	0.37	U
Acetone	***22***	0.12	U	0.062	U	0.06	U	0.06	U	0.06	U
Benzene	***0.005***	***2.3***	B	***2***		***0.84***		***1.3***		***0.61***	
Carbon disulfide	***2.4***	0.0037	U	0.0019	U	0.095	U	0.095	U	0.095	U
Chlorobenzene	***0.1***	0.1		0.091		0.07		0.089		0.052	
Chloroform	***0.24***	0.0026	U	0.0013	U	0.032	U	0.032	U	0.032	U
Ethylbenzene	***0.7***	***1.1***		0.25		0.14		0.39		0.11	
n-Hexane	***1.5***	0.012	J	0.024	J	0.026	U	0.026	U	0.026	U
Methylene chloride	***0.005***	***0.019***	U	***0.0096***	U	***0.086***	U	***0.086***	U	***0.086***	U
Styrene	***0.1***	0.0062	U	0.0031	U	0.033	U	0.033	U	0.033	U
Tetrachloroethylene	***0.005***	***2.7***		***1.4***		***0.2***		***0.36***		***0.069***	
Toluene	***1***	***1.2***		0.51		0.2		0.7		0.22	
trans-1,2-Dichloroethylene	***0.1***	0.018		0.024		0.047	U	0.047	U	0.047	U
Trichloroethylene	***0.005***	***0.72***		***0.45***		***0.23***	J	***0.24***	J	***0.16***	J
Vinyl Acetate	***24***	0.036	U	0.018	U	0.11	U	0.11	U	0.11	U
Vinyl chloride	***0.002***	***1.4***		***2.8***		***3.2***		***2.4***		***2.7***	
Xylene (total)	***10***	1.5		0.88		0.52		1.1		0.66	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)											
2,4,6-Trichlorophenol	***0.083***	0.068	U	0.0068	U *1	0.0027	U	0.014	U	0.0068	U
2,4-Dichlorophenol	***0.073***	0.057	U	0.0057	U	0.0023	U	0.011	U	0.0057	U
2,4-Dimethylphenol	***0.49***	0.074	U	0.45		0.37		***0.52***		0.38	
2-Methylnaphthalene	***0.098***	***15***		***0.91***		***0.8***		***1.7***		***0.8***	
2-Methylphenol	***1.2***	0.08	U	0.13		0.077		0.11	J	0.068	J
3&4-Methylphenol	***0.12***	0.081	U	0.12		0.035	J	0.068	J	0.052	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.084***	U	***0.0084***	U	***0.0033***	U	***0.017***	U	***0.0084***	U
Acenaphthene	***1.5***	***23***		1.4		1.2		***2.2***		1.1	
Acenaphthylene	***1.5***	0.46		0.011	U	0.0043	U	0.021	U	0.024	J
Aniline	***0.16***	0.16	U *-	0.016	U	0.0063	UJL	0.031	U	0.016	UJL
Anthracene	***7.3***	6.7		0.36		0.3		0.57		0.24	
Benzo(a)anthracene	***0.0013***	***3.7***		***0.17***		***0.14***		***0.27***		***0.11***	
Benzo(a)pyrene	***0.0002***	***1***		***0.051***	J	***0.046***		***0.076***	J	***0.034***	J
Benzo(b)fluoranthene	***0.0013***	***1.7***		***0.078***	J	***0.067***		***0.11***	J	***0.048***	J
Benzo(g,h,i)perylene	***0.73***	0.071	U	0.013	J	0.0097	J	0.019	J	0.0086	J
Benzo(k)fluoranthene	***0.013***	***0.73***		***0.042***	J	***0.029***	J	***0.052***	J	***0.025***	J
Benzyl Alcohol	***12***	0.4	U *+	0.23	U	0.09	U	0.45	U *+	0.23	U
bis(2-Chloroethyl)ether	***0.00083***	***0.14***	U	***0.044***	J	***0.039***	J	***0.043***	J	***0.041***	J
bis(2-Ethylhexyl)phthalate	***0.006***	***0.11***	U	***0.011***	U	0.0045	U	***0.022***	U	***0.011***	U
Butyl benzyl phthalate	***0.48***	***32***		***3.5***		***2.1***		***2.6***		***0.85***	
Chrysene	***0.13***	***3***		***0.16***		0.13		***0.24***		0.1	
Dibenzo(a,h)anthracene	***0.0002***	***0.26***	J	***0.0074***	U	***0.003***	U	***0.015***	U	***0.0074***	U
Dibenzofuran	***0.098***	***17***		***1.1***		***0.88***		***1.6***		***0.75***	
Di-n-butyl phthalate	***2.4***	1.7	*+ B *1	0.04	U	0.016	J	0.08	U	0.04	U
Di-n-octyl phthalate	***0.49***	0.085	U	0.0085	U	0.0034	U	0.017	U	0.0085	U
Fluoranthene	***0.98***	***26***		0.9		***1.1***		***1.8***		0.7	
Fluorene	***0.98***	***21***		***1.1***		0.97		***1.7***		0.8	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.54***		***0.043***	U	***0.017***	U	***0.085***	U	***0.043***	U
Naphthalene	***0.49***	***22***		***2***		***0.68***		***2.6***		***1.9***	
Phenanthrene	***0.73***	***46***		***2.4***		***1.9***		***3.8***		***1.6***	
Phenol	***7.3***	0.4	U *1	0.014	J	0.019	JL	0.02	U	0.019	JL
Pyrene	***0.73***	***15***		***0.84***		0.66		***1.2***		0.5	
Pyridine	***0.024***	***0.36***	U *1	***0.036***	U *1	0.014	UJL	***0.072***	U	***0.036***	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)											
2,4-D	***0.07***	0.00044		0.000021	UJL	0.000027	UJL	0.000029	U	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)											
Lead	***0.015***	***0.072***		0.0011	J	***0.018***		0.004		0.00044	J
General Chemistry (415.1) (mg/L)											
Total Organic Carbon	---	---		---		---		---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | MW-34 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	MW-34							
SAMPLING PERIOD	(mg/L)	1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)									
1,1-Dichloroethylene	***0.007***	***0.022***	U	***0.74***	U	***0.74***	U	***0.74***	U
1,2,3-Trichloropropane	***0.00013***	***0.028***	U	***0.49***	U	***0.49***	U	***0.49***	U
1,2-Dichlorobenzene	***0.6***	***0.7***		***0.82***	J	***0.73***	J	0.51	U
1,2-Dichloroethane	***0.005***	***0.029***	U	***0.59***	U	***0.59***	U	***0.59***	U
1,2-Dichloropropane	***0.005***	***0.04***	U	***0.67***	U	***0.67***	U	***0.67***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.27	U	8.3	U	8.3	U	8.3	U
4-Methyl-2-pentanone	***2***	1.5	J	***7.5***	U	***7.5***	U	***7.5***	U
Acetone	***22***	1.2	U	1.2	U	1.2	U	1.2	U
Benzene	***0.005***	***200***		***200***		***150***		***95***	
Carbon disulfide	***2.4***	0.037	U	1.9	U	1.9	U	1.9	U
Chlorobenzene	***0.1***	***4.3***		***4.6***		***3.1***		***1.9***	
Chloroform	***0.24***	0.026	U	***0.64***	U	***0.64***	U	***0.64***	U
Ethylbenzene	***0.7***	***2.9***		***2.7***		***2.9***		***1.1***	
n-Hexane	***1.5***	0.037	U	0.52	U	0.52	U	0.52	U
Methylene chloride	***0.005***	***0.19***	U	***1.7***	U	***1.7***	U	***1.7***	U
Styrene	***0.1***	***0.16***		***0.66***	U	***0.66***	U	***0.66***	U
Tetrachloroethylene	***0.005***	***0.05***	U	***0.8***	U	***0.8***	U	***0.8***	U
Toluene	***1***	***31***		***34***		***25***		***14***	
trans-1,2-Dichloroethylene	***0.1***	0.026	U	***0.95***	U	***0.95***	U	***0.95***	U
Trichloroethylene	***0.005***	***0.042***	U	***0.79***	U	***0.79***	U	***0.79***	U
Vinyl Acetate	***24***	0.36	U	2.1	U	2.1	U	2.1	U
Vinyl chloride	***0.002***	***8.7***		***8.6***		***4***		***4.3***	
Xylene (total)	***10***	3.4		2.9	J	3.5	J	1.2	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)									
2,4,6-Trichlorophenol	***0.083***	0.0068	U *1	0.0014	U	0.014	U	0.0068	U
2,4-Dichlorophenol	***0.073***	0.0057	U	0.0011	U	0.011	U	0.0057	U
2,4-Dimethylphenol	***0.49***	***16***		***15***		***12***		***18***	
2-Methylnaphthalene	***0.098***	0.095	J	***0.11***		***1.1***		***0.14***	
2-Methylphenol	***1.2***	***6.2***		***3.7***		***5.5***		***2.3***	
3&4-Methylphenol	***0.12***	***56***		***21***		***37***		***38***	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.0084***	U	***0.0017***	U	***0.017***	U	***0.0084***	U
Acenaphthene	***1.5***	0.047	J	0.041		0.5		0.063	J
Acenaphthylene	***1.5***	0.011	U	0.0064	J	0.021	U	0.011	U
Aniline	***0.16***	0.076	J	0.08	JL	0.031	U	0.016	UJL
Anthracene	***7.3***	0.0085	J	0.0042	J	0.17	J	0.014	J
Benzo(a)anthracene	***0.0013***	***0.0075***	U	***0.0015***	U	***0.075***	J	***0.0075***	U
Benzo(a)pyrene	***0.0002***	***0.0074***	U	***0.0015***	U	***0.026***	J	***0.0074***	U
Benzo(b)fluoranthene	***0.0013***	***0.01***	U	***0.0021***	U	***0.031***	J	***0.01***	U
Benzo(g,h,i)perylene	***0.73***	0.0071	U	0.0014	U	0.014	U	0.0071	U
Benzo(k)fluoranthene	***0.013***	0.0083	U	0.0017	U	***0.017***	U	0.0083	U
Benzyl Alcohol	***12***	0.23	U	0.045	U	0.45	U *+	0.23	U
bis(2-Chloroethyl)ether	***0.00083***	***0.17***		***0.25***		***0.14***	J	***0.12***	
bis(2-Ethylhexyl)phthalate	***0.006***	0.0045	U	0.0027	J	***0.022***	U	***0.075***	J
Butyl benzyl phthalate	***0.48***	0.0075	U	0.0015	U	0.015	U	0.0075	U
Chrysene	***0.13***	0.008	U	0.0016	U	0.065	J	0.008	U
Dibenzo(a,h)anthracene	***0.0002***	***0.0074***	U	***0.0015***	U	***0.015***	U	***0.0074***	U
Dibenzofuran	***0.098***	0.035	J	0.03		***0.37***		0.044	J
Di-n-butyl phthalate	***2.4***	0.04	U	0.008	U	0.08	U	0.04	U
Di-n-octyl phthalate	***0.49***	0.0085	U	0.0017	U	0.017	U	0.0085	U
Fluoranthene	***0.98***	0.018	J	0.0047	J	0.42		0.036	J
Fluorene	***0.98***	0.035	J	0.025		0.4		0.047	J
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.043***	U	***0.0085***	U	***0.085***	U	***0.043***	U
Naphthalene	***0.49***	***1.2***		***1.9***		***3.5***		***1.5***	
Phenanthrene	***0.73***	0.046	J	0.025		***0.91***		0.078	J
Phenol	***7.3***	0.69		0.8	JL	0.5		0.3	JL
Pyrene	***0.73***	0.013	J	0.0032	J	0.29		0.025	J
Pyridine	***0.024***	***0.036***	U *1	0.0072	UJL	***0.072***	U	***0.036***	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)									
2,4-D	***0.07***	0.0016	JL	0.0035	JL	0.0029		0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)									
Lead	***0.015***	***0.016***		0.0012	J	***0.041***		***0.018***	
General Chemistry (415.1) (mg/L)									
Total Organic Carbon	**---**	**---**		**---**		**---**		**---**	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	RW-1																																					
SAMPLING PERIOD	(mg/L)	1st Q 2012		3rd Q 2012		1st Q 2013		3rd Q 2013		3rd Q 2014		1st Q 2015		3rd Q 2015		1st Q 2016		3rd Q 2016		1st Q 2017		3rd Q 2017		1st Q 2018		3rd Q 2018		1st Q 2019		3rd Q 2019		1st Q 2020		3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022		3rd Q 2022	
GC/MS Volatiles (SW846 8260B) (mg/L)																																								
1,1-Dichloroethylene	***0.007***	***0.0095***		***0.038***	***U***	0.00034	J	0.0014	J	0.0023	J	0.0036	U	0.0038	U	0.00019	U	0.0012		0.000982	J	0.0038	U	0.0014		***0.0096***	U	***0.0096***	U	0.0038	U	***0.011***	J	***0.0096***	U	0.002	J	0.003		0.0046	J	***0.037***	U
1,2,3-Trichloropropane	***0.00013***	***0.015***		***0.058***	***U***	***0.00029***	***U***	***0.0044***	J	***0.0029***	U	***0.0039***	U	***0.0058***	U	***0.00029***	U	***0.0041***		***0.00264***		***0.0058***	U	***0.00029***	U	***0.015***	U	***0.015***	U	***0.0058***	U	***1.4***		***0.015***	U	***0.00142***	U	***0.00028***	U	***0.0014***	U	***0.025***	U
1,2-Dichlorobenzene	***0.6***	0.047		0.020	U	0.00077	J	0.0024	J	0.0041	J	0.0037	U	0.0031	U	0.00061	J	0.0068		0.00707		0.0089	J	0.025		0.0092	J	0.0077	U	0.0036	J	0.01	J	0.0077	U	0.0048	J	0.0056		0.0055		0.025	U
1,2-Dichloroethane	***0.005***	***0.0070***		***0.028***	***U***	0.00014	U	0.00070	U	0.0014	U	0.005	U	0.0023	U	0.00012	U	0.0006	J	0.000116	U	0.0023	U	0.00012	U	***0.0058***	U	***0.0058***	U	0.0023	U	0.0023	U	***0.0058***	U	0.00143	U	0.00029	U	0.0014	U	***0.03***	U
1,2-Dichloropropane	***0.005***	***0.0080***		***0.032***	***U***	0.00016	U	0.00080	U	0.0016	U	***0.0067***	U	0.0027	U	0.00014	U	0.0007	J	0.000627	J	0.0027	U	0.00058	J	***0.0068***	U	***0.0068***	U	0.0027	U	0.0027	U	***0.0068***	U	0.00198	U	0.0004	U	0.002	U	***0.033***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.038		0.15	U	0.00076	U	0.0038	U	0.0076	U	0.034	U	0.015	U	0.00076	U	0.0039		0.00076	U	0.015	U	0.00076	U	0.038	U	0.038	U	0.015	U	0.015	U	0.038	U	0.0135	U	0.0027	U	0.014	U	0.41	U
4-Methyl-2-pentanone	***2***	0.023		0.090	U	0.00045	U	0.0023	U	0.0045	U	0.0021	U	0.0068	U	0.00035	U	0.0016	J	0.00115	J	0.007	U	0.00035	U	0.017	U	0.017	U	0.007	U	0.007	U	0.017	U	0.00532	U	0.0014	J	0.0053	U	0.37	U
Acetone	***22***	0.050		0.20	U	0.00099	U	***0.011***	J	0.1		0.07	U	0.0089	U	0.00045	U	0.055		0.0335		0.0089	U	0.00045	U	0.022	U	0.022	U *	0.0089	U *	0.0089	U	0.022	U	0.0616	U	0.012	U	0.062	U	0.06	U
Benzene	***0.005***	***3.7***		***3.9***		***0.50***		***1.3***		***1.9***		***0.73***		***0.19***		***0.018***		***0.93***	B	***0.583***		***0.98***	B	***0.65***		***0.58***		***0.5***		***0.33***		***1***		***0.44***		***0.536***		***0.53***		***0.62***		***0.49***	
Carbon disulfide	***2.4***	0.012		0.048	U	0.00024	U	0.0012	U	0.0024	U	0.01	U	0.0043	U	0.00029	J	0.001	J	0.000301	J	0.0043	U	0.00022	U	0.011	U	0.011	U	0.0043	U	0.0043	U	0.011	U	0.00475	J	0.0069		0.0019	U	0.095	U
Chlorobenzene	***0.1***	0.079		0.063	J	0.0090		0.037		0.059		0.069		0.014	J	0.0019		0.083		0.0689		0.1		0.083		***0.13***		***0.16***		0.098		***0.16***		***0.15***		***0.234***		***0.32***		***0.27***		***0.3***	
Chloroform	***0.24***	0.0065		0.10	J	0.00013	U	0.00065	U	0.0013	U	0.005	U	0.003	U	0.00015	U	0.0002	U	0.000151	U	0.003	U	0.00015	U	0.0076	U	0.0076	U	0.003	U	0.003	U	0.0076	U	0.0017	J	0.00026	U	0.0013	U	0.032	U
Ethylbenzene	***0.7***	***1.5***		***1.8***		0.22		0.33		***1.1***		0.57		0.23		0.045		0.34		0.191		***0.75***		0.33		0.27		0.15		0.064		0.15		0.04	J	0.0559		0.055		0.059		0.049	J
n-Hexane	***1.5***	0.0080		0.032	U	0.00059	J	0.00080	J	0.0016	U	0.0076	U	0.0051	U	0.00026	U	0.0004	J	0.000762	J	0.0051	U	0.0033		0.013	U	0.013	U	0.0051	U	0.0063	J	0.013	U	0.00715	J	0.0024	J	0.0044	J	0.026	U
Methylene chloride	***0.005***	***0.0075***		***0.15***	***J***	0.00015	U	0.00075	U	0.0042	JB	***0.025***	U	***0.064***	JB	0.00018	U	0.0002	U	0.000176	U	0.0035	U	0.00018	U	***0.058***	J B	***0.036***	J B	***0.013***	J	***0.0064***	J	***0.0088***	U	***0.00956***	U	0.0019	U	***0.0096***	U	***0.086***	U
Styrene	***0.1***	0.0035		0.014	U	0.000070	U	0.00051	J	0.0053	J	0.0027	U	0.0035	U	0.00018	U	0.0003	J *	0.000939	J	0.0035	U	0.0014		0.0088	U	0.0088	U	0.0035	U	0.0035	U	0.0088	U	0.000812	U	0.0019		0.0031	U	0.033	U
Tetrachloroethylene	***0.005***	***0.053***		***0.026***	***U***	0.00021	J	0.00065	U	0.0013	U	***0.0074***	U*	***0.01***	U	0.00033	U	***0.0081***		***0.017***		***0.0067***	U	0.001		***0.017***	U	***0.017***	U	***0.0067***	U	***3.8***		***0.017***	U	0.0025	U	0.0005	U	0.0025	U	***0.04***	U
Toluene	***1***	0.42		0.49		0.033		0.096		0.065		0.043		0.0095		0.0021		0.036		0.0302	b	0.046		0.041		0.039	J	0.033	J	0.021		0.15		0.025	J	0.0371		0.043		0.057		0.047	J
trans-1,2-Dichloroethylene	***0.1***	0.0045		0.018	U	0.00092	J	0.0064		0.006	J	0.0037	U	0.0038	U	0.00019	U	0.029		0.00671		0.0065	J	0.0037		0.0096	U	0.0096	U	0.0038	U	0.0038	U	0.0096	U	0.0042	J	0.0046		0.0048	J	0.047	U
Trichloroethylene	***0.005***	***0.029***		***0.036***	***U***	0.00018	U	0.00090	U	0.0018	U	0.0048	U	0.0028	U	0.00014	U	***0.0063***		0.003		0.0028	U	0.0006	J	***0.0069***	U	***0.0069***	U	0.0028	U	***0.42***		***0.0069***	U	0.00212	U	0.00042	U	0.0021	U	***0.04***	U
Vinyl Acetate	***24***	0.011		0.042	U	0.00021	U	0.0011	U	0.0021	U	0.0081	U	0.017	U	0.00085	U	0.0009	U	0.00123	J	0.017	U	0.00085	U	0.043	U	0.043	U	0.017	U	0.017	U	0.043	U	0.0178	U	0.0036	U	0.018	U	0.11	U
Vinyl chloride	***0.002***	***2.2***		***2.3***		***0.36***		***1.7***		***1.7***		***0.15***		***0.0087***	J	0.00025	U	***2.1***		***3.68***		***3.4***		***1.9***		***4.4***		***3.3***		***3.9***		***17***		***3.9***		***3.29***	D	***2.5***		***4.9***		***4.2***	
Xylene (total)	***10***	0.62		0.85		0.087		0.32		0.47		0.22		0.085	U	0.028		0.21		0.23		0.32		0.24		0.17		0.16		0.093		0.18		0.088	J	0.0948		0.094		0.096		0.062	U
GC/MS Semi-volatiles (SW846 8270C) (mg/L)																																								
2,4,6-Trichlorophenol	***0.083***	0.00018		0.034	U	***0.087***	***U***	0.0017	U	***0.033***	U	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	0.0033	U	0.0069	U *	0.0069	U	0.017	U	0.017	U	0.0066	U	0.000135	U	0.00014	U	0.00014	U *1	0.00014	UJL
2,4-Dichlorophenol	***0.073***	0.00015		0.029	U	0.072	U	0.0014	U	0.026	U	0.013	U	0.013	U	0.013	U	0.013	U	0.013	U	0.013	U	0.0026	U	0.0054	U *	0.0054	U	0.014	U	0.013	U	0.0052	U	0.000115	U	0.00011	U	0.00011	U	0.00048	JL
2,4-Dimethylphenol	***0.49***	***4.7***		***4.2***		***12***		***1.5***		***6.5***	*	***1.2***		***0.70***		0.19		***1.5***		0.14	*	***0.71***		0.34	*	***0.5***	J B *	0.41	*	0.13		0.084	J	0.26		0.28	D	0.01		0.15		0.069	
2-Methylnaphthalene	***0.098***	***0.26***		***0.31***		***5.9***		***0.13***		0.059	JB	***0.29***		0.094		0.095		***0.19***		0.013	J	***0.34***		***0.15***		***0.14***	*	0.015	J	***0.12***	B	0.021	J	0.096		***0.151***	D	***0.16***		***0.22***		***0.14***	
2-Methylphenol	***1.2***	0.015		0.023	U	***10***		0.012	J	0.092		0.0095	U	0.0095	U	0.0095	U	0.0095	U	0.0095	U	0.0095	U	0.004	J	0.004	U *	0.004	U	0.014	J	0.0097	U	0.0038	U	0.00256		0.0023		0.0041		0.0025	JL
3&4-Methylphenol	***0.12***	0.010		0.056	J	***11***		0.0069	J	***2.9***	*	0.036	JB	0.008	U	0.008	U	0.008	U	0.0096	J	0.008	U	0.0044	J	0.0033	U *	0.0033	U *	0.015	J	0.0082	U	0.0032	U	0.00408		0.0032		0.0056		0.0016	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.00010***		***0.019***	***U***	***0.048***	***U***	***0.00096***	U	***0.025***	U	***0.013***	U	***0.013***	U	***0.013***	U	***0.013***	U	***0.013***	U	***0.013***	U	***0.0025***	U	***0.0052***	U *	***0.0052***	U	***0.013***	U	***0.013***	U	***0.005***	U	***0.000167***	U	***0.00017***	U	***0.00017***	U	***0.00017***	UJL
Acenaphthene	***1.5***	0.31		0.32		***3.2***		0.24		0.049	J	0.42		0.20		0.28		0.26		0.17		0.36		0.13		0.39	B *	0.23		0.57	B	0.13		0.14		0.173	D	0.21		0.26		0.18	
Acenaphthylene	***1.5***	0.0042		0.011	U	0.029	U	0.0034	J	0.016	U	0.08	U	0.008	U	0.008	U	0.008	U	0.008	U	0.008	U	0.0025	J	0.0033	U *	0.0047	J	0.0083	U	0.0082	U	0.0032	U	0.000215	U	0.002		0.00021	U	0.00021	UJL
Aniline	***0.16***	0.020		0.015	U	0.038	U	0.00077	U	0.012 *	U*	0.06	U	0.008	J	0.006	U	0.006	U	0.006	U	0.006	U	0.0012	U	0.0025	U *	0.0025	U	0.0063	U *	0.0061	U	0.0024	U	0.000314	UL	0.00031	U *-	0.00059	J	0.00031	UJL
Anthracene	***7.3***	0.039		0.017	U	0.54		0.012		0.044	U	0.054	J	0.022	J	0.037	J	0.022	U	0.15		0.053	J	0.013	J	0.027	J *	0.013	J	0.12		0.031	J	0.0088	U	0.0142		0.015		0.019		0.014	
Benzo(a)anthracene	***0.0013***	***0.010***		***0.015***	***U***	***0.14***	***J***	***0.0096***	J	***0.025***	U	***0.013***	U	***0.013***	U	***0.013***	U	***0.013***	U	***0.055***	J	***0.013***	U	***0.0025***	U	***0.0052***	U *	***0.0052***	U	***0.034***	J	***0.015***	J	***0.005***	U	0.00084		0.001		0.00057	J	0.00037	JL
Benzo(a)pyrene	***0.0002***	***0.0033***		***0.015***	***U***	***0.19***	***J***	***0.0021***	J	***0.013***	U*	***0.0065***	U	***0.0065***	U	***0.0065***	U	***0.0065***	U	***0.016***	J *	***0.0065***	U	***0.0013***	U	***0.0027***	U *	***0.0027***	U	***0.012***	J	***0.0066***	U	***0.0026***	U	0.00016	J	0.00015	U	0.00015	U	0.00015	UJL
Benzo(b)fluoranthene	***0.0013***	***0.0046***		***0.013***	***U***	***0.22***	***J***	***0.0036***	J	***0.018***	U	***0.009***	U	***0.009***	U	***0.009***	U	***0.009***	U	***0.041***	J *	***0.009***	U	***0.0018***	U	***0.0038***	U *	***0.0038***	U	***0.02***	J	***0.0092***	U	***0.0036***	U	0.00028	J	0.00021	U	0.00021	U	0.00021	UJL
Benzo(g,h,i)perylene	***0.73***	0.00082		0.015	U	0.038	U	0.00077	U	0.035	U	0.018	U	0.018	U	0.018	U	0.018	U	0.018	U*	0.018	U	0.0035	U	0.0073	U *	0.0073	U	0.018	U	0.018	U	0.007	U	0.000143	U	0.00014	U	0.00014	U	0.00014	UJL
Benzo(k)fluoranthene	***0.013***	0.0043		***0.017***	***U***	***0.043***	***U***	0.0026	J	***0.016***	U*	0.008	U	0.008	U	0.008	U	0.008	U	0.013	J *	0.008	U	0.0016	U	0.0033	U *	0.0033	U	0.0083	U	0.0082	U	0.0032	U	0.000166	U	0.00017	U	0.00017	U	0.00017	UJL
Benzyl Alcohol	***12***	0.00017		0.032	U	4.1		0.0075	J	0.051	U	0.026	U	0.026	U	0.026	U	0.026	U	0.026	U	0.026	U	0.0051	U	0.011	U *	0.011	U *	0.027	U	0.11		0.01	U	0.0008	U	0.0067	*+ B	0.0048	J	0.0046	JL
bis(2-Chloroethyl)ether	***0.00083***	0.00015		***0.029***	***U***	***0.072***	***U***	***0.0014***	U	***0.093***	J	***0.009***	U	***0.009***	U	***0.009***	U	***0.009***	U	***0.009***	U	***0.009***	U	***0.0018***	U	***0.0038***	U *	***0.0038***	U	***0.0094***	U	***0.0092***	U	***0.0036***	U	***0.00324***		0.00028	U	0.00028	U	0.00028	UJL
bis(2-Ethylhexyl)phthalate	***0.006***	***0.13***		***0.070***	***U***	***1.1***	***J***	0.0046	J	***0.059***	U	***0.22***		***0.21***		***0.32***		***0.03***	U	***0.78***		***0.032***	J	0.0059	U	***0.012***	U *	***0.012***	U	***0.13***		***0.055***	J	***0.012***	U	0.000278	U	0.0028		0.00022	U	0.0014	JL
Butyl benzyl phthalate	***0.48***	0.13		0.023	U	0.36	J	0.0023	J	0.085	U	0.043	U	0.043	U	0.043	U	0.043	U	0.13		0.043	U	0.0085	U	0.018	U *	0.018	U	0.044	U	***0.51***		0.017	U	0.000225	U	0.0032		0.0012	J	0.00051	JL
Chrysene	***0.13***	0.00099		0.015	U	***0.15***	***J***	0.0092	J	0.024	U	0.012	U	0.012	U	0.012	U	0.012	U	0.051	J	0.012	J	0.0024	U	0.005	U *	0.005	U	0.025	J	0.013	J	0.0048	U	0.00072	J	0.00083		0.00049	J	0.00033	JL
Dibenzo(a,h)anthracene	***0.0002***	0.000080		***0.015***	***U***	***0.038***	***U***	***0.00077***	U	***0.029***	U	***0.015***	U	***0.015***	U	***0.015***	U	***0.015***	U	***0.015***	U*	***0.015***	U	***0.0029***	U	***0.006***	U *	***0.006***	U	***0.015***	U	***0.015***	U	***0.0058***	U	0.000148	U	0.00015	U	0.00015	U	0.00015	UJL
Dibenzofuran	***0.098***	***0.21***		***0.22***	***J***	***1.9***		***0.18***		0.031	J	***0.31***		***0.13***		***0.17***		***0.18***		***0.13***		***0.28***		***0.17***		***0.3***	*	***0.13***		***0.37***	B	0.082		0.095		***0.119***	D	***0.15***		***0.18***		***0.12***	
Di-n-butyl phthalate	***2.4***	0.064		0.038	J	0.20	J	0.014	J	0.19	U*	0.094	U	0.094	U	0.094	U	0.094	U	0.094	U	0.094	U	0.019	U	0.039	U	0.039	U	0.097	U	0.095	U	0.037	U	0.00092	J	0.16	B *+ *1	0.00088	J	0.0014	JL
Di-n-octyl phthalate	***0.49***	0.0078		0.030	U	0.077	U	0.0015	U	0.016	U	0.008	U	0.008	U	0.008	U	0.008	U	0.018	J	0.008	U	0.0016	U	0.0033	U *	0.0033	U	0.0083	U	0.0091	J	0.0032	U	0.000169	U	0.00017	U	0.00017	U	0.00017	UJL
Fluoranthene	***0.98***	0.059		0.013	U	***1.2***		0.077		0.031	U	0.078	J	0.041	J	0.042	J	0.019	J	0.38		0.08	J	0.01	J	0.043		0.028	J	0.25		0.12		0.008	J	0.0157		0.02		0.016		0.015	JL
Fluorene	***0.98***	0.16		0.16	J	***1.9***		0.16		0.027	J	0.31		0.14		0.17		0.15		0.23		0.24		0.13		0.28	*	0.13		0.5	B	0.093		0.093		0.106	D	0.13		0.16		0.11	
Indeno(1,2,3-cd)pyrene	***0.0013***	0.0011		***0.013***	***U***	***0.034***	***U***	0.00067	U	***0.029***	U	***0.015***	U	***0.015***	U	***0.015***	U	***0.015***	U	***0.015***	U*	***0.015***	U	***0.0029***	U	***0.006***	U *	***0.006***	U	***0.015***	U	***0.015***	U	***0.0058***	U	0.000143	U	0.00014	U	0.00085	U	0.00085	UJL
Naphthalene	***0.49***	***1.6***		***1.6***		***23***		0.22		***1.1***	B	0.32		0.23		0.13		***0.67***		0.041	J	***0.97***		0.16		0.0033	U *	0.0033	U	0.018	J B	0.0082	U	0.17		0.319	D	0.26		0.38		0.17	
Phenanthrene	***0.73***	0.2		0.13	J	***2.8***		0.21		0.029	U	0.32		0.16		0.2		0.12		0.54		0.25		0.11		0.24	*	0.087		0.58		0.18		0.069		0.0944	D	0.11		0.12		0.085	
Phenol	***7.3***	0.000040		0.023	J	0.38	J	0.027		0.18	*	0.07	U	0.007	U	0.007	U	0.007	U	0.007	U	0.011	J *	0.023		0.032	*	0.031		0.0073	U	0.0089	J	0.0043	J	0.00584		0.0031	*1	0.0042		0.0056	JL
Pyrene	***0.73***	0.039		0.021	U	***0.74***	***J***	0.045		0.033	U	0.058 J		0.042	J	0.025	J	0.017	U	0.29		0.053	J	0.0056	J	0.021	J	0.018	J	0.16		0.067	J	0.0066	U	0.0084		0.0082		0.0081		0.0069	JL
Pyridine	***0.024***	0.000040		0.0076	U	0.019	U	0.00038	U	***0.024***	U	0.012	U	0.012	U	0.012	U*	0.012	U	0.012	U	0.012	U	0.0024	U	0.005	U	0.005	U *	0.013	U *	0.012	U	0.0048	U	0.000725	U	0.0034	B *1	0.00072	U *1	0.00072	UJL
GC Semi-volatiles (SW846 8151) (mg/L)																																								
2,4-D	***0.07***	0.000038		0.000039	U	0.00037	U	0.000039	U	0.00039	U	0.000038	U	0.000038	U	0.000038	U	0.0004	U	3.85E-05	U	0.00004	U	0.000053	U	0.00057	*	0.000039	U	0.000045	U *	0.00004	U	0.000039	U *1	0.0000476	U	0.00043		0.00035	JL	0.000027	UJL
Metals Analysis (SW 846 6010B) (mg/L)																																								
Lead	***0.015***	0.0058		0.0056		***0.027***		0.0019	J	0.0035	J	0.0066		0.0058		0.0029	J	0.0035	J	***0.0168***		0.013		0.0031	J	0.0015	J	0.00073	U	0.00073	U	***0.11***		0.0014		0.00132	J	0.00049	J	0.0002	J	0.00021	J
General Chemistry (415.1) (mg/L)																																								
Total Organic Carbon	---	---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample.

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits.

BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin
KM Liquids Terminals LCC
Galena Park Terminal

Well ID	GWPS	RW-1			
SAMPLING PERIOD	(mg/L)	1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)					
1,1-Dichloroethylene	***0.007***	***0.0074***	U	0.0037	U
1,2,3-Trichloropropane	***0.00013***	***0.0049***	U	***0.0025***	U
1,2-Dichlorobenzene	***0.6***	0.0051	U	0.0025	U
1,2-Dichloroethane	***0.005***	***0.0059***	U	***0.0053***	
1,2-Dichloropropane	***0.005***	***0.0067***	U	0.0033	U
Methyl ethyl ketone (2-Butanone)	***15***	0.083	U	0.041	U
4-Methyl-2-pentanone	***2***	0.075	U	0.037	U
Acetone	***22***	0.012	U	0.006	U
Benzene	***0.005***	***0.12***		***0.22***	
Carbon disulfide	***2.4***	0.019	U	0.0095	U
Chlorobenzene	***0.1***	***0.15***		0.033	
Chloroform	***0.24***	0.0064	U	0.0032	U
Ethylbenzene	***0.7***	0.037		0.13	
n-Hexane	***1.5***	0.0052	U	0.0026	U
Methylene chloride	***0.005***	***0.017***	U	***0.0086***	U
Styrene	***0.1***	0.0066	U	0.0033	U
Tetrachloroethylene	***0.005***	***0.008***	U	0.004	U
Toluene	***1***	0.018		0.03	
trans-1,2-Dichloroethylene	***0.1***	0.0095	U	0.0047	U
Trichloroethylene	***0.005***	***0.0079***	U	0.004	U
Vinyl Acetate	***24***	0.021	U	0.011	U
Vinyl chloride	***0.002***	***0.6***		***1.6***	
Xylene (total)	***10***	0.043	J	0.057	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)					
2,4,6-Trichlorophenol	***0.083***	0.0014	U	0.00014	U
2,4-Dichlorophenol	***0.073***	0.0011	U	0.00011	U
2,4-Dimethylphenol	***0.49***	0.041		0.033	
2-Methylnaphthalene	***0.098***	***0.17***		***0.14***	
2-Methylphenol	***1.2***	0.0016	U	0.0025	
3&4-Methylphenol	***0.12***	0.0024	J	0.0022	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.0017***	U	***0.00017***	U
Acenaphthene	***1.5***	0.23		0.25	
Acenaphthylene	***1.5***	0.0021	U	0.00021	U
Aniline	***0.16***	0.0031	U	0.0019	JL
Anthracene	***7.3***	0.019	J	0.02	
Benzo(a)anthracene	***0.0013***	***0.0015***	U	0.0013	J
Benzo(a)pyrene	***0.0002***	***0.0015***	U	***0.00029***	J
Benzo(b)fluoranthene	***0.0013***	***0.0021***	U	0.00021	U
Benzo(g,h,i)perylene	***0.73***	0.0014	U	0.00014	U
Benzo(k)fluoranthene	***0.013***	0.0017	U	0.00017	U
Benzyl Alcohol	***12***	0.045	U *+	0.0045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0028***	U	0.00028	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.0022	U	***0.053***	
Butyl benzyl phthalate	***0.48***	0.0015	U	0.0037	
Chrysene	***0.13***	0.0016	U	0.00098	J
Dibenzo(a,h)anthracene	***0.0002***	***0.0015***	U	0.00015	U
Dibenzofuran	***0.098***	***0.14***		***0.17***	
Di-n-butyl phthalate	***2.4***	0.008	U	0.0055	
Di-n-octyl phthalate	***0.49***	0.0017	U	0.00017	U
Fluoranthene	***0.98***	0.02		0.013	
Fluorene	***0.98***	0.13		0.17	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.0085***	U	0.00085	U
Naphthalene	***0.49***	0.14		0.1	
Phenanthrene	***0.73***	0.11		0.13	
Phenol	***7.3***	0.002	J	0.0015	JL
Pyrene	***0.73***	0.011	J	0.0076	
Pyridine	***0.024***	0.0072	U	0.00072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)					
2,4-D	***0.07***	0.000029	U	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)					
Lead	***0.015***	***0.073***		***0.12***	
General Chemistry (415.1) (mg/L)					
Total Organic Carbon	---	---		---	

Notes:
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample.
H - Sample was prepped or analyzed beyond the specified holding time
U - Indicates the analyte was analyzed for but not detected.
* - RPD of the LCS and LCSD exceeds the control limits.
BOLD italic - result exceeds the GWPS.

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

| Well ID | GWPS | RW-2 | | |

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	RW-2							
SAMPLING PERIOD	(mg/L)	1st Q 2022		3rd Q 2022		1st Q 2023		3rd Q 2023	
GC/MS Volatiles (SW846 8260B) (mg/L)									
1,1-Dichloroethylene	***0.007***	0.0022	U	***0.037***	U	***0.018***	U	***0.037***	U
1,2,3-Trichloropropane	***0.00013***	***0.0044***	J	***0.025***	U	***0.012***	U	***0.025***	U
1,2-Dichlorobenzene	***0.6***	0.025		0.025	U	0.03		0.025	U
1,2-Dichloroethane	***0.005***	0.0029	U	***0.03***	U	***0.015***	U	***0.03***	U
1,2-Dichloropropane	***0.005***	0.004	U	***0.033***	U	***0.017***	U	***0.033***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.027	U	0.41	U	0.21	U	0.41	U
4-Methyl-2-pentanone	***2***	0.011	U	0.37	U	0.19	U	0.37	U
Acetone	***22***	0.12	U	0.06	U	0.03	U	0.06	U
Benzene	***0.005***	***2***		***1.5***		***1.6***		***1.6***	
Carbon disulfide	***2.4***	0.0037	U	0.095	U	0.048	U	0.095	U
Chlorobenzene	***0.1***	***0.24***		***0.23***		***0.28***		***0.24***	
Chloroform	***0.24***	0.0026	U	0.032	U	0.016	U	0.032	U
Ethylbenzene	***0.7***	***2.6***		***2.1***		***2.8***		***2.4***	
n-Hexane	***1.5***	0.0037	U	0.026	U	0.013	U	0.026	U
Methylene chloride	***0.005***	***0.019***	U	***0.086***	U	***0.043***	U	***0.086***	U
Styrene	***0.1***	0.0062	U	0.033	U	0.016	U	0.033	U
Tetrachloroethylene	***0.005***	0.005	U	***0.04***	U	***0.02***	U	***0.04***	U
Toluene	***1***	0.32		0.29		0.37		0.33	
trans-1,2-Dichloroethylene	***0.1***	0.011		0.047	U	0.024	J	0.047	U
Trichloroethylene	***0.005***	0.0042	U	***0.04***	U	***0.02***	U	***0.04***	U
Vinyl Acetate	***24***	0.036	U	0.11	U	0.053	U	0.11	U
Vinyl chloride	***0.002***	***5.1***		***5.7***		***6.5***		***11***	
Xylene (total)	***10***	0.87		0.8		1.1		0.83	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)									
2,4,6-Trichlorophenol	***0.083***	0.0027	U	0.0014	U	0.0027	U	0.0014	U
2,4-Dichlorophenol	***0.073***	0.0023	U	0.004	J	0.0023	U	0.0011	U
2,4-Dimethylphenol	***0.49***	0.47		0.25		0.31		***0.57***	
2-Methylnaphthalene	***0.098***	***0.4***		***0.24***		***0.34***		***0.27***	
2-Methylphenol	***1.2***	0.35		0.13		0.19		0.17	
3&4-Methylphenol	***0.12***	***0.31***		0.04	JL	0.093		0.074	JL
4-Bromophenyl phenyl ether	***0.000061***	***0.0033***	U	***0.0017***	U	***0.0033***	U	***0.0017***	U
Acenaphthene	***1.5***	0.29		0.19		0.29		0.21	
Acenaphthylene	***1.5***	0.0043	U	0.003	J	0.0043	U	0.0021	U
Aniline	***0.16***	0.0063	U	0.0031	UJL	0.0063	U	0.0043	JL
Anthracene	***7.3***	0.015	J	0.0098	J	0.016	J	0.016	J
Benzo(a)anthracene	***0.0013***	***0.003***	U	***0.0015***	U	***0.003***	U	***0.0015***	U
Benzo(a)pyrene	***0.0002***	***0.003***	U	***0.0015***	U	***0.003***	U	***0.0015***	U
Benzo(b)fluoranthene	***0.0013***	***0.0042***	U	***0.0021***	U	***0.0042***	U	***0.0021***	U
Benzo(g,h,i)perylene	***0.73***	0.0029	U	0.0014	U	0.0029	U	0.0014	U
Benzo(k)fluoranthene	***0.013***	0.0033	U	0.0017	U	0.0033	U	0.0017	U
Benzyl Alcohol	***2.4***	0.09	U	0.045	U	0.09	U *+	0.045	U
bis(2-Chloroethyl)ether	***0.00083***	***0.0056***	U	***0.003***	J	***0.0056***	U	***0.0028***	U
bis(2-Ethylhexyl)phthalate	***0.006***	0.0045	U	0.0022	U	0.0045	U	0.0022	U
Butyl benzyl phthalate	***0.48***	0.0046	J	0.0029	J	0.012	J	0.0015	U
Chrysene	***0.13***	0.0032	U	0.0016	U	0.0032	U	0.0016	U
Dibenzo(a,h)anthracene	***0.0002***	***0.003***	U	***0.0015***	U	***0.003***	U	***0.0015***	U
Dibenzofuran	***0.098***	***0.16***		***0.11***		***0.17***		***0.12***	
Di-n-butyl phthalate	***2.4***	0.016	U	0.008	U *1	0.016	U	0.008	U
Di-n-octyl phthalate	***0.49***	0.0034	U	0.0017	U	0.0034	U	0.0017	U
Fluoranthene	***0.98***	0.012	J	0.0066	J	0.011	J	0.012	J
Fluorene	***0.98***	0.15		0.1		0.17		0.12	
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.017***	U	***0.0085***	U	***0.017***	U	***0.0085***	U
Naphthalene	***0.49***	***1.5***		***0.75***		***1.3***		***1.3***	
Phenanthrene	***0.73***	0.11		0.073		0.13		0.081	
Phenol	***7.3***	0.016	J	0.017	JL	0.0095	J	0.0062	JL
Pyrene	***0.73***	0.008	J	0.0035	J	0.0067	J	0.0071	J
Pyridine	***0.024***	0.014	U	0.0072	UJL	0.014	U	0.0072	UJL *1
GC Semi-volatiles (SW846 8151) (mg/L)									
2,4-D	***0.07***	0.000021	UJL	0.00037	JL	0.00012	J	0.00016	U
Metals Analysis (SW 846 6010B) (mg/L)									
Lead	***0.015***	***0.022***		***0.019***		0.0027		***0.021***	
General Chemistry (415.1) (mg/L)									
Total Organic Carbon	**---**	---		---		---		---	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits

BOLD italic - result exceeds the GWPS

Appendix B

HISTORICAL GROUNDWATER CONCENTRATION SUMMARY

Southeast Holding Basin

KM Liquids Terminals LCC

Galena Park Terminal

Well ID	GWPS	P-1							
SAMPLING PERIOD	(mg/L)	3rd Q 2020		1st Q 2021		3rd Q 2021		1st Q 2022	
GC/MS Volatiles (SW846 8260B) (mg/L)									
1,1-Dichloroethylene	***0.007***	***0.038***	U	***0.0433***	U	***0.022***	U	***0.011***	U
1,2,3-Trichloropropane	***0.00013***	***0.058***	U	***0.0567***	U	***0.028***	U	***0.014***	U
1,2-Dichlorobenzene	***0.6***	0.031	U	0.0471	U	0.024	U	0.012	U
1,2-Dichloroethane	***0.005***	***0.023***	U	***0.057***	U	***0.029***	U	***0.014***	U
1,2-Dichloropropane	***0.005***	***0.027***	U	***0.0791***	U	***0.04***	U	***0.02***	U
Methyl ethyl ketone (2-Butanone)	***15***	0.15	U	0.626	J	0.27	U	0.14	U
4-Methyl-2-pentanone	***2***	0.070	U	0.213	U	0.11	U	0.087	J
Acetone	***22***	0.089	U	2.46	U	1.2	U	0.62	U
Benzene	***0.005***	***410***		***348***	D	***370***		***450***	
Carbon disulfide	***2.4***	0.043	U	0.0747	U	0.037	U	0.019	U
Chlorobenzene	***0.1***	0.066	J	0.0318	U	0.016	U	0.008	U
Chloroform	***0.24***	0.030	U	0.0517	U	0.026	U	0.013	U
Ethylbenzene	***0.7***	0.43		0.634		***0.79***		0.64	
n-Hexane	***1.5***	0.051	U	0.228	J	0.09	J	0.057	J
Methylene chloride	***0.005***	***0.035***	U	***0.382***	U	***0.19***	U	***0.096***	U
Styrene	***0.1***	***0.50***		***0.634***		***0.75***		***0.56***	
Tetrachloroethylene	***0.005***	***0.067***	U	***0.1***	U	***0.05***	U	***0.025***	U
Toluene	***1***	***12***		***17.5***		***17***		***20***	
trans-1,2-Dichloroethylene	***0.1***	0.038	U	0.0512	U	0.026	U	0.013	U
Trichloroethylene	***0.005***	***0.028***	U	***0.0848***	U	***0.042***	U	***0.021***	U
Vinyl Acetate	***24***	0.17	U	0.714	U	0.36	U	0.18	U
Vinyl chloride	***0.002***	***0.050***	U	***0.0467***	U	***0.023***	U	***0.012***	U
Xylene (total))	***10***	1.3		1.81		2.3		1.6	
GC/MS Semi-volatiles (SW846 8270C) (mg/L)									
2,4,6-Trichlorophenol	***0.083***	0.033	U	0.000676	U	0.0068	U	0.0068	U *1
2,4-Dichlorophenol	***0.073***	0.026	U	0.000573	U	0.0057	U	0.0057	U
2,4-Dimethylphenol	***0.49***	***0.69***		0.362		0.23		***1***	
2-Methylnaphthalene	***0.098***	0.078	J	0.037		***0.21***		0.086	J
2-Methylphenol	***1.2***	0.16		0.0966		0.28		0.23	
3&4-Methylphenol	***0.12***	***0.26***		***0.173***		***0.34***		***0.3***	
4-Bromophenyl phenyl ether	***0.000061***	***0.025***	U	***0.000836***	U	***0.0084***	U	***0.0084***	U
Acenaphthene	***1.5***	0.070	J	0.0294		0.17		0.072	J
Acenaphthylene	***1.5***	0.016	U	0.0044		0.017	U	0.011	U
Aniline	***0.16***	0.020	J	0.0174	L	0.016	U *-	0.045	J
Anthracene	***7.3***	0.044	U	0.0166		0.07		0.026	J
Benzo(a)anthracene	***0.0013***	***0.025***	U	***0.0078***		***0.038***	J	***0.016***	J
Benzo(a)pyrene	***0.0002***	***0.020***	J	***0.0028***	J	***0.0074***	U	***0.0074***	U
Benzo(b)fluoranthene	***0.0013***	***0.022***	J	***0.0042***		***0.01***	U	***0.01***	U
Benzo(g,h,i)perylene	***0.73***	0.035	U	0.001	J	0.0071	U	0.0071	U
Benzo(k)fluoranthene	***0.013***	***0.016***	U	0.0014	J	0.0083	U	0.0083	U
Benzyl Alcohol	***2.4***	0.051	U	0.0178		0.04	U *+	0.23	U
bis(2-Chloroethyl)ether	***0.00083***	***0.032***	J	***0.0028***	J	***0.064***		***0.071***	J
bis(2-Ethylhexyl)phthalate	***0.006***	***0.059***	U	***0.0176***		***0.011***	U	***0.011***	U
Butyl benzyl phthalate	***0.48***	0.085	U	0.00112	U	0.0075	U	0.0075	U
Chrysene	***0.13***	0.024	U	0.007		0.033	J	0.0099	J
Dibenzo(a,h)anthracene	***0.0002***	***0.029***	U	***0.000738***	U	***0.0074***	U	***0.0074***	U
Dibenzofuran	***0.098***	0.050	J	0.0226		***0.12***		0.051	J
Di-n-butyl phthalate	***2.4***	0.19	U	0.004	U	0.2	*+ B *1	0.04	U
Di-n-octyl phthalate	***0.49***	0.016	U	0.000846	U	0.0085	U	0.0085	U
Fluoranthene	***0.98***	0.084	J	0.0502		0.21		0.057	J
Fluorene	***0.98***	0.055	J	0.0262		0.14		0.067	J
Indeno(1,2,3-cd)pyrene	***0.0013***	***0.029***	U	0.0008	J	***0.0071***	U	***0.043***	U
Naphthalene	***0.49***	0.44		0.266		***1.3***		***1.1***	
Phenanthrene	***0.73***	0.15		0.0822		0.38		0.12	
Phenol	***7.3***	0.48		0.287		0.71	*1	0.26	
Pyrene	***0.73***	0.1	J	0.027		0.12		0.046	J
Pyridine	***0.024***	0.024	U	0.00362	U	***0.036***	U *1	***0.036***	U *1
GC Semi-volatiles (SW846 8151) (mg/L)									
2,4-D	***0.07***	0.000040	U *1	0.0000453	U	0.00022	J	0.000021	U *1
Metals Analysis (SW 846 6010B) (mg/L)									
Lead	***0.015***	***0.49***		***0.12***		***0.085***		***0.037***	
General Chemistry (415.1) (mg/L)									
Total Organic Carbon	**---**	**---**		**---**		**---**		**---**	

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

U - Indicates the analyte was analyzed for but not detected.

* - RPD of the LCS and LCSD exceeds the control limits

BOLD italic - result exceeds the GWPS

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway				West Migration Pathway																								
Sample Location				POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-2	POE-2	POE-2
Sample Date				7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	2/23/2018 Duplicate	2/23/2018 resampled for	1/18/2018	7/19/2017	1/26/2017	7/13/2016	1/15/2016	7/22/2015	1/28/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum					0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**	**2023 GWPS**																									
SVOCs by EPA 8270C																												
1,2,4-Trichlorobenzene	0.07			NA	0.00068 U	0.00068 U	0.00068 U	0.00068 U *	0.00085 UF	0.000160 U*	0.000163 U	0.000163 U	0.00016 U	0.000167 U	0.00016 U	0.000167 U	0.000182 U	0.00016 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.00068 U	0.00068 U
1,2-Dichlorobenzene	0.6			NA	0.000296 U	0.000296 U	0.000296 U	0.00147 *	0.00037 UL	0.000210 U*	0.000214 U	0.000214 U	0.00021 U	0.000219 U	0.00021 U	0.000219 U	0.000239 U *	0.00021 U	0.00021 U	0.000239 U	0.00021 U	0.000219 U	0.00021 U	0.00021 U	NA	0.000296 U	0.000296 U
1,3-Dichlorobenzene	2.2			NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.000438 UFL	0.000100 U*	0.000102 U	0.000102 U	0.0001 U	0.000104 U	0.0001 U	0.000104 U	0.000114 U *	0.0001 U	0.0001 U	0.000114 U	0.0001 U	0.000104 U	0.0001 U	0.0001 U	NA	0.00035 U	0.00035 U
1,4-Dichlorobenzene	0.072			NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.000536 UF	0.000160 U*	0.000163 U	0.000163 U	0.00016 U	0.000167 U	0.00016 U	0.000167 U	0.000182 U *	0.00016 U *	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000428 U	0.000428 U
2,4,5-Trichlorophenol	7.3			NA	0.000108 U	0.000108 U	0.000108 U	0.000108 U	0.000135 UF	0.000290 U*	0.000296 U	0.000296 U	0.00029 U	0.000302 U	0.00029 U	0.000302 U	0.00033 U *	0.00029 U	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.00029 U	0.00029 U	NA	0.000108 U	0.000108 U
2,4,6-Trichlorophenol	0.073			NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 ULF	0.000330 U*	0.000337 U	0.000337 U	0.00033 U	0.000344 U	0.00033 U	0.000344 U	0.000375 U *	0.00033 U *	0.00033 U	0.000375 U	0.00033 U	0.000344 U	0.00033 U	0.00033 U	NA	0.000135 U	0.000135 U
2,4-Dichlorophenol	0.22			NA	0.000115 U	0.000115 U	0.000115 U	0.000115 U *	0.000143 U	0.000260 U*	0.000265 U	0.000265 U	0.00026 U	0.000271 U	0.00026 U	0.000271 U	0.000295 U *	0.00026 U *	0.00026 U	0.000295 U	0.00026 U	0.000271 U	0.00026 U	0.00026 U	NA	0.000115 U	0.000115 U
2,4-Dimethylphenol	1.5			NA	0.000235 J	0.000148 U	0.000148 U	0.000148 U *	0.000184 U	0.000192 J	0.000184 U	0.000184 U	0.00018 U	0.000188 U	0.00018 U	0.000188 U	0.000205 U *	0.00018 U *	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.00018 U	0.00018 U	NA	0.000148 U	0.000148 U
2,4-Dinitrophenol	0.15			NA	0.00146 U	0.00146 UJL/JL	0.00146 U	0.00146 U	0.001 U	0.000400 U	0.000408 U	0.000408 U	0.0004 U	0.000417 U	0.0004 U	0.000417 U	0.000455 U	0.0004 U *	0.0004 U	0.000455 U	0.0004 U	0.000417 U	0.0004 U	0.0004 U	NA	0.00146 U	0.00146 UJL/JL
2,4-Dinitrotoluene	0.003			NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000159 UFL	0.000320 U	0.000327 U	0.000327 U	0.00032 U	0.000333 U	0.00032 U	0.000333 U	0.000364 U	0.00032 U	0.00032 U	0.000364 U	0.00032 U	0.000333 U	0.00032 U*	0.00032 U	NA	0.000127 U	0.000127 U
2,6-Dinitrotoluene	0.003			NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000248 ULF	0.000290 U*	0.000296 U	0.000296 U	0.00029 U	0.000302 U	0.00029 U	0.000302 U	0.00033 U	0.00029 U	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.00029 U	0.00029 U	NA	0.000199 U	0.000199 U
2-Chloronaphthalene	5.8			NA	0.00109 U	0.00109 UJL/JL	0.00109 U	0.0011 U	0.001 UF	0.000190 U*	0.000194 U	0.000194 U	0.00019 U	0.000198 U	0.00019 U	0.000198 U	0.000216 U *	0.00019 U	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.00019 U	0.00019 U	NA	0.00109 U	0.00109 UJL/JL
2-Chlorophenol	0.37			NA	0.0000135 U	0.0000135 U	0.0000135 U	0.0000135 U *	0.000169 ULF	0.000220 U*	0.000224 U	0.000224 U	0.00022 U	0.000229 U	0.00022 U	0.000229 U	0.00025 U *	0.00022 U *	0.00022 U	0.00025 U	0.00022 U	0.000229 U	0.00022 U	0.00022 U	NA	0.0000135 U	0.0000135 U
2-Methylnaphthalene	0.29			NA	0.00048 U *	0.00048 U	0.000584 J	0.00048 U	0.0006 UF	0.000285 J	0.000143 U	0.000249 J	0.00014 U	0.000146 U	0.00014 U	0.000146 U	0.000159 U	0.00014 U	0.00014 U	0.000294 J	0.00014 U	0.00016 J	0.00014 U	0.00014 U	NA	0.00048 U *	0.00048 U
2-Methylphenol	1.2			NA	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000199 UF	0.000190 U	0.000194 U	0.000194 U	0.00019 U	0.000198 U	0.00019 U	0.000198 U	0.000216 U *	0.00019 U *	0.00019 U	0.000198 U	0.00019 U	0.000198 U	0.00019 U	0.00019 U	NA	0.000159 U	0.000159 U
2-Nitroaniline	0.02			NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000203 U	0.000350 U	0.000357 U	0.000357 U	0.00035 U	0.000365 U	0.00035 U	0.000365 U	0.000398 U	0.00035 U	0.00035 U	0.000398 U	0.00035 U	0.000365 U	0.00035 U	0.00035 U	NA	0.000163 U	0.000163 U
2-Nitrophenol	0.15			NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 U	0.000220 U*	0.000224 U	0.000224 U	0.00022 U	0.000229 U	0.00022 U	0.000229 U	0.00025 U	0.00022 U	0.00022 U	0.00025 U	0.00022 U	0.000229 U	0.00022 U	0.00022 U	NA	0.000135 U	0.000135 U
3 & 4 Methylphenol	0.12			NA	0.000641 J	0.000163 U	0.000163 U *	0.000163 U *	0.000203 UF	0.000308 J	0.000163 U	0.000163 U	0.00016 U	0.000167 U	0.00016 U	0.000167 U	0.000182 U	0.00016 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000163 U	0.000163 UJ
3,3'-Dichlorobenzidine	0.0045			NA	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.000275 U	0.000320 U	0.000327 U	0.000327 U	0.00032 U	0.000333 U	0.00032 U	0.000333 U	0.000364 U	0.00032 U	0.00032 U	0.000364 U	0.00032 U	0.000333 U	0.00032 U	0.00032 U	NA	0.00022 U	0.00022 R
3-Nitroaniline	0.022			NA	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.00043 U	0.000130 U	0.000133 U	0.000133 U	0.00013 U	0.000135 U	0.00013 U	0.000135 U	0.000148 U	0.00013 U	0.00013 U	0.000148 U	0.00013 U	0.000135 U	0.00013 U	0.00013 U	NA	0.000344 U	0.000344 U
4,6-Dinitro-2-methylphenol	0.007			NA	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.00092 U	0.000160 U	0.000163 U	0.000163 U	0.00016 U	0.000167 U	0.00016 U	0.000167 U	0.000182 U	0.00016 U *	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000736 U	0.000736 UJ
4-Bromophenyl phenyl ether	0.00014			NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000209 UF	0.000250 U*	0.000255 U	0.000255 U	0.00025 U	0.00026 U	0.00025 U	0.00026 U	0.000284 U	0.00025 U	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00025 U	0.00025 U	NA	0.000167 U	0.000167 U
4-Chloro-3-methylphenol	0.37			NA	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000196 UF	0.000250 U	0.000255 U	0.000255 U	0.00025 U	0.00026 U	0.00025 U	0.00026 U	0.000284 U	0.00025 U	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00025 U	0.00025 U	NA	0.000157 U *	0.000157 U
4-Chloroaniline	0.01			NA	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000186 U	0.000110 U	0.000112 U	0.000112 U	0.00011 U	0.000115 U	0.00011 U	0.000115 U	0.000125 U *	0.00011 U	0.00011 U	0.000125 U	0.00011 U	0.000115 U	0.00011 U	0.00011 U	NA	0.000149 U	0.000149 UJ
4-Chlorophenyl phenyl ether	0.00014			NA	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.00029 UFL	0.000230 U*	0.000235 U	0.000235 U	0.00023 U	0.00024 U	0.00023 U	0.00024 U	0.000261 U	0.00023 U	0.00023 U	0.000261 U	0.00023 U	0.00024 U	0.00023 U	0.00023 U	NA	0.000232 U	0.000232 U
4-Nitroaniline	0.1			NA	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000309 U	0.000230 U	0.000235 U	0.000235 U	0.00023 U	0.00024 U	0.00023 U	0.00024 U	0.000261 U	0.00023 U *	0.00023 U	0.000261 U	0.00023 U *	0.00024 U	0.00023 U*	0.00023 U	NA	0.000247 U	0.000247 UJ
4-Nitrophenol	0.15			NA	0.000531 U	0.000531 U	0.000531 U	0.000531 U *	0.000664 UH	0.000330 U	0.000337 U	0.000337 U	0.00033 U	0.000344 U	0.00033 U	0.000344 U	0.000375 U	0.00033 U	0.00033 U	0.000375 U	0.00033 U	0.000344 U	0.00033 U	0.00033 U	NA	0.000531 U	0.000531 U
Acenaphthene	4.4			NA	0.0167	0.00655	0.00827	0.00633	0.0069 FL	0.00231 *	0.00458	0.00694	0.00642	0.0036	0.00554	0.00426	0.00161 *	0.00109	0.00239	0.000987 J	0.0039 b	0.00283	0.00593	0.00404	NA	0.000208 U	0.000208 U
Acenaphthylene	4.4			NA	0.000215 U *	0.000215 U	0.000215 U	0.000344 U	0.000268 UFL	0.000160 U*	0.000163 U	0.000163 U	0.00016 U	0.000622 J	0.00016 U	0.000167 U	0.000182 U *	0.00016 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000215 U	0.000215 U
Aniline	0.36			NA	0.000314 U	0.000314 UJL	0.000314 U *	0.000314 U	0.000392 UL	0.000120 U	0.000122 U	0.000122 U	0.00012 U	0.000125 U	0.00012 U	0.000125 U	0.000136 U *	0.00012 U	0.00012 U	0.000136 U	0.00012 U	0.000125 U	0.00012 U	0.00012 U	NA	0.000314 U	0.000314 UJL
Anthracene	22			NA	0.000154 U	0.000154 U	0.000235 J	0.000154 U	0.000192 U	0.000440 U*	0.000449 U	0.000449 U	0.00044 U	0.000458 U	0.00044 U	0.000458 U	0.0005 U	0.00044 U	0.00044 U	0.0005 U	0.00044 U	0.000458 U	0.00044 U	0.00044 U	NA	0.000154 U	0.000154 U
Benzo[a]anthracene	0.0028			NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000250 U	0.000255 U	0.000255 U	0.00025 U	0.00026 U	0.00025 U	0.00026 U	0.000284 U	0.00025 U *	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00025 U	0.00025 U	NA	0.00015 U	0.00015 U
Benzo[a]pyrene	0.0002			NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000130 U	0.000133 U	0.000133 U	0.00013 U	0.000135 U	0.00013 U*	0.000135 U *	0.000148 U	0.00013 U	0.00013 U	0.000148 U	0.00013 U	0.000135 U	0.00013 U	0.00013 U	NA	0.000148 U	0.000148 U
Benzo[b]fluoranthene	0.0028			NA	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000180 U	0.000184 U	0.000184 U	0.00018 U	0.000188 U	0.00018 U*	0.000188 U *	0.000205 U	0.00018 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.00018 U	0.00018 U	NA	0.00021 U	0.00021 U
Benzo[g,h,i]perylene	2.2			NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000350 U	0.000357 U	0.000357 U	0.00035 U	0.000365 U	0.00035 U*	0.000365 U *	0.000398 U	0.00035 U	0.00035 U	0.000398 U	0.00035 U	0.000365 U	0.00035 U	0.00035 U	NA	0.000143 U	0.000143 U
Benzo[k]fluoranthene	0.0028			NA	0.000166 U	0.000166 U	0.000166 U	0.000166 U	0.000208 U	0.000160 U	0.000163 U	0.000163 U	0.00016 U	0.000167 U	0.00016 U*	0.000167 U *	0.000182 U	0.00016 U *	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000166 U	0.000166 U
Benzoic acid	29			NA	0.00519 J	0.00897 U	0.00184 J	0.00106 U *	0.00465 U	0.000610 U*	0.00352 J	0.000622 U	0.00061 U	0.000635 U	0.011	0.00133 J	0.000693 U	0.00061 U *	0.0039 J *	0.000693 U	0.00061 U *	0.000635 U	0.00061 U	0.0034	NA	0.00106 U	0.00775 U
Benzyl alcohol	7.3			NA	0.0045 U *	0.0045 UJL/JL	0.0045 U	0.00403 b *	0.001 U	0.000510 U	0.00052 U *	0.00052 U *	0.00051 U *	0.000531 U *	0.00051 U	0.000531 U	0.00058 U	0.00051 U *	0.00051 U	0.00058 U	0.00051 U	0.000531 U	0.00051 U	0.00051 U	NA	0.0045 U *	0.0045 UJL/JL
bis (2-Chloroisopropyl) ether	0.0029			NA	0.000139 U	0.000139 U	0.000139 U	0.00017 U *	0.000187 U	0.000180 U	0.000184 U	0.000184 U	0.00018 U	0.000188 U	0.00018 U	0.000188 U	0.000205 U *	0.00018 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.00018 U	0.00018 U	NA	0.00106 J	0.00162 J
Bis(2-chloroethoxy)methane	0.00019			NA	0.00017 U	0.00017 U	0.00017 U	0.000278 U *	0.000213 UF	0.000190 U*	0.000194 U	0.000194 U	0.00019 U	0.000198 U *	0.00019 U	0.000198 U	0.000216 U	0.00019 U	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.00019 U	0.00019 U	NA	0.00017 U	0.00017 U
Bis(2-chloroethyl)ether	0.0019			NA	0.000278 U	0.000278 U	0.000278 U	0.000139 U	0.000348 U	0.000180 U	0.000184 U	0.000184 U	0.00018 U	0.000188 U *	0.00018 U	0.000188 U	0.000205 U *	0.00018 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.00018 U	0.00018 U	NA	0.000941 J	0.00142 J
Bis(2-ethylhexyl) phthalate	0.006			NA	0.000777 J	0.000335 U	0.000225 U	0.00109	0.000174 UF	0.000590 U	0.000602 U	0.000602 U	0.00059 U	0.000615 U	0.00059 U	0.000615 U	0.00067 U	0.00059 U	0.00059 U	0.00128 J	0.00067 U	0.000615 U	0.00059 U	0.00105 J b	NA	0.000225 U	0.00109 U
Butyl benzyl phthalate	1.1			NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000281 U	0.000850 U	0.000867 U	0.000867 U	0.00085 U	0.000885 U	0.00085 U	0.000885 U	0.000966 U	0.00085 U	0.00085 U	0.000966 U	0.00085 U	0.000885 U	0.00085 U	0.00085 U	NA	0.00015 U	0.00015 U
Carbazole				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.28			NA	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000240 U	0.000245 U	0.000245 U	0.00024 U	0.00025 U	0.00024 U	0.00025 U	0.000273 U	0.00024 U	0.00024 U	0.000273 U	0.00024 U	0.00025 U	0.00024 U	0.00024 U	NA	0.000159 U	0.000159 U
Dibenz(a,h)anthracene	0.00024			NA	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000290 U	0.000296 U	0.000296 U	0.00029 U	0.000302 U	0.00029 U*	0.000302 U *	0.00033 U	0.00029 U	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.00029 U	0.00029 U	NA	0.000148 U	0.000148 U
Dibenzofuran	0.29			NA	0.000667 J	0.000408 J	0.0011 J	0.00123	0.0009 JLF	0.000291 J *	0.000375 J	0.000543 J	0.000352 J	0.000167 U	0.00016 U	0.000199 J	0.000182 U	0.00016 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000336 U	0.000336 U
Diethyl phthalate	58			NA	0.000189 J	0.000419 J	0.00036 J	0.000118 U	0.0002 JFL	0.000190 U	0.000428 U	0.000428 U	0.00041 U	0.000436 U	0.00041 U	0.000436 U	0.00047 6 U	0.00041 U	0.00041 U	0.00047 6 U	0.00041 U	0.00043 6 U	0.00041 U	0.00041 U	NA	0.000118 U	0.000118 U
Dimethyl phthalate	58			NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000178 ULF	0.000180 U	0.000184 U	0.000184 U	0.00018 U	0.000188 U	0.00018 U	0.000188 U	0.000205 U	0.00018 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.00018 U	0.00018 U	NA	0.000143 U	0.000143 U
Di-n-butyl phthalate	7.3			NA	0.0008 U *	0.0008 U	0.0008 U	0.0892 * b	0.001 U	0.00187 U	0.00191 U	0.00191 U	0.00187 U	0.00195 U	0.00187 U	0.00195 U	0.00213 U	0.00187 U	0.00187 U	0.00213 U	0.00187 U	0.00195 U	0.00187 U	0.00187 U	NA	0.00219 b *	0.0008 U
Di-n-octyl phthalate	0.73			NA	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000212 U	0.000160 U	0.000163 U	0.000163 U	0.00016 U	0.000167 U	0.00016 U	0.000167 U	0.000182 U	0.00016 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.00016 U	0.00016 U	NA	0.000169 U	0.000169 U
Fluoranthene	2.9			NA	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000310 U*	0.000316 U	0.000316 U	0.00031 U	0.000323 U	0.00031 U	0.000323 U	0.000352 U	0.00031 U	0.00031 U	0.000352 U	0.00031 U	0.000323 U	0.00031 U	0.00031 U	NA	0.000148 U	0.000148 U
Fluorene	2.9			NA	0.000205 U	0.000205 U	0.000464 J	0.000205 U	0.0006 JLF	0.000205 J *	0.000235 J	0.000456 J	0.000222 J	0.000137 J	0.00012 U	0.000125 U	0.000136 U	0.00012 U	0.00012 U	0.000229 J	0.00012 U	0.000125 U	0.00012 U	0.000152 J	NA	0.000205 U	0.000205 U
Hexachlorobenzene	0.0013			NA	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000157 UF	0.000250 U*	0.000255 U	0.000255 U	0.00025 U	0.00026 U	0.00025 U	0.00026 U	0.000284 U	0.00025 U	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00025 U	0.00025 U	NA	0.000126 U	0.000126 U
Hexachlorobutadiene	0.026			NA	0.000252 U	0.000252 U	0.000252 U	0.000252 U *	0.000315 UF	0.000190 U*	0.000194 U	0.000194 U	0.00019 U	0.000198 U	0.00019 U	0.000198 U	0.000216 U *	0.00019 U	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.00019 U	0.00019 U	NA	0.000252 U	0.000252 U
Hexachlorocyclopentadiene	0.05			NA	0.000431 U	0.000431 U	0.000431 U	0.000431 U *	0.000539 U	0.000150 U*	0.000153 U	0.000153 U	0.00015 U	0.000156 U	0.00015 U	0.000156 U	0.00017 U *	0.00015 U *	0.00015 U	0.00017 U	0.00015 U	0.000156 U	0.00015 U	0.00015 U	NA	0.000431 U	0.000431 UJ
Hexachloroethane	0.051			NA	0.00014 U	0.00014 U	0.00014 U *	0.00014 U *	0.000175 UFL	0.000170 U	0.000173 U	0.000173 U	0.00017 U	0.000177 U	0.00017 U	0.000177 U	0.000193 U *	0.00017 U *	0.00017 U	0.000193 U	0.00017 U	0.000177 U	0.00017 U	0.00017 U	NA	0.00014 U	0.00014 U
Indeno[1,2,3-cd]pyrene	0.0028			NA	0.000852 U	0.000852 U	0.000852 U	0.000143 U	0.000179 U	0.000290 U	0.000296 U	0.000296 U	0.00029 U	0.000302 U	0.00029 U *	0.000302 U *	0.00033 U	0.00029 U	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.00029 U	0.00029 U	NA	0.000852 U	0.000852 U
Isophorone	2.2			NA	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00021 ULF	0.000150 U	0.000153 U	0.000153 U	0.00015 U	0.000156 U *	0.00015 U	0.000156 U	0.00017 U *	0.00015 U	0.00015 U	0.00017 U	0.00015 U	0.000156 U	0.00015 U	0.00015 U	NA	0.000168 U	0.000168 U
Naphthalene	1.5			NA	0.00166 J	0.00115 J	0.00467	0.00293 *	0.001 UF	0.00122 J	0.000163 U	0.00378	0.00655	0.00671	0.0092	0.00826	0.000182 U	0.00628	0.00226	0.000182 U	0.00016 U	0.000282 J	0.00016 U	0.000714	NA	0.000423 U	0.000838 J
Nitrobenzene	0.15			NA	0.000934 U	0.000934 U	0.000934 U	0.0004 U *	0.001 UF	0.000200 U*	0.000204 U	0.000204 U	0.0002 U	0.000208 U *	0.0002 U	0.000208 U	0.000227 U *	0.0002 U *	0.0002 U	0.000227 U	0.0002 U	0.000208 U	0.0002 U	0.0002 U	NA	0.000934 U	0.000934 U
N-Nitrosodi-n-propylamine	0.00029			NA	0.000161 U	0.000161 U	0.000161 U *	0.000161 U	0.000202 UFL	0.000240 U	0.000245 U	0.000245 U	0.00024 U	0.00025 U	0.00024 U	0.00025 U	0.000273 U *	0.00024 U	0.00024 U	0.000273 U	0.00024 U	0.00025 U	0.00024 U	0.00024 U	NA	0.000161 U	0.000161 U
N-Nitrosodiphenylamine	0.42			NA	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000193 UF	0.000330 U*	0.000337 U	0.000337 U	0.00033 U	0.000344 U	0.00033 U	0.000344 U	0.000375 U *	0.00033 U *	0.00033 U	0.000375 U	0.00033 U	0.000344 U	0.00033 U	0.00033 U	NA	0.000155 U	0.000155 U
Pentachlorophenol	0.001			NA	0.000441 U	0.000441 U	0.000441 UJL	0.000441 U	0.000551 U	0.000960 U	0.00098 U	0.00098 U	0.00096 U	0.001 U	0.00096 U	0.001 U	0.00109 U	0.00096 U *	0.00096 U	0.00109 U	0.00096 U	0.001 U	0.00096 U	0.00096 U	NA	0.000441 U	0.000441 U
Phenanthrene	2.2			NA	0.000176 U	0.000176 U	0.000176 U	0.0004 U	0.0005 U	0.000290 U*	0.000296 U	0.000313 J	0.00029 U	0.000302 U	0.00029 U	0.000302 U	0.00033 U	0.00029 U	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.00029 U	0.00029 U	NA	0.000176 U	0.000176 U
Phenol	2.2			NA	0.000202 U	0.000202 UJL	0.000202 U	0.0008 U *	0.001 UF	0.000619 J	0.000143 U	0.000143 U	0.00014 U	0.000146 U	0.00966	0.0121	0.000159 U *	0.000633 J *	0.00014 U	0.000159 U	0.00014 U	0.000146 U	0.00014 U	0.00014 U	NA	0.000202 U	0.000202 UJL
Pyrene	2.2			NA	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000330 U	0.000337 U	0.000337 U	0.00033 U	0.000344 U	0.00033 U	0.000344 U	0.000375 U	0.00033 U	0.00033 U	0.000375 U	0.00033 U	0.000344 U	0.00033 U	0.00033 U	NA	0.000159 U	0.000159 U
Pyridine	0.073			NA	0.000725 U	0.00127 U	0.0013 U	0.000725 U	0.000906 U	0.000240 U	0.000245 U	0.000245 U	0.00024 U	0.00025 U	0.00024 U	0.00025 U	0.000273 U	0.00024 U	0.00024 U	0.000273 U	0.00024 U	0.00025 U	0.00024 U	0.00024 U	NA	0.000725 U	0.0011 U
Herbicides by EPA 8151A																												
2,4-D	0.07			NA	0.0000288 U	0.0000267 U	0.0000206 UJL	0.0000257 U	0.0000453 U	0.0000392 U*	0.0000392 U	0.0000396 U	0.0000392 U	0.0000392 U	0.0000388 U	0.0000388 U	0.0000392	0.000253	0.00004 U	0.00069	0.00171	0.00114	0.0000377 U	0.0000392 U		0.0000288 U	0.0000267 UJ
VOCs by EPA 8260B																												
1,1,1,2-Tetrachloroethane	0.079			NA	0.000644 U	0.000644 U	0.000327 U	0.000327 U	0.000327 U	0.000178 U	0.000178 U	0.000178 U	0.00018 U	0.000178 U	0.00018 U	0.000178 U	0.000178 U	0.000178 U	0.00018 U	0.000178 U	0.00018 U	0.000178 U	0.00037 U	0.00018 U	NA	0.000644 U	0.000644 U
1,1,1-Trichloroethane	0.2			NA	0.00169 U	0.00169 U	0.000504 U	0.000504 U	0.000504 U	0.000209 U	0.000209 U	0.000209 U	0.00021 U	0.000209 U	0.00021 U	0.000209 U	0.000209 U	0.000209 U	0.00021 U	0.000209 U	0.00021 U	0.000209 U	0.00037 U	0.00015 U	NA	0.00169 U	0.00169 U
1,1,2,2-Tetrachloroethane	0.01			NA	0.00047 U	0.00047 U	0.000284 U	0.000284 U	0.000284 U	0.000197 U	0.000197 U	0.000197 U	0.00019 U	0.000197 U	0.00019 U	0.000197 U	0.000197 U	0.000197 U	0.00019 U	0.000197 U	0.00019 U	0.000197 U	0.00062 U	0.00022 U	NA	0.00047 U	0.00047 U
1,1,2-Trichloroethane	0.005			NA	0.000511 U	0.000511 U	0.000228 U	0.000228 U	0.000228 U	0.000209 U	0.000209 U	0.000209 U	0.00019 U	0.000209 U	0.00019 U	0.000209 U	0.000209 U	0.000209 U	0.00019 U	0.000209 U	0.00019 U	0.00028 U	0.00033 U	0.00028 U	NA	0.000511 U	0.000511 U
1,1-Dichloroethane	0.005			NA

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																															
Sample Location			POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2 Duplicate	POE-2	POE-2	POE-2	POE-2	POE-2	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14
Sample Date			1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/31/2018	7/19/2017	1/27/2017	1/27/2017	1/27/2017	7/18/2016	1/18/2016	7/21/2015	1/27/2015	7/24/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005										
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																												
SVOCs by EPA 8270C																														
1,2,4-Trichlorobenzene	0.07		0.00068 U	0.00068 U *	0.00085 UF	0.000167 U*	0.000167 U	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.00068 U	0.00068 U	0.00068 U	0.00068 U *	0.00085 UF	0.000167 U*	0.000167 U
1,2-Dichlorobenzene	0.6		0.000296 U	0.000296 U *	0.00037 UL	0.000219 U*	0.000219 U	0.000219 U	0.00021 U	0.000202 U	0.000202 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000202 U	0.00021 U	0.00021 U	0.000210 U	0.00021 U	NA	0.000296 U	0.000296 U	0.000296 U	0.000296 U *	0.00037 UL	0.000219 U*	0.000219 U
1,3-Dichlorobenzene	2.2		0.00035 U	0.00035 U *	0.000438 UFL	0.000104 U*	0.000104 U	0.000104 U	0.0001 U	0.0000962 U	0.0000962 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0000962 U	0.0001 U	0.0001 U	0.000100 U	0.0001 U	NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.000438 UFL	0.000104 U*	0.000104 U
1,4-Dichlorobenzene	0.072		0.000428 U	0.000428 U *	0.000536 UF	0.000167 U*	0.000321 J b	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U*	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.0006 JF	0.000167 U*	0.000167 U
2,4,5-Trichlorophenol	7.3		0.000108 U	0.000108 U	0.000135 UF	0.000302 U*	0.000302 U	0.000302 U	0.00029 U	0.000279 U	0.000279 U*	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000108 U	0.000108 U	0.000108 U	0.000108 U	0.000135 UF	0.000302 U*	0.000302 U
2,4,6-Trichlorophenol	0.073		0.000135 U	0.000135 U	0.000169 ULF	0.000344 U*	0.000344 U	0.000344 U	0.00033 U	0.000317 U	0.000317 U	0.00033 U*	0.00033 U	0.00033 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 ULF	0.000344 U*	0.000344 U
2,4-Dichlorophenol	0.22		0.000115 U	0.000115 U *	0.000143 U	0.000271 U*	0.000271 U	0.000271 U	0.00026 U	0.00025 U	0.00025 U	0.00026 U*	0.00026 U	0.00026 U	0.00026 U	0.00025 U	0.00026 U	0.00026 U	0.000260 U	0.00026 U	NA	0.000115 U	0.000115 U	0.000115 U	0.000115 U *	0.000143 U	0.000271 U*	0.000271 U
2,4-Dimethylphenol	1.5		0.000148 U	0.000148 U *	0.000184 U	0.000188 U	0.000188 U	0.000188 U	0.0001 8 U	0.000173 U	0.000173 U	0.00018 U*	0.00018 U	0.00018 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	NA	0.000148 U	0.000148 U	0.000148 U	0.000148 U *	0.000184 U	0.000188 U	0.000188 U
2,4-Dinitrophenol	0.15		0.00146 U	0.00146 U	0.001 U	0.000417 U	0.000417 U	0.000417 U	0.0077	0.000385 U	0.000385 U*	0.0004 U*	0.0004 U	0.0004 U	0.0004 U	0.000385 U	0.0004 U	0.0004 UJL/JL	0.000400 U	0.0004 UJL/JL	NA	0.00146 U	0.00146 UJL/JL	0.00146 U	0.00485	0.001 U	0.000417 U	0.00217 J
2,4-Dinitrotoluene	0.003		0.000127 U	0.000127 U	0.000159 UFL	0.000333 U	0.000333 U	0.000333 U	0.00032 U	0.000308 U	0.000308 U	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.000308 U	0.00032 U	0.00032 U*	0.000320 U*	0.00032 U	NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000159 UFL	0.000333 U	0.000333 U
2,6-Dinitrotoluene	0.003		0.000199 U	0.000199 U	0.000248 ULF	0.000302 U*	0.000302 U	0.000302 U	0.00029 U	0.000279 U	0.000279 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000248 ULF	0.000302 U*	0.000302 U
2-Chloronaphthalene	5.8		0.00109 U	0.0011 U	0.001 UF	0.000198 U*	0.000198 U	0.000198 U	0.00019 U	0.000183 U	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000183 U	0.00019 U	0.00019 UJL/JL	0.000190 U	0.00019 UJL/JL	NA	0.00109 U	0.00109 UJL/JL	0.00109 U	0.0011 U	0.001 UF	0.000198 U*	0.000198 U
2-Chlorophenol	0.37		0.0000135 U	0.000135 U *	0.000169 ULF	0.000229 U*	0.000229 U	0.000229 U	0.00022 U	0.000212 U	0.000212 U	0.00022 U*	0.00022 U	0.00022 U	0.00022 U	0.000212 U	0.00022 U	0.00022 U	0.000220 U	0.00022 U	NA	0.0000135 U	0.0000135 U	0.0000135 U	0.000135 U *	0.000169 ULF	0.000229 U*	0.000229 U
2-Methylnaphthalene	0.29		0.00048 U	0.00048 U	0.0105 F	0.000146 U	0.000444 J	0.000146 U	0.00014 U	0.000135 U	0.000135 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.000135 U	0.000189 J	0.00014 U	0.000140 U	0.00014 U	NA	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.0006 UF	0.000552 J	0.000146 U
2-Methylphenol	1.2		0.000159 U	0.000159 U	0.000199 UF	0.000198 U	0.000198 U	0.000198 U	0.00019 U	0.000183 U	0.000183 U	0.00019 U*	0.00019 U	0.00019 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	NA	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000199 UF	0.000198 U	0.000198 U
2-Nitroaniline	0.02		0.000163 U	0.000163 U	0.000203 U	0.000365 U	0.000365 U	0.000365 U	0.00035 U	0.000337 U	0.000337 U*	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.000337 U	0.00035 U	0.00035 U	0.000350 U	0.00035 U	NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000203 U	0.000365 U	0.000365 U
2-Nitrophenol	0.15		0.000135 U	0.000135 U	0.000169 U	0.000229 U*	0.000229 U	0.000229 U	0.00022 U	0.000212 U	0.000212 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.000212 U	0.00022 U	0.00022 U	0.000220 U	0.00022 U	NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 U	0.000229 U*	0.000229 U
3 & 4 Methylphenol	0.12		0.000163 U *	0.000163 U *	0.000203 UF	0.000302 J	0.000167 U	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000163 U	0.000163 U	0.000163 U*	0.000163 U *	0.000203 UF	0.000167 U	0.000167 U
3,3'-Dichlorobenzidine	0.0045		0.00022 R	0.0004 U	0.000275 U	0.000333 U	0.000333 U	0.000333 U	0.00032 U	0.000308 U	0.000308 U	0.00032 U	0.00032 U	0.00032 U	0.00032 U*	0.000308 U	0.00032 U*	0.00032 U	0.000320 U	0.00032 U	NA	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.000275 U	0.000333 U	0.000333 U
3-Nitroaniline	0.022		0.000344 U	0.000208 U	0.00043 U	0.000135 U	0.000135 U	0.000135 U	0.00013 U	0.000125 U	0.000125 U*	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.000125 U	0.00013 U	0.00013 U	0.000130 U	0.00013 U	NA	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.00043 U	0.000135 U	0.000135 U
4,6-Dinitro-2-methylphenol	0.007		0.000736 U	0.000736 U	0.00092 U	0.000167 U	0.000167 U	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U*	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.00092 U	0.000167 U	0.000167 U
4-Bromophenyl phenyl ether	0.00014		0.000167 U	0.000167 U	0.000209 UF	0.000260 U*	0.00026 U	0.00026 U	0.00025 U	0.00024 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000209 UF	0.000260 U*	0.00026 U
4-Chloro-3-methylphenol	0.37		0.000157 U	0.000157 U	0.000196 UF	0.000260 U	0.00026 U	0.00026 U	0.00025 U	0.00024 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000196 UF	0.000260 U	0.00026 U
4-Chloroaniline	0.01		0.000149 RJ	0.000149 U	0.000186 U	0.000115 U	0.000115 U	0.000115 U	0.00011 U	0.000106 U	0.000106 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.000106 U	0.00011 U	0.00011 U	0.000110 U	0.00011 U	NA	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000186 U	0.000115 U	0.000115 U
4-Chlorophenyl phenyl ether	0.00014		0.000232 U	0.000232 U	0.00029 UFL	0.000240 U*	0.00024 U	0.00024 U	0.00023 U	0.000221 U	0.000221 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.000221 U	0.00023 U	0.00023 U	0.000230 U	0.00023 U	NA	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.00029 UFL	0.000240 U*	0.00024 U
4-Nitroaniline	0.1		0.000247 U	0.000247 U	0.000309 U	0.000240 U	0.00024 U	0.00024 U	0.00023 U	0.000221 U	0.000221 U*	0.00023 U*	0.00023 U	0.00023 U	0.00023 U	0.000221 U	0.00023 U	0.00023 U	0.000230 U*	0.00023 U	NA	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000309 U	0.000240 U	0.00024 U
4-Nitrophenol	0.15		0.000531 U	0.000531 U *	0.000664 UH	0.000344 U	0.000344 U	0.000344 U	0.00504	0.000317 U	0.000317 U*	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000531 U	0.000531 U	0.000531 U	0.000531 U *	0.000664 UH	0.000344 U	0.000344 U
Acenaphthene	4.4		0.000208 U	0.000215 U	0.00825 FL	0.000167 U*	0.000167 U	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000208 U	0.000569 J	0.000208 U	0.000215 U	0.00026 UFL	0.000167 U*	0.000167 U
Acenaphthylene	4.4		0.000215 U	0.000344 U	0.000268 UFL	0.000167 U*	0.000167 U	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000215 U	0.000271 J	0.000215 U	0.000344 U	0.000268 UFL	0.000167 U*	0.000167 U
Aniline	0.36		0.000314 U *	0.000314 U	0.000392 UL	0.000125 U	0.000125 U	0.000125 U	0.00012 U	0.000115 U	0.000115 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.000115 U	0.00012 U	0.00012 U	0.000120 U	0.00012 U	NA	0.000314 U	0.000314 U	0.000314 U *	0.000314 U	0.000392 UL	0.000125 U	0.000125 U
Anthracene	22		0.000154 U	0.000154 U	0.0015	0.000458 U*	0.000458 U	0.000458 U	0.00044 U	0.000423 U	0.000423 U	0.00044 U	0.00044 U	0.00044 U	0.00044 U	0.000423 U	0.00044 U	0.00044 U	0.000440 U	0.00044 U	NA	0.000154 U	0.000197 J	0.000122 J	0.000154 U	0.000192 U	0.000458 U*	0.000458 U
Benzo[a]anthracene	0.0028		0.00015 U	0.00015 U	0.0007 J	0.000260 U	0.00026 U	0.00026 U	0.000757 J	0.00024 U	0.00024 U	0.00025 U*	0.00025 U	0.00025 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000260 U	0.00026 U
Benzo[a]pyrene	0.0002		0.000148 U	0.000148 U	0.000184 U	0.000135 U	0.000135 U	0.000135 U	0.000628 J	0.000125 U*	0.000125 U*	0.00013 U	0.00013 U	0.00013 U*	0.00013 U	0.000125 U	0.00013 U	0.00013 U	0.000130 U	0.00013 U	NA	0.000587 J *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000135 U	0.000135 U
Benzo[b]fluoranthene	0.0026		0.00021 U	0.00021 U	0.000262 U	0.000188 U	0.000188 U	0.000188 U	0.00103 J b	0.000173 U*	0.000173 U	0.00018 U	0.00018 U	0.00018 U*	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	NA	0.000612 J *	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000188 U	0.000188 U
Benzo[g,h,i]perylene	2.2		0.000143 U	0.000143 U	0.000179 U	0.000365 U	0.000365 U	0.000365 U	0.00035 U	0.000337 U*	0.000337 U*	0.00035 U	0.00035 U	0.00035 U	0.00035 U*	0.000337 U	0.00035 U	0.00035 U	0.000350 U	0.00035 U	NA	0.000478 J *	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000365 U	0.000365 U
Benzo[k]fluoranthene	0.0028		0.000166 U	0.000166 U	0.000208 U	0.000167 U	0.000167 U	0.000167 U	0.00109 J b	0.000154 U*	0.000154 U	0.00016 U*	0.00016 U	0.00016 U*	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000166 U *	0.000166 U	0.000166 U	0.000166 U	0.000208 U	0.000167 U	0.000167 U
Benzoic acid	29		0.00106 U	0.00106 U *	0.001 U	0.000635 U*	0.0038 J	0.000635 U	0.00487 J	0.00179 J	0.000587 U	0.00061 U*	0.00274 J*	0.00061 U*	0.000587 U	0.00061 U	0.00061 U	0.00061 U	0.000610 U	0.00061 U	NA	0.0044 J	0.0117	0.00106 U	0.00106 U *	0.005150 U	0.000635 U*	0.00552
Benzyl alcohol	7.3		0.0045 U	0.00253 b *	0.001 U	0.000531 U	0.000531 U *	0.000531 U *	0.00051 U *	0.00049 U *	0.00049 U	0.00051 U *	0.00051 U	0.00051 U	0.00049 U	0.00051 U	0.00051 U	0.00049 U	0.000510 U	0.00051 U	NA	0.0045 U *	0.0045 U	0.0045 U	0.00261 b *	0.001 U	0.000531 U	0.000531 U *
bis (2-Chloroisopropyl) ether	0.0029		0.0023	0.00017 U *	0.000187 U	0.000494 J	0.00147	0.000188 U	0.00018 U	0.000173 U	0.000173 U	0.00124	0.00018 U	0.00018 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	NA	0.000139 U	0.000139 UJL/JL	0.000139 U	0.00017 U *	0.000187 U	0.000188 U	0.000188 U
Bis(2-chloroethoxy)methane	0.00019		0.00017 U	0.000278 U *	0.000213 UF	0.000198 U*	0.000198 U	0.000198 U	0.00019 U	0.000183 U*	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	NA	0.00017 U	0.00017 U	0.00017 U	0.000278 U *	0.000213 UF	0.000198 U*	0.000198 U
Bis(2-chloroethyl)ether	0.0019		0.00149 J	0.000139 U	0.001 J	0.000188 U	0.000837 J	0.000188 U	0.000564 J	0.00119 J*	0.000173 U	0.00114 J	0.00018 U	0.000674 J	0.000173 U	0.00018 U	0.00018 U	0.00108	0.00131	NA	0.000278 U	0.000278 U	0.000278 U	0.000139 U	0.000348 U	0.000188 U	0.000188 U
Bis(2-ethylhexyl) phthalate	0.006		0.000563 J	0.00141	0.000174 UF	0.000902 J	0.0118	0.000615 U	0.00153 J	0.00353	0.00843	0.00059 U	0.00161 J	0.0017 J	0.000567 U	0.00059 U	0.00059 U	0.000717 J	0.0064 b	NA	0.000225 U *	0.000225 U	0.000225 U	0.00152	0.000174 UF	0.000615 U	0.000615 U
Butyl benzyl phthalate	1.1		0.00015 U	0.00015 U	0.000281 U	0.000885 U	0.000885 U	0.000885 U	0.00129 J	0.000817 U	0.000817 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.000817 U	0.00085 U	0.00085 U	0.000850 U	0.00085 U	NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000281 U	0.000885 U	0.000885 U
Carbazole			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.28		0.000159 U	0.000159 U	0.00045 J	0.000250 U	0.00025 U	0.00025 U	0.000844 J	0.000231 U	0.000231 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.000231 U	0.00024 U	0.00024 U	0.000240 U	0.00024 U	NA	0.000251 J *	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000250 U	0.00025 U
Dibenz(a,h)anthracene	0.00024		0.000148 U	0.000148 U	0.000184 U	0.000302 U	0.000302 U	0.000302 U	0.00035 J	0.000279 U*	0.000279 U*	0.00029 U	0.00029 U	0.00029 U*	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000302 U	0.000302 U
Dibenzofuran	0.29		0.000336 U	0.000336 U	0.00535 LF	0.000167 U*	0.000167 U	0.000167 U	0.00016 U	0.000154 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.00042 ULF	0.000167 U*	0.000167 U
Diethyl phthalate	58		0.000118 U	0.000118 U	0.000147 UFL	0.004360 U	0.00436 U	0.00436 U	0.00419 U	0.00403 U	0.00403 U	0.00419 U	0.00419 U	0.00419 U	0.00419 U	0.00403 U	0.00419 U	0.00419 U	0.00419 U	0.00419 U	NA	0.000188 J	0.000118 U	0.000381 I	0.00419 U	0.00015 JFL	0.00436 U	0.00436 U
Dimethyl phthalate	58		0.000143 U	0.000143 U	0.000178 ULF	0.000188 U	0.000188 U	0.00116 J	0.00018 U	0.000214 J	0.00361	0.00018 U	0.000287 J	0.000258 J	0.000173 U	0.00018 U	0.00018 U	0.000180 U	0.00120J	NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000178 ULF	0.000188 U	0.000188 U
Di-n-butyl phthalate	7.3		0.000906 J	0.0917 * b	0.00535	0.001950 U	0.00443 J	0.00195 U	0.00187 U	0.0018 U	0.0018 U	0.00187 U	0.00187 U	0.00187 U	0.00187 U	0.0018 U	0.00187 U	0.00187 U	0.00187 U	0.00498 J	NA	0.00098 U *	0.0008 U	0.0008 U	0.192 * b	0.00195 U	0.00195 U	0.00195 U
Di-n-octyl phthalate	0.73		0.000169 U	0.000169 U	0.000212 U	0.000167 U	0.000167 U	0.000167 U	0.00114 J	0.000154 U	0.000154 U*	0.00016 U*	0.00016 U	0.00016 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000160 U	0.000471 J	NA	0.000169 U	0.000169 U	0.000169 U	0.000212 U	0.000167 U	0.000167 U	0.000167 U
Fluoranthene	2.9		0.000148 U	0.000148 U	0.0041	0.000323 U*	0.000323 U	0.000323 U	0.00031 U	0.000298 U	0.000298 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.000298 U	0.00031 U	0.00031 U	0.000310 U	0.00031 U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000323 U*	0.000323 U
Fluorene	2.9		0.000205 U	0.000205 U	0.0052 LF	0.000125 U*	0.000125 U	0.000125 U	0.00012 U	0.000115 U	0.000115 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.000115 U	0.00012 U	0.00012 U	0.000120 U	0.00012 U	NA	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000256 ULF	0.000125 U*	0.000125 U
Hexachlorobenzene	0.0013		0.000126 U	0.000126 U	0.000157 UF	0.000260 U*	0.00026 U	0.00026 U	0.00025 U	0.00024 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000157 UF	0.000260 U*	0.00026 U
Hexachlorobutadiene	0.026		0.000252 U	0.000252 U *	0.000315 UF	0.000198 U*	0.000198 U	0.000198 U	0.00019 U	0.000183 U	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	NA	0.000252 U	0.000252 U	0.000252 U	0.000252 U *	0.000315 UF	0.000198 U*	0.000198 U
Hexachlorocyclopentadiene	0.05		0.000431 U	0.000431 U *	0.000539 U	0.000156 U*	0.000156 U	0.000156 U	0.00015 U	0.000144 U	0.000144 U	0.00015 U*	0.00015 U	0.00015 U	0.00015 U	0.000144 U	0.00015 U	0.00015 U	0.000150 U	0.00015 U	NA	0.000431 U	0.000431 U	0.000431 U	0.000431 U *	0.000539 U	0.000156 U*	0.000156 U
Hexachloroethane	0.051		0.00014 U *	0.00014 U *	0.000175 UFL	0.000177 U	0.000177 U	0.000177 U	0.00017 U	0.000163 U	0.000163 U	0.00017 U*	0.00017 U	0.00017 U	0.00017 U	0.000163 U	0.00017 U	0.00017 U	0.000170 U	0.00017 U	NA	0.00014 U	0.00014 U	0.00014 U *	0.00014 U *	0.000175 UFL	0.000177 U	0.000177 U
Indeno[1,2,3-cd]pyrene	0.0028		0.000852 U	0.000143 U	0.000179 U	0.000302 U	0.000302 U	0.000302 U	0.000428 J	0.000279 U*	0.000279 U	0.00029 U	0.00029 U	0.00029 U*	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000852 U *	0.000852 U	0.000852 U	0.000143 U	0.000179 U	0.000302 U	0.000302 U
Isophorone	2.2		0.000168 U	0.000168 U	0.00021 ULF	0.000156 U	0.000156 U	0.000156 U	0.00015 U	0.000144 U*	0.000144 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000144 U	0.00015 U	0.00015 U	0.000150 U	0.00015 U	NA	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00021 ULF	0.000156 U	0.000156 U
Naphthalene	1.5		0.000423 U	0.0008 U *	0.0085 F	0.000167 U	0.000229 J	0.000167 U	0.00138 J	0.000685 J	0.000154 U	0.00016 U	0.00016 U	0.00103 J	0.000168 J	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000423 U	0.000423 U	0.000423 U	0.0008 U *	0.001 JF	0.00103 J	0.000595 J
Nitrobenzene	0.15		0.000934 U	0.0004 U *	0.001 UF	0.000208 U*	0.000796 J	0.000208 U	0.0002 U	0.000192 U*	0.000192 U	0.0002 U*	0.0002 U	0.0002 U	0.0002 U	0.000192 U	0.0002 U	0.0002 U	0.000200 U	0.0002 U	NA	0.000934 U	0.000934 U	0.000934 U	0.0004 U *	0.001 UF	0.000208 U*	0.000208 U
N-Nitrosodi-n-propylamine	0.00029		0.000161 U *	0.000161 U	0.000202 UFL	0.000250 U	0.00025 U	0.00025 U	0.00024 U	0.000231 U	0.000231 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.000231 U	0.00024 U	0.00024 U	0.000240 U	0.00024 U	NA	0.000161 U	0.000161 U	0.000161 U *	0.000161 U	0.000202 UFL	0.000250 U	0.00025 U
N-Nitrosodiphenylamine	0.42		0.000155 U	0.000155 U	0.000193 UF	0.000344 U*	0.000344 U	0.000344 U	0.00033 U	0.000317 U	0.000317 U	0.00033 U*	0.00033 U	0.00033 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000193 UF	0.000344 U*	0.000344 U
Pentachlorophenol	0.001		0.000441 UJL	0.000441 U	0.000551 U	0.001000 U	0.001 U	0.001 U	0.00321	0.000923 U	0.000923 U*	0.00096 U*	0.00096 U	0.00096 U	0.00096 U	0.000923 U	0.00096 U	0.00096 U	0.000960 U	0.00096 U	NA	0.000441 U	0.000441 U	0.000441 UJL	0.000441 U	0.000551 U	0.00100 U	0.00132 J
Phenanthrene	2.2		0.000176 U	0.0004 U	0.0121	0.000302 U*	0.000302 U	0.000302 U	0.00029 U	0.0003 J	0.000279 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000176 U	0.000176 U	0.000176 U	0.0004 U	0.0005 U	0.000302 U*	0.000302 U
Phenol	2.2		0.000202 U	0.0008 U *	0.001 UF	0.000146 U	0.000146 U	0.000146 U	0.00014 U	0.000135 U	0.000135 U	0.00014 U*	0.00014 U	0.00014 U	0.00014 U	0.000135 U	0.00014 U	0.00014 U	0.000140 U	0.00014 U	NA	0.000202 U	0.000202 U	0.000202 U	0.0008 U *	0.001 UF	0.000146 U	0.000146 U
Pyrene	2.2		0.000159 U	0.000159 U	0.003	0.000344 U	0.000344 U	0.000344 U	0.00033 U	0.000317 U	0.000317 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000159 U *	0.000159 U

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

| Exposure Pathway | | |

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																																
Sample Location			RI-3-02		RI-3-02		RI-3-02		DUP1 (RI-3-02)		RI-3-02		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03		RI-3-03	
Sample Date			1/18/2016		7/21/2015		1/27/2015		1/27/2015		7/24/2014		7/21/2023		1/31/2023		7/29/2022		1/14/2022		7/2/2021		1/21/2021		7/28/2020		1/21/2020		7/5/2019		1/15/2019		7/18/2018	
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																																
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																														
SVOCs by EPA 8270C																																
1,2,4-Trichlorobenzene	0.07		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.00068 U	0.00068 U	0.00068 U	0.00068 U *	0.00085 UF	0.000160	U*	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
1,2-Dichlorobenzene	0.6		0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NA	0.000296 U	0.000296 U	0.000296 U	0.000296 U *	0.00037 UL	0.000210	U*	0.00021	U	0.000219	U	0.00021	U	0.000000202	U	0.000749	J	0.00021	U	0.000912	J
1,3-Dichlorobenzene	2.2		0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.000438 UFL	0.000100	U*	0.0001	U	0.000104	U	0.0001	U	9.61E-08	U	0.0001	U	0.0001	U	0.000114	U
1,4-Dichlorobenzene	0.072		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.000536 UF	0.000160	U*	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
2,4,5-Trichlorophenol	7.3		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	NA	0.000108 U	0.000108 UJL	0.000108 U	0.000108 U	0.000135 UF	0.000290	U*	0.00029	U	0.000302	U	0.00029	U	0.000000279	U	0.00029	U	0.00029	U	0.00033	U
2,4,6-Trichlorophenol	0.073		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA	0.000135 U	0.000135 UJL	0.000135 U	0.000135 U	0.000169 ULF	0.000330	U*	0.00033	U	0.000344	U	0.00033	U	0.000000317	U	0.00033	U	0.00033	U	0.000375	U
2,4-Dichlorophenol	0.22		0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	NA	0.000115 U	0.000115 UJL	0.000115 U	0.000115 U *	0.000143 U	0.000260	U*	0.00026	U	0.000271	U	0.00026	U	0.00000025	U	0.00026	U	0.00026	U	0.000295	U
2,4-Dimethylphenol	1.5		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NA	0.000148 U	0.000148 UJL	0.000148 U	0.000148 U *	0.000184 U	0.000180	U	0.00018	U	0.000188	U	0.00018	U	0.000000173	U	0.00018	U	0.00018	U	0.000309	J
2,4-Dinitrophenol	0.15		0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	NA	0.00146 U	0.00146 UJL	0.00146 U	0.00146 U	0.001 U	0.000400	U	0.0004	U	0.000417	U	0.0004	U	0.000000384	U	0.0004	U	0.0004	U	0.000455	U
2,4-Dinitrotoluene	0.003		0.00032	U	0.00032	U	0.00032	U*	0.00032	U*	0.00032	U	NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000159 UFL	0.000320	U	0.00032	U	0.000333	U	0.00032	U	0.000000307	U	0.00032	U	0.00032	U	0.000364	U
2,6-Dinitrotoluene	0.003		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000248 UFL	0.000290	U*	0.00029	U	0.000302	U	0.00029	U	0.000000279	U	0.00029	U	0.00029	U	0.00033	U
2-Chloronaphthalene	5.8		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA	0.00109 U	0.00109 UJL/JL	0.00109 U	0.0011 U	0.001 UF	0.000190	U*	0.00019	U	0.000198	U	0.00019	U	0.000000183	U	0.00019	U	0.00019	U	0.000216	U
2-Chlorophenol	0.37		0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	NA	0.0000135 U	0.0000135 UJL	0.0000135 U	0.000135 U *	0.000169 ULF	0.000220	U*	0.00022	U	0.000229	U	0.00022	U	0.00000211	U	0.00022	U	0.00022	U*	0.00022	U
2-Methylnaphthalene	0.29		0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	NA	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.0006 UF	0.000223	J	0.00014	U	0.000146	U	0.00014	U	0.000000134	U	0.00014	U	0.00014	U	0.00047	J
2-Methylphenol	1.2		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA	0.000159 U	0.000159 UJL	0.000159 U	0.000159 U *	0.000199 UF	0.000190	U	0.00019	U	0.000198	U	0.00019	U	0.000000183	U	0.00019	U	0.00019	U	0.000216	U
2-Nitroaniline	0.02		0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000203 U	0.000350	U	0.00035	U	0.000365	U	0.00035	U	0.000000336	U	0.00035	U	0.00035	U	0.000398	U
2-Nitrophenol	0.15		0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	NA	0.000135 U	0.000135 UJL	0.000135 U	0.000135 U *	0.000169 U	0.000220	U*	0.00022	U	0.000229	U	0.00022	U	0.000000211	U	0.00022	U	0.00022	U	0.00025	U
3 & 4 Methylphenol	0.12		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000163 U	0.000163 UJL	0.000163 U *	0.000163 U *	0.000203 UF	0.000160	U	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
3,3'-Dichlorobenzidine	0.0045		0.00032	U*	0.00032	U	0.00032	U	0.00032	U	0.00032	U	NA	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.000275 U	0.000320	U	0.00032	U	0.000333	U	0.00032	U	0.000000307	U	0.00032	U	0.00032	U	0.000364	U
3-Nitroaniline	0.022		0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	NA	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.00043 U	0.000130	U	0.00013	U	0.000135	U	0.00013	U	0.000000125	U	0.00013	U *	0.00013	U	0.000148	U
4,6-Dinitro-2-methylphenol	0.007		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000736 U	0.000736 UJL	0.000736 U	0.000736 U	0.00092 U	0.000160	U	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
4-Bromophenyl phenyl ether	0.00014		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000209 UF	0.000250	U*	0.00025	U	0.00026	U	0.00025	U	0.00000024	U	0.00025	U	0.00025	U	0.000284	U
4-Chloro-3-methylphenol	0.37		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA	0.000157 U	0.000157 UJL	0.000157 U	0.000157 U	0.000196 UF	0.000250	U	0.00025	U	0.00026	U	0.00025	U	0.00000024	U	0.00025	U	0.00025	U	0.000284	U
4-Chloroaniline	0.01		0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	NA	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000186 U	0.000110	U	0.00011	U	0.000115	U	0.00011	U	0.000000106	U	0.00011	U	0.00011	U	0.000125	U
4-Chlorophenyl phenyl ether	0.00014		0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	NA	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.00029 UFL	0.000230	U*	0.00023	U	0.00024	U	0.00023	U	0.000000221	U	0.00023	U	0.00023	U	0.000261	U
4-Nitroaniline	0.1		0.00023	U	0.00023	U	0.00023	U*	0.00023	U*	0.00023	U*	NA	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000309 U	0.000230	U	0.00023	U	0.00024	U	0.00023	U	0.000000221	U	0.00023	U *	0.00023	U	0.000261	U
4-Nitrophenol	0.15		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA	0.000531 U	0.000531 UJL	0.000531 U	0.000531 U *	0.000664 UH	0.000330	U	0.00033	U	0.000344	U	0.00033	U	0.000000317	U	0.00033	U *	0.00033	U	0.000375	U
Acenaphthene	4.4		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000208 U	0.000208 U	0.000208 U	0.000215 U	0.00026 UFL	0.000160	U*	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
Acenaphthylene	4.4		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000215 U	0.000215 U	0.000215 U	0.000344 U	0.000268 UFL	0.000160	U*	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
Aniline	0.36		0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	NA	0.000314 U	0.000314 UJL	0.000314 U	0.000314 U *	0.000392 UL	0.000120	U	0.00012	U	0.000125	U	0.00012	U	0.000000115	U	0.00012	U *	0.00012	U	0.000136	U
Anthracene	22		0.00044	U	0.00044	U	0.00044	U	0.00044	U	0.00044	U	NA	0.000154 U	0.000154 U	0.000154 J	0.000154 U	0.000192 U	0.000440	U*	0.00044	U	0.000458	U	0.00044	U	0.000000423	U	0.00044	U	0.0005	U	0.00044	U
Benzo[a]anthracene	0.0029		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000966	J	0.00025	U	0.00026	U	0.00025	U	0.00000024	U	0.00025	U	0.00025	U	0.000284	U
Benzo[a]pyrene	0.0002		0.00013	U*	0.00013	U	0.00013	U*	0.00013	U*	0.00013	U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000321	J	0.00013	U *	0.000135	U *	0.00013	U	0.000000125	U	0.00013	U *	0.00013	U	0.000148	U
Benzo[b]fluoranthene	0.0028		0.00018	U*	0.00018	U	0.00018	U*	0.00018	U*	0.00018	U	NA	0.00021 U *	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000521	J	0.00018	U *	0.000188	U *	0.00018	U	0.000000173	U	0.00018	U *	0.00018	U	0.000205	U
Benzo[g,h,i]perylene	2.2		0.00035	U*	0.00035	U	0.00035	U*	0.00035	U*	0.00035	U*	NA	0.000143 U *	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000350	U	0.00035	U *	0.000365	U *	0.00035	U	0.000000336	U	0.00035	U *	0.00035	U	0.000398	U
Benzo[k]fluoranthene	0.0028		0.00016	U*	0.00016	U	0.00016	U*	0.00016	U*	0.00016	U	NA	0.000166 U *	0.000166 U	0.000166 U	0.000166 U	0.000208 U	0.000160	J	0.00016	U *	0.000167	U *	0.00016	U	0.000000154	U	0.00016	U *	0.00016	U	0.000182	U
Benzoic acid	29		0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00061	U	NA	0.00106 U	0.0109 J	0.00106 U	0.00106 U *	0.0045 U	0.000610	U*	0.00061	U	0.000635	U	0.00061	U	0.000000586	U	0.00061	U *	0.00061	U *	0.000965	J *
Benzyl alcohol	7.3		0.00051	U	0.00051	U	0.00051	U	0.00051	U	0.00051	U	NA	0.0045 U *	0.0045 UJL/JL	0.0045 U	0.00384 b *	0.001 U	0.000510	U	0.00051	U *	0.000531	U *	0.00051	U *	0.00000049	U *	0.00051	U	0.00058	U	0.00051	U	0.00051	U
bis (2-Chloroisopropyl) ether	0.0029		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NA	0.000139 U	0.000139 U	0.000139 U	0.00017 U *	0.000187 U	0.000180	U	0.00018	U	0.000188	U	0.00018	U	0.000000173	U	0.00018	U	0.00018	U	0.000205	U
Bis(2-chloroethoxy)methane	0.00019		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA	0.00017 U	0.00017 U	0.00017 U	0.000278 U *	0.000213 UF	0.000190	U*	0.00019	U	0.000198	U	0.00019	U	0.000000183	U *	0.00019	U	0.00019	U	0.000216	U
Bis(2-chloroethyl)ether	0.0019		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NA	0.000278 U	0.000278 U	0.000278 U	0.000139 U	0.000348 U	0.000180	U	0.00018	U	0.000188	U	0.00018	U	0.000000173	U *	0.00018	U	0.00018	U	0.000205	U
Bis(2-ethylhexyl) phthalate	0.006		0.00059	U	0.00059	U	0.00059	U	0.000606	J	0.00068	Jb	NA	0.000225 U *	0.000225 U	0.000225 U	0.00137	0.000174 UF	0.000590	U	0.00059	U	0.000615	U	0.00059	U	0.000000567	U	0.00059	U	0.00059	U	0.000934	J
Butyl benzyl phthalate	1.1		0.00085	U	0.00085	U	0.00128	J	0.00122	J	0.00085	U	NA	0.00015 U	0.00015 U	0.00015 U	0.000698 J	0.000281 U	0.00537		0.00085	U	0.000885	U	0.00085	U	0.000000817	U	0.00085	U	0.00085	U	0.000966	U
Carbazole			NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.28		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	NA	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000831	J	0.00024	U	0.00025	U	0.00024	U	0.000000231	U	0.00024	U	0.00024	U	0.000273	U
Dibenz(a,h)anthracene	0.00024		0.00029	U*	0.00029	U	0.00029	U*	0.00029	U*	0.00029	U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000290	U	0.00029	U *	0.000302	U *	0.00029	U	0.000000279	U	0.00029	U *	0.00029	U	0.00033	U
Dibenzofuran	0.29		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.00042 ULF	0.000160	U*	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
Diethyl phthalate	58		0.00419	U	0.00419	U	0.00419	U	0.00419	U	0.00419	U	NA	0.000118 U	0.000271 J	0.000248 J	0.000118 U	0.000147 UFL	0.004190	U	0.00419	U	0.00436	U	0.00419	U	0.00000403	U	0.00419	U	0.00419	U	0.00476	U
Dimethyl phthalate	58		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000178 ULF	0.000180	U	0.00018	U	0.000188	U	0.00018	U	0.000000173	U	0.00018	U	0.00018	U	0.000205	U
Di-n-butyl phthalate	7.3		0.00187	U	0.00187	U	0.00187	U	0.00187	U	0.00187	U	NA	0.0008 U *	0.0008 U	0.0008 U	0.144 * b	0.001 U	0.001870	U	0.00187	U	0.00195	U	0.00187	U	0.0000018	U	0.00187	U	0.00187	U	0.00213	U
Di-n-octyl phthalate	0.73		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000212 U	0.000160	U	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.00016	U	0.00016	U	0.000182	U
Fluoranthene	2.9		0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U	NA	0.000148 U *	0.000148 U	0.000153 U	0.000148 U	0.000184 U	0.003990	*	0.00031	U	0.000323	U	0.00031	U	0.00000298	U	0.00031	U	0.00031	U	0.000352	U
Fluorene	2.9		0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	NA	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000256 ULF	0.000120	U*	0.00012	U	0.000125	U	0.00012	U	0.000000115	U	0.00012	U	0.00012	U	0.000136	U
Hexachlorobenzene	0.0013		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000157 UF	0.000250	U*	0.00025	U	0.00026	U	0.00025	U	0.00000024	U	0.00025	U	0.00025	U	0.000284	U
Hexachlorobutadiene	0.026		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA	0.000252 U	0.000252 U	0.000252 U	0.000252 U *	0.000315 UF	0.000190	U*	0.00019	U	0.000198	U	0.00019	U	0.000000183	U	0.00019	U	0.00019	U	0.000216	U
Hexachlorocyclopentadiene	0.05		0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	NA	0.000431 U	0.000431 U	0.000431 U	0.000431 U *	0.000539 U	0.000150	U*	0.00015	U	0.000156	U	0.00015	U	0.000000144	U	0.00015	U	0.00015	U	0.00017	U
Hexachloroethane	0.051		0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	NA	0.00014 U	0.00014 U	0.00014 U*	0.00014 U *	0.000175 UFL	0.000170	U	0.00017	U	0.000177	U	0.00017	U	0.00000017	U	0.00017	U	0.00017	U	0.000193	U
Indeno[1,2,3-cd]pyrene	0.0028		0.00029	U*	0.00029	U	0.00029	U*	0.00029	U*	0.00029	U	NA	0.000852 U *	0.000852 U	0.000852 U	0.000143 U	0.000179 U	0.000290	U	0.00029	U *	0.000302	U *	0.00029	U	0.000000279	U	0.00029	U *	0.00029	U	0.00033	U
Isophorone	2.2		0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	NA	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00021 ULF	0.000150	U	0.00015	U	0.000156	U	0.00015	U	0.000000144	U *	0.00015	U	0.00015	U	0.00015	U
Naphthalene	1.5		0.0004	J	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA	0.000496 J	0.000757 J	0.000485 J	0.0008 U *	0.001 UF	0.000332	J	0.00016	U	0.000167	U	0.00016	U	0.000000154	U	0.000302	J b *	0.00016	U	0.00118	J
Nitrobenzene	0.15		0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	NA	0.000934 U	0.000934 U	0.000934 U	0.0004 U *	0.001 UF	0.000200	U*	0.0002	U	0.000208	U	0.0002	U	0.000000192	U *	0.0002	U *	0.0002	U	0.000227	U
N-Nitrosodi-n-propylamine	0.00029		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	NA	0.000161 U	0.000161 U	0.000161 U *	0.000161 U	0.000202 UFL	0.000240	U	0.00024	U	0.00025	U	0.00024	U	0.000000231	U	0.00024	U	0.00024	U	0.000273	U
N-Nitrosodiphenylamine	0.42		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000193 UF	0.000330	U*	0.00033	U	0.000344	U	0.00033	U	0.000000317	U	0.00033	U *	0.00033	U	0.000375	U
Pentachlorophenol	0.001		0.00096	U	0.00096	U	0.00096	U	0.00096	U	0.00096	U	NA	0.000441 U	0.000441 UJL	0.000441 UJL	0.000441 U	0.000551 U	0.000960	U	0.00096	U	0.001	U	0.00096	U	0.000000922	U	0.00096	U	0.00096	U	0.00109	U
Phenanthrene	2.2		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U*	NA	0.000176 U	0.000176 U	0.000244 U	0.0004 U	0.0005 U	0.001910	*	0.00029	U	0.000302	U	0.00029	U	0.000000279	U	0.00029	U	0.00029	U	0.00029	U
Phenol	2.2		0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	NA	0.000202 U	0.000202 UJL	0.000202 U	0.0008 U *	0.001 UF	0.000140	U	0.00014	U	0.000146	U	0.00014	U	0.000000134	U	0.00014	U *	0.00014	U	0.000159	U
Pyrene	2.2		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA	0.000159 U *	0.000159 UJL	0.000159 U	0.000159 U	0.000199 U	0.000330		0.00033	U	0.000344	U	0.00033	U	0.000000317	U	0.00033	U	0.00033	U	0.000375	U
Pyridine	0.073		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	NA	0.000725 U	0.00914 U	0.00125 U	0.000725 U	0.000906 U	0.002960	U	0.00024	U	0.00025	U	0.00024	U	0.000000231	U	0.00024	U *	0.00024	U	0.000273	U
Herbicides by EPA 8151A																																
2,4-D	0.07		0.0000385	U	0.0000377	U	0.0000385	U	0.0000381	U	0.0000523	J	NA	0.0000288 U	0.0000267	U	0.0000206	UJL	0.0000257 U	0.0000453 U	0.0000396	U*	0.0000396	U	0.0000396	U	0.0000392	U	0.0000392	U	0.000556	*	0.000637
VOCs by EPA 8260B																																
1,1,1,2-Tetrachloroethane	0.079		0.000178	U	0.00178	U	0.00037	U	0.00037	U	0.00018	U	NA	0.000644 U	0.000644 U	0.000327 U	0.000327 U	0.000327 U	0.000178	U	0.000178	U	0.000178	U	0.000178	U	0.000178	U	0.000178	U	0.000178	U	0.000178	U
1,1,1-Trichloroethane	0.2		0.000209	U	0.00209	U	0.00037	U	0.00037	U	0.00015	U	NA	0.00169 U	0.00169 U	0.000504 U	0.000504 U	0.000504 U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U
1,1,2,2-Tetrachloroethane	0.01		0.000197	U	0.00197	U	0.00062	U	0.00062	U	0.00022	U	NA	0.00047 U	0.00047 U	0.000284 U	0.000284 U	0.000284 U	0.000197	U	0.000197	U	0.000197	U	0.000197	U	0.000197	U	0.000197	U	0.000197	U	0.000197	U
1,1,2-Trichloroethane	0.005		0.000209	U	0.0028	U	0.00033	U	0.00033	U	0.00028	U	NA	0.000511 U	0.000511 U	0.000228 U	0.000228 U	0.000228 U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U *	0.000209	U
1,1-Dichloroethane	0.005		0.000168	U	0.00168	U	0.00038	U	0.00038	U	0.00011	U	NA	0.000635 U	0.000635 U	0.000244 U	0.000244 U	0.000244 U	0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.000168	U
1,1-Dichloroethene	0.007		0.000192	U	0.00192	U	0.00036	U	0.00036	U	0.00019	U	NA	0.000738 U	0.000738 U	0.000216 U	0.000216 U	0.000216 U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U
1,1-Dichloropropene	0.02		0.000191	U	0.00191	U	0.00034	U	0.00034	U	0.00021	U	NA	0.0016 U	0.0016 U	0.000481 U	0.000481 U	0.000481 U	0.000191	U	0.000191	U	0.000191	U	0.000191	U	0.000191	U	0.000191	U	0.000191	U	0.000191	U
1,2,3-Trichlorobenzene	0.22		0.00057	U	0.0057	U	0.0025	U	0.0025	U	0.00057	U	NA	0.00217 U	0.00217 U	0.002 U	0.002 U	0.002 U	0.00057	U*	0.00057	U *	0.00057	U	0.00057	U	0.00057	U	0.00057	U	0.00057	U	0.00057	U
1,2,3-Trichloropropane	0.00068		0.00029	U	0.0029	U	0.00039	U	0.00039	U	0.00029	U	NA	0.00049 U	0.00049 U	0.000283 U	0.000283 U	0.000283 U	0.00029	U*	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U
1,2,4-Trichlorobenzene	0.07		0.000177	U	0.00177	U	0.0025	U	0.0025	U	0.00031	U	NA	0.00175 U	0.00175 U	0.002 U	0.002 U	0.002 U	0.000177	U*	0.000177	U	0.000177	U	0.000177	U	0.000177	U	0.000177	U	0.000177	U *	0.000177	U
1,2,4-Trimethylbenzene	3.7		0.000215	U	0.00215	U	0.00047	U	0.00047	U*	0.00014	U	NA	0.000417 U	0.000417 U	0.000252 U	0.000252 U	0.000252 U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U
1,2-Dibromo-3-Chloropropane	0.0002		0.00081	U	0.0081	U	0.0011	U	0.0011	U	0.00081	U	NA	0.00127 U	0.00127 U	0.000319 U	0.000319 U	0.000319 U	0.00081	U*	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U
1,2-Dichlorobenzene	0.6		0.000153	U	0.00153	U	0.00037	U	0.00037	U	0.0001	U	NA	0.000509 U	0.000509 U	0.000236 U	0.000236 U	0.000236 U	0.000153	U*	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																										
Sample Location			AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1
Sample Date			7/21/2023	1/31/2023	1/31/23 Duplicate	7/29/2022	7/29/2022 Duplicate	1/14/2022	1/14/22 Duplicate	7/2/2021	7/2/2021 Duplicate	1/21/21 Duplicate	1/21/2021	7/28/2020	7/28/2020 Duplicate	1/21/2020 Duplicate	1/21/2020	7/5/2019 Duplicate	7/5/2019	1/15/2019 Duplicate	1/15/2019	7/18/2018 Duplicate	7/18/2018	1/18/2018	7/18/2017	1/26/2017
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																								
SVOCs by EPA 8270C																										
1,2,4-Trichlorobenzene	0.07	NA	0.00068 U	0.00068 U	0.00431 U	0.00068 U	0.00068 U	0.00068 U	0.00068 U *	0.00068 U *	0.00085 UF	0.00085 UF	0.00320 U*	0.000160 U*	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U	0.00016 U	0.00016 U
1,2-Dichlorobenzene	0.6	NA	0.000296 U	0.000296 U	0.00083 U	0.000296 U	0.000296 U	0.000296 U	0.000296 U *	0.000296 U *	0.00037 UL	0.00037 UL	0.00420 U*	0.000210 U*	0.000214 U	0.00021 U	0.00219 U	0.000219 U	0.00021 U	0.00021 U	0.00202 U	0.00202 U	0.000228 U *	0.00021 U	0.00021 U
1,3-Dichlorobenzene	2.2	NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.00035 U *	0.000438 UFL	0.000438 UFL	0.00200 U*	0.000100 U*	0.000102 U	0.0001 U	0.00104 U	0.000104 U	0.0001 U	0.0001 U	0.000962 U	0.000962 U	0.000109 U *	0.0001 U	0.0001 U
1,4-Dichlorobenzene	0.072	NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.000428 U *	0.000536 UF	0.000536 UF	0.00320 U*	0.000160 U*	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U *	0.00016 U	0.00016 U
2,4,5-Trichlorophenol	7.3	NA	0.000108 U	0.000108 U	0.000108 UJL	0.000108 U	0.000108 U	0.000108 U	0.000108 U	0.000108 U	0.000135 UF	0.000135 UF	0.00580 U*	0.000290 U*	0.000296 U	0.0003 U	0.00302 U	0.000302 U	0.00029 U	0.00029 U	0.00279 U	0.00279 U	0.000315 U *	0.00029 U	0.00029 U
2,4,6-Trichlorophenol	0.073	NA	0.000135 U	0.000135 U	0.000135 UJL	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 ULF	0.000169 ULF	0.00660 U*	0.000330 U*	0.000337 U	0.00034 U	0.00344 U	0.000344 U	0.00033 U	0.00033 U	0.00317 U	0.00317 U	0.000359 U *	0.00033 U	0.00033 U
2,4-Dichlorophenol	0.22	NA	0.000115 U	0.000115 U	0.000115 UJL	0.000115 U	0.000115 U	0.000115 U	0.000115 U *	0.000115 U *	0.000143 U	0.000143 U	0.00520 U*	0.000260 U*	0.000265 U	0.00027 U	0.00271 U	0.000271 U	0.00026 U	0.00026 U	0.0025 U	0.0025 U	0.000283 U *	0.00026 U	0.00026 U
2,4-Dimethylphenol	1.5	NA	0.000148 U	0.000148 U	0.000148 UJL	0.000148 U	0.000148 U	0.000148 U	0.000148 U *	0.000148 U *	0.000184 U	0.000184 U	0.00360 U	0.000180 U	0.000184 U	0.00018 U	0.00188 U	0.000188 U	0.00018 U	0.00018 U	0.00173 U	0.00173 U	0.000196 U *	0.00018 U	0.00018 U
2,4-Dinitrophenol	0.15	NA	0.00146 U	0.00146 U	0.00146 UJL/JL	0.00146 UJL/JL	0.00146 U	0.00146 U	0.00146 U	0.00146 U	0.001 U	0.001 U	0.00800 U	0.000400 U	0.000408 U	0.00041 U	0.00417 U	0.000417 U	0.0004 U	0.0004 U	0.00385 U	0.00385 U	0.000435 U	0.0004 U	0.0004 U
2,4-Dinitrotoluene	0.003	NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000159 UFL	0.000159 UFL	0.00640 U	0.000320 U	0.000327 U	0.00033 U	0.00333 U	0.000333 U	0.00032 U	0.00032 U	0.00308 U	0.00308 U	0.000348 U	0.00032 U	0.00032 U
2,6-Dinitrotoluene	0.003	NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000248 ULF	0.000248 ULF	0.00580 U*	0.000290 U*	0.000296 U	0.0003 U	0.00302 U	0.000302 U	0.00029 U	0.00029 U	0.00279 U	0.00279 U	0.000315 U	0.00029 U	0.00029 U
2-Chloronaphthalene	5.8	NA	0.00109 U	0.00109 U	0.00109 UJL/JL	0.00109 U	0.00109 U	0.00109 U	0.0011 U	0.0011 U	0.001 UF	0.001 UF	0.00380 U*	0.000190 U*	0.000194 U	0.00019 U	0.00198 U	0.000198 U	0.00019 U	0.00019 U	0.00183 U	0.00183 U	0.000207 U *	0.00019 U	0.00019 U
2-Chlorophenol	0.37	NA	0.0000135 U	0.0000135 U	0.0000135 UJL	0.0000135 U	0.0000135 U	0.0000135 U	0.0000135 U *	0.0000135 U *	0.0000169 ULF	0.0000169 ULF	0.00440 U*	0.000220 U*	0.000224 U	0.00022 U	0.00229 U	0.000229 U	0.00022 U	0.00022 U	0.00212 U	0.00212 U	0.000239 U *	0.00022 U	0.00022 U
2-Methylnaphthalene	0.29	NA	0.00048 U *	0.00048 U	0.00048 UJL	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.0006 UF	0.001 JF	0.00280 U	0.000140 U	0.000143 U	0.00014 U	0.00146 U	0.000146 U	0.00014 U	0.00014 U	0.00135 U	0.00135 U	0.000152 U	0.00014 U	0.00014 U
2-Methylphenol	1.2	NA	0.000159 U	0.000159 U	0.000159 UJL	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000199 UF	0.000199 UF	0.00380 U	0.000190 U	0.000194 U	0.00019 U	0.00198 U	0.000198 U	0.00019 U	0.00019 U	0.00183 U	0.00183 U	0.000207 U *	0.00019 U	0.00019 U
2-Nitroaniline	0.02	NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000203 U	0.000203 U	0.00700 U	0.000350 U	0.000357 U	0.00036 U	0.00365 U	0.000365 U	0.00035 U	0.00035 U	0.00337 U	0.00337 U	0.00038 U	0.00035 U	0.00035 U
2-Nitrophenol	0.15	NA	0.000135 U	0.000135 U	0.000135 UJL	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 U	0.000169 U	0.00440 U*	0.000220 U*	0.000224 U	0.00022 U	0.00229 U	0.000229 U	0.00022 U	0.00022 U	0.00212 U	0.00212 U	0.000239 U	0.00022 U	0.00022 U
3 & 4 Methylphenol	0.12	NA	0.000338 J	0.000163 U	0.000163 UJL	0.000163 U	0.000163 U *	0.000163 U *	0.000163 U *	0.000163 U *	0.000203 UF	0.000203 UF	0.00320 U	0.000160 U	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U	0.00016 U	0.00016 U
3,3'-Dichlorobenzidine	0.0045	NA	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.0004 U	0.000275 U	0.000275 U	0.00640 U	0.000320 U	0.000327 U	0.00033 U	0.00333 U	0.000333 U	0.00032 U	0.00032 U	0.00308 U	0.00308 U	0.000348 U *	0.00032 U	0.00032 U
3-Nitroaniline	0.022	NA	0.000344 U	0.000344 U	0.000344 U	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.000208 U	0.00043 U	0.00043 U	0.00260 U	0.000130 U	0.000133 U	0.00013 U	0.00135 U	0.000135 U	0.00013 U	0.00013 U	0.00125 U	0.00125 U	0.000141 U	0.00013 U	0.00013 U
4,6-Dinitro-2-methylphenol	0.007	NA	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.00092 U	0.00092 U	0.00320 U	0.000160 U	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U	0.00016 U	0.00016 U
4-Bromophenyl phenyl ether	0.00014	NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000209 UF	0.000209 UF	0.00500 U*	0.000250 U*	0.000255 U	0.00026 U	0.0026 U	0.00026 U	0.00025 U	0.00025 U	0.0024 U	0.0024 U	0.000272 U	0.00025 U	0.00025 U
4-Chloro-3-methylphenol	0.37	NA	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000196 UF	0.000196 UF	0.00500 U	0.000250 U	0.000255 U	0.00026 U	0.0026 U	0.00026 U	0.00025 U	0.00025 U	0.0024 U	0.0024 U	0.000272 U	0.00025 U	0.00025 U
4-Chloroaniline	0.01	NA	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000186 U	0.000186 U	0.00220 U	0.000110 U	0.000112 U	0.00011 U	0.00115 U	0.000115 U	0.00011 U	0.00011 U	0.00106 U	0.00106 U	0.00012 U *	0.00011 U	0.00011 U
4-Chlorophenyl phenyl ether	0.00014	NA	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.0029 UFL	0.0029 UFL	0.00460 U*	0.000230 U*	0.000235 U	0.00024 U	0.0024 U	0.00024 U	0.00023 U	0.00023 U	0.00221 U	0.00221 U	0.00025 U	0.00023 U	0.00023 U
4-Nitroaniline	0.1	NA	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000309 U	0.000309 U	0.00460 U	0.000230 U	0.000235 U	0.00024 U	0.0024 U	0.00024 U	0.00023 U	0.00023 U	0.00221 U	0.00221 U	0.00025 U	0.00023 U	0.00023 U
4-Nitrophenol	0.15	NA	0.000531 U	0.000531 U	0.000531 UJL	0.000531 U	0.000531 U	0.000531 U	0.000531 U *	0.000531 U *	0.000664 UH	0.000664 UH	0.00660 U	0.000330 U	0.000337 U	0.00034 U	0.00344 U	0.000344 U	0.00033 U	0.00033 U	0.00317 U	0.00317 U	0.000359 U	0.00033 U	0.00033 U
Acenaphthene	4.4	NA	0.000208 U	0.000853 J	0.00109 J	0.00119 J	0.000208 U	0.00143 J	0.00101	0.000939	0.0026 UFL	0.00165 FL	0.00320 U*	0.000537 J*	0.00114	0.00098 J	0.00167 U	0.00102 J	0.0012	0.00112	0.00154 U	0.00154 U	0.000174 U *	0.000304 J	0.000555 J
Acenaphthylene	4.4	NA	0.000215 U *	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000344 U	0.000344 U	0.000268 UFL	0.000268 UFL	0.00320 U*	0.000160 U*	0.000567 J	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U *	0.00016 U	0.00016 U
Aniline	0.36	NA	0.000314 U	0.000314 U	0.000314 UJL	0.000314 U	0.000314 U *	0.000314 U *	0.000314 U	0.000314 U	0.000392 UL	0.000392 UL	0.00240 U	0.000120 U	0.000122 U	0.00012 U	0.00125 U	0.000125 U	0.00012 U	0.00012 U	0.00115 U	0.00115 U	0.00013 U *	0.00012 U	0.00012 U
Anthracene	22	NA	0.000154 U	0.000154 U	0.0002 J	0.000175 J	0.000233 J	0.000288 J	0.000154 U	0.000154 U	0.000192 U	0.00035 J	0.00880 U*	0.000440 U*	0.000449 U	0.00045 U	0.00458 U	0.000458 U	0.00044 U	0.00044 U	0.00423 U	0.00423 U	0.000478 U	0.00044 U	0.00044 U
Benzo[a]anthracene	0.0028	NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000187 U	0.00500 U	0.000250 U	0.000255 U	0.00026 U	0.0026 U	0.00026 U	0.00025 U	0.00025 U	0.0024 U	0.0024 U	0.000272 U *	0.00025 U	0.00025 U
Benzo[a]pyrene	0.0002	NA	0.000148 U *	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000184 U	0.00260 U	0.000130 U	0.000133 U	0.00013 U	0.00135 U *	0.000135 U	0.00013 U *	0.00013 U *	0.00125 U	0.00125 U	0.000141 U *	0.00013 U	0.00013 U*
Benzo[b]fluoranthene	0.0028	NA	0.00021 U	0.00021 U *	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000262 U	0.00360 U	0.000180 U	0.000184 U	0.00018 U	0.00188 U *	0.000188 U	0.00018 U *	0.00018 U *	0.00173 U	0.00173 U	0.000196 U *	0.00018 U	0.00018 U*
Benzo[g,h,i]perylene	2.2	NA	0.000143 U	0.000143 U *	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000179 U	0.00700 U	0.000350 U	0.000357 U	0.00036 U	0.00365 U *	0.000365 U	0.00035 U *	0.00035 U *	0.00337 U	0.00337 U	0.00038 U *	0.00035 U	0.00035 U*
Benzo[k]fluoranthene	0.0028	NA	0.000166 U	0.000166 U *	0.000166 U	0.000166 U	0.000166 U	0.000166 U	0.000166 U	0.000166 U	0.000208 U	0.000208 U	0.00320 U	0.000160 U	0.000163 U	0.00016 U	0.00167 U *	0.000167 U	0.00016 U *	0.00016 U *	0.00154 U	0.00154 U	0.000174 U *	0.00016 U	0.00016 U*
Benzoic acid	29	NA	0.00106 U	0.00866	0.00993 UJL	0.0118	0.00106 U	0.00106 U	0.00106 U *	0.00106 U *	0.001 U	0.001 U	0.01220 U*	0.000610 U*	0.00337 J	0.00515	0.00635 U	0.000635 U	0.00061 U	0.00061 U	0.00587 U	0.00587 U	0.000663 U	0.00061 U*	0.00061 U*
Benzyl alcohol	7.3	NA	0.0045 U *	0.0045 U *	0.0045 UJL/JL	0.0045 U	0.0045 U	0.0045 U	0.00489 b *	0.00388 b *	0.001 U	0.001 U	0.01020 U	0.000510 U	0.00052 U *	0.00052 U *	0.00531 U *	0.000531 U *	0.00051 U *	0.00051 U *	0.0049 U	0.0049 U *	0.000554 U	0.00051 U	0.00051 U
bis (2-Chloroisopropyl) ether	0.0029	NA	0.000139 U	0.000139 U	0.000139 U	0.000139 U	0.000139 U	0.000139 U	0.00017 U *	0.00017 U *	0.000187 U	0.000187 U	0.00360 U	0.000180 U	0.000184 U	0.00018 U	0.00188 U	0.000188 U	0.00018 U	0.00018 U	0.00173 U	0.00173 U	0.000196 U *	0.00018 U	0.00018 U
Bis(2-chloroethoxy)methane	0.00019	NA	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.000278 U *	0.000278 U *	0.000213 UF	0.000213 UF	0.00380 U*	0.000190 U*	0.000194 U	0.00019 U	0.00198 U	0.000198 U	0.00019 U	0.00019 U	0.00183 U	0.00183 U	0.000207 U	0.00019 U	0.00019 U
Bis(2-chloroethyl)ether	0.0019	NA	0.000278 U	0.000278 U	0.000278 U	0.000278 U	0.000278 U	0.000278 U	0.000139 U	0.000139 U	0.000348 U	0.000348 U	0.00360 U	0.000180 U	0.000184 U	0.00018 U	0.00188 U	0.000188 U	0.00018 U	0.00018 U	0.00173 U	0.00173 U	0.000196 U *	0.00018 U	0.00018 U
Bis(2-ethylhexyl) phthalate	0.006	NA	0.000225 U	0.000225 U *	0.000274 UJL	0.000225 U	0.000225 U	0.000225 U	0.00141	0.00129	0.000174 UF	0.000174 UF	0.01180 U	0.000590 U	0.000602 U	0.00066 J	0.00615 U	0.000615 U	0.00059 U	0.00059 U	0.00567 U	0.00567 U	0.000641 U *	0.00059 U	0.00229 J
Butyl benzyl phthalate	1.1	NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000281 U	0.000281 U	0.0170 U	0.000850 U	0.000867 U	0.00087 U	0.00885 U	0.000885 U	0.00085 U	0.00085 U	0.00817 U	0.00817 U	0.000924 U *	0.00085 U	0.00085 U
Carbazole		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.28	NA	0.000159 U *	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000199 U	0.00480 U	0.000240 U	0.000245 U	0.00025 U	0.0025 U	0.00025 U	0.00024 U	0.00024 U	0.00231 U	0.00231 U	0.000261 U *	0.00024 U	0.00024 U
Dibenz(a,h)anthracene	0.00024	NA	0.000148 U	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000184 U	0.00580 U	0.000290 U	0.000296 U	0.0003 U	0.00302 U *	0.000302 U	0.00029 U *	0.00029 U *	0.00279 U	0.00279 U	0.000315 U *	0.00029 U	0.00029 U*
Dibenzofuran	0.29	NA	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.00042 ULF	0.00125 LF	0.00320 U*	0.000160 U*	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U	0.00016 U	0.00016 U
Diethyl phthalate	58	NA	0.000118 U	0.000118 U	0.000118 U	0.000118 U	0.000118 U	0.000118 U	0.000118 U	0.000118 U	0.000147 UFL	0.000147 UFL	0.0838 U	0.00419 U	0.00428 U	0.00436 U	0.00436 U	0.00419 U	0.00419 U	0.00419 U	0.0403 U	0.00455 U	0.00419 U	0.00419 U	0.00419 U
Dimethyl phthalate	58	NA	0.000143 U	0.000143 U	0.00152 J	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000178 ULF	0.000178 ULF	0.00360 U	0.000180 U	0.000184 U	0.00018 U	0.00188 U	0.000188 U	0.00018 U	0.00018 U	0.00173 U	0.00173 U	0.000196 U	0.00018 U	0.00018 U
Di-n-butyl phthalate	7.3	NA	0.0166 *	0.0008 U *	0.0008 U *	0.0008 U	0.0008 U	0.0008 U	0.121 * b	0.133 * b	0.001 U	0.001 U	0.0374 U	0.00187 U	0.00191 U	0.00195 U	0.00195 U	0.00187 U	0.00187 U	0.018 U	0.018 U	0.00203 U	0.00187 U	0.00187 U	0.00187 U
Di-n-octyl phthalate	0.73	NA	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000212 U	0.000212 U	0.00320 U	0.000160 U	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00016 U	0.00154 U	0.00154 U	0.000174 U *	0.00016 U	0.00016 U
Fluoranthene	2.9	NA	0.000148 U	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.0002 J	0.0006 J	0.00620 U*	0.000337 J*	0.000316 U	0.00032 U	0.00323 U	0.000323 U	0.00031 U	0.00031 U	0.00298 U	0.00298 U	0.000337 U	0.00031 U	0.00031 U
Fluorene	2.9	NA	0.00227	0.00201	0.00304	0.00329	0.00264	0.0034	0.00293	0.0027	0.00195 LF	0.0027 LF	0.00240 U*	0.00135 J*	0.00284	0.00271	0.00125 U	0.00168	0.00281	0.00262	0.00388 J	0.00398 J	0.00013 U	0.000922 J	0.00108 J
Hexachlorobenzene	0.0013	NA	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000126 U	0.000157 UF	0.000157 UF	0.00500 U*	0.000250 U*	0.000255 U	0.00026 U	0.0026 U	0.00026 U	0.00025 U	0.00025 U	0.0024 U	0.0024 U	0.000272 U	0.00025 U	0.00025 U
Hexachlorobutadiene	0.026	NA	0.000252 U	0.000252 U	0.000252 U	0.000252 U	0.000252 U	0.000252 U	0.000252 U *	0.000252 U *	0.000315 UF	0.000315 UF	0.00380 U*	0.000190 U*	0.000194 U	0.00019 U	0.00198 U	0.000198 U	0.00019 U	0.00019 U	0.00183 U	0.00183 U	0.000207 U *	0.00019 U	0.00019 U
Hexachlorocyclopentadiene	0.05	NA	0.000431 U	0.000431 U	0.000431 UJL	0.000431 U	0.000431 U	0.000431 U	0.000431 U *	0.000431 U *	0.000539 U	0.000539 U	0.00300 U*	0.000150 U*	0.000153 U	0.00015 U	0.00156 U	0.000156 U	0.00015 U	0.00015 U	0.00144 U	0.00144 U	0.000163 U *	0.00015 U	0.00015 U
Hexachloroethane	0.0518	NA	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U *	0.00014 U *	0.000175 UFL	0.000175 UFL	0.00340 U	0.000170 U	0.000173 U	0.00017 U	0.00177 U	0.000177 U	0.00017 U	0.00017 U	0.00163 U	0.00163 U	0.000185 U *	0.00017 U	0.00017 U
Indeno[1,2,3-cd]pyrene	0.0028	NA	0.000852 U	0.000852 U *	0.000852 U	0.000852 U	0.000852 U	0.000852 U	0.000143 U	0.000143 U	0.000179 U	0.000179 U	0.00580 U	0.000290 U	0.000296 U	0.0003 U	0.00302 U *	0.000302 U	0.00029 U *	0.00029 U *	0.00279 U	0.00279 U	0.000315 U *	0.00029 U	0.00029 U*
Isophorone	2.2	NA	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00021 ULF	0.00021 ULF	0.00300 U	0.000150 U	0.000153 U	0.00015 U	0.00156 U	0.000156 U	0.00015 U	0.00015 U	0.00144 U	0.00144 U *	0.000163 U *	0.00015 U	0.00015 U
Naphthalene	1.5	NA	0.000423 U	0.000772 J	0.000423 U	0.000423 U	0.000423 U	0.00289	0.0008 U *	0.0008 U *	0.001 UF	0.001 UF	0.00320 U	0.000160 U	0.000163 U	0.00016 U	0.00167 U	0.000167 U	0.00016 U	0.00164 J	0.00154 U	0.00154 U	0.000174 U	0.00016 U	0.00158 J
Nitrobenzene	0.15	NA	0.000934 U	0.000934 U	0.000934 U	0.000934 U	0.000934 U	0.000934 U	0.0004 U *	0.00123 *	0.00125 F	0.001 UF	0.00400 U*	0.000200 U*	0.000204 U	0.0002 U	0.00208 U	0.000208 U	0.0002 U	0.0002 U	0.00192 U	0.00192 U *	0.000217 U *	0.0002 U	0.0002 U
N-Nitrosodi-n-propylamine	0.00029	NA	0.000161 U	0.000161 U	0.000161 U	0.000161 U	0.000161 U *	0.000161 U *	0.000161 U	0.000161 U	0.000202 UFL	0.000202 UFL	0.00480 U	0.000240 U	0.000245 U	0.00025 U	0.0025 U	0.00025 U	0.00024 U	0.00024 U	0.00231 U	0.00231 U	0.000261 U *	0.00024 U	0.00024 U
N-Nitrosodiphenylamine	0.42	NA	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000193 UF	0.000193 UF	0.00660 U*	0.000330 U*	0.000337 U	0.00034 U	0.00344 U	0.000344 U	0.00033 U	0.00033 U	0.00317 U	0.00317 U	0.000359 U	0.00033 U	0.00033 U
Pentachlorophenol	0.001	NA	0.000441 U	0.000441 U	0.000441 UJL	0.000441 U	0.000441 UJL	0.000441 UJL	0.000441 U	0.000441 U	0.000551 U	0.000551 U	0.0192 U	0.000960 U	0.00098 U	0.00098 U	0.01 U	0.001 U	0.00096 U	0.00096 U	0.00923 U	0.00923 U	0.00104 U	0.00096 U	0.00096 U
Phenanthrene	2.2	NA	0.000516 J	0.000176 U	0.000823 J	0.000728 J	0.000348 U	0.000459 U	0.0004 U	0.0004 U	0.0008 J	0.00225	0.00580 U*	0.000405 J*	0.000933 J	0.00075 J	0.00302 U	0.000752 J	0.000818 J	0.000809 J	0.00279 U	0.00279 U	0.000315 U	0.00029 U	0.00029 U
Phenol	2.2	NA	0.000456 J	0.000202 U	0.000202 UJL	0.000202 U	0.000202 U	0.000202 U	0.0008 U *	0.0008 U *	0.001 UF	0.001 UF	0.00280 U	0.000140 U	0.000143 U	0.00014 U	0.00146 U	0.000146 U	0.00014 U	0.00014 U	0.00135 U	0.00135 U	0.000152 U *	0.00014 U	0.00014 U
Pyrene	2.2	NA	0.000159 U *	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.0002 J	0.00035 J	0.00660 U	0.000330 U	0.000337 U	0.00034 U	0.00344 U	0.000344 U	0.00033 U	0.00033 U	0.00317 U	0.00317 U	0.000359 U *	0.00033 U	0.00033 U
Pyridine	0.073	NA	0.00109 J	0.000725 U	0.000725 UJL/JL	0.00859 b	0.00194 U	0.00171 U	0.000725 U	0.000725 U	0.000906 U	0.000906 U	0.00480 U	0.000240 U	0.000245 U	0.00025 U	0.0025 U	0.00025 U	0.00024 U	0.00024 U	0.00231 U	0.00231 U	0.000261 U	0.00024 U	0.00024 U
Herbicides by EPA 8151A																									
2,4-D	0.07	NA	0.0000288 U	0.0000288 U	0.0000267 U	0.0000267 U	0.0000206 UJL	0.0000206 UJL	0.0000257 U	0.0000257 U	0.0000453 U	0.0000453 U	0.0000396 U*	0.0000392 U*	0.0000392 U	0.00025	0.0000392 U	0.0000392 U	0.0000392 U	0.0000392 U	0.0000392 U	0.0000392 U	0.0000392 U	0.0000392 U	0.0000392 U
VOCs by EPA 8260B																									
1,1,1,2-Tetrachloroethane	0.079	NA	0.000644 U	0.000644 U	0.000644 U	0.000644 U	0.000327 U	0.000327 U	0.000327 U	0.000327 U	0.0000453 U	0.000327 U	0.000178 U	0.000178 U	0.000178 U	0.00018 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U
1,1,1-Trichloroethane	0.2	NA	0.00169 U	0.00169 U	0.00169 U	0.00169 U	0.000504 U	0.000504 U	0.000504 U	0.000504 U	0.000327 U	0.000504 U	0.000209 U	0.000209 U	0.000209 U	0.00021 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U
1,1,2,2-Tetrachloroethane	0.01	NA	0.00047 U	0.00047 U	0.00047 U	0.00047 U	0.000284 U	0.000284 U	0.000284

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

| Exposure Pathway | | |

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																												East, Southeast, and South Migration Pathway			
Sample Location			AMP-2	AMP-2 DUP	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3		RI-3-01	RI-3-01	RI-3-01
Sample Date			7/23/2014	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/29/2018	7/19/2017	1/25/2017	7/14/2016	1/18/2016	7/21/2015	1/27/2015	7/24/2014		7/21/2023	1/31/2023	7/29/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010					
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																							**2023 GWPS**			
SVOCs by EPA 8270C																															
1,2,4-Trichlorobenzene	0.07		0.00016 U	0.00016 U	NA	0.00068 U	0.00394 U	0.00068 U	0.00068 U *	0.00085 UF	0.000160 U*	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U			NA	0.00068 U	0.00068 U
1,2-Dichlorobenzene	0.6		0.00021 U	0.00021 U	NA	0.000296 U	0.000774 U	0.000296 U	0.000296 U *	0.00037 UL	0.000210 U*	0.000223 U	0.000228 U	0.000219 U	0.000202 U	0.00021 U	0.000228 U	0.00021 U	0.000228 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U			NA	0.000296 U	0.000296 U
1,3-Dichlorobenzene	2.2		0.0001 U	0.0001 U	NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.000438 UFL	0.000110 J*	0.000106 U	0.000109 U	0.000104 U	0.0000962 U	0.0001 U	0.000109 U	0.0001 U	0.000109 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U			NA	0.00035 U	0.00035 U
1,4-Dichlorobenzene	0.072		0.00016 U	0.00016 U	NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.000536 UF	0.000160 U*	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U *	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U			NA	0.000428 U	0.000428 U
2,4,5-Trichlorophenol	7.3		0.00029 U	0.00029 U	NA	0.000108 U	0.000108 U	0.000108 U	0.000108 U	0.000135 UF	0.000290 U*	0.000309 U	0.000315 U	0.000302 U	0.000279 U	0.00029 U *	0.000315 U	0.00029 U	0.000315 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U			NA	0.000108 U	0.000108 UJL
2,4,6-Trichlorophenol	0.073		0.00033 U	0.00033 U	NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 ULF	0.000330 U*	0.000351 U	0.000359 U	0.000344 U	0.000317 U	0.00033 U	0.000359 U *	0.00033 U	0.000359 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U			NA	0.000135 U	0.000135 UJL
2,4-Dichlorophenol	0.22		0.00026 U	0.00026 U	NA	0.000115 U	0.000115 U	0.000115 U	0.000115 U *	0.000143 U	0.000260 U*	0.000277 U	0.000283 U	0.000271 U	0.00025 U	0.00026 U	0.000283 U *	0.00026 U	0.000283 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	21400	0.000115 U	0.000115 U	0.000115 UJL
2,4-Dimethylphenol	1.5		0.00018 U	0.00018 U	NA	0.000148 U	0.000148 U	0.000148 U	0.000148 U *	0.000184 U	0.000180 U	0.000191 U	0.000196 U	0.000188 U	0.000173 U	0.00018 U	0.000196 U *	0.00018 U	0.000196 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	5520	0.000148 U	0.000148 U	0.000148 UJL
2,4-Dinitrophenol	0.15		0.0004 U	0.0004 U	NA	0.00146 U	0.00146 UJL/JL	0.00146 U	0.00511 U	0.001 U	0.000400 U	0.000426 U	0.000435 U	0.000417 U	0.000385 U	0.0004 U *	0.000435 U *	0.0004 U	0.000435 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U			NA	0.00146 U	0.00146 UJL/JL
2,4-Dinitrotoluene	0.003		0.00032 U	0.00032 U	NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000159 UFL	0.000320 U	0.00034 U	0.000348 U	0.000333 U	0.000308 U	0.00032 U	0.000348 U	0.00032 U	0.000348 U	0.00032 U	0.00032 U*	0.00032 U	0.00032 U			NA	0.000127 U	0.000127 U
2,6-Dinitrotoluene	0.003		0.00029 U	0.00029 U	NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000248 ULF	0.000290 U*	0.000309 U	0.000315 U	0.000302 U	0.000279 U	0.00029 U	0.000315 U	0.00029 U	0.000315 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U			NA	0.000199 U	0.000199 U
2-Chloronaphthalene	5.8		0.00019 U	0.00019 U	NA	0.00109 U	0.00109 UJL/JL	0.00109 U	0.0011 U	0.001 UF	0.000190 U*	0.000202 U	0.000207 U	0.000198 U	0.000183 U	0.00019 U	0.000207 U	0.00019 U	0.000207 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U			NA	0.00109 U	0.00109 UJL/JL
2-Chlorophenol	0.37		0.00022 U	0.00022 U	NA	0.0000135 U	0.0000135 U	0.0000135 U	0.000135 U *	0.000169 ULF	0.000220 U*	0.000234 U	0.000239 U	0.000229 U	0.000212 U	0.00022 U	0.000239 U *	0.00022 U	0.000239 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U			NA	0.0000135 U	0.0000135 UJL
2-Methylnaphthalene	0.29		0.00014 U	0.00014 U	NA	0.00048 U *	0.00048 U	0.00048 U	0.00295	0.0006 UF	0.000164 J	0.000149 U	0.000152 U	0.000146 U	0.000135 U	0.00014 U	0.000177 J	0.00014 U	0.000152 U	0.00014 U	0.00014 U	0.00014 U	0.000687			NA	0.00048 U	0.00048 U
2-Methylphenol	1.2		0.00019 U	0.00019 U	NA	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000199 UF	0.000190 U	0.000202 U	0.000207 U	0.000198 U	0.000183 U	0.00019 U	0.000207 U *	0.00019 U	0.000207 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	42700	0.000159 U	0.000159 U	0.000159 UJL
2-Nitroaniline	0.02		0.00035 U	0.00035 U	NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000203 U	0.000350 U	0.000372 U	0.00038 U	0.000365 U	0.000337 U	0.00035 U *	0.00038 U	0.00035 U	0.00038 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U			NA	0.000163 U	0.000163 U
2-Nitrophenol	0.15		0.00022 U	0.00022 U	NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U	0.000169 U	0.000220 U*	0.000234 U	0.000239 U	0.000229 U	0.000212 U	0.00022 U	0.000239 U	0.00022 U	0.000239 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U			NA	0.000135 U	0.000135 UJL
3 & 4 Methylphenol	0.12		0.00016 U	0.00016 U	NA	0.000163 U	0.000163 UJL	0.000163 U *	0.000163 U *	0.000203 UF	0.000190 J	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	125000	0.000163 U	0.000163 U	0.000163 UJL
3,3'-Dichlorobenzidine	0.0045		0.00032 U	0.00032 U	NA	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.000275 U	0.000320 U	0.00034 U	0.000348 U	0.000333 U	0.000308 U	0.00032 U	0.000348 U	0.00032 U	0.000348 U	0.00032 U*	0.00032 U	0.00032 U	0.00032 U			NA	0.00022 U	0.00022 U
3-Nitroaniline	0.022		0.00013 U	0.00013 U	NA	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.00043 U	0.000130 U	0.000138 U	0.000141 U	0.000135 U	0.000125 U	0.00013 U *	0.000141 U	0.00013 U	0.000141 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U			NA	0.000344 U	0.000344 U
4,6-Dinitro-2-methylphenol	0.007		0.00016 U	0.00016 U	NA	0.000736 U	0.000736 U	0.000736 U	0.000736 U	0.00092 U	0.000160 U	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U *	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U			NA	0.000736 U	0.000736 UJL
4-Bromophenyl phenyl ether	0.00014		0.00025 U	0.00025 U	NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000209 UF	0.000250 U*	0.000266 U	0.000272 U	0.00026 U	0.00024 U	0.00025 U	0.000272 U	0.00025 U	0.000272 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U			NA	0.000167 U	0.000167 U
4-Chloro-3-methylphenol	0.37		0.00025 U	0.00025 U	NA	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000196 UF	0.000250 U	0.000266 U	0.000272 U	0.00026 U	0.00024 U	0.00025 U	0.000272 U	0.00025 U	0.000272 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U			NA	0.000157 U	0.000157 UJL
4-Chloroaniline	0.01		0.00011 U	0.00011 U	NA	0.000149 U	0.000149 U	0.000149 U	0.000149 U	0.000186 U	0.000110 U	0.000117 U	0.00012 U	0.000115 U	0.000106 U	0.00011 U	0.00012 U	0.00011 U	0.00012 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U			NA	0.000149 U	0.000149 U
4-Chlorophenyl phenyl ether	0.00014		0.00023 U	0.00023 U	NA	0.000232 U	0.000232 U	0.000232 U	0.000232 U	0.00029 UFL	0.000230 U*	0.000245 U	0.00025 U	0.00024 U	0.000221 U	0.00023 U	0.00025 U	0.00023 U	0.00025 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U			NA	0.000232 U	0.000232 U
4-Nitroaniline	0.1		0.00023 U	0.00023 U	NA	0.000247 U	0.000247 U	0.000247 U	0.000247 U	0.000309 U	0.000230 U	0.000245 U	0.00025 U	0.00024 U	0.000221 U	0.00023 U *	0.00025 U *	0.00023 U	0.00025 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U*			NA	0.000247 U	0.000247 U
4-Nitrophenol	0.15		0.00033 U	0.00033 U	NA	0.000531 U	0.000531 UJL	0.000531 U *	0.000664 UH	0.000344 U	0.000330 U	0.000351 U	0.000359 U	0.000344 U	0.000317 U	0.00033 U *	0.000359 U	0.00033 U	0.000359 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U			NA	0.000531 U	0.000531 UJL
Acenaphthene	4.4		0.00016 U	0.00016 U	NA	0.000208 U	0.000208 U	0.000208 U	0.000215 U	0.00026 UFL	0.000160 U*	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	3380	0.000208 U	0.000208 U	0.000208 U
Acenaphthylene	4.4		0.00016 U	0.00016 U	NA	0.000215 U *	0.000215 U	0.000215 U	0.000344 U	0.000268 UFL	0.000160 U*	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U			NA	0.000215 U	0.000215 U
Aniline	0.36		0.00012 U	0.00012 U	NA	0.000314 U	0.000314 UJL	0.000314 U *	0.000314 U	0.000392 UL	0.000120 U	0.000128 U	0.00013 U	0.000125 U	0.000115 U	0.00012 U	0.00013 U	0.00012 U	0.00013 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U			NA	0.000314 U	0.000314 UJL
Anthracene	22		0.00044 U	0.00044 U	NA	0.000154 U	0.000154 U	0.000154 U	0.000154 U	0.000192 U	0.000440 U*	0.000468 U	0.000478 U	0.000458 U	0.000423 U	0.00044 U	0.000478 U	0.00044 U	0.000478 U	0.00044 U	0.00044 U	0.00044 U	0.00044 U			NA	0.000154 U	0.000154 U
Benzo[a]anthracene	0.0028		0.00025 U	0.00025 U	NA	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000250 U	0.000266 U	0.000272 U	0.00026 U	0.00024 U	0.00025 U	0.000272 U *	0.00025 U	0.000272 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	1000	0.00015 U	0.00015 U	0.00015 U
Benzo[a]pyrene	0.0002		0.00013 U	0.00013 U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000130 U	0.000138 U	0.000141 U	0.000135 U *	0.000125 U *	0.00013 U *	0.000141 U	0.00013 U*	0.000141 U	0.00013 U*	0.00013 U	0.00013 U	0.00013 U			NA	0.000148 U *	0.000148 U
Benzo[b]fluoranthene	0.0028		0.00018 U	0.00018 U	NA	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000180 U	0.000191 U	0.000196 U	0.000188 U *	0.000173 U *	0.00018 U *	0.000196 U	0.00018 U*	0.000196 U	0.00018 U*	0.00018 U	0.00018 U	0.00018 U			NA	0.00021 U *	0.00021 U
Benzo[g,h,i]perylene	2.2		0.00035 U	0.00035 U	NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000350 U	0.000372 U	0.00038 U	0.000365 U *	0.000337 U *	0.00035 U *	0.00038 U	0.00035 U*	0.00038 U	0.00035 U*	0.00035 U	0.00035 U	0.00035 U			NA	0.000143 U *	0.000143 U
Benzo[k]fluoranthene	0.0028		0.00016 U	0.00016 U	NA	0.000166 U	0.000166 U	0.000166 U	0.000166 U	0.000208 U	0.000172 J	0.00017 U	0.000174 U	0.000167 U *	0.000154 U *	0.00016 U *	0.000174 U *	0.00016 U*	0.000174 U	0.00016 U*	0.00016 U	0.00016 U	0.00016 U			NA	0.000166 U *	0.000166 U
Benzoic acid	29		0.00381	0.00308	NA	0.00546 J	0.0103 U	0.00165 J	0.00106 U *	0.005700	0.00106	J* 0.00273	J 0.000663	U 0.000635	U 0.00212	J 0.00061	U 0.000663	U * 0.00345	J * 0.0013	J 0.00061	U 0.00061	U 0.00061	U 0.00061	U		NA	0.00466 J	0.00842 U
Benzyl alcohol	7.3		0.00051 U	0.00051 U	NA	0.0045 U *	0.0045 UJL/JL	0.0045 U	0.00451 b *	0.0028 B	0.000510 U	0.000543 U *	0.000554 U *	0.000531 U *	0.00049 U *	0.00051 U	0.000554 U *	0.00051 U	0.000554 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U			NA	0.0045 U *	0.0045 UJL/JL
bis (2-Chloroisopropyl) ether	0.0029		0.00018 U	0.00018 U	NA	0.000139 U	0.000139 U	0.000139 U	0.00017 U *	0.000187 U	0.000180 U	0.000191 U	0.000196 U	0.000188 U	0.000173 U	0.00018 U	0.000196 U	0.00018 U	0.000196 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U			NA	0.000139 U	0.000139 U
Bis(2-chloroethoxy)methane	0.00019		0.00019 U	0.00019 U	NA	0.00017 U	0.00017 U	0.00017 U	0.000278 U *	0.000213 UF	0.000190 U*	0.000202 U	0.000207 U	0.000198 U	0.000183 U *	0.00019 U	0.000207 U	0.00019 U	0.000207 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U			NA	0.00017 U	0.00017 U
Bis(2-chloroethyl)ether	0.0019		0.00018 U	0.00018 U	NA	0.000278 U	0.000278 U	0.000278 U	0.000139 U	0.000348 U	0.000180 U	0.000191 U	0.000196 U	0.000188 U	0.000173 U *	0.00018 U	0.000196 U	0.00018 U	0.000196 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	443	0.000278 U	0.000278 U	0.000278 U
Bis(2-ethylhexyl) phthalate	0.006		0.000796 J b	0.00078 J b	NA	0.000561 J	0.000855 U	0.000225 U	0.0012	0.000174 UF	0.000590 U	0.000628 U	0.000641 U	0.000615 U	0.000567 U	0.00059 U	0.000641 U	0.00116 J	0.000641 U	0.00059 U	0.00059 U	0.00059 U	0.000786 Jb			NA	0.000225 U *	0.000225 U
Butyl benzyl phthalate	1.1		0.00085 U	0.00085 U	NA	0.000335 J	0.00015 U	0.00015 U	0.00015 U	0.000281 U	0.000850 U	0.000904 U	0.000924 U	0.000885 U	0.000817 U	0.00085 U	0.000924 U	0.00085 U	0.000924 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	12300	0.00015 U	0.00015 U	0.00015 U
Carbazole			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1890	0.000453 U	NA	NA
Chrysene	0.28		0.00024 U	0.00024 U	NA	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000240 U	0.000255 U	0.000261 U	0.00025 U	0.000231 U	0.00024 U	0.000261 U	0.00024 U	0.000261 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U			NA	0.000159 U *	0.000159 U
Dibenz(a,h)anthracene	0.00024		0.00029 U	0.00029 U	NA	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000290 U	0.000309 U	0.000315 U	0.000302 U *	0.000279 U *	0.00029 U *	0.000315 U	0.00029 U*	0.000315 U	0.00029 U*	0.00029 U	0.00029 U	0.00029 U			NA	0.000148 U *	0.000148 U
Dibenzofuran	0.29		0.00016 U	0.00016 U	NA	0.000336 U	0.000348 J	0.000336 U	0.000336 U	0.00042 ULF	0.000160 U*	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	5440	0.000336 U	0.000336 U	0.000336 U
Diethyl phthalate	58		0.00419 U	0.00419 U	NA	0.000399 J	0.000455 J	0.000539 J	0.000118 U	0.00085 JFL	0.00419 U	0.00446 U	0.00455 U	0.00436 U	0.00403 U	0.00419 U	0.00455 U	0.00419 U	0.00455 U	0.00419 U	0.00419 U	0.00419 U	0.00419 U			NA	0.000118 U	0.000298 J
Dimethyl phthalate	58		0.00018 U	0.00018 U	NA	0.000143 U	0.00151 J	0.000143 U	0.000143 U	0.000178 ULF	0.000180 U	0.000191 U	0.000196 U	0.000188 U	0.000173 U	0.00018 U	0.000196 U	0.00018 U	0.000196 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U			NA	0.000143 U	0.000143 U
Di-n-butyl phthalate	7.3		0.00187 U	0.00187 U	NA	0.0008 U *	0.0008 U *	0.0008 U	0.105 * b	0.001 U	0.00187 U	0.00199 U	0.00203 U	0.00195 U	0.0018 U	0.00187 U	0.00203 U	0.00187 U	0.00203 U	0.00187 U	0.00187 U	0.00187 U	0.00187 U			NA	0.00106 J b *	0.0008 U
Di-n-octyl phthalate	0.73		0.00016 U	0.00016 U	NA	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.000212 U	0.000389 J	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U *	0.000218 J *	0.00016 U	0.000174 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U			NA	0.000169 U	0.000169 U
Fluoranthene	2.9		0.00031 U	0.00031 U	NA	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000310 U*	0.00033 U	0.000337 U	0.000323 U	0.000298 U	0.00031 U	0.000337 U	0.00031 U	0.000337 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	248	0.000148 U	0.000148 U *	0.000148 U
Fluorene	2.9		0.00012 U	0.00012 U	NA	0.000205 U	0.00022 J	0.000205 U	0.000205 U	0.000256 ULF	0.000167 J*	0.000128 U	0.00013 U	0.000125 U	0.000115 U	0.00012 U	0.00013 U	0.00012 U	0.00013 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	4138	0.000205 U	0.000205 U	0.000205 U
Hexachlorobenzene	0.0013		0.00025 U	0.00025 U	NA	0.000126 U	0.000126 U	0.000126 U	0.000157 UF	0.000250 U*	0.000266 U	0.000272 U	0.00026 U	0.00024 U	0.00025 U	0.00025 U	0.000272 U	0.00025 U	0.000272 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U			NA	0.000126 U	0.000126 U
Hexachlorobutadiene	0.026		0.00019 U	0.00019 U	NA	0.000252 U	0.000252 U	0.000252 U	0.000315 UF	0.000190 U*	0.000202 U	0.000207 U	0.000198 U	0.000183 U	0.00019 U	0.000207 U	0.00019 U	0.000207 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U			NA	0.000252 U	0.000252 U
Hexachlorocyclopentadiene	0.05		0.00015 U	0.00015 U	NA	0.000431 U	0.000431 UJL	0.000431 U *	0.000539 U	0.000155 UF	0.000150 U*	0.00016 U	0.000163 U	0.000156 U	0.000144 U	0.00015 U	0.000163 U *	0.00015 U	0.000163 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U			NA	0.000431 U	0.000431 U
Hexachloroethane	0.051		0.00017 U	0.00017 U	NA	0.00014 U	0.00014 U	0.00014 U *	0.00014 U *	0.000175 UFL	0.000170 U	0.000181 U	0.000185 U	0.000177 U	0.000163 U	0.00017 U	0.000185 U	0.00017 U	0.000185 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U			NA	0.00014 U	0.00014 U
Indeno[1,2,3-cd]pyrene	0.0028		0.00029 U	0.00029 U	NA	0.000852 U	0.000852 U	0.000852 U	0.000143 U	0.000179 U	0.000290 U	0.000309 U	0.000315 U	0.000302 U *	0.000279 U *	0.00029 U *	0.000315 U	0.00029 U*	0.000315 U	0.00029 U*	0.00029 U	0.00029 U	0.00029 U			NA	0.000852 U *	0.000852 U
Isophorone	2.2		0.00015 U	0.00015 U	NA	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00021 ULF	0.000150 U	0.00016 U	0.000163 U	0.000156 U	0.000144 U *	0.00015 U	0.000163 U	0.00015 U	0.000163 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U			NA	0.000168 U	0.000168 U
Naphthalene	1.5		0.00016 U	0.00016 U	NA	0.000809 J	0.000684 J	0.000542 J	0.00152 *	0.001 UF	0.000387 J	0.00017 U	0.000174 U	0.000167 U	0.000154 U	0.00016 U	0.000174 U	0.00016 U	0.000174 U	0.00016 U	0.000619	0.00016 U	0.00016 U	10500	0.00132 U	0.000779 J	0.000796 J
Nitrobenzene	0.15		0.0002 U	0.0002 U	NA	0.000934 U	0.000934 U	0.000934 U	0.0004 U *	0.001 UF	0.000200 U*	0.000213 U	0.000217 U	0.000208 U	0.000192 U *	0.0002 U	0.000217 U *	0.0002 U	0.000217 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U			NA	0.000934 U	0.000934 U
N-Nitrosodi-n-propylamine	0.00029		0.00024 U	0.00024 U	NA	0.000161 U	0.000161 U	0.000161 U *	0.000161 U	0.000202 UFL	0.000240 U	0.000255 U	0.000261 U	0.00025 U	0.000231 U	0.00024 U	0.000261 U	0.00024 U	0.000261 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U			NA	0.000161 U	0.000161 U
N-Nitrosodiphenylamine	0.42		0.00033 U	0.00033 U	NA	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000193 UF	0.000330 U*	0.000351 U	0.000359 U	0.000344 U	0.000317 U	0.00033 U	0.000359 U *	0.00033 U	0.000359 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U			NA	0.000155 U	0.000155 U
Pentachlorophenol	0.001		0.00096 U	0.00096 U	NA	0.000441 U	0.000441 U	0.000441 UJL	0.000441 U	0.000551 U	0.000960 U	0.00102 U	0.00104 U	0.001 U	0.000923 U	0.00096 U *	0.00104 U *	0.00096 U	0.00104 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U			NA	0.000441 U	0.000441 UJL
Phenanthrene	2.2		0.00029 U	0.00029 U	NA	0.00031 J	0.000354 J	0.000176 U	0.0004 U	0.0005 U	0.000290 U*	0.000309 U	0.000315 U	0.000302 U	0.000279 U	0.00029 U	0.000315 U	0.00029 U	0.000315 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	385	0.000176 U	0.000176 U	0.000176 U
Phenol	2.2		0.00014 U	0.00014 U	NA	0.000202 U	0.000202 UJL	0.000202 U	0.0008 U *	0.001 UF	0.000140 U	0.000149 U	0.000152 U	0.000146 U	0.000135 U	0.00014 U	0.000152 U *	0.00014 U	0.000152 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U			NA	0.000202 U	0.000202 UJL
Pyrene	2.2		0.00033 U	0.00033 U	NA	0.000159 U *	0.000159 U	0.000159 U	0.000159 U	0.000199 U	0.000330 U	0.000351 U	0.000359 U	0.000344 U	0.000317 U	0.00033 U	0.000359 U	0.00033 U	0.000359 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	20.1	0.000159 U	0.000159 U *	0.000159 UJL
Pyridine	0.073		0.00024 U	0.00024 U	NA	0.000973 J	0.000725 UJL/JL	0.00126 U	0.000725 U	0.000906 U	0.000240 U	0.000255 U	0.000261 U	0.00025 U	0.000231 U	0.00024 U	0.000261 U	0.00024 U	0.000261 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U			NA	0.000725 U	0.00817 U
Herbicides by EPA 8151A																															
2,4-D	0.07		0.0000392 U	0.0000534 J	NA	0.0000288 U	0.0000267 U	0.0000206 UJL	0.0000257 U	0.0000453 U	0.0000396 U*	0.00533	0.00004 U	0.000121 J	0.0000396 U	0.0000392 U	0.0000392 U	0.0000396 U	0.0000381 U	0.0000385 U	0.0000377 U	0.0000377 U	0.00000392 U	212000	0.000155 U	0.0000288 U	0.0000267 U
VOCs by EPA 8260B																															
1,1,1,2-Tetrachloroethane	0.079		0.00018 U	0.00018 U	NA	0.000644 U	0.000644 U	0.000327 U	0.000327 U	0.000327 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.00037 U	0.00018 U			NA	0.000644 U	0.000644 U
1,1,1-Trichloroethane	0.2		0.00015 U	0.00015 U	NA	0.00169 U	0.00169 U	0.000504 U	0.000504 U	0.000504 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.00037 U	0.00015 U			NA	0.00169 U	0.00169 U
1,1,2,2-Tetrachloroethane	0.01		0.00022 U	0.00022 U	NA	0.00047 U	0.00047 U	0.000284 U	0.000284 U	0.000284 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																													
Sample Location			RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-03-01	RI-03-01	RI-03-01	RI-03-01	RI-03-01	RI-03-01	MW-35R	MW-35R	MW-35R	MW-35R	MW-35R	MW-35R	MW-35	MW-35
Sample Date			1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/30/2018	7/18/2017	1/27/2017	7/18/2016	1/18/2016	7/22/2015	1/27/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	Not sampled July 2020 - not found	1/21/2020
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																													
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																											
SVOCs by EPA 8270C																													
1,2,4-Trichlorobenzene	0.07		0.00068 U	0.00068 U *	0.00085 UF	0.000160 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.00068 U	0.00068 U	0.034 U	0.00068 U *	0.00085 UF		0.00163 U
1,2-Dichlorobenzene	0.6		0.000296 U	0.000296 U *	0.00037 UL	0.000210 U*	0.00021 U	0.000219 U	0.000214 U	0.00021 U	0.000202 U	0.00025 U	0.00021 U	0.000202 U	0.00021 U	0.000274 J	0.00021 U	NA	0.000296 U	0.000296 U	0.0148 U	0.000296 U *	0.00037 UL		0.00214 U
1,3-Dichlorobenzene	2.2		0.00035 U	0.00035 U *	0.000438 UFL	0.000100 U*	0.0001 U	0.000104 U	0.000102 U	0.0001 U	0.0000962 U	0.000119 U	0.0001 U	0.0000962 U	0.0001 U	0.0001 U	0.000129 J	0.0001 U	NA	0.00035 U	0.00035 U	0.0175 U	0.00035 U *	0.000438 UFL		0.00102 U
1,4-Dichlorobenzene	0.072		0.000428 U	0.000428 U *	0.0027 F	0.000160 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.000428 U	0.000428 U	0.0214 U	0.000428 U *	0.000536 UF		0.00163 U
2,4,5-Trichlorophenol	7.3		0.000108 UJL	0.000108 U	0.000135 UF	0.000290 U*	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000279 U *	0.000345 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	NA	0.000108 U	0.000108 U	0.00541 U	0.000108 U	0.000135 UF		0.00296 U
2,4,6-Trichlorophenol	0.073		0.000135 UJL	0.000135 U	0.000169 ULF	0.000330 U*	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000317 U	0.000393 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	NA	0.000135 U	0.000135 UJL	0.00676 U	0.000135 U	0.000169 ULF		0.00337 U
2,4-Dichlorophenol	0.22		0.000115 UJL	0.000115 U *	0.000143 U	0.000260 U*	0.00026 U	0.000271 U	0.000265 U	0.00026 U	0.00025 U	0.00031 U	0.00026 U	0.00025 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00115 U	0.000115 U	0.000115 UJL	0.00573 U	0.000115 U *	0.000143 U		0.00265 U
2,4-Dimethylphenol	1.5		0.000148 UJL	0.000148 U *	0.000184 U	0.000180 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000173 U	0.000214 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00148 U	0.000148 U	0.000148 UJL	0.00738 U	0.000148 U *	0.0031		0.00184 U
2,4-Dinitrophenol	0.15		0.00146 UJL	0.00146 U	0.001 U	0.000400 U	0.0004 U	0.000417 U	0.000408 U	0.0004 U	0.000385 U *	0.000476 U	0.0004 U	0.000385 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	NA	0.00146 U	0.00146 UJL/JL	0.0728 U	0.00146 U	0.001 U		0.00408 U
2,4-Dinitrotoluene	0.003		0.000127 U	0.000127 U	0.000159 UFL	0.000320 U	0.00032 U	0.000333 U	0.000327 U	0.00032 U	0.000308 U	0.000381 U	0.00032 U	0.000308 U	0.00032 U	0.00032 U*	0.00032 U	NA	0.000127 U	0.000127 U	0.00635 U	0.000127 U	0.000159 UFL		0.00327 U
2,6-Dinitrotoluene	0.003		0.000199 U	0.000199 U	0.000248 ULF	0.000290 U*	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000279 U	0.000345 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	NA	0.000199 U	0.000199 U	0.00993 U	0.000199 U	0.000248 ULF		0.00296 U
2-Chloronaphthalene	5.8		0.00109 U	0.0011 U	0.001 UF	0.000190 U*	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000183 U	0.000226 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	NA	0.00109 U	0.00109 UJL/JL	0.0544 U	0.0011 U	0.001 UF		0.00194 U
2-Chlorophenol	0.37		0.0000135 UJL	0.000135 U *	0.000169 ULF	0.000220 U*	0.00022 U	0.000229 U	0.000224 U	0.00022 U	0.000212 U	0.000262 U *	0.00022 U	0.000212 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	NA	0.0000135 U	0.0000135 UJL	0.000676 U	0.000135 U *	0.000169 ULF		0.00224 U
2-Methylnaphthalene	0.29		0.0000527 J	0.00048 U	0.0006 JF	0.000140 U	0.00014 U	0.000146 U	0.000143 U	0.00014 U	0.000135 U	0.000167 U	0.00014 U	0.000135 U	0.001	0.00014 U	0.000151 J	0.00014 U	NA	0.279 *	0.292	0.388	0.168	0.0858 F		0.423
2-Methylphenol	1.2		0.000159 UJL	0.000159 U	0.000199 UF	0.000190 U	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000183 U	0.000226 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00159 U	0.000159 U	0.000159 UJL	0.00797 U	0.00408	0.00915 F		0.00194 U
2-Nitroaniline	0.02		0.000163 U	0.000163 U	0.000203 U	0.000350 U	0.00035 U	0.000365 U	0.000357 U	0.00035 U	0.000337 U *	0.000417 U	0.00035 U	0.000337 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	NA	0.000163 U	0.000163 U	0.00814 U	0.000163 U	0.000203 U		0.00357 U
2-Nitrophenol	0.15		0.000135 UJL	0.000135 U	0.000169 U	0.000220 U*	0.00022 U	0.000229 U	0.000224 U	0.00022 U	0.000212 U	0.000262 U	0.00022 U	0.000212 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	NA	0.000135 U	0.000135 UJL	0.00674 U	0.000135 U	0.000169 U		0.00224 U
3 & 4 Methylphenol	0.12		0.000163 UJL	0.000163 U *	0.000203 UF	0.000160 U	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00163 U	0.000163 U	0.000163 UJL	0.00814 U *	0.00413 *	0.0119 F		0.00228 J
3,3'-Dichlorobenzidine	0.0045		0.00022 U	0.0004 U	0.000275 U	0.000320 U	0.00032 U	0.000333 U	0.000327 U	0.00032 U	0.000308 U	0.000381 U	0.00032 U	0.000308 U	0.00032 U*	0.00032 U	0.00032 U	0.00032 U	NA	0.00022 U	0.00022 U	0.011 U	0.0004 U	0.000275 U		0.00327 U
3-Nitroaniline	0.022		0.000344 U	0.000208 U	0.00043 U	0.000130 U	0.00013 U	0.000135 U	0.000133 U	0.00013 U	0.000125 U *	0.000155 U	0.00013 U	0.000125 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U	NA	0.000344 U	0.000344 U	0.0172 U	0.000208 U	0.00043 U		0.00133 U
4,6-Dinitro-2-methylphenol	0.007		0.000736 UJL	0.000736 U	0.00092 U	0.000160 U	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.000736 U	0.000736 UJL	0.0368 U	0.000736 U	0.00092 U		0.00163 U
4-Bromophenyl phenyl ether	0.00014		0.000167 U	0.000167 U	0.000209 UF	0.000250 U*	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00024 U	0.000298 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	NA	0.000167 U	0.000167 U	0.00836 U	0.000167 U	0.000209 UF		0.00255 U
4-Chloro-3-methylphenol	0.37		0.000157 U	0.000157 U	0.000196 UF	0.000250 U	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00024 U	0.000298 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	NA	0.000157 U	0.000157 UJL	0.00784 U	0.000157 U	0.000196 UF		0.00255 U
4-Chloroaniline	0.01		0.000149 U	0.000149 U	0.000186 U	0.000110 U	0.00011 U	0.000115 U	0.000112 U	0.00011 U	0.000106 U	0.000131 U	0.00011 U	0.000106 U	0.00011 U	0.00011 U	0.00426	0.00011 U	NA	0.000149 U	0.000149 U	0.00745 U	0.000149 U	0.000186 U		0.00112 U
4-Chlorophenyl phenyl ether	0.00014		0.000232 U	0.000232 U	0.00029 UFL	0.000230 U*	0.00023 U	0.00024 U	0.000235 U	0.00023 U	0.000221 U	0.000274 U	0.00023 U	0.000221 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	NA	0.000232 U	0.000232 U	0.0116 U	0.000232 U	0.00029 UFL		0.00235 U
4-Nitroaniline	0.1		0.000247 U	0.000247 U	0.000309 U	0.000230 U	0.00023 U	0.00024 U	0.000235 U	0.00023 U	0.000221 U *	0.000274 U	0.00023 U	0.000221 U	0.00023 U	0.00023 U*	0.00023 U	0.00023 U	NA	0.000247 U	0.000247 U	0.0123 U	0.000247 U	0.000309 U		0.00235 U
4-Nitrophenol	0.15		0.000531 UJL	0.000531 U *	0.000664 UH	0.000330 U	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000317 U *	0.000393 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	NA	0.000531 U	0.000531 UJL	0.0266 U	0.000531 U *	0.000664 UH		0.00337 U
Acenaphthene	4.4		0.000208 U	0.000215 U	0.00026 UFL	0.000160 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.0006	0.00016 U	0.000196 J	0.00016 U	0.209	0.2	0.175	0.208	0.0983	0.0645 FL		0.27
Acenaphthylene	4.4		0.000215 U	0.000344 U	0.000268 UFL	0.000160 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.00228 *	0.00226	0.0107 U	0.00166	0.000268 UFL		0.00304 J
Aniline	0.36		0.000314 U *	0.000314 U	0.000392 UL	0.000120 U	0.00012 U	0.000125 U	0.000122 U	0.00012 U	0.000115 U	0.000143 U	0.00012 U	0.000115 U	0.00012 U	0.00012 U	0.0032	0.00012 U	NA	0.000314 U	0.000314 UJL	0.0157 U *	0.000314 U	0.000392 UL		0.00122 U
Anthracene	22		0.000154 U	0.000154 U	0.000192 U	0.000440 U*	0.00044 U	0.000458 U	0.000449 U	0.00044 U	0.000423 U	0.000524 U	0.00044 U	0.000423 U	0.000575	0.00044 U	0.00044 U	0.00044 U	NA	0.00463	0.0029	0.00769 U	0.00254	0.00445		0.00572 J
Benzo[a]anthracene	0.0028		0.00015 U	0.00015 U	0.000187 U	0.000250 U	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00024 U	0.000298 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.000639	0.00025 U	0.0015 U	0.000244 J	0.00015 U	0.0075 U	0.00015 U	0.00095 J		0.00255 U
Benzo[a]pyrene	0.0002		0.000148 U	0.000148 U	0.000184 U	0.000130 U	0.00013 U	0.000135 U	0.000133 U	0.00013 U	0.000125 U *	0.000155 U	0.00013 U	0.000125 U	0.00013 U	0.00013 U	0.000901	0.00013 U	NA	0.000148 U *	0.000148 U	0.00738 U	0.000148 U	0.0003 J		0.00133 U
Benzo[b]fluoranthene	0.0028		0.00021 U	0.00021 U	0.000262 U	0.000180 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000173 U	0.000214 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.000849	0.00018 U	NA	0.00021 U	0.00021 U	0.0105 U	0.00021 U	0.00045 J		0.00184 U
Benzo[g,h,i]perylene	2.2		0.000143 U	0.000143 U	0.000179 U	0.000350 U	0.00035 U	0.000365 U	0.000357 U	0.00035 U	0.000337 U *	0.000417 U	0.00035 U	0.000337 U	0.00035 U	0.00035 U	0.000469 J	0.00035 U	NA	0.000143 U	0.000143 U	0.00714 U	0.000143 U	0.000179 U		0.00357 U
Benzo[k]fluoranthene	0.0028		0.000166 U	0.000166 U	0.000208 U	0.000160 U	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000863	0.00016 U	NA	0.000166 U	0.000166 U	0.00831 U	0.000166 U	0.000208 U		0.00163 U
Benzoic acid	29		0.00253 J	0.00106 U *	0.001000 U	0.000610 U*	0.000781 J	0.000635 U	0.000622 U	0.00061 U	0.000587 U	0.000726 U *	0.00714 *	0.000587 U	0.00061 U	0.00061 U	0.00061 U	0.0034	NA	0.00106 U	0.0619	0.0529 U	0.00106 U *	0.001 U		0.00622 U
Benzyl alcohol	7.3		0.0045 U	0.00384 b *	0.001 U	0.000510 U	0.00051 U *	0.000531 U *	0.00052 U *	0.00051 U	0.00161 J	0.000607 U *	0.00051 U	0.00049 U	0.00051 U	0.00051 U	0.00106	0.00051 U	NA	0.0045 U *	0.0555 UJL/JL	0.225 U	0.0053 b *	0.001 U		0.0052 U *
bis (2-Chloroisopropyl) ether	0.0029		0.000139 U	0.00017 U *	0.000187 U	0.000180 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000173 U	0.000214 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	NA	0.000139 U	0.000139 U	0.00695 U	0.00017 U *	0.000187 U		0.00184 U
Bis(2-chloroethoxy)methane	0.00019		0.00017 U	0.000278 U *	0.000213 UF	0.000190 U*	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000183 U	0.000226 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	NA	0.00017 U	0.00017 U	0.0085 U	0.000278 U *	0.000213 UF		0.00194 U
Bis(2-chloroethyl)ether	0.0019		0.000278 U	0.000139 U	0.000348 U	0.000180 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000173 U	0.000214 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00278 U	0.000278 U	0.000278 U	0.0139 U	0.000139 U	0.000348 U		0.00184 U
Bis(2-ethylhexyl) phthalate	0.006		0.000225 U	0.00137	0.000174 UF	0.000590 U	0.00059 U	0.000615 U	0.000602 U	0.00193 J	0.000567 U	0.000702 U	0.00164 J	0.000567 U	0.00059 U	0.00059 U	0.000971 J	0.0013 J b	NA	0.000225 U	0.000225 U	0.0112 U	0.00129	0.000174 UF		0.00602 U
Butyl benzyl phthalate	1.1		0.00015 U	0.000698 J	0.000281 U	0.000850 U	0.00107 J	0.000885 U	0.000867 U	0.00085 U	0.000817 U	0.00101 U	0.00085 U	0.000817 U	0.00085 U	0.00085 U	0.00085 U	0.00193 J	0.0015 U	0.00015 U	0.000385 J	0.0075 U	0.000681 J	0.000281 U		0.00867 U
Carbazole			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.106	NA	NA	NA	NA	NA	NA		
Chrysene	0.28		0.000159 U	0.000159 U	0.000199 U	0.000240 U	0.00024 U	0.00025 U	0.000245 U	0.00024 U	0.000231 U	0.000286 U	0.00024 U	0.000231 U	0.00024 U	0.00024 U	0.000618	0.00024 U	NA	0.000159 U *	0.000159 U	0.00797 U	0.000159 U	0.0006 J		0.00245 U
Dibenz(a,h)anthracene	0.00024		0.000148 U	0.000148 U	0.000184 U	0.000290 U	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000279 U *	0.000345 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.000511	0.00029 U	NA	0.000148 U	0.000148 U	0.00738 U	0.000148 U	0.000184 U		0.00296 U
Dibenzofuran	0.29		0.000336 U	0.000336 U	0.00042 ULF	0.000160 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.000358 J	0.00016 U	0.00016 U	0.00016 U	0.113	0.115	0.0959	0.119	0.0605	0.0393 LF		0.123
Diethyl phthalate	58		0.000177 J	0.000118 U	0.00025 JFL	0.00419 U	0.00419 U	0.00436 U	0.00428 U	0.00419 U	0.00403 U	0.00499 U	0.00419 U	0.00403 U	0.00419 U	0.00419 U	0.00419 U	0.265	NA	0.000118 U	0.000118 U	0.00589 U	0.000118 U	0.000147 UFL		0.0428 U
Dimethyl phthalate	58		0.000143 U	0.000143 U	0.000178 ULF	0.000180 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000173 U	0.000214 U	0.00018 U	0.000173 U	0.00018 U	0.00018 U	0.00018 U	0.000180 U	NA	0.000143 U	0.000143 U	0.00713 U	0.000143 U	0.000178 ULF		0.00184 U
Di-n-butyl phthalate	7.3		0.0008 U	0.144 * b	0.001 U	0.00187 U	0.00187 U	0.00195 U	0.00191 U	0.00187 U	0.0018 U	0.00223 U	0.00187 U	0.0018 U	0.00187 U	0.00187 U	0.00187 U	0.00187 U	NA	0.0008 U *	0.0008 U	0.04 U	0.114 * b	0.001 U		0.0191 U
Di-n-octyl phthalate	0.73		0.000169 U	0.000169 U	0.000212 U	0.000160 U	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000154 U *	0.00019 U	0.00016 U	0.000154 U	0.00016 U	0.00016 U	0.000923 J	0.00016 U	NA	0.000169 U	0.000169 U	0.00846 U	0.000169 U	0.0014		0.00163 U
Fluoranthene	2.9		0.000148 U	0.000148 U	0.000184 U	0.000310 U*	0.00031 U	0.000323 U	0.000316 U	0.00031 U	0.000298 U	0.000369 U	0.00031 U	0.000298 U	0.00146	0.00031 U	0.00031 U	0.000310 U	0.00426 J	0.00457	0.00417	0.00738 U	0.00382	0.0108		0.0061 J
Fluorene	2.9		0.000205 U	0.000205 U	0.000256 ULF	0.000120 U*	0.00012 U	0.000125 U	0.000122 U	0.00012 U	0.000115 U	0.000143 U	0.00012 U	0.000115 U	0.000687	0.00012 U	0.000212 J	0.00012 U	0.0697	0.0616	0.0544	0.0594 J	0.0312	0.0287 LF		0.0848
Hexachlorobenzene	0.0013		0.000126 U	0.000126 U	0.000157 UF	0.000250 U*	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00024 U	0.000298 U	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.000250 U	NA	0.000126 U	0.000126 U	0.00628 U	0.000126 U	0.000157 UF		0.00255 U
Hexachlorobutadiene	0.026		0.000252 U	0.000252 U *	0.000315 UF	0.000190 U*	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000183 U	0.000226 U	0.00019 U	0.000183 U	0.00019 U	0.00019 U	0.00019 U	0.000190 U	NA	0.000252 U	0.000252 U	0.0126 U	0.000252 U *	0.000315 UF		0.00194 U
Hexachlorocyclopentadiene	0.05		0.000431 U	0.000431 U *	0.000539 U	0.000150 U*	0.00015 U	0.000156 U	0.000153 U	0.00015 U	0.000144 U	0.000179 U	0.00015 U	0.000144 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	0.000431 U	0.000431 U	0.0216 U	0.000431 U *	0.000539 U		0.00153 U
Hexachloroethane	0.051		0.00014 U *	0.00014 U *	0.000175 UFL	0.000170 U	0.00017 U	0.000177 U	0.000173 U	0.00017 U	0.000163 U	0.000202 U	0.00017 U	0.000163 U	0.00017 U	0.00017 U	0.00017 U	0.000170 U	NA	0.00014 U	0.00014 U	0.007 U *	0.00014 U *	0.000175 UFL		0.00173 U
Indeno[1,2,3-cd]pyrene	0.0028		0.000852 U	0.000143 U	0.000179 U	0.000290 U	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000279 U	0.000345 U	0.00029 U	0.000279 U	0.00029 U	0.00029 U	0.00052	0.00029 U	NA	0.000852 U	0.000852 U	0.0426 U	0.000143 U	0.000179 U		0.00296 U
Isophorone	2.2		0.000168 U	0.000168 U	0.00021 ULF	0.000150 U	0.00015 U	0.000156 U	0.000153 U	0.00015 U	0.000144 U	0.000179 U	0.00015 U	0.000144 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	0.000168 U	0.000168 U	0.0084 U	0.000168 U	0.00021 ULF		0.00153 U
Naphthalene	1.5		0.00242	0.0008 U *	0.00335 F	0.00157 J	0.00016 U	0.000167 U	0.000598 J	0.00016 U	0.000154 U	0.00019 U	0.00016 U	0.000154 U	0.000678	0.00016 U	0.00016 U	0.00016 U	2.61 J	2.89	2.8	3.78	1.7 *	0.801 DF		0.642
Nitrobenzene	0.15		0.000934 U	0.0004 U *	0.001 UF	0.000200 U*	0.0002 U	0.000208 U	0.000204 U	0.0002 U	0.000192 U	0.000238 U	0.0002 U	0.000192 U	0.0002 U	0.0002 U	0.000742	0.0002 U	NA	0.000934 U	0.000934 U	0.0467 U	0.0004 U *	0.001 UF		0.00204 U
N-Nitrosodi-n-propylamine	0.00029		0.000161 U *	0.000161 U	0.000202 UFL	0.000240 U	0.00024 U	0.00025 U	0.000245 U	0.00024 U	0.000231 U	0.000286 U	0.00024 U	0.000231 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	NA	0.000161 U	0.000161 U	0.00807 U *	0.000161 U	0.000202 UFL		0.00245 U
N-Nitrosodiphenylamine	0.42		0.000155 U	0.000155 U	0.000193 UF	0.000330 U*	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000317 U	0.000393 U	0.00033 U	0.000317 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	NA	0.000155 U	0.000155 U	0.00773 U	0.000155 U	0.000193 UF		0.00337 U
Pentachlorophenol	0.001		0.000441 UJL	0.000441 U	0.000551 U	0.000960 U	0.00096 U	0.001 U	0.00098 U	0.00096 U	0.000923 U *	0.00114 U	0.00096 U	0.000923 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U	NA	0.000441 U	0.000441 UJL	0.022 UJL	0.000441 U	0.000551 U		0.0098 U
Phenanthrene	2.2		0.000176 U	0.0004 U	0.0005 U	0.000290 U*	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000279 U	0.000345 U	0.00029 U	0.000279 U	0.00434	0.00029 U	0.00029 U	0.00029 U	0.0689	0.0734	0.0584	0.0692 J	0.0337	0.0633		0.0679
Phenol	2.2		0.000202 UJL	0.0008 U *	0.001 UF	0.000140 U	0.00014 U	0.000146 U	0.000143 U	0.00014 U	0.000135 U	0.000167 U	0.00014 U	0.000135 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	NA	0.000202 U	0.000202 UJL	0.0101 U	0.0008 U *	0.001 UF		0.00143 U
Pyrene	2.2		0.000159 U	0.000159 U	0.000199 U	0.000330 U	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000317 U	0.000393 U	0.00033 U	0.000317 U	0.000746	0.00033 U	0.00033 U	0.00033 U	0.00224 J	0.00238 *	0.00204 JL	0.00797 U	0.00194	0.00705		0.00337 U
Pyridine	0.073		0.000815 U	0.000725 U	0.000906 U	0.000240 U	0.00024 U	0.00025 U	0.000245 U	0.00024 U	0.000231 U	0.000286 U	0.00024 U	0.000231 U	0.00024 U	0.00024 U	0.00379	0.00024 U	NA	0.000725 U	0.00134 U	0.0362 UJL	0.000725 U	0.000906 U		0.00245 U
Herbicides by EPA 8151A																													
2,4-D	0.07		0.0000206 UJL	0.0000257 U	0.0000453 U	0.0000396 U*	0.00004 U	0.0000392 U	0.0000396 U	0.0000396 U	0.0000396 U	0.0000396 U	0.0000396 U	0.0000385 U	0.0000381 U	0.000178 J	0.000665 p	0.0000385 U	0.0000655 J	0.000155 U	0.0000288 U	0.0000267 U	0.0000206 UJL	0.0000257 U	0.0000453 U		0.0000392 U
VOCs by EPA 8260B																													
1,1,1,2-Tetrachloroethane	0.079		0.000327 U	0.000327 U	0.000327 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.00037 U	0.00018 U	NA	1.29 U	0.0129 U	0.0164 U	0.164 U	0.000327 U		0.0089 U
1,1,1-Trichloroethane	0.2		0.000504 U	0.000504 U	0.000504 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.00037 U	0.00015 U	NA	3.37 U	0.0337 U	0.0252 U	0.252 U	0.000504 U		0.0105 U
1,1,2,2-Tetrachloroethane	0.01		0.000284 U	0.000284 U	0.000284 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.00062 U	0.00022 U	NA	0.94 U	0.0094 U	0.0142 U	0.142 U	0.000284 U		0.00985 U
1,1,2-Trichloroethane	0.005		0.000228 U	0.000228 U	0.000228 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.00028 U	0.00033 U	0.00028 U	NA	1.02 U	0.0102 U	0.0114 U	0.114 U	0.000228 U		0.0105 U
1,1-Dichloroethane	0.005		0.000244 U	0.000244 U	0.000244 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00038 U	0.00011 U	NA	1.27 U	0.0127 U	0.0122 U	0.122 U	0.000244 U		0.0084 U
1,1-Dichloroethene	0.007		0.000216 U	0.000216 U	0.000216 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																														
Sample Location			MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36
Sample Date			Not sampled July 2019 - buried	Not sampled Jan 2019 - buried	7/18/2018	1/26/2018	7/20/2017	1/25/2017	7/18/2016	Not sampled Jan 2016	7/23/2015	1/28/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/26/2018	7/20/2017
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																														
Analytes	TRRP PCL [1]	Tier 2 $^{Adj}GW_{Inh-V}$ PCL [2]																												
SVOCs by EPA 8270C																														
1,2,4-Trichlorobenzene	0.07				0.008 U	0.000167 U	0.008 U	0.008 U	0.00769 U		0.00833 U	0.008 U	0.00016 U	NA	0.00068 U	0.00068 U	0.00068 U	0.00068 U *	0.00085 UF	0.000160 U*	0.000163 U	0.000167 U	0.00016 U	0.00192	0.000167 U	0.000174 U					
1,2-Dichlorobenzene	0.6				0.0105 U	0.000219 U	0.0105 U	0.0105 U	0.0101 U		0.0109 U	0.0105 U	0.00021 U	NA	0.000296 U	0.000296 U	0.000296 U	0.000296 U *	0.00037 UL	0.000210 U*	0.000214 U	0.000219 U	0.00021 U	0.000202 U	0.0975	0.000228 U					
1,3-Dichlorobenzene	2.2				0.005 U	0.000104 U	0.005 U	0.005 U	0.00481 U		0.00521 U	0.005 U	0.0001 U	NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.000438 UFL	0.000100 U*	0.000102 U	0.000104 U	0.0001 U	0.0000962 U	0.000104 U	0.000109 U					
1,4-Dichlorobenzene	0.072				0.008 U	0.000167 U	0.008 U*	0.008 U	0.00769 U		0.00833 U	0.008 U	0.00016 U	NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.000536 UF	0.000160 U*	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.0013 J	0.000174 U *					
2,4,5-Trichlorophenol	7.3				0.0145 U	0.000302 U	0.0145 U	0.0145 U	0.0139 U		0.0151 U	0.0145 U	0.00029 U	NA	0.000108 U	0.000108 UJL	0.000108 U	0.000108 U	0.000135 UF	0.000290 U*	0.000296 U	0.000302 U	0.00029 U	0.000279 U	0.000302 U	0.000315 U					
2,4,6-Trichlorophenol	0.073				0.0165 U	0.000344 U	0.0165 U*	0.0165 U	0.0159 U		0.0172 U	0.0165 U	0.00033 U	NA	0.000135 U	0.000135 UJL	0.000135 U	0.000135 U *	0.000169 ULF	0.000330 U*	0.000337 U	0.000344 U	0.00033 U	0.000317 U	0.000344 U	0.000359 U *					
2,4-Dichlorophenol	0.22				0.013 U	0.000271 U	0.013 U*	0.013 U	0.0125 U		0.0135 U	0.013 U	0.00026 U	0.000115 U	0.000115 U	0.000115 UJL	0.000115 U	0.000115 U *	0.000143 U	0.000260 U*	0.000265 U	0.000271 U	0.00026 U	0.00025 U	0.000271 U	0.000283 U *					
2,4-Dimethylphenol	1.5				0.009 U	0.000188 U	0.009 U*	0.009 U	0.00865 U		0.00938 U	0.009 U	0.00018 U	0.000148 U	0.000148 U	0.000148 UJL	0.000148 U	0.000148 U *	0.000184 U	0.000180 U	0.000184 U	0.000188 U	0.00018 U	0.000173 U	0.000188 U	0.000196 U *					
2,4-Dinitrophenol	0.15				0.02 U	0.000417 U	0.02 U*	0.02 U	0.0192 U		0.0208 U	0.02 U	0.0004 U	NA	0.00146 U	0.00146 UJL/JL	0.00146 U	0.00146 U	0.001 U	0.000400 U	0.000408 U	0.000417 U	0.0004 U	0.000385 U	0.000417 U	0.000435 U *					
2,4-Dinitrotoluene	0.003				0.016 U	0.000333 U	0.016 U	0.016 U	0.0154 U		0.0167 U	0.016 U	0.00114	NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U	0.000159 UFL	0.000320 U	0.000327 U	0.000333 U	0.00032 U	0.000308 U	0.000333 U	0.000348 U					
2,6-Dinitrotoluene	0.003				0.0145 U	0.000302 U	0.0145 U	0.0145 U	0.0139 U		0.0151 U	0.0145 U	0.00029 U	NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000248 UF	0.000290 U*	0.000296 U	0.000302 U	0.00029 U	0.000279 U	0.000302 U	0.000315 U					
2-Chloronaphthalene	5.8				0.0095 U	0.000198 U	0.0095 U	0.0095 U	0.00913 U		0.0099 U	0.0095 U	0.00019 U	NA	0.00109 U	0.00109 UIJ/JL	0.00109 U	0.0011 U	0.001 UF	0.000190 U*	0.000194 U	0.000198 U	0.00019 U	0.000183 U	0.000198 U	0.000207 U					
2-Chlorophenol	0.37				0.011 U	0.000229 U	0.011 U*	0.011 U	0.0106 U		0.0115 U	0.011 U	0.00022 U	NA	0.0000135 U	0.0000135 UJL	0.0000135 U	0.0000135 U *	0.000169 ULF	0.000220 U*	0.000224 U	0.000229 U	0.00022 U	0.000212 U	0.000229 U	0.000239 U *					
2-Methylnaphthalene	0.29				0.404	0.0721 b	0.276	0.18	0.573		8.03	0.160	0.00014 U	NA	0.00048 U *	0.00048 U	0.00048 U	0.00048 U	0.0006 UF	0.000159 J	0.000143 U	0.000146 U	0.00014 U	0.000135 U	0.000146 U	0.000152 U					
2-Methylphenol	1.2				0.0095 U	0.000198 U	0.0095 U*	0.0095 U	0.00913 U		0.0099 U	0.0095 U	0.00019 U	0.000159 U	0.000159 U	0.000159 UJL	0.000159 U	0.000159 U	0.000199 UF	0.000190 U	0.000194 U	0.000198 U	0.00019 U	0.000183 U	0.000198 U	0.000207 U *					
2-Nitroaniline	0.02				0.0175 U	0.000365 U	0.0175 U	0.0175 U	0.0168 U		0.0182 U	0.0175 U	0.00035 U	NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U	0.000203 U	0.000350 U	0.000357 U	0.000365 U	0.00035 U	0.000337 U	0.000365 U	0.00038 U					
2-Nitrophenol	0.15				0.011 U	0.000229 U	0.011 U	0.011 U	0.0106 U		0.0115 U	0.011 U	0.00022 U	NA	0.000135 U	0.000135 UJL	0.000135 U	0.000135 U	0.000169 U	0.000220 U*	0.000224 U	0.000229 U	0.00022 U	0.000212 U	0.000229 U	0.000239 U					
3 & 4 Methylphenol	0.12				0.008 U	0.000167 U	0.008 U	0.008 U	0.00769 U		0.00833 U	0.008 U	0.00376	0.000163 U	0.000163 U	0.000163 UJL	0.000163 U *	0.000163 U *	0.000203 UF	0.000186 J	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U	0.000174 U					
3,3'-Dichlorobenzidine	0.0045				0.016 U	0.000333 U	0.016 U	0.016 U	0.0154 U		0.0167 U	0.016 U	0.00032 U	NA	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.000275 U	0.000320 U	0.000327 U	0.000333 U	0.00032 U	0.000308 U	0.000333 U	0.000348 U					
3-Nitroaniline	0.022				0.0065 U	0.000135 U *	0.0065 U	0.0065 U	0.00625 U		0.00677 U	0.0065 U	0.00013 U	NA	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.00043 U	0.000130 U	0.000133 U	0.000135 U	0.00013 U	0.000125 U	0.000135 U *	0.000141 U					
4,6-Dinitro-2-methylphenol	0.007				0.008 U	0.000167 U	0.008 U *	0.008 U	0.00769 U		0.00833 U	0.008 U	0.00016 U	NA	0.000736 U	0.000736 UJL	0.000736 U	0.000736 U	0.00092 U	0.000160 U	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U	0.000174 U *					
4-Bromophenyl phenyl ether	0.00014				0.0125 U	0.00026 U	0.0125 U	0.0125 U	0.012 U		0.013 U	0.0125 U	0.00025 U	NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U	0.000209 UF	0.000250 U*	0.000255 U	0.00026 U	0.00025 U	0.00024 U	0.00026 U	0.000272 U					
4-Chloro-3-methylphenol	0.37				0.0125 U	0.00026 U	0.0125 U	0.0125 U	0.012 U		0.013 U	0.0125 U	0.00025 U	NA	0.000157 U	0.000157 UJL	0.000157 U	0.000157 U	0.000196 UF	0.000250 U	0.000255 U	0.00026 U	0.00025 U	0.00024 U	0.00026 U	0.000272 U					
4-Chloroaniline	0.01				0.0055 U	0.000115 U	0.0055 U	0.0055 U	0.00529 U		0.00573 U	0.0055 U	0.00011 U	NA	0.000149 U	0.000149 UJ	0.000149 U	0.000149 U	0.000186 U	0.000110 U	0.000112 U	0.000115 U	0.00011 U	0.000106 U	0.000115 U	0.00012 U					
4-Chlorophenyl phenyl ether	0.00014				0.0115 U	0.00024 U	0.0115 U	0.0115 U	0.0111 U		0.012 U	0.0115 U	0.00023 U	NA	0.000232 U	0.000232 UJL	0.000232 U	0.000232 U	0.00029 UFL	0.000230 U*	0.000235 U	0.00024 U	0.00023 U	0.000221 U	0.00024 U	0.00025 U					
4-Nitroaniline	0.1				0.0115 U	0.00024 U *	0.0115 U *	0.0115 U	0.0111 U		0.012 U	0.0115 U*	0.00023 U	NA	0.000247 U	0.000247 UJ	0.000247 U	0.000247 U	0.000309 U	0.000230 U	0.000235 U	0.00024 U	0.00023 U	0.000221 U	0.00024 U *	0.00025 U *					
4-Nitrophenol	0.15				0.0165 U	0.000344 U *	0.0165 U	0.0165 U	0.0159 U		0.0172 U	0.0165 U	0.00033 U	NA	0.000531 U	0.000531 UJL	0.000531 U	0.000531 U *	0.000664 UH	0.000330 U	0.000337 U	0.000344 U	0.00033 U	0.000317 U	0.000344 U *	0.000359 U					
Acenaphthene	4.4				0.263	0.149 b	0.201	0.272	0.479		8.62	0.105	0.00432	0.000208 U	0.000208 U	0.000208 UJ	0.000208 U	0.000208 U	0.00026 UFL	0.000160 U*	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U	0.000174 U					
Acenaphthylene	4.4				0.008 U	0.00928	0.008 U	0.008 U	0.00769 U		0.0836	0.008 U	0.363	NA	0.000215 U *	0.000215 U	0.000215 U	0.000344 U	0.000268 UFL	0.000160 U*	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U	0.000174 U					
Aniline	0.36				0.006 U	0.000125 U *	0.006 U	0.006 U	0.00577 U		0.00625 U	0.006 U	0.00012 U	NA	0.000314 U	0.000314 UJL	0.000314 U *	0.000314 U	0.000392 UL	0.000120 U	0.000122 U	0.000125 U	0.00012 U	0.000115 U	0.000125 U *	0.00013 U					
Anthracene	22				0.022 U	0.000963 J	0.022 U	0.022 U	0.0212 U		1.89	0.022 U	0.00493	NA	0.000186 J	0.000154 U	0.000154 U	0.000154 U	0.000192 U	0.000440 U*	0.000449 U	0.000458 U	0.00044 U	0.000423 U	0.000458 U	0.000478 U					
Benzo[a]anthracene	0.0028				0.0125 U	0.00026 U	0.0125 U *	0.0125 U	0.012 U		1.64	0.0125 U	0.00025 J	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000250 U	0.000255 U	0.00026 U	0.00025 U	0.00024 U	0.00026 U	0.000272 U *					
Benzo[a]pyrene	0.0002				0.0065 U	0.000135 U *	0.0065 U	0.0065 U	0.00625 U		0.638	0.0065 U	0.00013 U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000130 U	0.000133 U	0.000135 U	0.00013 U *	0.000125 U *	0.000135 U	0.000141 U					
Benzo[b]fluoranthene	0.0028				0.009 U	0.000188 U *	0.009 U	0.009 U	0.00865 U		1.24	0.009 U	0.00018 U	NA	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000180 U	0.000184 U	0.000188 U	0.00018 U *	0.000173 U *	0.000188 U	0.000196 U					
Benzo[g,h,i]perylene	2.2				0.0175 U	0.000365 U *	0.0175 U	0.0175 U	0.0168 U		0.0952	0.0175 U	0.00035 U	NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000350 U	0.000357 U	0.000365 U	0.00035 U *	0.000337 U *	0.000365 U	0.00038 U					
Benzo[k]fluoranthene	0.0028				0.008 U	0.000167 U *	0.008 U *	0.008 U	0.00769 U		0.432	0.008 U	0.00016 U	NA	0.000166 U	0.000166 U	0.000166 U	0.000166 U	0.000208 U	0.000160 U	0.000163 U	0.000167 U	0.00016 U *	0.000154 U *	0.000167 U	0.000174 U *					
Benzoic acid	29				0.0305 U	0.0188 *	0.0305 U *	0.0305 U*	0.0293 U		0.0318 U	0.0305 U	0.00061 U	NA	0.00367 J	0.135	0.00106 U	0.00106 U *	0.005	0.000610 U*	0.000987 J	0.000635 U	0.00061 U	0.000587 U	0.000635 U *	0.000663 U *					
Benzyl alcohol	7.3				0.0255 U *	0.000531 U	0.0255 U *	0.0255 U	0.0245 U		0.0266 U	0.0255 U	0.00051 U	NA	0.0045 U *	0.00450 UJL/JL	0.0045 U	0.00148 J b *	0.001 U	0.000510 U	0.00052 U *	0.000531 U *	0.00051 U *	0.00049 U *	0.000531 U	0.000554 U *					
bis (2-Chloroisopropyl) ether	0.0029				0.009 U	0.000188 U	0.009 U	0.009 U	0.00865 U		0.00938 U	0.009 U	0.00018 U	NA	0.000139 U	0.0045 U	0.000139 U	0.00017 U *	0.000187 U	0.000180 U	0.000184 U	0.000188 U	0.00018 U	0.000173 U	0.000188 U	0.000196 U					
Bis(2-chloroethoxy)methane	0.00019				0.0095 U *	0.000198 U	0.0095 U	0.0095 U	0.00913 U		0.0099 U	0.0095 U	0.00019 U	NA	0.00017 U	0.000139 U	0.00017 U	0.000278 U *	0.000213 UF	0.000190 U*	0.000194 U	0.000198 U	0.00019 U	0.000183 U *	0.000198 U	0.000207 U					
Bis(2-chloroethyl)ether	0.0019				0.009 U *	0.000188 U	0.009 U	0.009 U	0.00865 U		0.00938 U	0.009 U	0.00018 U	0.000278 U	0.000278 U	0.00017 U	0.000278 U	0.000139 U	0.000348 U	0.000180 U	0.000184 U	0.000188 U	0.00018 U	0.000173 U *	0.000188 U	0.000196 U					
Bis(2-ethylhexyl) phthalate	0.006				0.0295 U	0.000615 U	0.0295 U	0.0295 U	0.0284 U		0.0307 U	0.0295 U	0.00116 J b	NA	0.000225 U	0.000278 U	0.000225 U	0.000782 J	0.000174 UF	0.000590 U	0.00201 J	0.000615 U	0.00059 U	0.000567 U	0.000615 U	0.000641 U					
Butyl benzyl phthalate	1.1				0.0425 U	0.000885 U	0.0425 U	0.0425 U	0.0409 U		0.0443 U	0.0425 U	0.00085 U	0.00015 U	0.00015 U	0.000279 J	0.00015 U	0.00015 U	0.000281 U	0.000850 U	0.000867 U	0.000885 U	0.00085 U	0.000817 U	0.000885 U	0.000924 U					
Carbazole					NA	NA	NA	NA	NA		NA	NA	NA	0.000453 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
Chrysene	0.28				0.012 U	0.00025 U	0.012 U	0.012 U	0.0115 U		1.25	0.012 U	0.00024 U	NA	0.000159 U *	0.00015 U	0.000159 U	0.000159 U	0.000199 U	0.000240 U	0.000245 U	0.00025 U	0.00024 U	0.000231 U	0.00025 U	0.000261 U					
Dibenz(a,h)anthracene	0.00024				0.0145 U	0.000302 U *	0.0145 U	0.0145 U	0.0139 U		0.0326	0.0145 U	0.00029 U	NA	0.000148 U	0.000159 U	0.000148 U	0.000148 U	0.000184 U	0.000290 U	0.000296 U	0.000302 U	0.00029 U *	0.000279 U *	0.000302 U	0.000315 U					
Dibenzofuran	0.29				0.133	0.0419	0.112	0.0664 J	0.139		5.14	0.0453	0.185	0.000336 U	0.000336 U	0.000148 U	0.000336 U	0.000336 U	0.00042 ULF	0.000160 U*	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U	0.000174 U					
Diethyl phthalate	58				0.21 U	0.00436 U	0.21 U	0.21 U	0.201 U		0.218 U	0.21 U	0.00419 U	NA	0.000322 J	0.000336 U	0.000151 J	0.000118 U	0.00015 JFL	0.00419 U	0.00428 U	0.00436 U	0.00419 U	0.00403 U	0.00436 U	0.00455 U					
Dimethyl phthalate	58				0.009 U	0.000188 U	0.009 U	0.009 U	0.00865 U		0.00938 U	0.009 U	0.00018 U	NA	0.000143 U	0.00028 J	0.000143 U	0.000143 U	0.000178 ULF	0.000180 U	0.000184 U	0.000188 U	0.00018 U	0.000173 U	0.000188 U	0.000196 U					
Di-n-butyl phthalate	7.3				0.0935 U	0.00195 U	0.0935 U	0.0935 U	0.0899 U		0.0974 U	0.0935 U	0.00187 U	NA	0.00038 U *	0.000143 U	0.0008 U	0.0595 * b	0.001 U	0.00187 U	0.00191 U	0.00195 U	0.00187 U	0.0018 U	0.00195 U	0.00203 U					
Di-n-octyl phthalate	0.73				0.008 U	0.000167 U	0.008 U *	0.008 U	0.00769 U		0.00833 U	0.008 U	0.00016 U	NA	0.000169 U	0.00016 U	0.000169 U	0.000169 U	0.000212 U	0.000160 U	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U	0.000174 U *					
Fluoranthene	2.9				0.023 J	0.00268	0.0155 U	0.0155 U	0.0149 U		8.57	0.0155 U	0.00614	0.000148 U	0.000148 U	0.000169 U	0.000148 U	0.000148 U	0.000184 U	0.000310 U*	0.000316 U	0.000323 U	0.00031 U	0.000298 U	0.000323 U	0.000337 U					
Fluorene	2.9				0.0936	0.0799	0.056 J	0.057	0.0957		6.03	0.0329	0.0116	0.000205 U	0.000205 U	0.000148 U	0.000205 U	0.000205 U	0.000256 ULF	0.000120 U*	0.000122 U	0.000125 U	0.00012 U	0.000115 U	0.000125 U	0.00013 U					
Hexachlorobenzene	0.0013				0.0125 U	0.00026 U	0.0125 U	0.0125 U	0.012 U		0.013 U	0.0125 U	0.00025 U	NA	0.000126 U	0.000205 U	0.000126 U	0.000126 U	0.000157 UF	0.000250 U*	0.000255 U	0.00026 U	0.00025 U	0.00024 U	0.00026 U	0.000272 U					
Hexachlorobutadiene	0.026				0.0095 U	0.000198 U	0.0095 U	0.0095 U	0.00913 U		0.0099 U	0.0095 U	0.00019 U	NA	0.000252 U	0.000126 U	0.000252 U *	0.000315 UF	0.000190 U*	0.000194 U	0.000198 U	0.00019 U	0.000183 U	0.000198 U	0.000207 U					
Hexachlorocyclopentadiene	0.05				0.0075 U	0.000156 U	0.0075 U *	0.0075 U	0.00721 U		0.00781 U	0.0075 U	0.00015 U	NA	0.000431 U	0.000252 U	0.000431 U	0.000431 U *	0.000539 U	0.000150 U*	0.000153 U	0.000156 U	0.00015 U	0.000144 U	0.000156 U	0.000163 U *					
Hexachloroethane	0.051				0.0085 U	0.000177 U	0.0085 U *	0.0085 U	0.00817 U		0.00885 U	0.0085 U	0.00017 U	NA	0.00014 U	0.000431 U	0.00014 U *	0.00014 U *	0.000175 UFL	0.000170 U	0.000173 U	0.000177 U	0.00017 U	0.000163 U	0.000177 U	0.000185 U *					
Indeno[1,2,3-cd]pyrene	0.0028				0.0145 U	0.000302 U *	0.0145 U	0.0145 U	0.0139 U		0.121	0.0145 U	0.00029 U	NA	0.000852 U	0.00014 U	0.000852 U	0.000143 U	0.000179 U	0.000290 U	0.000296 U	0.000302 U	0.00029 U *	0.000279 U *	0.000302 U	0.000315 U					
Isophorone	2.2				0.0075 U *	0.000156 U	0.0075 U	0.0075 U	0.00721 U		0.00781 U	0.0075 U	0.00015 U	NA	0.000168 U	0.000852 U	0.000168 U	0.000168 U	0.00021 ULF	0.000150 U	0.000153 U	0.000156 U	0.00015 U	0.000144 U *	0.000156 U	0.000163 U					
Naphthalene	1.5				4.63	4.36 b *	2.47	3.02	6.36		24.2	2.9	7.79 H	0.000423 U	0.000999 J	0.000168 U	0.000737 J	0.0008 U *	0.001 UF	0.000525 J	0.000163 U	0.000167 U	0.00016 U	0.000154 U	0.000167 U *	0.000174 U					
Nitrobenzene	0.15				0.01 U *	0.000208 U *	0.01 U *	0.01 U	0.00962 U		0.0104 U	0.01 U	0.0002 U	NA	0.000934 U	0.000423 U	0.000934 U	0.0004 U *	0.001 UF	0.000200 U*	0.000204 U	0.000208 U	0.0002 U	0.000192 U *	0.000208 U *	0.000217 U *					
N-Nitrosodi-n-propylamine	0.00029				0.012 U	0.00025 U	0.012 U	0.012 U	0.0115 U		0.0125 U	0.012 U	0.00024 U	NA	0.000161 U	0.000934 U	0.000161 U *	0.000161 U	0.000202 UFL	0.000240 U	0.000245 U	0.00025 U	0.00024 U	0.000231 U	0.00025 U	0.000261 U					
N-Nitrosodiphenylamine	0.42				0.0165 U	0.000344 U *	0.0165 U *	0.0165 U	0.0159 U		0.0172 U	0.0165 U	0.00033 U	NA	0.000155 U	0.000161 U	0.000155 U	0.000155 U	0.000193 UF	0.000330 U*	0.000337 U	0.000344 U	0.00033 U	0.000317 U	0.000344 U *	0.000359 U *					
Pentachlorophenol	0.001				0.048 U	0.001 U	0.048 U *	0.048 U	0.0462 U		0.05 U	0.048 U	0.00096 U	NA	0.000441 U	0.000155 UJL	0.000441 UJL	0.000441 U	0.000551 U	0.000960 U	0.00098 U	0.001 U	0.00096 U	0.000923 U	0.001 U	0.00104 U *					
Phenanthrene	2.2				0.0856	0.00528	0.0729 J	0.0182 J	0.0711 J		15.4	0.0145 U	0.862	0.000176 U	0.000176 U	0.000441 U	0.000176 U	0.0004 U	0.0005 U	0.000290 U*	0.000296 U	0.000302 U	0.00029 U	0.000279 U	0.000302 U	0.000315 U					
Phenol	2.2				0.007 U	0.00307 *	0.007 U *	0.007 U	0.00673 U		0.00729 U	0.007 U	0.00014 U	NA	0.000202 U	0.000176 UJL	0.000202 U	0.0008 U *	0.001 UF	0.000140 U	0.000616 J	0.000146 U	0.00014 U	0.000135 U	0.000146 U *	0.000152 U *					
Pyrene	2.2				0.0165 U	0.00247	0.0165 U	0.0165 U	0.0159 U		5.01	0.0165 U	0.0036	0.000159 U	0.000159 U *	0.000202 UJL	0.000159 U	0.000159 U	0.000199 U	0.000330 U	0.000337 U	0.000344 U	0.00033 U	0.000317 U	0.000344 U	0.000359 U					
Pyridine	0.073				0.012 U	0.00025 U *	0.012 U	0.012 U	0.0115 U		0.0125 U	0.012 U	0.00024 U	NA	0.000725 U	0.000159 U	0.000725 UJL	0.000725 U	0.000906 U	0.000240 U	0.000245 U	0.00025 U	0.00024 U	0.000231 U	0.00025 U *	0.000261 U					
Herbicides by EPA 8151A																														
2,4-D	0.07				0.000695	0.00004 U *	0.0000392 U	0.0000392 U	0.0000381 U		0.0000377 U	0.000385 U	0.0000392 U	0.000156 U	0.0000288 U	0.0000267 U	0.0000206 UJL	0.0000257 U	0.0000453 U	0.0000392 U*	0.0000392 U	0.0000392 U	0.0000392 U	0.0000396 U	0.0000396 U *	0.00004 U					
VOCs by EPA 8260B																														
1,1,1,2-Tetrachloroethane	0.079				0.0445 U	0.089 U	0.0356 U	0.0089 U	0.0089 U		0.178 U	0.37 U	0.18 U	NA	0.129 U	0.000644 U	0.0164 U	0.000438 J	0.00327 U	0.0356 U	0.0089 U	0.0089 U	0.0089 U	0.00445 U	0.00356 U	0.000178 U					
1,1,1-Trichloroethane	0.2				0.0523 U	0.105 U	0.0418 U	0.0105 U	0.0105 U		0.209 U	0.37 U	0.15 U	NA	0.337 U	0.00169 U	0.0252 U	0.000504 U	0.00504 U	0.0418 U	0.0105 U	0.0105 U	0.0105 U	0.00523 U	0.0418 U	0.000209 U					
1,1,2,2-Tetrachloroethane	0.01				0.0493 U	0.0985 U	0.0394 U	0.00985 U	0.00985 U		0.197 U	0.62 U	0.22 U	NA	0.094 U	0.00047 U	0.0142 U	0.000284 U	0.00284 U	0.0394 U	0.00985 U	0.00985 U	0.00985 U	0.00493 U	0.00394 U	0.000197 U					
1,1,2-Trichloroethane	0.005				0.0523 U	0.105 U	0.0418 U	0.0105 U	0.0105 U		0.28 U	0.33 U	0.28 U	NA	0.102 U	0.000511 U	0.0114 U	0.104	0.00228 U	0.0418 U	0.0105 U	0.0105 U	0.0105 U	0.00523 U	0.00418 U	0.000209 U					
1,1-Dichloroethane	0.005				0.042 U	0.084 U	0.0336 U	0.0084 U	0.0084 U		0.168 U	0.38 U	0.11 U	NA	0.127 U	0.000635 U	0.0122 U	0.000244 U	0.00244 U	0.0336 U	0.0084 U	0.0084 U	0.0084 U	0.0042 U	0.00336 U	0.000168 U					
1,1-Dichloroethene	0.007				0.177 J	0.151 J	0.156 J	0.15	0.124		0.267 J	0.36 U	0.19 U	NA	0.148 U	0.0486	0.029 J	0.0348	0.0365	0.0384 U	0.0315 J	0.0096 U	0.0455 J	0.0274	0.0282	0.0335					
1,1-Dichloropropene	0.02				0.0478 U	0.0955 U	0.0382 U	0.00955 U	0.00955 U		0.191 U	0.34 U	0.21 U	NA	0.319 U	0.0016 U	0.024 U	0.000481 U	0.00481 U	0.0382 U	0.00955 U	0.00955 U	0.00955 U	0.00478 U	0.00382 U	0.000191 U					
1,2,3-Trichlorobenzene	0.22				0.143 U	0.285 U	0.114 U	0.0285 U	0.0285 U		0.57 U	2.5 U	0.57 U	NA	0.434 U	0.00217 U	0.1 U	0.002 U	0.02 U	0.114 U*	0.0285 U *	0.0285 U	0.0285 U	0.0143 U	0.0114 U	0.00057 U					
1,2,3-Trichloropropane	0.00068				0.0725 U	0.145 U	0.058 U	0.0145 U	0.0145 U		0.29 U	0.39 U	0.29 U	0.00049 U	0.098 U	0.00049 U	0.0142 U	0.000283 U	0.00283 U	0.0580 U*	0.0145 U	0.0145 U	0.0145 U	0.00725 U	0.0058 U	0.00029 U					
1,2,4-Trichlorobenzene	0.07				0.0443 U	0.0885 U	0.0354 U	0.00885 U	0.00885 U		0.177 U	2.5 U	0.31 U	NA	0.351 U	0.00175 U	0.1 U	0.002 U	0.02 U	0.0354 U*	0.00885 U	0.00885 U	0.00885 U	0.00443 U	0.00

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																																
Sample Location			MW-36		MW-36		MW-36		MW-36		MW-36		MW-36		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		DUP-MW-37		MW-37		MW-37	
Sample Date			1/25/2017		7/18/2016		1/14/2016		7/23/2015		1/28/2015		7/24/2014		7/21/2023		1/31/2023		7/29/2022		1/14/2022		7/2/2021		1/21/2021		7/28/2020		1/21/2020		7/5/2019		1/15/2019	
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																																
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																														
SVOCs by EPA 8270C																																
1,2,4-Trichlorobenzene	0.07		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA		0.00068	U	0.00068	U	0.00068	U	0.00085	UF	0.000167	U*	0.000167	U	0.00016	U	0.000163	U	0.000167	U
1,2-Dichlorobenzene	0.6		0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NA		0.000296	U	0.000296	U	0.000296	U	0.000296	U *	0.00037	UL	0.000219	U*	0.000219	U	0.00021	U	0.000214	U	0.000219	U
1,3-Dichlorobenzene	2.2		0.0001	U	0.0001	U	0.00010	U	0.0001	U	0.0001	U	0.0001	U	NA		0.00035	U	0.00035	U	0.00035	U	0.00035	U *	0.000438	UFL	0.000104	U*	0.000104	U	0.0001	U	0.000102	U	0.000104	U
1,4-Dichlorobenzene	0.072		0.00016	U	0.00016	U	0.00019	J	0.00016	U	0.00016	U	0.00016	U	NA		0.000428	U	0.000428	U	0.000428	U	0.000428	U *	0.000536	UF	0.000167	U*	0.000167	U	0.00016	U	0.000163	U	0.000167	U
2,4,5-Trichlorophenol	7.3		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	NA		0.000108	U	0.000108	U	0.000108	U	0.000108	U	0.000135	UF	0.000302	U*	0.000302	U	0.00029	U	0.000296	U	0.000302	U
2,4,6-Trichlorophenol	0.073		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA		0.000135	U	0.000135	U	0.000135	U	0.000135	U	0.000169	ULF	0.000344	U*	0.000344	U	0.00033	U	0.000344	U	0.000344	U
2,4-Dichlorophenol	0.22		0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.000115	U	0.000115	U	0.000115	U	0.000115	U	0.000115	U *	0.000143	U	0.000271	U*	0.000271	U	0.00026	U	0.000265	U	0.000271	U
2,4-Dimethylphenol	1.5		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000148	U	0.000148	U	0.000148	U	0.000148	U	0.000148	U *	0.000184	U	0.000188	U	0.000188	U	0.00018	U	0.000184	U	0.000188	U
2,4-Dinitrophenol	0.15		0.0004	U	0.0004	U	0.00040	U	0.0004	U	0.0004	U	0.0004	U	NA		0.00146	U	0.00146	UJL/JL	0.00146	U	0.00146	U	0.001	U	0.000417	U	0.000417	U	0.0004	U	0.000408	U	0.000417	U
2,4-Dinitrotoluene	0.003		0.00032	U	0.00032	U	0.00032	U	0.00032	U	0.00032	U*	0.00032	U	NA		0.000127	U	0.000127	U	0.000127	U	0.000159	UFL	0.000333	U	0.00032	U	0.00032	U	0.00032	U	0.000327	U	0.000333	U
2,6-Dinitrotoluene	0.003		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	NA		0.000199	U	0.000199	U	0.000199	U	0.000248	ULF	0.000302	U*	0.000302	U	0.00029	U	0.00029	U	0.000296	U	0.000302	U
2-Chloronaphthalene	5.8		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA		0.00109	U	0.00109	UJL/JL	0.00109	U	0.0011	U	0.001	UF	0.000198	U*	0.000198	U	0.00019	U	0.000194	U	0.000198	U
2-Chlorophenol	0.37		0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	NA		0.0000135	U	0.0000135	U	0.0000135	U	0.000135	U *	0.000169	ULF	0.000229	U*	0.000229	U	0.00022	U	0.000224	U	0.000229	U *
2-Methylnaphthalene	0.29		0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00016	J	NA		0.00048	U *	0.000526	J	0.00048	U	0.00048	U	0.0006	JF	0.00148	J	0.000158	J	0.00014	U	0.000143	U	0.000146	U
2-Methylphenol	1.2		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U	0.000199	UF	0.000198	U	0.000198	U	0.00019	U	0.000194	U	0.000198	U
2-Nitroaniline	0.02		0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	NA		0.000163	U	0.000163	U	0.000163	U	0.000203	U	0.000365	U	0.000365	U	0.00035	U	0.00035	U	0.000357	U	0.000365	U
2-Nitrophenol	0.15		0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	NA		0.000135	U	0.000135	U	0.000135	U	0.000169	U	0.000229	U*	0.000229	U	0.00022	U	0.00022	U	0.000224	U	0.000229	U
3 & 4 Methylphenol	0.12		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000163	U	0.000517	J	0.000268	J	0.000163	UJL	0.000163	U *	0.0005	JF	0.000167	U*	0.000167	U	0.00016	U	0.000163	U	0.000167	U
3,3'-Dichlorobenzidine	0.0045		0.00032	U	0.00032	U	0.00032	U	0.00032	U	0.00032	U	0.00032	U	NA		0.00022	U	0.00022	U	0.00022	U	0.0004	U	0.000275	U	0.000333	U	0.00032	U	0.00032	U	0.000327	U	0.000333	U
3-Nitroaniline	0.022		0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	NA		0.000344	U	0.000344	U	0.000344	U	0.000208	U	0.00043	U	0.000135	U	0.000135	U	0.00013	U	0.000133	U	0.000135	U
4,6-Dinitro-2-methylphenol	0.007		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA		0.000736	U	0.000736	U	0.000736	UJL	0.000736	U	0.00092	U	0.00016	U*	0.00016	U	0.00016	U	0.000163	U	0.00016	U
4-Bromophenyl phenyl ether	0.00014		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA		0.000167	U	0.000167	U	0.000167	U	0.000167	U	0.000209	UF	0.000260	U*	0.00026	U	0.00025	U	0.000255	U	0.00026	U
4-Chloro-3-methylphenol	0.37		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA		0.000157	U	0.000157	UJL	0.000157	U	0.000196	UF	0.000260	U	0.00026	U	0.00025	U	0.00025	U	0.000255	U	0.00026	U
4-Chloroaniline	0.01		0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	NA		0.000149	U	0.000149	U	0.000149	U	0.000149	U	0.000186	U	0.000115	U	0.000115	U	0.00011	U	0.000112	U	0.000115	U
4-Chlorophenyl phenyl ether	0.00014		0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	NA		0.000232	U	0.000232	U	0.000232	U	0.000232	U	0.00029	UFL	0.000240	U*	0.00024	U	0.00023	U	0.000235	U	0.00024	U
4-Nitroaniline	0.1		0.00023	U	0.00023	U	0.00023	U *	0.00023	U	0.00023	U*	0.00023	U	NA		0.000247	U	0.000247	U	0.000247	U	0.000247	U	0.000309	U	0.000240	U	0.00024	U	0.00023	U	0.000235	U	0.00024	U
4-Nitrophenol	0.15		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA		0.000531	U	0.000531	UJL	0.000531	U *	0.000664	UH	0.000344	U	0.000344	U	0.00033	U	0.00033	U	0.000337	U	0.000344	U
Acenaphthene	4.4		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000475	J	0.00044	J	0.000248	J	0.000208	U	0.000215	U	0.00026	UFL	0.000765	J *	0.000167	U	0.00016	U	0.00163	U	0.000223	J	0.00016	U	0.000181	J	0.000167	U
Acenaphthylene	4.4		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA		0.000215	U *	0.000215	U	0.000215	U	0.000344	U	0.000268	UFL	0.000167	U*	0.000167	U	0.00016	U	0.000163	U	0.000167	U	0.00016	U	0.00016	U	0.000167	U
Aniline	0.36		0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	NA		0.000314	U	0.000314	UJL	0.000314	U *	0.000314	U	0.000392	UL	0.000125	U	0.000125	U	0.00012	U	0.000122	U	0.000125	U	0.00012	U	0.00012	U	0.000125	U
Anthracene	22		0.00044	U	0.00044	U	0.00044	U	0.00044	U	0.00044	U	0.00044	U	NA		0.000163	J	0.000154	U	0.000197	J	0.000154	U	0.000192	U	0.000458	U*	0.000458	U	0.00044	U	0.000449	U	0.000458	U	0.00044	U	0.00044	U	0.000458	U
Benzo[a]anthracene	0.0028		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000187	U	0.000260	U	0.00026	U	0.00025	U	0.000255	U	0.00026	U	0.00025	U	0.00025	U	0.00026	U
Benzo[a]pyrene	0.0002		0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	0.00013	U	NA		0.000148	U *	0.000148	U	0.000148	U	0.000148	U	0.000184	U	0.000135	U	0.00013	U *	0.000133	U *	0.000135	U *	0.00013	U *	0.00013	U	0.00013	U	0.00013	U
Benzo[b]fluoranthene	0.0028		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018Ô	U	NA		0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000262	U	0.000188	U	0.00018	U *	0.000184	U *	0.000188	U *	0.00018	U	0.00018	U	0.00018	U	0.00018	U
Benzo[g,h,i]perylene	2.2		0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	NA		0.000143	U	0.000143	U	0.000143	U	0.000143	U	0.000179	U	0.000365	U	0.00035	U *	0.000357	U *	0.000365	U *	0.00035	U *	0.00035	U	0.00035	U	0.000365	U
Benzo[k]fluoranthene	0.0028		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NA		0.000166	U	0.000166	U	0.000166	U	0.000166	U	0.000208	U	0.000167	U	0.00016	U *	0.000163	U *	0.000167	U *	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Benzoic acid	29		0.00061	U*	0.00061	U	0.00061	U *	0.00061	U	0.00061	U	0.00191	J	NA		0.00106	U	0.0119	U	0.00106	U	0.00106	U *	0.001	U	0.000635	U*	0.000635	U	0.00061	U	0.000622	U	0.000635	U	0.00061	U	0.000997	J *	0.000698	J *
Benzyl alcohol	7.3		0.00051	U	0.00051	U	0.00051	U	0.00051	U	0.00051	U	0.00051	U	NA		0.0045	U *	0.0045	UJL/JL	0.0045	U	0.00215	b *	0.001	U	0.000531	U	0.000531	U *	0.00051	U *	0.00052	U *	0.000531	U *	0.000668	J	0.00051	U *	0.000531	U *
bis (2-Chloroisopropyl) ether	0.0029		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NA		0.000139	U	0.000139	U	0.000139	U	0.00017	U *	0.000187	U	0.000188	U	0.00018	U	0.00018	U	0.000184	U	0.000188	U	0.00018	U	0.00018	U	0.000188	U
Bis(2-chloroethoxy)methane	0.00019		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA		0.00017	U	0.00017	U	0.00017	U	0.000278	U *	0.000213	UF	0.000198	U*	0.000198	U	0.00019	U	0.000194	U	0.000198	U *	0.00019	U	0.00019	U	0.000198	U
Bis(2-chloroethyl)ether	0.0019		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.000278	U	0.000278	U	0.000278	U	0.000278	U	0.000139	U	0.000348	U	0.000188	U	0.000188	U	0.00018	U	0.000184	U	0.000188	U *	0.00018	U	0.00018	U	0.000188	U
Bis(2-ethylhexyl) phthalate	0.006		0.000793	J	0.00059	U	0.00059	U	0.00059	U	0.00059	U	0.00193	b	NA		0.000469	J	0.000372	U	0.000225	U	0.000629	J	0.000174	UF	0.000615	U	0.00059	U	0.000602	U	0.000615	U	0.00059	U	0.00059	U	0.00059	U	0.000615	U	0.00059	U	0.000590	U
Butyl benzyl phthalate	1.1		0.00085	U	0.00085	U	0.00085	U	0.00085	U	0.000889	J	0.00153	J	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.000281	U	0.00141	J	0.000885	U	0.00085	U	0.00085	U	0.000867	U	0.000885	U	0.00085	U	0.00085	U	0.000885	U	0.00085	U	0.00169	J
Carbazole			NA		NA		NA		NA		NA		NA		0.000453	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	0.28		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	NA		0.000159	U *	0.000159	U	0.000159	U	0.000159	U	0.000199	U	0.000250	U	0.00025	U	0.00024	U	0.000245	U	0.00025	U	0.00024	U	0.00024	U	0.00025	U	0.00024	U	0.00024	U	0.00024	U
Dibenz(a,h)anthracene	0.00024		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	NA		0.000148	U	0.000148	U	0.000148	U	0.000148	U	0.000184	U	0.000302	U	0.00029	U *	0.000296	U *	0.000302	U *	0.00029	U *	0.00029	U	0.00029	U	0.000302	U	0.00029	U	0.00029	U	0.00029	U
Dibenzofuran	0.29		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000431	J	0.000336	U	0.000432	J	0.000336	U	0.000336	U	0.00042	ULF	0.000739	J *	0.000167	U	0.00016	U	0.00163	U	0.000167	U	0.00016	U	0.00016	U	0.000167	U	0.00016	U	0.00016	U	0.00016	U
Diethyl phthalate	58		0.00419	U	0.00419	U	0.00419	U	0.00419	U	0.00419	U	0.00419	U	NA		0.000253	J	0.00042	J	0.000118	U	0.000118	U	0.000147	UFL	0.00436	U	0.00436	U	0.00419	U	0.00428	U	0.00436	U	0.00419	U	0.00419	U	0.00436	U	0.00419	U	0.00419	U	0.00419	U
Dimethyl phthalate	58		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NA		0.000143	U	0.000143	U	0.000143	U	0.000143	U	0.000178	ULF	0.000188	U	0.000188	U	0.00018	U	0.000184	U	0.000188	U	0.00018	U	0.00018	U	0.000188	U	0.00018	U	0.00018	U	0.00018	U
Di-n-butyl phthalate	7.3		0.00187	U	0.00187	U	0.00187	U	0.00187	U	0.00187	U	0.00399	J	NA		0.0008	U *	0.0008	U	0.0008	U	0.0386	* b	0.001	U	0.00195	U	0.00187	U	0.00191	U	0.00195	U	0.00187	U	0.00187	U	0.00187	U	0.00195	U	0.00187	U	0.00187	U	0.00187	U
Di-n-octyl phthalate	0.73		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000495	J	NA		0.000169	U	0.000169	U	0.000169	U	0.000169	U	0.000212	U	0.000167	U	0.000167	U	0.00016	U	0.000163	U	0.000167	U	0.00016	U *	0.00016	U	0.000343	J	0.00016	U	0.00016	U	0.00016	U
Fluoranthene	2.9		0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.000148	U	0.000148	U	0.000148	U	0.000148	U	0.000148	U	0.000184	U	0.000842	J *	0.000323	U	0.00031	U	0.000316	U	0.000323	U	0.00031	U	0.00031	U	0.000323	U	0.00031	U	0.00031	U	0.00031	U
Fluorene	2.9		0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.000205	U	0.000205	U	0.000271	J	0.000205	U	0.000205	U	0.000256	ULF	0.000800	J *	0.000204	J	0.00012	U	0.000122	U	0.000125	U	0.00012	U	0.000215	J	0.000125	U	0.00012	U	0.00012	U	0.00012	U
Hexachlorobenzene	0.0013		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	NA		0.000126	U	0.000126	U	0.000126	U	0.000157	UF	0.000260	U*	0.00026	U	0.00025	U	0.00025	U	0.000255	U	0.00026	U	0.00025	U	0.00025	U	0.00026	U	0.00025	U	0.00025	U	0.00025	U
Hexachlorobutadiene	0.026		0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NA		0.000252	U	0.000252	U	0.000252	U	0.000252	U *	0.000315	UF	0.000198	U*	0.000198	U	0.00019	U	0.000194	U	0.000198	U	0.00019	U	0.00019	U	0.000198	U	0.00019	U	0.00019	U	0.00019	U
Hexachlorocyclopentadiene	0.05		0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	NA		0.000431	U	0.000431	U	0.000431	U	0.000431	U *	0.000539	U	0.000156	U*	0.00015	U	0.00015	U	0.000153	U	0.00015	U	0.00015	U	0.00015	U	0.000156	U	0.00015	U	0.00015	U	0.00015	U
Hexachloroethane	0.051		0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	NA		0.00014	U	0.00014	U	0.00014	U	0.00014	U *	0.000177	UFL	0.000177	U	0.00017	U	0.00017	U	0.000173	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U
Indeno[1,2,3-cd]pyrene	0.0028		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	NA		0.000852	U	0.000852	U	0.000852	U	0.000143	U	0.000179	U	0.000302	U	0.00029	U *	0.000296	U *	0.000302	U *	0.00029	U	0.00029	U	0.00029	U	0.000302	U	0.00029	U	0.00029	U	0.00029	U
Isophorone	2.2		0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	NA		0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.00021	ULF	0.000156	U	0.00015	U	0.00015	U	0.000153	U	0.00015	U	0.00015	U	0.00015	U	0.000156	U	0.00015	U	0.00015	U	0.00015	U
Naphthalene	1.5		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.000292	J	0.00105	U	0.00081	J	0.00139	J	0.000706	J	0.00156	*	0.0014	F	0.00394		0.00043	J	0.00016	U	0.000163	U	0.000167	U	0.00157	J	0.000167	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U
Nitrobenzene	0.15		0.0002	U	0.0002	U	0.00020	U	0.0002	U	0.0002	U	0.0002	U	NA		0.000934	U	0.000934	U	0.000934	U	0.00116	*	0.001	UF	0.000208	U*	0.000208	U	0.0002	U	0.000204	U	0.000208	U *	0.0002	U	0.0002	U	0.000208	U	0.0002	U	0.0002	U	0.0002	U
N-Nitrosodi-n-propylamine	0.00029		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	NA		0.000161	U	0.000161	U	0.000161	U	0.000161	U *	0.000202	UFL	0.000250	U	0.00025	U	0.00024	U	0.000245	U	0.00025	U	0.00024	U	0.00024	U	0.00025	U	0.00024	U	0.00024	U	0.00024	U
N-Nitrosodiphenylamine	0.42		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	NA		0.000155	U	0.000155	U	0.000155	U	0.000155	U	0.000193	UF	0.000344	U*	0.000344	U	0.00033	U	0.000337	U	0.000344	U	0.00033	U	0.00033	U	0.000344	U	0.00033	U	0.00033	U	0.00033	U
Pentachlorophenol	0.001		0.00096	U	0.00096	U	0.00096	U	0.00096	U	0.00096	U	0.00096	U	NA		0.000441	U	0.000441	U	0.000441	UJL	0.000441	U	0.000551	U	0.00100	U	0.001	U	0.00096	U	0.00098	U	0.001	U	0.00096	U *	0.00096	U	0.001	U	0.00096	U	0.00096	U	0.00096	U
Phenanthrene	2.2		0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.00029	U	0.000417	J	0.000176	U	0.000176	U	0.000262	J	0.000176	U	0.0004	U	0.0005	U	0.00199	*	0.000302	U	0.00029	U	0.000296	U	0.000302	U	0.00029	U	0.00029	U	0.000302	U	0.00029	U	0.00029	U	0.000292	J
Phenol	2.2		0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	NA		0.000202	U	0.000401	J	0.000202	UJL	0.0008	U *	0.001	UF	0.000146	U	0.000146	U	0.00014	U	0.000143	U	0.000146	U	0.00014	U	0.00014	U	0.000146	U	0.00014	U	0.00014	U	0.000521		0.00014	U
Pyrene	2.2		0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.00033	U	0.000159	U	0.000159	U *	0.000159	UJL	0.000159	U	0.000199	U	0.000508	J	0.000344	U	0.00033	U	0.00033	U	0.000337	U	0.000344	U	0.00033	U	0.00033	U	0.000344	U	0.00033	U	0.00033	U	0.00033	U
Pyridine	0.073		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	NA		0.000725	U	0.00467	U	0.00101	U	0.000725	U	0.000906	U	0.000250	U	0.00025	U	0.00024	U	0.000245	U	0.00025	U	0.00024	U	0.00024	U	0.00025	U	0.00024	U	0.00024	U	0.00024	U
Herbicides by EPA 8151A																																
2,4-D	0.07		0.0000392	U	0.0000381	U	0.0000385	U	0.0000377	U	0.0000381	U	0.000392	U	0.000156	U	0.0000288	U	0.0000267	U	0.0000206	UJL	0.0000257	U	0.0000453	U	0.0000392	U*	0.00004	U	0.0000392	U	0.0000396	U	0.00645	P1	0.0000392	U	0.0000396	U	0.00004	U			0.0000381	U	0.0000385	U	0.0000377	U	0.0000385	U
VOCs by EPA 8260B																																
1,1,1,2-Tetrachloroethane	0.079		0.000178	U	0.000178	U	0.00890	U	0.000178	U	0.074	U	0.009	U	NA		0.000644	U	0.000644	U	0.000327	U	0.000327	U	0.000327	U	0.000178	U	0.000178	U	0.000178	U	0.000178	U	0.000178	U	0.00089	U	0.00089	U	0.00089	U			0.000178	U	0.000178	U	0.000178	U	0.00037	U
1,1,1-Trichloroethane	0.2		0.000209	U	0.000209	U	0.01050	U	0.000209	U	0.074	U	0.0075	U	NA		0.00169	U	0.00169	U	0.000504	U	0.000504	U	0.000504	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.00105	U	0.00105	U	0.00105	U			0.000209	U	0.000209	U	0.000209	U	0.00037	U
1,1,2,2-Tetrachloroethane	0.01		0.000197	U	0.000197	U	0.00985	U	0.000197	U	0.124	U	0.011	U	NA		0.00047	U	0.00047	U	0.000284	U	0.000284	U	0.000284	U	0.000197	U	0.000197	U	0.000197	U	0.000197	U	0.000197	U	0.000985	U	0.000985	U	0.000985	U			0.000197	U	0.000197	U	0.000197	U	0.00062	U
1,1,2-Trichloroethane	0.005		0.000492	J	0.000209	U	0.01050	U	0.00028	U	0.066	U	0.014	U	NA		0.000511	U	0.000511	U	0.000228	U	0.000228	U	0.000228	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.00105	U	0.00105	U	0.00105	U			0.000209	U	0.000209	U	0.00028	U	0.00033	U
1,1-Dichloroethane	0.005		0.000168	U	0.000168	U	0.00840	U	0.000168	U	0.076	U	0.0055	U	NA		0.000635	U	0.000635	U	0.000244	U	0.000244	U	0.000244	U	0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.000168	U	0.00084	U	0.00084	U	0.00084	U			0.000168	U	0.000168	U	0.000168	U	0.00038	U
1,1-Dichloroethene	0.007		0.0308		0.0256		0.03180	J	0.0304		0.072	U	0.0291	J	NA		0.000738	U	0.000738	U	0.000216	U	0.000216	U	0.000216	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00096	U	0.00096	U	0.00096	U			0.000192	U	0.000192	U	0.000192	U	0.00036	U
1,1-Dichloropropene	0.02		0.000191	U	0.000191	U	0.00955	U	0.000191	U	0.068	U	0.0105	U	NA		0.0016	U	0.0016	U	0.000481	U	0.000481

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																											
Sample Location			MW-37	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-17	RI-1-17	RI-1-17	RI-1-17
Sample Date			7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/18/2018	7/19/2017	1/25/2017	7/13/2016	1/18/2016	7/23/2015	1/28/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																											
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																									
SVOCs by EPA 8270C																											
1,2,4-Trichlorobenzene	0.07		0.00016 U	NA	0.00068 U	0.00068 U	0.00068 U	0.00068 U *	0.00085 UF	0.000167 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U	0.000167 U	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.00068 U	0.00068 U	0.00068 U
1,2-Dichlorobenzene	0.6		0.00021 U	NA	0.000296 U	0.000296 U	0.000296 U	0.000296 U *	0.00037 UL	0.000219 U*	0.00021 U	0.000219 U	0.000214 U	0.00021 U	0.000219 U *	0.000219 U	0.00021 U	0.000239 U	0.00021 U	0.00021 U	0.000210 U	0.00021 U	NA	0.000296 U	0.000296 U	0.000296 U
1,3-Dichlorobenzene	2.2		0.0001 U	NA	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.000438 UFL	0.000104 U	0.0001 U	0.000104 U	0.000102 U	0.0001 U	0.000104 U *	0.000104 U	0.0001 U	0.000114 U	0.0001 U	0.0001 U	0.000100 U	0.0001 U	NA	0.00035 U	0.00035 U	0.00035 U
1,4-Dichlorobenzene	0.072		0.00016 U	NA	0.000428 U	0.000428 U	0.000428 U	0.000428 U *	0.000536 UF	0.000167 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000428 U	0.000428 U	0.000428 U
2,4,5-Trichlorophenol	7.3		0.00029 U	NA	0.000108 U	0.000108 U	0.000108 U	0.000108 U	0.000135 UF	0.000302 U*	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000302 U *	0.000302 U	0.00029 U	0.00033 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000108 U	0.000108 U	0.000108 UJL
2,4,6-Trichlorophenol	0.073		0.00033 U	NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U *	0.000169 ULF	0.000344 U*	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000344 U *	0.000344 U *	0.00033 U	0.000375 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000135 U	0.000135 U	0.000135 UJL
2,4-Dichlorophenol	0.22		0.00026 U	0.000115 U	0.000115 U	0.000115 U	0.000115 U	0.000115 U *	0.000143 U	0.000271 U*	0.00026 U	0.000271 U	0.000265 U	0.00026 U	0.000271 U *	0.000271 U *	0.00026 U	0.000295 U	0.00026 U	0.00026 U	0.000260 U	0.00026 U	0.000115 U	0.000115 U	0.000115 U	0.000115 UJL
2,4-Dimethylphenol	1.5		0.00113	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U *	0.000184 U	0.000400 J	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000188 U *	0.000188 U *	0.00018 U	0.000205 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	0.000148 U	0.000148 U	0.000148 U	0.000148 UJL
2,4-Dinitrophenol	0.15		0.0004 U	NA	0.00146 U	0.00146 UJL/JL	0.00146 U	0.00146 U	0.001 U	0.000417 U	0.0004 U	0.000417 U	0.000408 U	0.0004 U	0.000417 U *	0.000417 U *	0.0004 U	0.000455 U	0.0004 U	0.0004 U	0.000400 U	0.0004 U	NA	0.00146 U	0.00146 UJL/JL	0.00146 UJL
2,4-Dinitrotoluene	0.003		0.00032 U	NA	0.000127 U	0.000127 U	0.000127 U	0.000127 U *	0.000159 UFL	0.000333 U	0.00032 U	0.000333 U	0.000327 U	0.00032 U	0.000333 U *	0.000333 U	0.00032 U	0.000364 U	0.00032 U	0.00032 U*	0.000320 U*	0.00032 U	NA	0.000127 U	0.000127 U	0.000127 U
2,6-Dinitrotoluene	0.003		0.00029 U	NA	0.000199 U	0.000199 U	0.000199 U	0.000199 U *	0.000248 ULF	0.000302 U*	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000302 U *	0.000302 U	0.00029 U	0.00033 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000199 U	0.000199 U	0.000199 U
2-Chloronaphthalene	5.8		0.00019 U	NA	0.00109 U	0.00109 UJL/JL	0.00109 U	0.0011 U *	0.001 UF	0.000198 U*	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000198 U *	0.000198 U *	0.00019 U	0.000216 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	NA	0.00109 U	0.00109 UJL/JL	0.00109 U
2-Chlorophenol	0.37		0.00022 U	NA	0.0000135 U	0.0000135 U	0.0000135 U	0.000135 U *	0.000169 ULF	0.000229 U*	0.00022 U	0.000229 U	0.000224 U	0.00022 U	0.000229 U *	0.000229 U *	0.00022 U	0.00025 U	0.00022 U	0.00022 U	0.000220 U	0.00022 U	NA	0.0000135 U	0.0000135 U	0.0000135 UJL
2-Methylnaphthalene	0.29		0.000262 J	NA	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.0006 UF	0.000606 J	0.000269 J	0.000146 U	0.000143 U	0.00014 U	0.000146 U	0.000146 U	0.00014 U	0.000352 J	0.00014 U	0.00014 U	0.000140 U	0.00014 U	NA	0.00048 U	0.00048 U	0.00048 U
2-Methylphenol	1.2		0.000367 J	0.000159 U	0.000159 U	0.000159 U	0.000159 U	0.000159 U *	0.000199 UF	0.000198 U	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000198 U *	0.000198 U *	0.00019 U	0.000216 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	0.000159 U	0.000159 U	0.000159 U	0.000159 UJL
2-Nitroaniline	0.02		0.00035 U	NA	0.000163 U	0.000163 U	0.000163 U	0.000163 U *	0.000203 U	0.000365 U	0.00035 U	0.000365 U	0.000357 U	0.00035 U	0.000365 U *	0.000365 U *	0.00035 U	0.000398 U	0.00035 U	0.00035 U	0.000350 U	0.00035 U	NA	0.000163 U	0.000163 U	0.000163 U
2-Nitrophenol	0.15		0.00022 U	NA	0.000135 U	0.000135 U	0.000135 U	0.000135 U *	0.000169 U	0.000229 U*	0.00022 U	0.000229 U	0.000224 U	0.00022 U	0.000229 U *	0.000229 U *	0.00022 U	0.00025 U	0.00022 U	0.00022 U	0.000220 U	0.00022 U	NA	0.000135 U	0.000135 U	0.000135 UJL
3 & 4 Methylphenol	0.12		0.0014	0.000163 U	0.000163 U	0.000163 U	0.000163 U *	0.000163 U *	0.000203 UF	0.000675 J	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	0.000163 U	0.000163 U	0.000163 U	0.000163 UJL
3,3'-Dichlorobenzidine	0.0045		0.00032 U	NA	0.00022 U	0.00022 U	0.00022 U	0.0004 U	0.000275 U	0.000333 U	0.00032 U	0.000333 U	0.000327 U	0.00032 U	0.000333 U *	0.000333 U *	0.00032 U	0.000364 U	0.00032 U*	0.00032 U	0.000320 U	0.00032 U	NA	0.00022 U	0.00022 U	0.00022 U
3-Nitroaniline	0.022		0.00013 U	NA	0.000344 U	0.000344 U	0.000344 U	0.000208 U	0.00043 U	0.000135 U	0.00013 U	0.000135 U	0.000133 U	0.00013 U	0.000135 U *	0.000135 U *	0.00013 U	0.000148 U	0.00013 U	0.00013 U	0.000130 U	0.00013 U	NA	0.000344 U	0.000344 U	0.000344 U
4,6-Dinitro-2-methylphenol	0.007		0.00016 U	NA	0.000736 U	0.000736 U	0.000736 U	0.000736 U *	0.00092 U	0.000167 U	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000736 U	0.000736 U	0.000736 UJL
4-Bromophenyl phenyl ether	0.00014		0.00025 U	NA	0.000167 U	0.000167 U	0.000167 U	0.000167 U *	0.000209 UF	0.000260 U*	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00026 U *	0.00026 U *	0.00025 U	0.000284 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.000167 U	0.000167 U	0.000167 U
4-Chloro-3-methylphenol	0.37		0.00025 U	NA	0.000157 U	0.000157 U	0.000157 U	0.000157 U *	0.000196 UF	0.000260 U	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00026 U *	0.00026 U *	0.00025 U	0.000284 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.000157 U	0.000157 U	0.000157 UJL
4-Chloroaniline	0.01		0.00011 U	NA	0.000149 U	0.000149 U	0.000149 U	0.000149 U *	0.000186 U	0.000115 U	0.00011 U	0.000115 U	0.000112 U	0.00011 U	0.000115 U *	0.000115 U *	0.00011 U	0.000125 U	0.00011 U	0.00011 U	0.000110 U	0.00011 U	NA	0.000149 U	0.000149 U	0.000149 U
4-Chlorophenyl phenyl ether	0.00014		0.00023 U	NA	0.000232 U	0.000232 U	0.000232 U	0.000232 U *	0.00029 UFL	0.000240 U*	0.00023 U	0.00024 U	0.000235 U	0.00023 U	0.00024 U *	0.00024 U *	0.00023 U	0.000261 U	0.00023 U	0.00023 U	0.000230 U	0.00023 U	NA	0.000232 U	0.000232 U	0.000232 U
4-Nitroaniline	0.1		0.00023 U	NA	0.000247 U	0.000247 U	0.000247 U	0.000247 U *	0.000309 U	0.000240 U	0.00023 U	0.00024 U	0.000235 U	0.00023 U	0.00024 U *	0.00024 U *	0.00023 U	0.000261 U	0.00023 U	0.00023 U	0.000230 U*	0.00023 U	NA	0.000247 U	0.000247 U	0.000247 U
4-Nitrophenol	0.15		0.00033 U	NA	0.000531 U	0.000531 U	0.000531 U	0.000531 U *	0.000664 UH	0.000344 U	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000344 U *	0.000344 U *	0.00033 U	0.000375 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000531 U	0.000531 U	0.000531 UJL
Acenaphthene	4.4		0.000358 J	0.000302 J	0.000307 J	0.000397 J	0.000208 U	0.000215 U	0.00026 UFL	0.000167 U*	0.00016 U	0.000167 U	0.000189 J	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.000504	0.000208 U	0.000208 U	0.000208 U	0.000208 U
Acenaphthylene	4.4		0.00016 U	NA	0.000215 U	0.000215 U	0.000215 U	0.000344 U	0.000268 UFL	0.000167 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000215 U	0.000215 U	0.000215 U
Aniline	0.36		0.00012 U	NA	0.000314 U	0.000314 UJL	0.000314 U *	0.000314 U	0.000392 UL	0.000125 U	0.00012 U	0.000125 U	0.000122 U	0.00012 U	0.000125 U *	0.000125 U *	0.00012 U	0.000136 U	0.00012 U	0.00012 U	0.000120 U	0.00012 U	NA	0.000314 U	0.000314 UJL	0.000314 U *
Anthracene	22		0.00044 U	NA	0.000154 U	0.000154 U	0.000154 U	0.000154 U	0.000192 U	0.000458 U	0.00044 U	0.000458 U	0.000449 U	0.00044 U	0.000458 U *	0.000458 U *	0.00044 U	0.0005 U	0.00044 U	0.00044 U	0.000440 U	0.00044 U	NA	0.000154 U	0.000154 U	0.000154 U
Benzo[a]anthracene	0.0028		0.00025 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000187 U	0.000260 U	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00026 U *	0.00026 U *	0.00025 U	0.000284 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Benzo[a]pyrene	0.0002		0.00013 U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000135 U	0.00013 U	0.000135 U *	0.000133 U	0.00013 U	0.000135 U *	0.000135 U *	0.00013 U	0.000148 U	0.00013 U	0.00013 U	0.000130 U	0.00013 U	NA	0.000148 U *	0.000148 U	0.000148 U
Benzo[b]fluoranthene	0.0028		0.00018 U	NA	0.00021 U *	0.00021 U	0.00021 U	0.00021 U	0.000262 U	0.000188 U	0.00018 U	0.000188 U *	0.000184 U	0.00018 U	0.000188 U *	0.000188 U *	0.00018 U	0.000205 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	NA	0.00021 U *	0.00021 U	0.00021 U
Benzo[g,h,i]perylene	2.2		0.00035 U	NA	0.000143 U *	0.000143 U	0.000143 U	0.000143 U	0.000179 U	0.000365 U	0.00035 U	0.000365 U *	0.000357 U	0.00035 U	0.000365 U *	0.000365 U *	0.00035 U	0.000398 U	0.00035 U	0.00035 U	0.000350 U	0.00035 U	NA	0.000143 U *	0.000143 U	0.000143 U
Benzo[k]fluoranthene	0.0028		0.00016 U	NA	0.000166 U *	0.000166 U	0.000166 U	0.000208 U	0.000167 U	0.000167 U*	0.00016 U	0.000167 U *	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000166 U *	0.000166 U	0.000166 U
Benzoic acid	29		0.00061 U	NA	0.00106 U	0.00106 U	0.00106 U	0.00106 U *	0.001 U	0.000635 U*	0.00202 J	0.000635 U	0.000622 U	0.00061 U	0.000635 U *	0.000635 U *	0.00061 U	0.000693 U	0.00061 U	0.00061 U	0.000610 U	0.00061 U	NA	0.00106 U	0.0116 U	0.00106 U
Benzyl alcohol	7.3		0.00051 U	NA	0.0045 U *	0.0045 UJL/JL	0.0045 U	0.00256 b *	0.00365 B	0.000531 U	0.00051 U*	0.000531 U *	0.000502 U *	0.00051 U	0.000531 U *	0.000531 U *	0.00051 U	0.00058 U	0.00051 U	0.00051 U	0.000510 U	0.00051 U	0.0045 U *	0.0045 UJL/JL	0.0045 U	0.0045 U
bis (2-Chloroisopropyl) ether	0.0029		0.00018 U	NA	0.000139 U	0.000139 U	0.000139 U	0.00017 U *	0.000187 U	0.000188 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000188 U *	0.000188 U *	0.00018 U	0.000205 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	NA	0.000139 U	0.000139 U	0.000139 U
Bis(2-chloroethoxy)methane	0.00019		0.00019 U	NA	0.00017 U	0.00017 U	0.00017 U	0.000278 U *	0.000213 UF	0.000198 U*	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000198 U *	0.000198 U *	0.00019 U	0.000216 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	NA	0.00017 U	0.00017 U	0.00017 U
Bis(2-chloroethyl)ether	0.0019		0.00018 U	0.000278 U	0.000278 U	0.000278 U	0.000278 U	0.000139 U	0.000348 U	0.000188 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000188 U *	0.000188 U *	0.00018 U	0.000205 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	0.000278 U	0.000278 U	0.000278 U	0.000278 U
Bis(2-ethylhexyl) phthalate	0.006		0.00104 J b	NA	0.000225 U *	0.000225 U	0.000225 U	0.000867	0.000174 UF	0.000615 U	0.00059 U	0.000615 U	0.000602 U	0.00059 U	0.000615 U *	0.000615 U *	0.00208 J	0.00067 U	0.00059 U	0.00059 U	0.000590 U	0.00077 J b	NA	0.000225 U *	0.000857 U	0.000225 U
Butyl benzyl phthalate	1.1		0.000889 J	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000281 U	0.000885 U	0.00085 U	0.000885 U	0.000867 U	0.00085 U	0.000885 U *	0.000885 U *	0.00085 U	0.000966 U	0.00085 U	0.00085 U	0.000961 J	0.00085 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Carbazole			NA	0.000453 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000453 U	NA	NA	NA
Chrysene	0.28		0.00024 U	NA	0.000159 U *	0.000159 U	0.000159 U	0.000159 U *	0.000199 U	0.000250 U	0.00024 U	0.00025 U	0.000245 U	0.00024 U	0.00025 U *	0.00025 U *	0.00024 U	0.000273 U	0.00024 U	0.00024 U	0.000240 U	0.00024 U	NA	0.000159 U *	0.000159 U	0.000159 U
Dibenz(a,h)anthracene	0.00024		0.00029 U	NA	0.000148 U *	0.000148 U	0.000148 U	0.000148 U *	0.000184 U	0.000302 U	0.00029 U	0.000302 U *	0.000296 U	0.00029 U	0.000302 U *	0.000302 U *	0.00029 U	0.00033 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000148 U *	0.000148 U	0.000148 U
Dibenzofuran	0.29		0.00016 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U *	0.00042 ULF	0.000167 U*	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	0.000336 U	0.000336 U	0.000336 U	0.000336 U
Diethyl phthalate	58		0.00419 U	NA	0.000118 U	0.000118 U	0.000133 J	0.000118 U	0.000147 UFL	0.00436 U	0.00419 U	0.00436 U	0.00428 U	0.00419 U	0.00436 U *	0.00436 U *	0.00419 U	0.00476 U	0.00419 U	0.00419 U	0.004190 U	0.00419 U	NA	0.000118 U	0.000118 U	0.000693 J
Dimethyl phthalate	58		0.00018 U	NA	0.000143 U	0.000143 U	0.000143 U	0.000143 U	0.000178 ULF	0.000188 U	0.00018 U	0.000188 U	0.000184 U	0.00018 U	0.000188 U *	0.000188 U *	0.00018 U	0.000205 U	0.00018 U	0.00018 U	0.000180 U	0.00018 U	NA	0.000143 U	0.000143 U	0.000143 U
Di-n-butyl phthalate	7.3		0.00187 U	NA	0.0008 U *	0.0008 U	0.0008 U	0.0745 * b	0.001 U	0.00195 U	0.00187 U	0.00195 U	0.00191 U	0.00187 U	0.00195 U *	0.00195 U *	0.00187 U	0.00213 U	0.00187 U	0.00187 U	0.001870 U	0.00187 U	NA	0.0008 U *	0.0008 U	0.0008 U
Di-n-octyl phthalate	0.73		0.00016 U	NA	0.000169 U	0.000169 U	0.000169 U	0.000169 U	0.00025 J	0.000167 U	0.00016 U	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	NA	0.000169 U	0.000169 U	0.000169 U
Fluoranthene	2.9		0.00031 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U	0.000184 U	0.000323 U*	0.00031 U	0.00023 U	0.000316 U	0.00031 U	0.00023 U	0.000323 U *	0.000323 U *	0.00023 U	0.000352 U	0.00031 U	0.00031 U	0.000310 U	0.00031 U	0.000148 U	0.000148 U	0.000148 U	0.000148 U
Fluorene	2.9		0.00012 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000256 ULF	0.000125 U*	0.00012 U	0.000125 U	0.000122 U	0.00012 U	0.000125 U *	0.000125 U *	0.00012 U	0.000136 U	0.00012 U	0.00012 U	0.000120 U	0.00012 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U
Hexachlorobenzene	0.0013		0.00025 U	NA	0.000126 U	0.000126 U	0.000126 U	0.000157 U	0.000260 U*	0.00025 U	0.00026 U	0.000255 U	0.00025 U	0.00026 U	0.000255 U *	0.000255 U *	0.00025 U	0.000284 U	0.00025 U	0.00025 U	0.000250 U	0.00025 U	NA	0.000126 U	0.000126 U	0.000126 U
Hexachlorobutadiene	0.026		0.00019 U	NA	0.000252 U	0.000252 U	0.000252 U	0.000252 U *	0.000315 UF	0.000198 U*	0.00019 U	0.000198 U	0.000194 U	0.00019 U	0.000198 U *	0.000198 U *	0.00019 U	0.000216 U	0.00019 U	0.00019 U	0.000190 U	0.00019 U	NA	0.000252 U	0.000252 U	0.000252 U
Hexachlorocyclopentadiene	0.05		0.00015 U	NA	0.000431 U	0.000431 U	0.000431 U	0.000431 U *	0.000539 U	0.000156 U*	0.00015 U	0.000156 U	0.000153 U	0.00015 U	0.000156 U *	0.000156 U *	0.00015 U	0.00017 U	0.00015 U	0.00015 U	0.000150 U	0.00015 U	NA	0.000431 U	0.000431 U	0.000431 U
Hexachloroethane	0.051		0.00017 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U *	0.00014 U *	0.000175 UFL	0.000177 U	0.00017 U	0.000177 U	0.000173 U	0.00017 U	0.000177 U *	0.000177 U *	0.00017 U	0.000193 U	0.00017 U	0.00017 U	0.000170 U	0.00017 U	NA	0.00014 U	0.00014 U	0.00014 U *
Indeno[1,2,3-cd]pyrene	0.0028		0.00029 U	NA	0.000852 U *	0.000852 U	0.000852 U	0.000143 U	0.000179 U	0.000302 U	0.00029 U	0.000302 U *	0.000296 U	0.00029 U	0.000302 U	0.000302 U	0.00029 U	0.00033 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	NA	0.000852 U *	0.000852 U	0.000852 U
Isophorone	2.2		0.00015 U	NA	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.00021 ULF	0.000156 U	0.00015 U	0.000156 U	0.000153 U	0.00015 U	0.000156 U *	0.000156 U *	0.00015 U	0.00017 U	0.00015 U	0.00015 U	0.000150 U	0.00015 U	NA	0.000168 U	0.000168 U	0.000168 U
Naphthalene	1.5		0.00016 U	0.000762 U	0.000423 U	0.000657 J	0.000423 U	0.0008 U *	0.001 UF	0.00103 J	0.000606 J	0.000167 U	0.000163 U	0.00016 U	0.000167 U *	0.000167 U *	0.00016 U	0.000182 U	0.00016 U	0.00016 U	0.000160 U	0.00016 U	0.00148 U	0.000423 U	0.000423 U	0.00066 J
Nitrobenzene	0.15		0.0002 U	NA	0.000934 U	0.000934 U	0.000934 U	0.0004 U *	0.001 UF	0.000208 U*	0.0002 U	0.000208 U	0.000204 U	0.0002 U	0.000208 U *	0.000208 U *	0.0002 U	0.000227 U	0.0002 U	0.0002 U	0.000200 U	0.0002 U	NA	0.000934 U	0.000934 U	0.000934 U
N-Nitrosodi-n-propylamine	0.00029		0.00024 U	NA	0.000161 U	0.000161 U	0.000161 U *	0.000161 U	0.000202 UFL	0.000250 U	0.00024 U	0.00025 U	0.000245 U	0.00024 U	0.00025 U *	0.00025 U *	0.00024 U	0.000273 U	0.00024 U	0.00024 U	0.000240 U	0.00024 U	NA	0.000161 U	0.000161 U	0.000161 U *
N-Nitrosodiphenylamine	0.42		0.00033 U	NA	0.000155 U	0.000155 U	0.000155 U	0.000155 U	0.000193 UF	0.000344 U*	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000344 U *	0.000344 U *	0.00033 U	0.000375 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	NA	0.000155 U	0.000155 U	0.000155 U
Pentachlorophenol	0.001		0.00096 U	NA	0.000441 U	0.000441 U	0.000441 UJL	0.000441 U	0.000551 U	0.00100 U	0.00096 U	0.001 U	0.00098 U	0.00096 U	0.001 U *	0.001 U *	0.00096 U	0.00109 U	0.00096 U	0.00096 U	0.000960 U	0.00096 U	NA	0.000441 U	0.000441 U	0.000441 UJL
Phenanthrene	2.2		0.00029 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.0004 U	0.0005 U	0.000302 U*	0.00029 U	0.000302 U	0.000296 U	0.00029 U	0.000302 U *	0.000302 U *	0.00029 U	0.00033 U	0.00029 U	0.00029 U	0.000290 U	0.00029 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U
Phenol	2.2		0.000951	NA	0.000202 U	0.000202 U	0.000202 U	0.0008 U *	0.001 UF	0.000146 U	0.00014 U	0.000146 U	0.000143 U	0.00014 U	0.000146 U *	0.000146 U *	0.00014 U	0.000159 U	0.00014 U	0.00014 U	0.000140 U	0.00014 U	NA	0.000202 U	0.000202 U	0.000202 UJL
Pyrene	2.2		0.00033 U	0.000159 U	0.000159 U *	0.000159 UJL	0.000159 U	0.000159 U	0.000199 U	0.000344 U	0.00033 U	0.000344 U	0.000337 U	0.00033 U	0.000344 U *	0.000344 U *	0.00033 U	0.000375 U	0.00033 U	0.00033 U	0.000330 U	0.00033 U	0.000159 U	0.000159 U *	0.000204 JL	0.000159 U
Pyridine	0.073		0.00024 U	NA	0.000725 U	0.00411 U	0.0012 U	0.000725 U	0.000906 U	0.000250 U	0.00024 U	0.00025 U	0.000245 U	0.00024 U	0.00025 U *	0.00025 U *	0.00024 U	0.000273 U	0.00024 U	0.00024 U	0.000240 U	0.00024 U	NA	0.000725 U	0.00407 U	0.00078 U
Herbicides by EPA 8151A																											
2,4-D	0.07		0.0000392 U	0.000156 U	0.0000288 U	0.0000267 U	0.0000206 UJL	0.0000257 U	0.0000453 U	0.0000396 U*	0.0000392 U	0.0000396 U	0.0000392 U	0.0000392 U	0.0000392 U	0.000135 J	0.0000862 J	0.000228	0.0000385 U	0.0002 U	0.0000377 U	0.0000392 U	0.000155 U	0.0000288 U	0.0000267 U	0.0000206 UJL
VOCs by EPA 8260B																											
1,1,1,2-Tetrachloroethane	0.079		0.00018 U	NA	0.000644 U	0.000644 U	0.000327 U	0.000327 U	0.000327 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.00037 U	0.00018 U	NA	0.000644 U	0.000644 U	0.000327 U
1,1,1-Trichloroethane	0.2		0.00015 U	NA	0.00169 U	0.00169 U	0.000504 U	0.000504 U	0.000504 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U *	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.00037 U	0.00015 U	NA	0.00169 U	0.00169 U	0.000504 U
1,1,2,2-Tetrachloroethane	0.01		0.00022 U	NA	0.00047 U	0.00047 U	0.000284 U	0.000284 U	0.000284 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U *	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.00062 U	0.00022 U	NA	0.00047 U	0.00047 U	0.000284 U
1,1,2-Trichloroethane	0.005		0.00028 U	NA	0.000511 U	0.000511 U	0.000228 U	0.000228 U	0.000228 U	0.000209 U

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																															
Sample Location			RI-1-17	RI-1-17	RI-1-17	RI-1-17	RI-1-17	RI-1-09	MW-40	MW-41	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17
Sample Date			7/2/2021	1/21/2021	7/28/2020	2/7/2020	8/8/2019	1/30/2018	1/25/2018	1/25/2018	7/20/2023	1/30/2023	7/28/2022	1/14/2022	7/2/2021	1/20/2021	7/27/2020	1/20/2020	7/3/2019	1/16/2019	7/16/2018	1/9/2018	7/19/2017	1/17/2017	7/6/2016	1/12/2016	7/15/2015
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																															
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																													
SVOCs by EPA 8270C																															
1,2,4-Trichlorobenzene	0.07		0.00068 U *	0.00085 UF	0.000160 U*	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00016 U	NA	NA	NA	NA			
1,2-Dichlorobenzene	0.6		0.000296 U *	0.00037 UL	0.000210 U*	0.00021 U	0.000239 U	0.00021 U	0.000219 U	0.000322 J	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00021 U	NA	NA	NA	NA			
1,3-Dichlorobenzene	2.2		0.00035 U *	0.000438 UFL	0.000100 U*	0.0001 U	0.000114 U	0.0001 U	0.000104 U	0.000104 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA			
1,4-Dichlorobenzene	0.072		0.000428 U *	0.000536 UF	0.000160 U*	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00016 U *	NA	NA	NA	NA			
2,4,5-Trichlorophenol	7.3		0.000108 U	0.000135 UF	0.000290 U*	0.00029 U	0.00033 U	0.00029 U *	0.000302 U	0.000302 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00029 U	NA	NA	NA	NA			
2,4,6-Trichlorophenol	0.073		0.000135 U	0.000169 ULF	0.000330 U*	0.00033 U	0.000375 U	0.00033 U	0.000344 U	0.000344 U	0.00014 U	0.00014 U	0.0014 U	0.00014 U	0.00014 U	0.000135 U	0.0034	U	0.00033 U	0.00034 U	0.00033 U	0.00033 U	0.00034 U	0.00033 U *	0.00033 U	0.00033 U	0.00033 U	0.00033 U			
2,4-Dichlorophenol	0.22		0.000115 U *	0.000143 U	0.000260 U*	0.00026 U	0.000295 U	0.00026 U	0.000271 U	0.000271 U	0.00011 U	0.00011 U	0.0011 U	0.00011 U	0.00011 U	0.000115 U	0.0027	U	0.00026 U	0.00027 U	0.00026 U	0.00026 U	0.00027 U	0.00026 U *	0.00026 U	0.00026 U	0.00026 U	0.00026 U			
2,4-Dimethylphenol	1.5		0.000148 U *	0.000184 U	0.000180 U	0.00018 U	0.000307 J	0.00018 U	0.000188 U	0.000188 U	0.00015 U	0.0013 J	0.0015 U	0.00015 U	0.00015 U	0.00184	0.0074	J	0.00052 J	0.0071	0.00018 U	0.00018 U	0.00019 U	0.00018 U *	0.0022 J	0.00018 U	0.00018 U	0.00018 U			
2,4-Dinitrophenol	0.15		0.00146 U	0.001 U	0.000400 U	0.0004 U	0.000455 U	0.0004 U *	0.000417 U	0.000417 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0004 U *	NA	NA	NA	NA			
2,4-Dinitrotoluene	0.003		0.000127 U	0.000159 UFL	0.000320 U	0.00032 U	0.000364 U	0.00032 U	0.000333 U	0.000333 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00032 U	NA	NA	NA	NA			
2,6-Dinitrotoluene	0.003		0.000199 U	0.000248 ULF	0.000290 U*	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.000302 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00029 U	NA	NA	NA	NA			
2-Chloronaphthalene	5.8		0.0011 U	0.001 UF	0.000190 U*	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.000198 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00019 U	NA	NA	NA	NA			
2-Chlorophenol	0.37		0.000135 U *	0.000169 ULF	0.000220 U*	0.00022 U	0.00025 U	0.00022 U	0.000229 U	0.000229 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00022 U *	NA	NA	NA	NA			
2-Methylnaphthalene	0.29		0.00048 U	0.0006 UF	0.000140 U	0.00014 U	0.000159 U	0.000399 J	0.000146 U	0.000146 U	0.00048 U	0.00048 U	0.0048 U	0.0028	0.0016	0.0272	0.0015	U	0.0018 B	0.0016 B	0.0021	0.00075 J	0.00015 U	0.00092 J	0.00014 U	0.0017	0.00026 J	0.00025 J			
2-Methylphenol	1.2		0.000159 U	0.000199 UF	0.000190 U	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.000198 U	0.00016 U	0.00016 U	0.0016 U	0.00016 U	0.00016 U	0.000159 U	0.002	U	0.00022 J	0.0022	0.00019 U	0.00019 U	0.0002 U	0.00019 U *	0.00019 U	0.00019 U	0.00019 U	0.00019 U			
2-Nitroaniline	0.02		0.000163 U	0.000203 U	0.000350 U	0.00035 U	0.000398 U	0.00035 U *	0.000365 U	0.000365 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00035 U	NA	NA	NA	NA			
2-Nitrophenol	0.15		0.000135 U	0.000169 U	0.000220 U*	0.00022 U	0.00025 U	0.00022 U	0.000229 U	0.000229 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00022 U	NA	NA	NA	NA			
3 & 4 Methylphenol	0.12		0.000163 U *	0.000203 UF	0.000236 J	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	0.00016 U	0.00016 U	0.0016 U	0.00016 U	0.00016 U	0.000163 U	0.0017	U	0.0002 J	0.0026	0.00016 U	0.00016 U	0.00017 U	0.00016 U	0.00033 J	0.00016 U	0.00016 U	0.00016 U			
3,3'-Dichlorobenzidine	0.0045		0.0004 U	0.000275 U	0.000320 U	0.00032 U	0.000364 U	0.00032 U	0.000333 U	0.000333 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00032 U	NA	NA	NA	NA			
3-Nitroaniline	0.022		0.000208 U	0.00043 U	0.000130 U	0.00013 U	0.000148 U	0.00013 U *	0.000135 U *	0.000135 U *	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00013 U	NA	NA	NA	NA			
4,6-Dinitro-2-methylphenol	0.007		0.000736 U	0.00092 U	0.000160 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00016 U *	NA	NA	NA	NA			
4-Bromophenyl phenyl ether	0.00014		0.000167 U	0.000209 UF	0.000250 U*	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00026 U	0.00017 U	0.00017 U	0.0017 U	0.00017 U	0.00017 U	0.000167 U	0.0026	U	0.00025 U	0.00026 U	0.00025 U	0.00025 U	0.00026 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U			
4-Chloro-3-methylphenol	0.37		0.000157 U	0.000196 UF	0.000250 U	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00026 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00025 U	NA	NA	NA	NA			
4-Chloroaniline	0.01		0.000149 U	0.000186 U	0.000110 U	0.00011 U	0.000125 U	0.00011 U	0.000115 U	0.000115 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00011 U	NA	NA	NA	NA			
4-Chlorophenyl phenyl ether	0.00014		0.000232 U	0.00029 UFL	0.000230 U*	0.00023 U	0.000261 U	0.00023 U	0.00024 U	0.00024 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00023 U	NA	NA	NA	NA			
4-Nitroaniline	0.1		0.000247 U	0.000309 U	0.000230 U	0.00023 U	0.000261 U	0.00023 U *	0.00024 U *	0.00024 U *	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00023 U *	NA	NA	NA	NA			
4-Nitrophenol	0.15		0.000531 U *	0.000664 UH	0.000330 U	0.00033 U	0.000375 U	0.00033 U *	0.000344 U *	0.000344 U *	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00033 U	NA	NA	NA	NA			
Acenaphthene	4.4		0.000215 U	0.00026 UFL	0.000186 J*	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	0.0029	0.0018 J	0.0025 J	0.0034	0.0018	0.0194	0.0017	U	0.0016	0.0023 B	0.0018	0.0011	0.00017 U	0.00139	0.0019	0.002	0.0017	0.00038 J			
Acenaphthylene	4.4		0.000344 U	0.000268 UFL	0.000160 U*	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	0.00021 U	0.00021 U	0.0021 U	0.00021 U	0.00034 U	0.000215 U	0.0017	U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00017 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U			
Aniline	0.36		0.000314 U	0.000392 UL	0.000120 U	0.00012 U	0.000136 U	0.00012 U	0.000125 U *	0.000125 U *	0.00031 UJL	0.00031 U	0.0031 U	0.00031 U *1	0.00031 U	0.000314 UL	0.0013	U	0.00012 U	0.00012 U *	0.00012 U	0.00012 U	0.00013 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U			
Anthracene	22		0.000154 U	0.000192 U	0.000440 U*	0.00044 U	0.0005 U	0.00044 U	0.000458 U	0.000458 U	0.00082 J	0.00027 J	0.0015 U	0.00048 J	0.00015 U	0.00096	0.0046	U	0.00044 U	0.00045 U	0.00044 U	0.00044 U	0.00046 U	0.00044 U	0.00044 U	0.00044 U	0.00044 U	0.00044 U			
Benzo[a]anthracene	0.0028		0.00015 U	0.000187 U	0.000250 U	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00026 U	0.00015 U	0.00015 U	0.0015 U	0.00015 U	0.00015 U	0.00015 U	0.0026	U	0.00025 U	0.00026 U	0.00025 U *	0.00025 U	0.00026 U	0.00025 U *	0.00025 U	0.00025 U	0.00025 U	0.00025 U			
Benzo[a]pyrene	0.0002		0.000148 U	0.000184 U	0.000130 U	0.00013 U	0.000148 U	0.00013 U *	0.000135 U *	0.000135 U *	0.00015 U	0.00015 U	0.0015 U	0.00015 U	0.00015 U	0.000148 U	0.0014	U	0.00013 U	0.00013 U	0.00013 U *	0.00013 U	0.00014 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U *	0.00013 U			
Benzo[b]fluoranthene	0.0028		0.00021 U	0.000262 U	0.000180 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.000188 U	0.00021 U	0.00021 U	0.0021 U	0.00021 U	0.00021 U	0.00021 U	0.0019	U	0.00018 U	0.00018 U	0.00018 U *	0.00018 U	0.00019 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U *	0.00018 U			
Benzo[g,h,i]perylene	2.2		0.000143 U	0.000179 U	0.000350 U	0.00035 U	0.000398 U	0.00035 U *	0.000365 U	0.000365 U	0.00014 U	0.00014 U	0.0014 U	0.00014 U	0.00014 U	0.000143 U	0.0036	U	0.00035 U	0.00036 U	0.00035 U *	0.00035 U	0.00036 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.00035 U			
Benzo[k]fluoranthene	0.0028		0.000166 U	0.000208 U	0.000160 U	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	0.00017 U	0.00017 U	0.0017 U	0.00017 U	0.00017 U	0.000166 U	0.0017	U	0.00016 U	0.00016 U	0.00016 U *	0.00016 U	0.00017 U	0.00016 U *	0.00016 U	0.00016 U	0.00016 U *	0.00016 U			
Benzoic acid	29		0.00106 U *	0.001 U	0.000610 U*	0.00061 U *	0.000693 U *	0.00061 U	0.000635 U *	0.000635 U *	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00205 J *	NA	NA	NA	NA			
Benzyl alcohol	7.3		0.00197 J b *	0.001 U	0.000510 U	0.00051 U	0.00058 U *	0.00074 J	0.000531 U	0.000531 U	0.0045 U	0.0045 U *+	0.045 UJL/JL	0.0045 U	0.0035 B *+ *1	0.0008 U	0.0053	U	0.00051 U *	0.00052 U	0.00051 U *	0.00051 U *	0.00053 U	0.00051 U *	0.00051 U	0.00051 U	0.00051 U	0.00051 U			
bis (2-Chloroisopropyl) ether	0.0029		0.00017 U *	0.000187 U	0.000180 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.000188 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00018 U	NA	NA	NA	NA			
Bis(2-chloroethoxy)methane	0.00019		0.000278 U *	0.000213 UF	0.000190 U*	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.000198 U	NA	NA	NA	NA	0.00028 U	NA	NA		NA	NA	NA	NA	NA	0.00019 U	NA	NA	NA	NA			
Bis(2-chloroethyl)ether	0.0019		0.000139 U	0.000348 U	0.000180 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.000188 U	0.00028 U	0.00028 U	0.0028 U	0.00028 U	0.0011	0.00015 U	0.0019	U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00019 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U			
Bis(2-ethylhexyl) phthalate	0.006		0.000956	0.000174 UF	0.00106 J	0.00059 U	0.00067 U	0.00059 U	0.000615 U	0.000615 U	0.00022 U	0.00022 U	0.0022 U	0.00022 U	0.00015 U	0.000278 U	0.0061	U	0.00063 J	0.0006 U	0.00059 U *	0.00059 U	0.00061 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U			
Butyl benzyl phthalate	1.1		0.00015 U	0.000281 U	0.001240 J	0.00085 U	0.000966 U	0.00085 U	0.000885 U	0.000885 U	0.00015 U	0.00015 U	0.0015 U	0.00015 U	NA	0.000225 U	0.0089	U	0.00085 U	0.00087 U	0.00085 U *	0.00085 U	0.00089 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U			
Carbazole			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Chrysene	0.28		0.000159 U	0.000199 U	0.000240 U	0.00024 U	0.000273 U	0.00024 U	0.00025 U	0.00025 U	0.00016 U	0.00016 U	0.0016 U	0.00016 U	0.00016 U	0.000159 U	0.0025	U	0.00024 U	0.00024 U	0.00024 U *	0.00024 U	0.00025 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U			
Dibenz(a,h)anthracene	0.00024		0.000148 U	0.000184 U	0.000290 U	0.00029 U	0.00033 U	0.00029 U *	0.000302 U	0.000302 U	0.00015 U	0.00015 U	0.0015 U	0.00015 U	0.00015 U	0.000148 U	0.003	U	0.00029 U	0.0003 U	0.00029 U *	0.00029 U	0.0003 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U *	0.00029 U			
Dibenzofuran	0.29		0.000336 U	0.00042 ULF	0.000160 U*	0.00016 U	0.000182 U	0.00016 U	0.000167 U	0.000167 U	0.00034 U	0.00034 U	0.0034 U	0.0013 J	0.00034 U	0.0111	0.0017	U	0.00059 J	0.00083 J B	0.0014 J	0.00088 J	0.00017 U	0.00122 J	0.0017	0.0017	0.0013 J	0.00042 J			
Diethyl phthalate	58		0.000118 U	0.000147 UFL	0.00419 U	0.00419 U	0.00476 U	0.00419 U	0.00436 U	0.00436 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00419 U	NA	NA	NA	NA			
Dimethyl phthalate	58		0.000143 U	0.000178 ULF	0.000180 U	0.00018 U	0.000205 U	0.00018 U	0.000188 U	0.000188 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00018 U	NA	NA	NA	NA			
Di-n-butyl phthalate	7.3		0.021 * b	0.001 U	0.00187 U	0.00187 U	0.00213 U	0.00187 U	0.00195 U	0.00195 U	0.0008 U	0.0008 U	0.008 U	0.0008 U	0.11 B	0.0008 U	0.019	U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U			
Di-n-octyl phthalate	0.73		0.000169 U	0.000212 U	0.000160 U	0.00016 U	0.000182 U	0.00016 U *	0.000167 U	0.000167 U	0.00017 U	0.00017 U	0.0017 U	0.00017 U	0.00017 U	0.000169 U	0.0017	U	0.00016 U	0.00016 U	0.00016 U *	0.00016 U	0.00017 U	0.00016 U *	0.00039 J B	0.00016 U	0.00016 U	0.00016 U			
Fluoranthene	2.9		0.000148 U	0.000184 U	0.000310 U*	0.00031 U	0.000352 U	0.00031 U	0.000323 U	0.000323 U	0.00015 U	0.00015 U	0.0015 U	0.00019 J	0.00015 U	0.00076 J	0.0032	U	0.00031 U	0.00032 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U			
Fluorene	2.9		0.000205 U	0.000256 ULF	0.000120 U*	0.00012 U	0.000136 U	0.00012 U	0.000125 U	0.000125 U	0.0031 U	0.0019 J	0.0025 J	0.0044	0.0022	0.0098	0.0013	U	0.0019 U	0.0027 B	0.0025	0.0017 U	0.00018 J	0.00164	0.0023	0.0027	0.0016 J	0.00037 J			
Hexachlorobenzene	0.0013		0.000126 U	0.000157 UF	0.000250 U*	0.00025 U	0.000284 U	0.00025 U	0.00026 U	0.00026 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00025 U	NA	NA	NA	NA			
Hexachlorobutadiene	0.026		0.000252 U *	0.000315 UF	0.000190 U*	0.00019 U	0.000216 U	0.00019 U	0.000198 U	0.000198 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00019 U	NA	NA	NA	NA			
Hexachlorocyclopentadiene	0.05		0.000431 U *	0.000539 U	0.000150 U*	0.00015 U	0.00017 U	0.00015 U	0.000156 U	0.000156 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00015 U *	NA	NA	NA	NA			
Hexachloroethane	0.051		0.00014 U *	0.000175 UFL	0.000170 U	0.00017 U	0.000193 U	0.00017 U	0.000177 U	0.000177 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00017 U *	NA	NA	NA	NA			
Indeno[1,2,3-cd]pyrene	0.0028		0.000143 U	0.000179 U	0.000290 U	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.000302 U	0.00085 U	0.00085 U	0.0085 U	0.00085 U	0.00014 U	0.000143 U	0.003	U	0.00029 U	0.0003 U	0.00029 U *	0.00029 U	0.0003 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U *	0.00029 U			
Isophorone	2.2		0.000168 U	0.00021 ULF	0.000150 U	0.00015 U	0.00017 U	0.00015 U	0.000156 U	0.000156 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00015 U	NA	NA	NA	NA			
Naphthalene	1.5		0.0008 U *	0.001 JF	0.000244 J	0.00016 U	0.000182 U	0.000301 J	0.000167 U *	0.000167 U *	0.0059	0.0036	0.0059 J	0.0063	0.0055	0.0276	0.0023	J	0.0049 B	0.0067 B	0.0072	0.0012 J	0.00017 U	0.00183 J	0.0015 J	0.0037	0.0039	0.0014 J			
Nitrobenzene	0.15		0.0004 U *	0.001 UF	0.000200 U*	0.0002 U	0.000227 U	0.0002 U	0.000208 U *	0.000208 U *	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0002 U *	NA	NA	NA	NA			
N-Nitrosodi-n-propylamine	0.00029		0.000161 U	0.000202 UFL	0.000240 U	0.00024 U	0.000273 U	0.00024 U	0.00025 U	0.00025 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00024 U	NA	NA	NA	NA			
N-Nitrosodiphenylamine	0.42		0.000155 U	0.000193 UF	0.000330 U*	0.00033 U	0.000375 U	0.00033 U	0.000344 U *	0.000344 U *	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00033 U *	NA	NA	NA	NA			
Pentachlorophenol	0.001		0.000441 U	0.000551 U	0.000960 U	0.00096 U	0.00109 U	0.00096 U *	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00096 U *	NA	NA	NA	NA			
Phenanthrene	2.2		0.0004 U	0.0005 U	0.000290 U*	0.00029 U	0.00033 U	0.00029 U	0.000302 U	0.000302 U	0.00018 U	0.00061 J	0.0018 U	0.0017 J	0.0004 U	0.00632	0.003	U	0.00052 J	0.0004 J	0.001 J	0.00065 J	0.0003 U	0.00029 U	0.00036 J	0.00029 U	0.00029 U	0.00029 U			
Phenol	2.2		0.0008 U *	0.001 UF	0.000140 U	0.00014 U	0.000159 U	0.00014 U	0.000146 U *	0.000146 U *	0.0038 JL B	0.045	0.092	0.08	0.038	0.0326	0.069		0.02	0.18	0.33	0.15	0.0095	0.013 *	0.032	0.0059	0.065	0.018			
Pyrene	2.2		0.000159 U	0.000199 U	0.000330 U	0.00033 U	0.000375 U	0.00033 U	0.000344 U	0.000344 U	0.00016 U	0.00016 U	0.0016 U	0.00016 U	0.0004 J	0.0034	U	0.00033 U	0.00034 U	0.00033 U	0.00033 U	0.00034 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U			
Pyridine	0.073		0.000725 U	0.000906 U	0.000240 U	0.00024 U	0.000574 J b	0.00024 U	0.00025 U *	0.00025 U *	0.00072 UJL	0.00072 U	0.0072 U *1	0.00072 U *1	0.00072 U *- *1	0.000725 U	0.0025	U	0.00024 U	0.00024 U *	0.00024 U	0.00024 U	0.00025 U	0.00024 U	0.00061 J	0.00024 U	0.00024 U *	0.00024 U			
Herbicides by EPA 8151A																															
2,4-D	0.07		0.0000257 U	0.0000453 U	0.0000396 U*	0.0000396 U	0.00004 U *	0.0000392 U	0.0000396 U *	0.0000392 U *	0.000029 U	0.00029 U	0.000027 U	0.000021 U	0.000026 U	0.0000453 U	0.000039	U	0.000039 U	0.00004 U *	0.000039 U	0.000039 U *	0.00039 U	0.0000396 U	0.000039 U	0.000038 U	0.00038 P	0.016			
VOCs by EPA 8260B																															
1,1,1,2-Tetrachloroethane	0.079		0.000327 U	0.000327 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	0.000178 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00356 U	NA	NA	NA	NA			
1,1,1-Trichloroethane	0.2		0.000504 U	0.000504 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00418 U	NA	NA	NA	NA			
1,1,2,2-Tetrachloroethane	0.01		0.000284 U	0.000284 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00394 U	NA	NA	NA	NA			
1,1,2-Trichloroethane	0.005		0.000228 U	0.000228 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00418 U	NA	NA	NA	NA			
1,1-Dichloroethane	0.005		0.000244 U	0.000244 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	0.000168 U	NA	NA	NA	0.011 U	NA	NA	NA		NA	NA	NA	NA	NA	0.00336 U	NA	NA	NA	NA			
1,1-Dichloroethene	0.007		0.000216 U	0.000216 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.0074 U	0.018 U	0.015 U	NA	0.0043 U	0.108 U	0.0038	U	0.0038 U	0.0038 U	0.0019 U	0.0019 U	0.0019 U	0.00384 U	0.0038 U	0.0096 U	0.00019 U	0.00019 U			
1,1-Dichloropropene	0.02		0.000481 U	0.000481 U	0.000191 U	0.000191 U	0.000191 U	0.000191 U	0.000191 U	0.000191 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00382 U	NA	NA	NA	NA			
1,2,3-Trichlorobenzene	0.22		0.002 U	0.002 U	0.000570 U*	0.000570 U	0.00057 U *	0.00057 U	0.00057 U	0.00057 U	0.0049 U	0.012 U	0.0098 U	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0114 U	NA	NA	NA	NA			
1,2,3-Trichloropropane	0.00068		0.000283 U	0.000290 U	0.000290 U*	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	NA	NA	0.014 U	0.0057 U	0.142 U	0.0058	U	0.0058 U	0.0058 U	0.0029 U	0.0029 U	0.0029 U	0.0058 U	0.0058 U	0.015 U	0.00029 U	0.00029 U			
1,2,4-Trichlorobenzene	0.07		0.002 U	0.002 U	0.000177 U*	0.000177 U	0.000177 U	0.000177 U	0.000177 U	0.000177 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00354 U	NA	NA	NA	NA			
1,2,4-Trimethylbenzene	3.7		0.000252 U	0.000252 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0167 J	NA	NA	NA	NA			
1,2-Dibromo-3-Chloropropane	0.0002		0.000319 U	0.000319 U	0.000810 U*	0.00081 U	0.00081 U	0.00081 U	0.00081 U	0.00081 U	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0162 U	NA	NA	NA	NA			
1,2-Dichlorobenzene	0.6		0.000236 U	0.000236 U	0.000153 U*	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.0051 U	0.013 U	0.01 U	0.012 U	0.0047 U	0.118 U	0.0031	U	0.0023 U	0.0031 U	0.0015 U	0.0015 U	0.0015 U	0.00306 U	0.0031 U	0.0077 U	0.00015 U	0.00015 U			

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Exposure Pathway																											
Sample Location			MW-17	MW-17	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-38	MW-38	MW-38	MW-38
Sample Date			1/21/2015	7/16/2014	7/20/2023	1/30/2023	7/28/2022	1/14/2022	7/2/2021	1/20/2021	7/27/2020	1/20/2020	7/3/2019	1/16/2019	7/16/2018	1/11/2018	7/19/2017	1/18/2017	7/8/2016	1/12/2016	7/15/2015	1/20/2015	7/24/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																											
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																									
SVOCs by EPA 8270C																											
1,2,4-Trichlorobenzene	0.07		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00016 U	NA	NA	NA	NA	NA	NA	0.00068 U	0.00068 U	0.00068 U
1,2-Dichlorobenzene	0.6		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00021 U	NA	NA	NA	NA	NA	NA	0.000296 U	0.000296 U	0.000296 U
1,3-Dichlorobenzene	2.2		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00035 U	0.00035 U	0.00035 U
1,4-Dichlorobenzene	0.072		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00016 U *	NA	NA	NA	NA	NA	NA	0.000428 U	0.000428 U	0.000428 U
2,4,5-Trichlorophenol	7.3		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.00029 U	NA	NA	NA	NA	NA	NA	0.000108 U	0.000108 UJL	0.000108 U
2,4,6-Trichlorophenol	0.073		0.00033 U	0.0033 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U *1	0.00014 U	0.000135 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U *	0.00034 U	0.00033 U *	0.00034 U	0.00034 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	NA	0.000135 U	0.000135 UJL	0.000135 U
2,4-Dichlorophenol	0.22		0.00026 U	0.0026 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.000115 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U *	0.00027 U	0.00026 U *	0.00027 U	0.00027 U	0.00026 U	0.00026 U	0.00043 J	0.00026 U	0.000115 UJL	0.000115 U	0.000115 UJL	0.000115 U
2,4-Dimethylphenol	1.5		0.00018 U	0.0018	0.00015 U	0.00015 U	0.0009 J	0.00015 U	0.00015 U	0.0006 J	0.00018 U	0.00018 U	0.00049 J	0.00018 U *	0.003 B *	0.0075	0.00018 U *	0.00095 J	0.00019 U	0.00018 U	0.0011 J	0.00018 U	0.00018 U	0.000148 UJL	0.000148 U	0.000148 UJL	0.000148 U
2,4-Dinitrophenol	0.15		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.0004 U *	NA	NA	NA	NA	NA	NA	NA	0.00146 U	0.00146 UJL/JL	0.00146 U
2,4-Dinitrotoluene	0.003		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00032 U	NA	NA	NA	NA	NA	NA	NA	0.000127 U	0.000127 U	0.000127 U
2,6-Dinitrotoluene	0.003		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00029 U	NA	NA	NA	NA	NA	NA	NA	0.000199 U	0.000199 U	0.000199 U
2-Chloronaphthalene	5.8		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00019 U	NA	NA	NA	NA	NA	NA	NA	0.00109 U	0.00109 UJL/JL	0.00109 U
2-Chlorophenol	0.37		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00022 U *	NA	NA	NA	NA	NA	NA	NA	0.0000135 U	0.0000135 UJL	0.0000135 U
2-Methylnaphthalene	0.29		0.00014 U	0.0014 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00176	0.00021 J	0.00019 J	0.00028 J B	0.00056 J	0.00066 J *	0.00015 U	0.00014 U	0.00015 U	0.00015 U	0.00014 U	0.00019 J	0.00050 J	0.00014 U	NA	0.00048 U *	0.00048 U	0.00048 U
2-Methylphenol	1.2		0.00019 U	0.0019 U	0.00016 U	0.00016 U	0.00032 J	0.00016 U	0.00016 U	0.000159 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00032 J *	0.0027	0.00019 U *	0.0002 U	0.0002 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000159 UJL	0.000159 U	0.000159 UJL	0.000159 U
2-Nitroaniline	0.02		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00035 U	NA	NA	NA	NA	NA	NA	NA	0.000163 U	0.000163 U	0.000163 U
2-Nitrophenol	0.15		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00022 U	NA	NA	NA	NA	NA	NA	NA	0.000135 U	0.000135 UJL	0.000135 U
3 & 4 Methylphenol	0.12		0.00016 U	0.0016 U	0.00072 JL	0.00016 U	0.00041 J	0.00016 U	0.00016 U	0.00088	0.00016 U	0.00016 U	0.00068 J	0.00016 U *	0.00016 U *	0.012	0.00016 U	0.00017 U	0.00017 U	0.00016 U	0.0017	0.00016 U	0.00016 U	0.000163 UJL	0.000163 U	0.000163 UJL	0.000163 U *
3,3'-Dichlorobenzidine	0.0045		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00032 U	NA	NA	NA	NA	NA	NA	NA	0.00022 U	0.00022 U	0.00022 U
3-Nitroaniline	0.022		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00013 U	NA	NA	NA	NA	NA	NA	NA	0.000344 U	0.000344 U	0.000344 U
4,6-Dinitro-2-methylphenol	0.007		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00016 U *	NA	NA	NA	NA	NA	NA	NA	0.000736 U	0.000736 U	0.000736 U
4-Bromophenyl phenyl ether	0.00014		0.000250 U	0.0025 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.000167 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U *	0.00026 U	0.00025 U	0.00026 U	0.00026 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	NA	0.000167 U	0.000167 U	0.000167 U
4-Chloro-3-methylphenol	0.37		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00025 U	NA	NA	NA	NA	NA	NA	NA	0.000157 U	0.000157 UJL	0.000157 U
4-Chloroaniline	0.01		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00011 U	NA	NA	NA	NA	NA	NA	NA	0.000149 U	0.000149 U	0.000149 U
4-Chlorophenyl phenyl ether	0.00014		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00023 U	NA	NA	NA	NA	NA	NA	NA	0.000232 U	0.000232 U	0.000232 U
4-Nitroaniline	0.1		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00023 U *	NA	NA	NA	NA	NA	NA	NA	0.000247 U	0.000247 U	0.000247 U
4-Nitrophenol	0.15		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00033 U	NA	NA	NA	NA	NA	NA	NA	0.000531 U	0.000531 U	0.000531 U
Acenaphthene	4.4		0.0023	0.002 J	0.00081 J	0.00021 U	0.0005 J	0.00033 J	0.00021 U	0.00124	0.00016 U	0.00017 J	0.00016 U	0.00026 J	0.00063 J B	0.00017 U	0.00016 U	0.00017 U	0.00017 U	0.00016 U	0.00016 U	0.00054 J	0.0006 J	0.000208 UJL	0.000208 U	0.000208 U	0.000208 U
Acenaphthylene	4.4		0.00016 U	0.0016 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00034 U	0.000215 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U *	0.00017 U	0.00016 U	0.00017 U	0.00017 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.000215 U *	0.000215 U	0.000215 U
Aniline	0.36		0.00012 U	0.0012 U	0.00031 UJL	0.00031 U	0.00031 U	0.00031 U	0.00031 U *-	0.000314 UL	0.00012 U	0.00012 U	0.00012 U	0.00012 U *	0.00012 U *	0.00013 U	0.00012 U	0.00013 U	0.00013 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	NA	0.000314 U	0.000314 UJL	0.000314 U *
Anthracene	22		0.00044 U	0.0044 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00044 J	0.00044 U	0.00044 U	0.00044 U	0.00044 U	0.00044 U *	0.00046 U	0.00044 U	0.00046 U	0.00046 U	0.00044 U	0.00044 U	0.00044 U	0.00044 U	NA	0.000154 U	0.000154 U	0.000154 U
Benzo[a]anthracene	0.0028		0.00025 U	0.0025 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00024 J	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00044 J *	0.00026 U	0.00025 U *	0.00026 U	0.00026 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00015 UJL	0.00015 U	0.00015 U	0.00015 U
Benzo[a]pyrene	0.0002		0.00013 U	0.0013 U	0.00015 U	0.00016 J	0.00015 U	0.00015 U	0.00015 U	0.000148 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U *	0.00014 U	0.00013 U	0.00014 U	0.00014 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U	NA	0.000148 U *	0.000148 U	0.000148 U
Benzo[b]fluoranthene	0.0028		0.00018 U	0.0018 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00049 J *	0.00019 U	0.00018 U	0.00019 U	0.00019 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	NA	0.00021 U	0.00021 U	0.00021 U
Benzo[g,h,i]perylene	2.2		0.00035 U	0.0035 U	0.00014 U	0.00047 J	0.00014 U	0.00014 U	0.00014 U	0.000143 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U *	0.00036 U	0.00035 U	0.00036 U	0.00036 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	NA	0.000143 U	0.000143 U	0.000143 U
Benzo[k]fluoranthene	0.0028		0.00016 U	0.0016 U	0.00017 U	0.00023 J	0.00017 U	0.00017 U	0.00017 U	0.000166 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00048 J *	0.00017 U	0.00016 U *	0.00017 U	0.00017 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.000166 U	0.000166 U	0.000166 U
Benzoic acid	29		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00061 U *	NA	NA	NA	NA	NA	NA	NA	0.00106 U	0.00106 U	0.00106 U
Benzyl alcohol	7.3		0.00051 U	0.0051 U	0.0045 U	0.0045 U *+	0.0045 UJL/J	0.0045 U	0.0035 *+ B	0.0036	0.00051 U	0.00051 U	0.00051 U	0.00051 U *	0.00051 U *	0.00053 U	0.00051 U *	0.00053 U	0.00053 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U	NA	0.0045 U *	0.0045 UJL/JL	0.0045 U
bis (2-Chloroisopropyl) ether	0.0029		NA	NA	NA	NA	NA	NA	NA	0.00036 J	NA	NA	NA	NA	NA	NA	0.00018 U	NA	NA	NA	NA	NA	NA	NA	0.000139 U	0.000139 U	0.000139 U
Bis(2-chloroethoxy)methane	0.00019		NA	NA	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U	NA	NA	NA	NA	NA	NA	NA	0.00019 U	NA	NA	NA	NA	NA	NA	NA	0.00017 U	0.00017 U	0.00017 U
Bis(2-chloroethyl)ether	0.0019		0.00018 U	0.0018 U	NA	NA	NA	NA	0.00022 U	NA	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00031 J *	0.00019 U	0.00018 U	0.00019 U	0.00019 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.000278 UJL	0.000278 U	0.000278 U	0.000278 U
Bis(2-ethylhexyl) phthalate	0.006		0.00059 U	0.0059 U	0.00022 U	0.00022 U	0.00046 J	0.00022 U	0.00015 U	0.000278 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00081 J *	0.00061 U	0.00059 U	0.0021 J B	0.00061 U	0.00059 U	0.00059 U	0.00059 U	0.0007 J b	NA	0.000225 U	0.000225 U	0.000225 U
Butyl benzyl phthalate	1.1		0.00085 U	0.0085 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	0.000225 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.001 J *	0.00089 U	0.00085 U	0.00089 U	0.00089 U	0.00085 U	0.00085 U	0.00087 J	0.00085 U	0.00015 UJL	0.00015 U	0.00015 U	0.00015 U
Carbazole			NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000453 UJL	NA	NA	NA
Chrysene	0.28		0.00024 U	0.0024 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000159 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00051 J *	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	NA	0.000159 U *	0.000159 U	0.000159 U
Dibenz(a,h)anthracene	0.00024		0.00029 U	0.0029 U	0.00015 U	0.00099 J	0.00015 U	0.00015 U	0.00015 U	0.000148 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00037 J *	0.0003 U	0.00029 U	0.0003 U	0.0003 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	NA	0.000148 U	0.000148 U	0.000148 U
Dibenzofuran	0.29		0.0014 J	0.0023 J	0.00038 J	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00156	0.00016 U	0.00016 U	0.00016 U	0.00017 J	0.00071 J *	0.00017 U	0.00016 U	0.00017 U	0.00017 U	0.00016 U	0.00016 U	0.00031 J	0.00028 J	0.000336 UJL	0.000336 U	0.000336 U	0.000336 U
Diethyl phthalate	58		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00419 U	NA	NA	NA	NA	NA	NA	NA	0.000177 J	0.000238 J	0.000237 J
Dimethyl phthalate	58		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00018 U	NA	NA	NA	NA	NA	NA	NA	0.000143 U	0.000143 U	0.000143 U
Di-n-butyl phthalate	7.3		0.0019 U	0.0019 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.065 *+ B *1	0.00128 J	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.00187 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0008 U *	0.0008 U	0.0008 U
Di-n-octyl phthalate	0.73		0.00016 U	0.0016 U	0.00017 U	0.00038 J	0.00017 U	0.00017 U	0.00017 U	0.000169 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00057 J *	0.00017 U	0.00016 U *	0.00017 U	0.00017 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	0.000169 U	0.000169 U	0.000169 U
Fluoranthene	2.9		0.00031 U	0.0031 UJ	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.001	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00039 J	0.00032 U	0.00031 U	0.00032 U	0.00032 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.000148 UJL	0.000148 U	0.000148 UJL	0.000148 U
Fluorene	2.9		0.0023	0.0034	0.00032 J	0.00021 U	0.00023 J	0.00025 J	0.0002 U	0.00132	0.00012 U	0.00012 U	0.00013 J B	0.00013 J	0.00046 J *	0.00013 U	0.00012 U *	0.00013 U	0.00013 U	0.00012 U	0.00012 U	0.00031 J	0.00013 J	0.000205 UJL	0.000205 U	0.000205 UJL	0.000205 U
Hexachlorobenzene	0.0013		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00025 U	NA	NA	NA	NA	NA	NA	NA	0.000126 U	0.000126 U	0.000126 U
Hexachlorobutadiene	0.026		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00019 U	NA	NA	NA	NA	NA	NA	NA	0.000252 U	0.000252 U	0.000252 U
Hexachlorocyclopentadiene	0.05		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00015 U *	NA	NA	NA	NA	NA	NA	NA	0.000431 U	0.000431 U	0.000431 U
Hexachloroethane	0.051		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00017 U *	NA	NA	NA	NA	NA	NA	NA	0.00014 U	0.00014 U	0.00014 U *
Indeno[1,2,3-cd]pyrene	0.0028		0.00029 U	0.0029 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00014 U	0.000143 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00041 J *	0.0003 U	0.00029 U *	0.0003 U	0.0003 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	NA	0.000852 U	0.000852 U	0.000852 U
Isophorone	2.2		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00015 U	NA	NA	NA	NA	NA	NA	NA	0.000168 U	0.000168 U	0.000168 U
Naphthalene	1.5		0.0051	0.0024 JB	0.0017 J	0.00042 U	0.0018 J	0.0016 J	0.0016	0.00388	0.00085 J	0.0012 J	0.0015 J B	0.0022 B	0.0016 J *	0.0013 J	0.00016 U	0.00043 J	0.00017 U	0.00016 U	0.0012 J	0.0021	0.00016 U	0.00102 U	0.000423 U	0.000744 J	0.000458 J
Nitrobenzene	0.15		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U *	NA	NA	NA	NA	NA	NA	NA	0.000934 U	0.000934 U	0.000934 U
N-Nitrosodi-n-propylamine	0.00029		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00024 U	NA	NA	NA	NA	NA	NA	NA	0.000161 U	0.000161 U	0.000161 U *
N-Nitrosodiphenylamine	0.42		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00033 U *	NA	NA	NA	NA	NA	NA	NA	0.000155 U	0.000155 U	0.000155 U
Pentachlorophenol	0.001		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00096 U *	NA	NA	NA	NA	NA	NA	NA	0.000441 U	0.000441 UJL	0.000441 UJL
Phenanthrene	2.2		0.00029 U	0.0029 U	0.00024 J	0.00018 U	0.00018 U	0.00029 J	0.0004 U	0.00264	0.00029 U	0.00029 U	0.00033 J	0.00029 U	0.00089 J *	0.0003 U	0.00029 U	0.0003 U	0.0003 U	0.00029 U	0.00029 U	0.00030 J	0.00029 U	0.000176 UJL	0.000176 U	0.000176 U	0.000176 U
Phenol	2.2		0.11	0.036	0.0002 UJL	0.0002 U	0.0002 U	0.0002 U	0.0008 U *1	0.0008 U	0.00015 J	0.00014 U	0.00014 U	0.00014 U	0.0007 J *	0.00046 J	0.00014 U *	0.00015 U	0.00015 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	NA	0.000202 U	0.000202 UJL	0.000202 U
Pyrene	2.2		0.00033 U	0.0033 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00064 J	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00034 U	0.00033 U	0.00034 U	0.00034 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.000159 UJL	0.000159 U *	0.000159 UJL	0.000159 U
Pyridine	0.073		0.00024 U	0.0024 U	0.00072 JJL *	0.00072 U	0.0012 J *1	0.00072 U *1	0.0031 B *1	0.000725 U	0.00024 U	0.00024 U	0.00024 U *	0.00024 U *	0.00024 U *	0.00025 U	0.00024 U	0.00025 U	0.00025 U	0.00024 U*	0.00024 U	0.00024 U	0.00024 U	NA	0.000725 U	0.00189 U	0.00121 U
Herbicides by EPA 8151A																											
2,4-D	0.07		0.000038 U	0.00020 U	0.00016 U	0.000029 U	0.000027 U	0.000021 U *1	0.000026 U	0.0000453 U	0.00004 U*1	0.00004 U	0.0036 *	0.000039 U	0.000039 U	0.0037	0.00004 U	0.000039 U	0.000038 U	0.000056 U	0.00023 p	0.00084	0.000039 U	0.000156 U	0.0000288 U	0.0000267 U	0.0000206 UJL
VOCs by EPA 8260B																											
1,1,1,2-Tetrachloroethane	0.079		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000178 U	NA	NA	NA	NA	NA	NA	NA	0.000644 U	0.000644 U	0.000327 U
1,1,1-Trichloroethane	0.2		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000209 U	NA	NA	NA	NA	NA	NA	NA	0.00169 U	0.00169 U	0.000504 U
1,1,2,2-Tetrachloroethane	0.01		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000197 U	NA	NA	NA	NA	NA	NA	NA	0.00047 U	0.00047 U	0.000284 U
1,1,2-Trichloroethane	0.005		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000209 U	NA	NA	NA	NA	NA	NA	NA	0.000511 U	0.000511 U	0.000228 U
1,1-Dichloroethane	0.005		NA	NA	NA	NA	0.00074 U	NA	NA	NA	NA		NA	NA	NA	NA	0.000168 U	NA	NA	NA	NA	NA	NA	NA	0.000635 U	0.000635 U	0.000244 U
1,1-Dichloroethene	0.007		0.0018 U	0.0019 U	0.00074 U	0.00074 U	NA	0.00022 U	0.00022 U	0.000216 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U *	0.00019 U	0.000192 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00036 U	0.00019 U	NA	0.000738 U	0.000738 U	0.000216 U
1,1-Dichloropropene	0.02		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000191 U	NA	NA	NA	NA	NA	NA	NA	0.0016 U	0.0016 U	0.000481 U
1,2,3-Trichlorobenzene	0.22		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA U	0.00057 U	NA	NA	NA	NA	NA	NA	NA	0.00217 U	0.00217 U	0.002 U
1,2,3-Trichloropropane	0.00068		0.0020 U	0.0029 U	0.00049 U	0.00049 U	0.00049 U	0.00028 U	0.00028 U	0.000283 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00029	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00029 U	0.00039 U	0.00029 U	0.00049 U	0.00049 U	0.00049 U	0.000283 U
1,2,4-Trichlorobenzene	0.07		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000177 U	NA	NA	NA	NA	NA	NA	NA	0.00175 U	0.00175 U	0.002 U
1,2,4-Trimethylbenzene	3.7		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.000215 U	NA	NA	NA	NA	NA	NA	NA	0.000417 U	0.000417 U	0.000252 U
1,2-Dibromo-3-Chloropropane	0.0002		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	0.00081 U	NA	NA	NA	NA	NA	NA	NA	0.00127 U	0.00127 U	0.000319 U
1,2-Dichlorobenzene	0.6		0.0019 U	0.001 U	0.00051 U	0.00051 U	0.00051 U	0.00024 U	0.00024 U	0.000236 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000153 U	0.00015 U	0.00015 U	0.00015 U	0.0035	0.00037 U	0.0001 U	NA	0.000509 U	0.000509 U	0.000236 U

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

| Exposure Pathway | | |

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-1	POE-2	POE-2	POE-2
Sample Date			7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	2/23/2018 Duplicate	2/23/2018 resampled for	1/18/2018	7/19/2017	1/26/2017	7/13/2016	1/15/2016	7/22/2015	1/28/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Analytes	**TRRP PCL [1]**	**Tier 2 $Air GW_{Inh-V}$ PCL [2]**	**2023 GWPS**																							
1,2-Dichloroethane	0.005			NA	0.00059 U	0.00059 U	0.000285 U	0.000285 U	0.000285 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.0005 U	0.00014 U	NA	0.000707 J	0.00059 U
1,2-Dichloropropane	0.005			NA	0.000667 U	0.000667 U	0.000396 U	0.000396 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.0067 U	0.00016 U	NA	0.000667 U	0.000667 U
1,3,5-Trimethylbenzene	3.7			NA	0.000456 U	0.000456 U	0.000279 U	0.000279 U	0.000279 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00031 U*	0.0001 U	NA	0.000456 U	0.000456 U
1,3-Dichlorobenzene	2.2			NA	0.000513 U	0.000513 U	0.000197 U	0.000197 U	0.000197 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00043 U	0.00013 U	NA	0.000513 U	0.000513 U
1,3-Dichloropropane	0.02			NA	0.000514 U	0.000514 U	0.000439 U	0.000439 U	0.000439 U	0.000220 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00034 U	0.00022 U	NA	0.000514 U	0.000514 U
1,4-Dichlorobenzene	0.075			NA	0.000513 U	0.000513 U	0.000199 U	0.000199 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00046 U	0.00011 U	NA	0.000513 U	0.000513 U
2,2-Dichloropropane	0.03			NA	0.00078 U	0.00078 U	0.00036 U	0.00036 U	0.00036 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.00037 U	0.00013 U	NA	0.00078 U	0.00078 U
2-Butanone (MEK)	4.4			NA	0.00828 U	0.00828 U	0.0027 U	0.0029 J	0.0027 U	0.000806 J	0.00076 U	0.00076 U	0.00108 J	0.011	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.0034 U	0.00076 U	NA	0.00828 U	0.00828 U
2-Chlorotoluene	1.5			NA	0.00118 U	0.00118 U	0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00027 U	0.00013 U	NA	0.00118 U	0.00118 U
4-Chlorotoluene	1.50			NA	0.000472 U	0.000472 U	0.000183 U	0.000183 U	0.000183 U	0.000210 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00045 U	0.00014 U	NA	0.000472 U	0.000472 U
4-Isopropyltoluene	2.4			NA	0.000919 U	0.000919 U	0.000233 U	0.000233 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.00048 U	0.0001 U	NA	0.000919 U	0.000919 U
4-Methyl-2-pentanone (MIBK)	5.8			NA	0.00749 U	0.00749 U	0.00106 U	0.00106 U	0.00106 U	0.000348 U*	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000342 U	0.0021 U	0.00045 U	NA	0.00749 U	0.00749 U
Acetone	66			NA	0.00119 U	0.00119 U	0.0123 U	0.0123 U	0.0123 U	0.000447 U	0.00199 J	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.00272 J	0.000447 U	0.00327 J	0.000447 U	0.000447 U	0.00476 J	0.007 U	0.00099 U	NA	0.00119 U	0.00119 U
Benzene	0.005	6710	0.005	0.00046 U	0.000533 U	0.000533 U	0.000214 U	0.000214 U	0.000214 U	***0.0818*** b	0.000176 U	0.000176 U	***0.00752***	***0.0292***	***1.23***	***1.23***	***0.0272***	***0.122***	0.00331	0.000176 U	0.000176 U	0.000176 U	0.00043 U	0.00008 U	0.00046 U	0.000533 U	0.000533 U
Bromobenzene	0.58			NA	0.000665 U	0.000665 U	0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.0005 U	0.00019 U	NA	0.000665 U	0.000665 U
Bromodichloromethane	0.033			NA	0.000552 U	0.000552 U	0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.00044 U	0.00016 U	NA	0.000552 U	0.000552 U
Bromoform	0.26			NA	0.000633 U	0.000633 U	0.00063 U	0.000231 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.00043 U	0.00019 U	NA	0.000633 U	0.000633 U
Bromomethane	0.1			NA	0.00142 U	0.00142 U	0.00105 U	0.00063 U	0.00063 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U*	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.0025 U	0.000250 U	NA	0.00142 U	0.00142 U
Carbon disulfide	7.8			NA	0.00191 U	0.00191 U	0.000373 U	0.00105 U	0.00105 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.001 U	0.00024 U	NA	0.00191 U	0.00191 UJ
Carbon tetrachloride	0.005			NA	0.000896 U	0.000896 U	0.000423 U	0.000373 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.00033 U	0.00015 U	NA	0.000896 U	0.000896 U
Chlorobenzene	0.1			NA	0.00053 U	0.00053 U	0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.00026 U	0.00012 U	NA	0.00053 U	0.00053 U
Chlorobromomethane	2.9			NA	0.000657 U	0.000657 U	0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.00045 U	0.00018 U	NA	0.000657 U	0.000657 U
Chloroethane	29			NA	0.00198 U	0.00198 U	0.000433 U	0.000433 U	0.000433 U	0.000240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.0025 U	0.00008 U	NA	0.00198 U	0.00198 U
Chloroform	0.73			NA	0.000643 U	0.000643 U	0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000166 J	0.0005 U	0.00013 U	NA	0.000643 U	0.000643 U
Chloromethane	0.16			NA	0.00204 U	0.00204 U	0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000249 J*	0.0004 U	0.00018 U	NA	0.00204 U	0.00204 U
cis-1,2-Dichloroethene	0.07			NA	0.000714 U	0.000714 U	0.000174 U	0.000174 U	0.000174 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.00041 U	0.00006 U	NA	0.000714 U	0.000714 U
cis-1,3-Dichloropropene	0.0038			NA	0.00107 U	0.00107 U	0.00069 U	0.00069 U	0.00069 U	0.000160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.0004 U	0.00018 U	NA	0.00107 U	0.00107 U
Dibromochloromethane	0.024			NA	0.000547 U	0.000547 U	0.000739 U	0.000739 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.00032 U	0.00015 U	NA	0.000547 U	0.000547 U
Dibromomethane	0.27			NA	0.000689 U	0.000689 U	0.00013 U	0.00013 U	0.00013 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00035 U	0.00052 U	NA	0.000689 U	0.000689 U
Dichlorodifluoromethane	15			NA	0.000919 U	0.000919 U	0.000316 U	0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.0006 U	0.00012 U	NA	0.000919 U	0.000919 U
Ethylbenzene	0.7			NA	0.000411 U	0.000411 U	0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00033 U	0.00011 U	NA	0.000411 U	0.000411 U
Hexachlorobutadiene	0.026			NA	0.00126 U	0.00126 U	0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.0025 U	0.00017 U	NA	0.00126 U	0.00126 U
Isopropylbenzene	2.4			NA	0.000613 U	0.000613 U	0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.00035 U	0.00018 U	NA	0.000613 U	0.000613 U
Methyl tert-butyl ether	0.73			NA	0.00139 U	0.00473 J	0.00283 J	0.000571 U	0.00191 U	0.00121 *	0.022	0.00521	0.00192	0.0035	0.000952 J	0.000789 J	0.00943	0.0072	0.0137	0.0078	0.00751	0.00356	0.00212 J	0.0195	NA	0.00139 U	0.00139 U
Methylene Chloride	0.005			NA	0.00173 U	0.00173 U	0.00191 U	0.00191 U	0.00428 J	0.000938 J*	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.0025 U	0.00015 U	NA	0.00173 U	0.00173 U
m-Xylene & p-Xylene	1			NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.00035 U	0.00017 U	NA	0.00124 U	0.00124 U
Naphthalene	1.5	654000		NA	0.00135 U	0.00135 U	0.002 U	0.002 U	0.002 UH	0.00304 *	0.000129 U	0.0163	0.0123 b	0.0131	0.0245 b	0.0242 b	0.0114	0.0201	0.00127 J	0.000129 U	0.000129 U	0.000297 J	0.0025 U	0.00032 U	NA	0.00135 U	0.00135 U
n-Butylbenzene	3.7			NA	0.000644 U	0.000644 U	0.000286 U	0.000286 U	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00047 U	0.00016 U	NA	0.000644 U	0.000644 U
n-Hexane	4.4			NA	0.000517 U	0.000517 U	0.000369 U	0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.00076 U	0.00016 U	NA	0.000517 U	0.000517 U
N-Propylbenzene	2.9			NA	0.000498 U	0.000498 U	0.000179 U	0.000179 U	0.000179 U	0.000230 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00038 U	0.00015 U	NA	0.000498 U	0.000498 U
o-Xylene	1			NA	0.000551 U	0.000551 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00023 U	0.00012 U	NA	0.000551 U	0.000551 U
sec-Butylbenzene	2.9			NA	0.000468 U	0.000468 U	0.000199 U	0.000199 U	0.000199 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.00042 U	0.00012 U	NA	0.000468 U	0.000468 U
Styrene	0.1			NA	0.000655 U	0.000655 U	0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.00027 U	0.00007 U	NA	0.000655 U	0.000655 U
tert-Butylbenzene	2.9			NA	0.000442 U	0.000442 U	0.000195 U	0.000195 U	0.000195 U	0.000216 U*	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.00045 U	0.00008 U	NA	0.000442 U	0.000442 U
Tetrachloroethene	0.005			NA	0.000801 U	0.000801 U	0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000514 U	0.00074 U	0.00013 U	NA	0.000801 U	0.000801 U
Toluene	1			NA	0.000475 U	0.000475 U	0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.00138	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.00048 U	0.00015 U	NA	0.000475 U	0.000475 U
trans-1,2-Dichloroethene	0.1			NA	0.000945 U	0.000945 U	0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00037 U	0.00009 U	NA	0.000945 U	0.000945 U
trans-1,3-Dichloropropene	0.02			NA	0.00127 U	0.00127 U	0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.00042 U	0.00021 U	NA	0.00127 U	0.00127 U
Trichloroethene	0.005			NA	0.000791 U	0.000791 U	0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.00048 U	0.00018 U	NA	0.000791 U	0.000791 U
Trichlorofluoromethane	22			NA	0.000638 U	0.000638 U	0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.00042 U	0.00008 U	NA	0.000638 U	0.000638 U
Vinyl acetate	7.3			NA	0.00214 U	0.00214 U	0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U*	0.00081 U	0.00021 U	NA	0.00214 U	0.00214 U
Vinyl chloride	0.002	435		NA	0.000638 U	0.000638 U	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.0005 U	0.00011 U	NA	0.000638 U	0.000638 U
Xylenes, Total	10			NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.00023 U	0.00026 U	NA	0.00124 U	0.00124 U
Metals by EPA 6020																										
Lead	0.015			NA	0.000112 U	0.000175 J	0.000152 U	0.000152 U	0.000189 J	0.000165 U	0.000165 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000457 J	0.000618 J

Notes:

U = Analyte was not detected at or above the SDL.

J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample was prepped or analyzed beyond the specified holding time

b = The compound was found in the blank and sample

NA = Not Analyzed

* = LCS or LCSD exceeds the control limits

Bold Italic = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas Risk Reduction Program

PCL = protectice concentration level

1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenuation Action Level

All results reported in milligrams per liter (mg/L)

P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location		POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2	POE-2 Duplicate	POE-2	POE-2	POE-2	POE-2	POE-2	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14	RI-1-14
Sample Date		1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/31/2018	7/19/2017	1/27/2017	1/27/2017	7/18/2016	1/18/2016	7/21/2015	1/27/2015	7/24/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005								
Analytes	TRRP PCL [1]	Tier 2 $Air GW_{Inh-V}$ PCL [2]																									
1,2-Dichloroethane	0.005		0.000285 U	0.00065 J	0.00031 J	0.000587 J	0.000457 J	0.000116 U	0.000589 J	0.000412 J	0.000116 U	0.000449 J	0.000318 J	0.000269 J	0.000481 J	0.000116 U	0.000116 U	0.000500 U	0.000671 J	NA	0.00059 U	0.00059 U	0.000285 U	0.000285 U	0.000285 U	0.000116 U	0.000116 U
1,2-Dichloropropane	0.005		0.000396 U	0.000396 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000670 U	0.00016 U	NA	0.000667 U	0.000667 U	0.000396 U	0.000396 U	0.000396 U	0.000136 U	0.000136 U
1,3,5-Trimethylbenzene	3.7		0.000279 U	0.000279 U	0.000279 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000310 U	0.0001 U	NA	0.000456 U	0.000456 U	0.000279 U	0.000279 U	0.000279 U	0.00021 U	0.00021 U
1,3-Dichlorobenzene	2.2		0.000197 U	0.000197 U	0.000197 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000430 U	0.00013 U	NA	0.000513 U	0.000513 U	0.000197 U	0.000197 U	0.000197 U	0.000210 U	0.00021 U
1,3-Dichloropropane	0.02		0.000439 U	0.000439 U	0.000439 U	0.000220 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.000340 U	0.00022 U	NA	0.000514 U	0.000514 U	0.000439 U	0.000439 U	0.000439 U	0.000220 U	0.00022 U
1,4-Dichlorobenzene	0.075		0.000199 U	0.000199 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000460 U	0.00011 U	NA	0.000513 U	0.000513 U	0.000199 U	0.000199 U	0.000199 U	0.000176 U	0.000176 U
2,2-Dichloropropane	0.03		0.00036 U	0.00036 U	0.00036 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000370 U	0.00013 U	NA	0.00078 U	0.00078 U	0.00036 U	0.00036 U	0.00036 U	0.000258 U	0.000258 U
2-Butanone (MEK)	4.4		0.0027 U	0.0027 U	0.0027 U	0.000760 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U*	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00340 U	0.00076 U	NA	0.00828 U	0.00828 U	0.0027 U	0.0027 U	0.0027 U	0.000760 U	0.00076 U
2-Chlorotoluene	1.5		0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000270 U	0.00013 U	NA	0.00118 U	0.00118 U	0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.000226 U
4-Chlorotoluene	1.50		0.000183 U	0.000183 U	0.000183 U	0.000210 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.000450 U	0.00014 U	NA	0.000472 U	0.000472 U	0.000183 U	0.000183 U	0.000183 U	0.000210 U*	0.00021 U
4-Isopropyltoluene	2.4		0.000233 U	0.000233 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000480 U	0.0001 U	NA	0.000919 U	0.000919 U	0.000233 U	0.000233 U	0.000233 U	0.000228 U	0.000228 U
4-Methyl-2-pentanone (MIBK)	5.8		0.00106 U	0.00106 U	0.00106 U	0.000348 U*	0.000348 U	0.000892 J	0.000348 U	0.000348 U *	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000342 U	0.00210 U	0.00045 U	NA	0.00749 U	0.00749 U	0.00106 U	0.00106 U	0.00106 U	0.000348 U*	0.000348 U
Acetone	66		0.0123 U	0.0123 U	0.0123 U	0.000447 U	0.00197 J	0.0102	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.00314 J	0.000447 U	0.000447 U	0.000447 U	0.00700 U	0.00314	NA	0.00119 U	0.00719 J	0.0123 U	0.0123 U	0.0123 U	0.00197 J	0.0021 J
Benzene	0.005	6710	0.000418 U	0.00026 J	0.000214 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000333 J	0.000176 U	0.00029 J	0.000176 U	0.000176 U	0.000176 U	0.000201 J	0.00217	0.00110	0.000224 J	0.00046 U	0.000533 U	0.000533 U	0.000214 U	0.000214 U	0.000214 U	0.000176 U	0.000176 U
Bromobenzene	0.58		0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000500 U	0.00019 U	NA	0.000665 U	0.000665 U	0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U
Bromodichloromethane	0.033		0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000440 U	0.00016 U	NA	0.000552 U	0.000552 U	0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U
Bromoform	0.26		0.00063 U	0.000231 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000430 U	0.00019 U	NA	0.000633 U	0.000633 U	0.00063 U	0.000231 U	0.000231 U	0.000151 U	0.000151 U
Bromomethane	0.1		0.00105 UJ	0.00063 U	0.00063 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00250 U	0.00025 U	NA	0.00142 U	0.00142 U	0.00105 U	0.00063 U	0.00063 U	0.000250 U	0.00025 U
Carbon disulfide	7.8		0.000373 U	0.00105 U	0.00105 UF	0.000216 U	0.000216 U	0.000561 J	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.00100 U	0.000793 J	NA	0.00191 U	0.00191 U	0.000373 U	0.00105 U	0.00105 U	0.000216 U	0.000216 U
Carbon tetrachloride	0.005		0.000423 U	0.000373 U	0.00062 J	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000330 U	0.00015 U	NA	0.000896 U	0.000896 U	0.000423 U	0.000373 U	0.000373 U	0.000183 U	0.000183 U
Chlorobenzene	0.1		0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000260 U	0.00012 U	NA	0.00053 U	0.00053 U	0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U
Chlorobromomethane	2.9		0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000450 U	0.00018 U	NA	0.000657 U	0.000657 U	0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U
Chloroethane	29		0.000433 U	0.000433 U	0.000433 UXF	0.000240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00250 U	0.00008 U	NA	0.00198 U	0.00198 U	0.000433 U	0.000433 U	0.000433 U	0.000240 U	0.00024 U
Chloroform	0.73		0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000500 U	0.00013 U	NA	0.000643 U	0.000643 U	0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U
Chloromethane	0.16		0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000313 J *	0.000400 U	0.00018 U	NA	0.00204 U	0.00204 U	0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U
cis-1,2-Dichloroethene	0.07		0.000174 U	0.000203 J	0.00019 J	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000236 J b	0.000157 U	0.000291 J	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000410 U	0.00006 U	NA	0.000714 U	0.000714 U	0.000174 U	0.000174 U	0.000174 U	0.000157 U	0.000157 U
cis-1,3-Dichloropropene	0.0038		0.00069 U	0.00069 U	0.00069 U	0.000160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.000400 U	0.00018 U	NA	0.00107 U	0.00107 U	0.00069 U	0.00069 U	0.00069 U	0.000160 U	0.00016 U
Dibromochloromethane	0.024		0.000739 U	0.000739 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000320 U	0.00015 U	NA	0.000547 U	0.000547 U	0.000739 U	0.000739 U	0.000739 U	0.000119 U	0.000119 U
Dibromomethane	0.27		0.00013 U	0.00013 U	0.00013 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.000350 U	0.00052 U	NA	0.000689 U	0.000689 U	0.00013 U	0.00013 U	0.00013 U	0.000520 U	0.00052 U
Dichlorodifluoromethane	15		0.000316 U	0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000600 U	0.00012 U	NA	0.000919 U	0.000919 U	0.000316 U	0.000316 U	0.000316 U	0.000859 U	0.000859 U
Ethylbenzene	0.7		0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000330 U	0.00011 U	NA	0.000411 U	0.000411 U	0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U
Hexachlorobutadiene	0.026		0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U*	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.00250 U	0.00017 U	NA	0.00126 U	0.00126 U	0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U *
Isopropylbenzene	2.4		0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U	0.000382 J	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000350 U	0.00018 U	NA	0.000613 U	0.000613 U	0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U
Methyl tert-butyl ether	0.73		0.00065 J	0.000858 J	0.00191 U	0.000740 J *	0.000488 J	0.000809 J	0.00105	0.000917 J	0.000874 J	0.000698 J	0.000605 J	0.000554 J	0.000605 J	0.000942 J	0.00135	0.00157 J	0.00148	NA	0.00139 U	0.00285 J	0.000571 U	0.000571 U	0.00191 U	0.000180 J *	0.00225
Methylene Chloride	0.005		0.00191 U	0.00191 U	0.00065 J	0.00203 J *	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00250 U	0.00015 U	NA	0.00173 U	0.00173 U	0.00191 U	0.00191 U	0.000571 U	0.000926 J *	0.000176 U
m-Xylene & p-Xylene	1		0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000350 U	0.00017 U	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U
Naphthalene	1.5	654000	0.002 U	0.002 U	0.002 UHX	0.000129 U*	0.000129 U	0.000129 U	0.00186 J b	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.00250 U	0.00032 U	NA	0.00135 U	0.00145 J	0.002 U	0.002 U	0.002 U	0.00121 J *	0.000129 U
n-Butylbenzene	3.7		0.000286 U	0.000367 J	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000687 J	0.000212 U	0.00139	0.000212 U	0.000977 J	0.00117	0.000212 U	0.000495 J	0.000212 U	0.000470 U	0.00101	NA	0.000644 U	0.000644 U	0.000286 U	0.000286 U	0.000286 U	0.000212 U*	0.000212 U
n-Hexane	4.4		0.000369 U	0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000760 U	0.00016 U	NA	0.000517 U	0.000517 U	0.000369 U	0.000369 U	0.000369 U	0.000256 U	0.000256 U
N-Propylbenzene	2.9		0.000179 U	0.000179 U	0.000179 U	0.000230 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.000380 U	0.00015 U	NA	0.000498 U	0.000498 U	0.000179 U	0.000179 U	0.000179 U	0.00023 U	0.00023 U
o-Xylene	1		0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000230 U	0.00012 U	NA	0.000551 U	0.000551 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U
sec-Butylbenzene	2.9		0.000199 U	0.000199 U	0.000199 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000420 U	0.00012 U	NA	0.000468 U	0.000468 U	0.000199 U	0.000199 U	0.000199 U	0.000224 U	0.000224 U
Styrene	0.1		0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000270 U	0.00007 U	NA	0.000655 U	0.000655 U	0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U
tert-Butylbenzene	2.9		0.000195 U	0.000195 U	0.000195 U	0.000216 U*	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000450 U	0.000126 J	NA	0.000442 U	0.000442 U	0.000195 U	0.000195 U	0.000195 U	0.000216 U*	0.000216 U
Tetrachloroethene	0.005		0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000740 U	0.00013 U	NA	0.000801 U	0.000801 U	0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U
Toluene	1		0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000480 U	0.00015 U	NA	0.000475 U	0.000475 U	0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U
trans-1,2-Dichloroethene	0.1		0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000370 U	0.00009 U	NA	0.000945 U	0.000945 U	0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U
trans-1,3-Dichloropropene	0.02		0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000420 U	0.00021 U	NA	0.00127 U	0.00127 U	0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U
Trichloroethene	0.005		0.000424 U	0.000424 U	0.000424 U	0.000220 J	0.000327 J	0.000138 U	0.000138 U	0.000454 J	0.000138 U	0.000653 J	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000480 U	0.00018 U	NA	0.000791 U	0.000791 U	0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U
Trichlorofluoromethane	22		0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000420 U	0.00008 U	NA	0.000638 U	0.000638 U	0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U
Vinyl acetate	7.3		0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000810 U	0.00021 U	NA	0.00214 U	0.00214 U	0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U
Vinyl chloride	0.002	435	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000500 U	0.00011 U	NA	0.000638 U	0.000638 U	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U
Xylenes, Total	10		0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000230 U	0.00026 U	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U
Metals by EPA 6020																										
Lead	0.015		0.000246 U	0.000437 J	0.000423 J	0.000399 J b	0.00903	0.000733 U	0.000733 U	0.000733 U	0.002 J	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.00842	0.00202 J	NA	0.000121 J	0.000152 U	0.000152 U	0.000152 U	0.000152 U	0.000167 J b	0.000165 U

Notes:

U = Analyte wiU = Analyte was not detected at or above the SDL.

J = Result is le‡ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wiH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas FTRRP = Texas Risk Reduction Program

PCL = protectiiPCL = protectice concentration level

1 TRRP PCL = €1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = AttenuaAAL = Attenuation Action Level

All results repAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

Notes:

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			RI-1-14		RI-1-14		RI-1-14		RI-1-14		RI-1-14		RI-1-14		RI-1-14		RI-1-14		RI-1-14		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02		RI-3-02	
Sample Date			7/5/2019		1/15/2019		7/18/2018		1/29/2018		7/18/2017		1/25/2017		7/14/2016		1/18/2016		7/21/2015		1/27/2015		7/24/2014		7/21/2023		1/31/2023		7/29/2022		1/14/2022		7/2/2021		1/21/2021		7/28/2020		1/21/2020		7/5/2019		1/15/2019	
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																																										
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																																									
1,2-Dichloroethane	0.005		0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000500	U	0.00014	U	NA		0.00059	U	0.00059	U	0.000285	U	0.000285	U	0.000285	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U
1,2-Dichloropropane	0.005		0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000670	U	0.00016	U	NA		0.000667	U	0.000667	U	0.000396	U	0.000396	U	0.000396	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U
1,3,5-Trimethylbenzene	3.7		0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000310	U	0.0001	U	NA		0.000456	U	0.000456	U	0.000279	U	0.000279	U	0.000279	U	0.000210	U	0.00021	U	0.00021	U	0.00021	U
1,3-Dichlorobenzene	2.2		0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000430	U	0.00013	U	NA		0.000513	U	0.000513	U	0.000197	U	0.000197	U	0.000197	U	0.000210	U	0.00021	U	0.00021	U	0.00021	U
1,3-Dichloropropane	0.02		0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.000340	U	0.00022	U	NA		0.000514	U	0.000514	U	0.000439	U	0.000439	U	0.000439	U	0.000220	U	0.00022	U	0.00022	U	0.00022	U
1,4-Dichlorobenzene	0.075		0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000460	U	0.00011	U	NA		0.000513	U	0.000513	U	0.000199	U	0.000199	U	0.000199	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U
2,2-Dichloropropane	0.03		0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000370	U	0.00013	U	NA		0.00078	U	0.00078	U	0.00036	U	0.00036	U	0.00036	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U
2-Butanone (MEK)	4.4		0.00076	U	0.00076	U	0.00446		0.00076	U	0.00076	U	0.00792		0.00076	U	0.00076	U	0.00076	U	0.00340	U	0.00076	U	NA		0.00828	U	0.00828	U	0.0027	U	0.0027	U	0.0027	U	0.000760	U	0.00076	U	0.00076	U	0.0038	U
2-Chlorotoluene	1.5		0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000270	U	0.00013	U	NA		0.00118	U	0.00118	U	0.000214	U	0.000214	U	0.000214	U	0.000226	U*	0.000226	U	0.000226	U	0.000226	U
4-Chlorotoluene	1.50		0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000450	U	0.00014	U	NA		0.000472	U	0.000472	U	0.000183	U	0.000183	U	0.000183	U	0.000210	U*	0.00021	U	0.00021	U	0.00021	U
4-Isopropyltoluene	2.4		0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000480	U	0.0001	U	NA		0.000919	U	0.000919	U	0.000233	U	0.000233	U	0.000233	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U
4-Methyl-2-pentanone (MIBK)	5.8		0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000342	U	0.00210	U	0.00045	U	NA		0.00749	U	0.00749	U	0.00106	U	0.00106	U	0.00106	U	0.000348	U*	0.000348	U	0.000348	U*	0.00174	U
Acetone	66		0.000447	U	0.000447	U	0.0125		0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.00482	J	0.00700	U	0.00994		NA		0.00119	U	0.00936	J	0.0123	U	0.0123	U	0.0123	U	0.00492	J	0.00363	J	0.0109		0.0062		0.0134		0.00224	U*
Benzene	0.005	6710	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000430	U	0.00008	U	0.00046	U	0.000533	U	0.000533	U	0.000214	U	0.000214	U	0.000214	U	0.000176	U	0.000176	U	0.000176	U	0.00088	U
Bromobenzene	0.58		0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000500	U	0.00019	U	NA		0.000665	U	0.000665	U	0.0003	U	0.0003	U	0.0003	U	0.000195	U*	0.000195	U	0.000195	U	0.000195	U	0.000975	U
Bromodichloromethane	0.033		0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000440	U	0.00016	U	NA		0.000552	U	0.000552	U	0.000231	U	0.000209	U	0.000209	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000765	U
Bromoform	0.26		0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000430	U	0.00019	U	NA		0.000633	U	0.000633	U	0.00063	U	0.000231	U	0.000231	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000755	U
Bromomethane	0.1		0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00250	U	0.00025	U	NA		0.00142	U	0.00142	U	0.00105	U	0.00063	U	0.00063	U	0.000250	U	0.00025	U	0.00025	U	0.00025	U	0.00125	U
Carbon disulfide	7.8		0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.00100	U	0.00024	U	NA		0.00191	U	0.00191	U	0.000373	U	0.00105	U	0.00105	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.00108	U
Carbon tetrachloride	0.005		0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000330	U	0.00015	U	NA		0.000896	U	0.000896	U	0.000423	U	0.000373	U	0.000373	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000915	U
Chlorobenzene	0.1		0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000260	U	0.00012	U	NA		0.00053	U	0.00053	U	0.000159	U	0.000423	U	0.000423	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000925	U
Chlorobromomethane	2.9		0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000450	U	0.00018	U	NA		0.000657	U	0.000657	U	0.000209	U	0.000159	U	0.000159	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.00081	U
Chloroethane	29		0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00250	U	0.00008	U	NA		0.00198	U	0.00198	U	0.000433	U	0.000433	U	0.000433	U	0.000240	U	0.00024	U	0.00024	U	0.00024	U	0.0012	U
Chloroform	0.73		0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000500	U	0.00013	U	NA		0.000643	U	0.000643	U	0.000259	U	0.000259	U	0.000259	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000755	U
Chloromethane	0.16		0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U*	0.000400	U	0.00018	U	NA		0.00204	U	0.00204	U	0.000318	U	0.000318	U	0.000318	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.00105	U
cis-1,2-Dichloroethene	0.07		0.000157	U	0.000157	U	0.000157	U	0.000157	J b	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000410	U	0.000243	Jb	NA		0.000714	U	0.000714	U	0.000174	U	0.000174	U	0.000174	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000785	U
cis-1,3-Dichloropropene	0.0038		0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00400	U	0.00018	U	NA		0.00107	U	0.00107	U	0.00069	U	0.00069	U	0.00069	U	0.00016	U	0.00016	U	0.0008	U	0.00016	U	0.00016	U
Dibromochloromethane	0.024		0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000320	U	0.00015		NA		0.000547	U	0.000547	U	0.000739	U	0.000739	U	0.000739	U	0.000119	U	0.000119	U	0.000119	U	0.000595	U	0.00119	U
Dibromomethane	0.27		0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.000350	U	0.00052	U	NA		0.000689	U	0.000689	U	0.00013	U	0.00013	U	0.00013	U	0.000520	U	0.00052	U	0.00052	U	0.00052	U	0.0026	U
Dichlorodifluoromethane	15		0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000600	U	0.00012	U	NA		0.000919	U	0.000919	U	0.000316	U	0.000316	U	0.000316	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.0043	U
Ethylbenzene	0.7		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000330	U	0.00011	U	NA		0.000411	U	0.000411	U	0.000515	U	0.000515	U	0.000146	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00106	U
Hexachlorobutadiene	0.026		0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.00250	U	0.00017	U	NA		0.00126	U	0.00126	U	0.002	U	0.002	U	0.002	U	0.000215	U*	0.000215	U *	0.000215	U	0.000215	U	0.00108	U
Isopropylbenzene	2.4		0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000350	U	0.00018	U	NA		0.000613	U	0.000613	U	0.000161	U	0.000161	U	0.000161	U	0.000241	U*	0.000241	U	0.000241	U	0.000241	U	0.00121	U
Methyl tert-butyl ether	0.73		0.0005	J	0.000105	U	0.00036	J	0.000105	U	0.000768	J	0.0002	J	0.000383	J	0.000406	J	0.00059	J	0.00666	J	0.000322	J	NA		0.00139	U	0.00139	U	0.000571	U	0.000571	U	0.00191	U	0.000105	U*	0.000105	U	0.000105	U	0.000105	U	0.000525	U
Methylene Chloride	0.005		0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.00250	U	0.00015	U	NA		0.00173	U	0.00173	U	0.00191	U	0.00191	U	0.000571	U	0.00229	J*	0.000176	U	0.000176	U	0.000176	U	0.0113	J b
m-Xylene & p-Xylene	1		0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000350	U	0.00017	U	NA		0.00124	U	0.00124	U	0.00033	U	0.00033	U	0.00033	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.00103	U
Naphthalene	1.5	654000	0.00024	J	0.000315	J b	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000147	J	0.00250	U	0.000795	Jb	NA		0.00135	U	0.00135	U	0.002	U	0.002	U	0.002	U	0.00192	J*	0.000129	U	0.000157	J	0.000704	J b
n-Butylbenzene	3.7		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000470	U	0.00016	U	NA		0.000644	U	0.000644	U	0.000286	U	0.000286	U	0.000286	U	0.000212	U*	0.000212	U	0.000212	U	0.000212	U	0.00106	U
n-Hexane	4.4		0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000760	U	0.00016	U	NA		0.000517	U	0.000517	U	0.000369	U	0.000369	U	0.000369	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.00128	U
N-Propylbenzene	2.9		0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.000380	U	0.00015	U	NA		0.000498	U	0.000498	U	0.000179	U	0.000179	U	0.000179	U	0.000230	U	0.00023	U	0.00023	U	0.00023	U	0.00115	U
o-Xylene	1		0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000230	U	0.00012	U	NA		0.000551	U	0.000551	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00096	U
sec-Butylbenzene	2.9		0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000420	U	0.00012	U	NA		0.000468	U	0.000468	U	0.000199	U	0.000199	U	0.000199	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.00112	U
Styrene	0.1		0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000270	U	0.00007	U	NA		0.000655	U	0.000655	U	0.000623	U	0.000623	U	0.000162	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000875	U
tert-Butylbenzene	2.9		0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000450	U	0.00008	U	NA		0.000442	U	0.000442	U	0.000195	U	0.000195	U	0.000195	U	0.000216	U*	0.000216	U	0.000216	U	0.000216	U	0.00108	U
Tetrachloroethene	0.005		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.00038	J	0.000513	J	0.000514	U	0.000740	U	0.00013	U	NA		0.000801	U	0.000801	U	0.0005	U	0.0005	U	0.0005	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.00167	U
Toluene	1		0.000198	U	0.000198	U	0.000198	U	0.000967	J	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.000480	U	0.00015	U	NA		0.000475	U	0.000475	U	0.0005	U	0.0005	U	0.0005	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.00099	U
trans-1,2-Dichloroethene	0.1		0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000370	U	0.00009	U	NA		0.000945	U	0.000945	U	0.000256	U	0.000256	U	0.000256	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00096	U
trans-1,3-Dichloropropene	0.02		0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000420	U	0.00021	U	NA		0.00127	U	0.00127	U	0.000752	U	0.000752	U	0.000752	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000685	U
Trichloroethene	0.005		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000201	J	0.000138	U	0.000480	U	0.00018	U	NA		0.000791	U	0.000791	U	0.000424	U	0.000424	U	0.000424	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.00069	U
Trichlorofluoromethane	22		0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000420	U	0.00008	U	NA		0.000638	U	0.000638	U	0.000245	U	0.000245	U	0.000245	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.00122	U
Vinyl acetate	7.3		0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000810	U	0.00021	U	NA		0.00214	U	0.00214	U	0.00357	U	0.00357	U	0.00357	U	0.000854	U*	0.000854	U	0.000854	U	0.000854	U	0.00427	U
Vinyl chloride	0.002	435	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000500	U	0.00011	U	NA		0.000638	U	0.000638	U	0.000234	U	0.000234	U	0.000234	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.00124	U
Xylenes, Total	10		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000230	U	0.00026	U	NA		0.00124	U	0.00124	U	0.00033	U	0.00033	U	0.000192	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.00183	U
Metals by EPA 6020																																										
Lead	0.015		0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	NA		0.000179	J	0.000152	U	0.000152	U	0.000152	U	0.000152	U	0.000165	U	0.000165	U	0.000733	U	0.000733	U	0.000733	U

Notes:

U = Analyte wa U = Analyte was not detected at or above the SDL.

J = Result is le J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wa H = Sample was prepped or analyzed beyond the specified holding time

b = The compc b = The compound was found in the blank and sample

NA = Not Anal NA = Not Analyzed

* = LCS or LCS * = LCS or LCSD exceeds the control limits

Bold Italic = E ***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas I TRRP = Texas Risk Reduction Program

PCL = protecti PCL = protective concentration level

1 TRRP PCL = C 1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW 2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua AAL = Attenuation Action Level

All results rep All results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location		RI-3-02	RI-3-02	RI-3-02	DUP1 (RI-3-02)	RI-3-02	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03	RI-3-03
Sample Date		1/18/2016	7/21/2015	1/27/2015	1/27/2015	7/24/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/26/2018	7/18/2017	1/26/2017	7/13/2016	3/3/2016	1/15/2016	7/21/2015	1/28/2015	7/24/2014
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																									
Analytes	TRRP PCL [1] / Tier 2 AirGW$_{Inh-V}$ PCL [2]																								
1,2-Dichloroethane	0.005	0.000116 U	0.00116 U	0.0005 U	0.0005 U	0.00014 U	NA	0.00059 U	0.00059 U	0.000285 U	0.000285 U	0.000285 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.0005 U	0.00014 U
1,2-Dichloropropane	0.005	0.000136 U	0.00136 U	0.00067 U	0.00067 U	0.00016 U	NA	0.000667 U	0.000667 U	0.000396 U	0.000396 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.00067 U	0.00016 U
1,3,5-Trimethylbenzene	3.7	0.00021 U	0.0021 U	0.00031 U	0.00031 U*	0.0001 U	NA	0.000456 U	0.000456 U	0.000279 U	0.000279 U	0.000279 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00031 U	0.0001 U
1,3-Dichlorobenzene	2.2	0.00021 U	0.0021 U	0.00043 U	0.00043 U	0.00013 U	NA	0.000513 U	0.000513 U	0.000197 U	0.000197 U	0.000197 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00043 U	0.00013 U
1,3-Dichloropropane	0.02	0.00022 U	0.0022 U	0.00034 U	0.00034 U	0.00022 U	NA	0.000514 U	0.000514 U	0.000439 U	0.000439 U	0.000439 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00034 U	0.00022 U
1,4-Dichlorobenzene	0.075	0.000176 U	0.00176 U	0.00046 U	0.00046 U	0.00011 U	NA	0.000513 U	0.000513 U	0.000199 U	0.000199 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00046 U	0.00011 U
2,2-Dichloropropane	0.03	0.000258 U	0.00258 U	0.00037 U	0.00037 U	0.00013 U	NA	0.00078 U	0.00078 U	0.00036 U	0.00036 U	0.00036 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.00037 U	0.00013 U
2-Butanone (MEK)	4.4	0.00076 U	0.0076 U	0.0034 U	0.0034 U	0.00076 U	NA	0.00828 U	0.00828 U	0.0027 U	0.0027 U	0.0027 U	0.00076 U	0.00076 U	0.00198 J	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.000676 J	0.00076 U	0.00076 U	0.0034 U	0.00076 U
2-Chlorotoluene	1.5	0.000226 U	0.00226 U	0.00027 U	0.00027 U	0.00013 U	NA	0.00118 U	0.00118 U	0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.00027 U	0.00013 U
4-Chlorotoluene	1.50	0.00021 U	0.0021 U	0.00045 U	0.00045 U	0.00014 U	NA	0.000472 U	0.000472 U	0.000183 U	0.000183 U	0.000183 U	0.00021 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00045 U	0.00014 U
4-Isopropyltoluene	2.4	0.000228 U	0.00228 U	0.00048 U	0.00048 U	0.0001 U	NA	0.000919 U	0.000919 U	0.000233 U	0.000233 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.00048 U	0.000100 U
4-Methyl-2-pentanone (MIBK)	5.8	0.000348 U	0.00342 U	0.0021 U	0.0021 U	0.00045 U	NA	0.00749 U	0.00749 U	0.00106 U	0.00106 U	0.00106 U	0.000348 U*	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.0021 U	0.00045 U
Acetone	66	0.000447 U	0.0113 J	0.00765 J	0.007 U	0.00099 U	NA	0.00119 U	0.00913 J	0.0123 U	0.0123 U	0.0123 U	0.000447 U	0.000447 U	0.00359 J	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.00191 J	0.000447 U*	0.000447 U	0.00181 J	0.007 U	0.00162 J
Benzene	0.005	6710 0.000176 U	0.00176 U	0.00043 U	0.00043 U	0.00008 U	0.00046 U	0.000533 U	0.000533 U	0.000214 U	0.000214 U	0.000214 U	0.000176 J b	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00043 U	0.00008 U
Bromobenzene	0.58	0.000195 U	0.00195 U	0.0005 U	0.0005 U	0.00019 U	NA	0.000665 U	0.000665 U	0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.0005 U	0.00019 U
Bromodichloromethane	0.033	0.000153 U	0.00153 U	0.00044 U	0.00044 U	0.00016 U	NA	0.000552 U	0.000552 U	0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.00044 U	0.00016
Bromoform	0.26	0.000151 U	0.00151 U	0.00043 U	0.00043 U	0.00019 U	NA	0.000633 U	0.000633 U	0.00063 U	0.000231 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.00043 U	0.00019 U
Bromomethane	0.1	0.00025 U	0.0025 U	0.0025 U	0.0025 U	0.00025 U	NA	0.00142 U	0.00142 U	0.00105 U	0.00063 U	0.00063 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U*	0.00025 U	0.00025 U*	0.00025 U	0.0025 U	0.00025 U
Carbon disulfide	7.8	0.000216 U	0.00216 U	0.001 U	0.001 U	0.00024 U	NA	0.00191 U	0.00191 U	0.000373 U	0.00105 U	0.00105 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.00127 J	0.000216 U	0.001 U	0.00024 U
Carbon tetrachloride	0.005	0.000183 U	0.00183 U	0.00033 U	0.00033 U	0.00015 U	NA	0.000896 U	0.000896 U	0.000423 U	0.000373 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.00033 U	0.00015 U
Chlorobenzene	0.1	0.000185 U	0.00185 U	0.00026 U	0.00026 U	0.00012 U	NA	0.00053 U	0.00053 U	0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.00026 U	0.00012 U
Chlorobromomethane	2.9	0.000162 U	0.00162 U	0.00045 U	0.00045 U	0.00018 U	NA	0.000657 U	0.000657 U	0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.00045 U	0.00018 U
Chloroethane	29	0.00024 U	0.0024 U	0.0025 U	0.0025 U	0.00008 U	NA	0.00198 U	0.00198 U	0.000433 U	0.000433 U	0.000433 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U*	0.00024 U	0.00024 U*	0.00024 U	0.0025 U	0.00008 U
Chloroform	0.73	0.000151 U	0.00151 U	0.0005 U	0.0005 U	0.00013 U	NA	0.000643 U	0.000643 U	0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.0005 U	0.00013 U
Chloromethane	0.16	0.000209 U	0.00274 J*	0.0004 U	0.0004 U	0.00018 U	NA	0.00204 U	0.00204 U	0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U*	0.000209 U*	0.000245 J*	0.0004 U	0.00018 U
cis-1,2-Dichloroethene	0.07	0.000157 U	0.00157 U	0.00041 U	0.00041 U	0.00006 U	NA	0.000714 U	0.000714 U	0.000174 U	0.000174 U	0.000174 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.00041 U	0.00006 U
cis-1,3-Dichloropropene	0.0038	0.00016 U	0.0016 U	0.0004 U	0.0004 U	0.00018 U	NA	0.00107 U	0.00107 U	0.00069 U	0.00069 U	0.00069 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.0004 U	0.00018 U
Dibromochloromethane	0.024	0.000119 U	0.00119 U	0.00032 U	0.00032 U	0.00015 U	NA	0.000547 U	0.000547 U	0.000739 U	0.000739 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.00032 U	0.00015 U
Dibromomethane	0.27	0.00052 U	0.0052 U	0.00035 U	0.00035 U	0.00052 U	NA	0.000689 U	0.000689 U	0.00013 U	0.00013 U	0.00013 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00035 U	0.00052 U
Dichlorodifluoromethane	15	0.000859 U	0.00859 U	0.0006 U	0.0006 U	0.00012 U	NA	0.000919 U	0.000919 U	0.000316 U	0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U*	0.000859 U	0.000859 U*	0.000859 U	0.0006 U	0.00012 U
Ethylbenzene	0.7	0.000212 U	0.00212 U	0.00033 U	0.00033 U	0.00011 U	NA	0.000411 U	0.000411 U	0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00033 U	0.00011 U
Hexachlorobutadiene	0.026	0.000215 U	0.00215 U	0.0025 U	0.0025 U	0.00017 U	NA	0.00126 U	0.00126 U	0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.0025 U	0.00017 U
Isopropylbenzene	2.4	0.000241 U	0.00241 U	0.00035 U	0.00035 U	0.00018 U	NA	0.000613 U	0.000613 U	0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.00035 U	0.00018 U
Methyl tert-butyl ether	0.73	0.000105 U	0.00105 U	0.0003 U	0.0003 U	0.00012 U	NA	0.00139 U	0.00139 U	0.000571 U	0.000571 U	0.00191 U	0.000105 J*	0.000137 J	0.000219 J	0.000105 U	0.000105 U	0.000358 J	0.000449 J	0.000316 J	0.000468 J	0.00116	0.000784 J	0.00119	0.000406 J	0.00012 U
Methylene Chloride	0.005	0.000176 U	0.00895 J	0.0025 U	0.0025 U	0.00015 U	NA	0.00173 U	0.00173 U	0.00191 U	0.00191 U	0.000571 U	0.000176 J*	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.0025 U	0.00015 U
m-Xylene & p-Xylene	1	0.000205 U	0.00205 U	0.00035 U	0.00035 U	0.00017 U	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.00035 U	0.00017 U
Naphthalene	1.5	654000 0.000215 J b	0.00129 U	0.0025 U	0.0025 U	0.00032 U	NA	0.00135 U	0.00135 U	0.002 U	0.002 U	0.002 U	0.000129 J*	0.000129 U	0.000192 J	0.000489 J b	0.000129 U	0.000129 U	0.000129 U	0.000129 U*	0.000129 U	0.000129 U	0.000129 U	0.0025 U	0.00032 U
n-Butylbenzene	3.7	0.000212 U	0.00212 U	0.00047 U	0.00047 U	0.00016 U	NA	0.000644 U	0.000644 U	0.000286 U	0.000286 U	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U*	0.000212 U	0.00047 U	0.00016 U
n-Hexane	4.4	0.000256 U	0.00256 U	0.00076 U	0.00076 U	0.00016 U	NA	0.000517 U	0.000517 U	0.000369 U	0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.00076 U	0.00016 U
N-Propylbenzene	2.9	0.00023 U	0.0023 U	0.00038 U	0.00038 U	0.00015 U	NA	0.000498 U	0.000498 U	0.000179 U	0.000179 U	0.000179 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00038 U	0.00015 U
o-Xylene	1	0.000192 U	0.00192 U	0.00023 U	0.00023 U	0.00012 U	NA	0.000551 U	0.000551 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00023 U	0.00012 U
sec-Butylbenzene	2.9	0.000224 U	0.00224 U	0.00042 U	0.00042 U	0.00012 U	NA	0.000468 U	0.000468 U	0.000199 U	0.000199 U	0.000199 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.00042 U	0.00012 U
Styrene	0.1	0.000175 U	0.00175 U	0.00027 U	0.00027 U	0.00007 U	NA	0.000655 U	0.000655 U	0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.00027 U	0.00007 U
tert-Butylbenzene	2.9	0.000216 U	0.00216 U	0.00045 U	0.00045 U	0.00008 U	NA	0.000442 U	0.000442 U	0.000195 U	0.000195 U	0.000195 U	0.000216 U*	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.00045 U	0.00008 U
Tetrachloroethene	0.005	0.000333 U	0.00514 U	0.00074 U	0.00074 U	0.00013 U	NA	0.000801 U	0.000801 U	0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.00074 U	0.00013 U
Toluene	1	0.000198 U	0.00198 U	0.00048 U	0.00048 U	0.00015 U	NA	0.000475 U	0.000475 U	0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.00103	0.000198 U	0.000244 J b	0.000198 U	0.000198 U*	0.000198 U	0.00048 U	0.00015 U
trans-1,2-Dichloroethene	0.1	0.000192 U	0.00192 U	0.00037 U	0.00037 U	0.00009 U	NA	0.000945 U	0.000945 U	0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00037 U	0.00009 U
trans-1,3-Dichloropropene	0.02	0.000137 U	0.00137 U	0.00042 U	0.00042 U	0.00021 U	NA	0.00127 U	0.00127 U	0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.00042 U	0.00021 U
Trichloroethene	0.005	0.000138 U	0.00138 U	0.00048 U	0.00048 U	0.00018 U	NA	0.000791 U	0.000791 U	0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.00048 U	0.00018 U
Trichlorofluoromethane	22	0.000244 U	0.00244 U	0.00042 U	0.00042 U	0.00008 U	NA	0.000638 U	0.000638 U	0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U*	0.000244 U	0.00042 U	0.00008 U
Vinyl acetate	7.3	0.000854 U	0.00854 U	0.00081 U	0.00081 U	0.00021 U	NA	0.00214 U	0.00214 U	0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U*	0.00081 U	0.00021 U
Vinyl chloride	0.002	435 0.000248 U	0.00248 U	0.0005 U	0.0005 U	0.00011 U	NA	0.000638 U	0.000638 U	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U*	0.000248 U	0.0005 U	0.00011 U
Xylenes, Total	10	0.000366 U	0.00366 U	0.00023 U	0.00023 U	0.00026 U	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.00023 U	0.00026 U
Metals by EPA 6020																									
Lead	0.015	0.000733 U	0.00167 J	0.000733 U	0.000733 U	0.000733 U	NA	0.00152 J	0.000152 U	0.00033	0.00102 J	0.000195 J	0.0194 b	0.000186 J	0.00383 J	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U

Notes:

U = Analyte wiU = Analyte was not detected at or above the SDL.

J = Result is leJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample waH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas fTRRP = Texas Risk Reduction Program

PCL = protectiiPCL = protectice concentration level

1 TRRP PCL = t1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = AttenuaAAL = Attenuation Action Level

All results repiAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

Notes:

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1	AMP-1
Sample Date			7/21/2023	1/31/2023	1/31/23 Duplicate	7/29/2022	7/29/2022 Duplicate	1/14/2022	1/14/22 Duplicate	7/2/2021	7/2/2021 Duplicate	1/21/21 Duplicate	1/21/2021	7/28/2020	7/28/2020 Duplicate	1/21/2020 Duplicate	1/21/2020	7/5/2019 Duplicate	7/5/2019	1/15/2019 Duplicate	1/15/2019	7/18/2018 Duplicate	7/18/2018	1/18/2018	7/18/2017	1/26/2017
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																								
1,2-Dichloroethane	0.005	NA	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.000285 U	0.000285 U	0.000285 U	0.000285 U	0.000285 U	0.000236 U	0.000285 U	0.000116 U	0.000116 U	0.000116 U	0.00012 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U
1,2-Dichloropropane	0.005	NA	0.000667 U	0.000667 U	0.000667 U	0.000667 U	0.000396 U	0.000396 U	0.000396 U	0.000396 U	0.000396 U	0.000285 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.00014 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U
1,3,5-Trimethylbenzene	3.7	NA	0.000456 U	0.000456 U	0.000456 U	0.000456 U	0.000279 U	0.000279 U	0.000279 U	0.000279 U	0.000279 U	0.000396 U	0.000279 U	0.000210 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
1,3-Dichlorobenzene	2.2	NA	0.000513 U	0.000513 U	0.000513 U	0.000513 U	0.000197 U	0.000197 U	0.000197 U	0.000197 U	0.000279 U	0.000197 U	0.000197 U	0.000210 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
1,3-Dichloropropane	0.02	NA	0.000514 U	0.000514 U	0.000514 U	0.000514 U	0.000439 U	0.000439 U	0.000439 U	0.000439 U	0.000439 U	0.000197 U	0.000439 U	0.000220 U	0.000220 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U
1,4-Dichlorobenzene	0.075	NA	0.000513 U	0.000513 U	0.000513 U	0.000513 U	0.000513 U	0.000199 U	0.000199 U	0.000199 U	0.000199 U	0.000439 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.00018 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U
2,2-Dichloropropane	0.03	NA	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.00036 U	0.00036 U *	0.00036 U	0.00036 U	0.000199 U	0.00036 U	0.00036 U	0.000258 U	0.000258 U	0.000258 U	0.00026 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U
2-Butanone (MEK)	4.4	NA	0.00828 U	0.00828 U	0.00828 U	0.00828 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.00036 U	0.0027 U	0.000760 U	0.000760 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U
2-Chlorotoluene	1.5	NA	0.00118 U	0.00118 U	0.00118 U	0.00118 U	0.000214 U	0.000214 U	0.000214 U	0.0027 U	0.000214 U	0.000183 U	0.000214 U	0.000226 U*	0.000226 U*	0.000226 U	0.00023 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U
4-Chlorotoluene	1.50	NA	0.000472 U	0.000472 U	0.000472 U	0.000472 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000214 U	0.000183 U	0.000210 U*	0.00021 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
4-Isopropyltoluene	2.4	NA	0.000919 U	0.000919 U	0.000919 U	0.000919 U	0.000233 U	0.000233 U	0.000233 U	0.000233 U	0.000183 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.00023 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U
4-Methyl-2-pentanone (MIBK)	5.8	NA	0.00749 U	0.00749 U	0.00749 U	0.00749 U	0.00106 U	0.00106 U	0.00106 U	0.00106 U	0.000233 U	0.00106 U	0.000348 U*	0.000348 U*	0.000348 U	0.00035 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U
Acetone	66	NA	0.00119 U	0.00119 U	0.00119 U	0.00119 U	0.0123 U	0.0123 U	0.0123 U	0.0123 U	0.00106 U	0.0123 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.00045 U	0.023	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.013	0.0118	0.0211	0.000447 U
Benzene	0.005	6710 ***0.0118***	***0.0129***	***0.0129***	0.000533 U	0.000533 U	0.000288 U	0.00029 J	0.000298 J	0.000377 J	***0.0123*** U	0.0007 J	***0.00586*** b	***0.00586*** b	0.000442 J	0.00043 J	***0.0111***	***0.0084***	0.00252	0.00242	0.00247	0.00224	0.00237	***0.00668***	0.000899 J
Bromobenzene	0.58	NA	0.000665 U	0.000665 U	0.000665 U	0.000665 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U	0.0009 J	0.0003 U	0.000195 U*	0.000195 U*	0.000195 U	0.0002 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U
Bromodichloromethane	0.033	NA	0.000552 U	0.000552 U	0.000552 U	0.000552 U	0.000231 U	0.000231 U	0.000209 U	0.000209 U	0.0003 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.00015 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U
Bromoform	0.26	NA	0.000633 U	0.000633 U	0.000633 U	0.000633 U	0.00063 U	0.00063 U	0.00063 U	0.000231 U	0.000209 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.00015 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U
Bromomethane	0.1	NA	0.00142 U	0.00142 U	0.00142 U	0.00142 U	0.00105 U	0.00105 U	0.00063 U	0.00063 U	0.000231 U	0.00063 U	0.000250 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U*	0.00025 U	0.00025 U*
Carbon disulfide	7.8	NA	0.00191 U	0.00191 U	0.00191 U	0.00191 U	0.000373 U	0.000373 U	0.00105 U	0.00105 U	0.0063 U	0.00105 U	0.000216 U	0.000216 U	0.000216 U	0.00022 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U
Carbon tetrachloride	0.005	NA	0.000896 U	0.000896 U	0.000896 U	0.000896 U	0.000423 U	0.000423 U	0.000373 U	0.000373 U	0.00105 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.00018 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U
Chlorobenzene	0.1	NA	0.0042	0.00413	0.00485	0.00478	0.00423	0.00477	0.000423 U	0.000423 U	0.000373 U	0.000423 U	0.004410	0.00466	0.00391	0.00371	0.00578	0.00512	0.00455	0.00435	0.00612	0.00602	0.00736	0.0057	0.00724	
Chlorobromomethane	2.9	NA	0.000657 U	0.000657 U	0.000657 U	0.000657 U	0.000209 U	0.000209 U	0.0051	0.00552	0.000423 U	0.00423	0.000162 U	0.000162 U	0.000162 U	0.00016 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U
Chloroethane	29	NA	0.00198 U	0.00198 U	0.00198 U	0.00198 U	0.000433 U	0.000433 U	0.000433 U	0.000433 U	0.00415	0.000433 U	0.000240 U	0.000240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U
Chloroform	0.73	NA	0.000643 U	0.000643 U	0.000643 U	0.000643 U	0.000259 U	0.000259 U	0.000259 U	0.000259 U	0.000433 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.00015 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U
Chloromethane	0.16	NA	0.00204 U	0.00204 U	0.00204 U	0.00204 U	0.000318 U	0.000318 U	0.000318 U	0.000318 U	0.000259 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.00021 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U
cis-1,2-Dichloroethene	0.07	NA	0.00195	0.0019	0.000714 U	0.000714 U	0.000174 U	0.000174 U	0.000174 U	0.000174 U	0.000318 U	0.00018 J	0.000321 J	0.000441 J	0.000278 J	0.00016 U	0.000518 J	0.000427 J	0.000157 U	0.000271 J	0.000214 J	0.000173 J	0.000157 U	0.000186 J	0.000157 U	0.000186 J
cis-1,3-Dichloropropene	0.0038	NA	0.000107 U	0.000107 U	0.000107 U	0.000107 U	0.00069 U	0.00069 U	0.00069 U	0.00069 U	0.00034 J	0.00069 U	0.000160 U	0.000160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Dibromochloromethane	0.024	NA	0.000547 U	0.000547 U	0.000547 U	0.000547 U	0.000739 U	0.000739 U	0.000739 U	0.000739 U	0.00069 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.00012 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U
Dibromomethane	0.27	NA	0.000689 U	0.000689 U	0.000689 U	0.000689 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00739 U	0.00013 U	0.000520 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U
Dichlorodifluoromethane	15	NA	0.000919 U	0.000919 U	0.000919 U	0.000919 U	0.000316 U	0.000316 U *	0.000316 U	0.000316 U	0.00013 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.00086 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U
Ethylbenzene	0.7	NA	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000515 U	0.000515 U	0.000515 U	0.000515 U	0.000316 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.00021 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U
Hexachlorobutadiene	0.026	NA	0.00126 U	0.00126 U	0.00126 U	0.00126 U	0.002 U	0.002 U	0.002 U	0.002 U	0.00019 J	0.002 U	0.000215 U*	0.000215 U*	0.000215 U*	0.00022 U *	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U
Isopropylbenzene	2.4	NA	0.012	0.0123	0.0118	0.0113	0.00722	0.0079	0.0122	0.014	0.002 U	0.00978	0.0181 *	0.0212 *	0.00766	0.00761	0.0153	0.0139	0.00818	0.00807	0.0109	0.0107	0.0161	0.00947	0.0112	
Methyl tert-butyl ether	0.73	NA	0.00139 U	0.00139 U	0.00154 J	0.00156 J	0.000571 U	0.000571 U	0.000571 U	0.000571 U	0.0111	0.000191 U	0.000560 J *	0.000493 J*	0.000105 U	0.00054 J	0.00181	0.00169	0.00197	0.00166	0.00177	0.00178	0.000788 J	0.000105 U	0.000105 U	
Methylene Chloride	0.005	NA	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00191 U	0.00191 U	0.00191 U	0.00191 U	0.00191 U	0.000571 U	0.00276 J *	0.00254 J*	0.000176 U	0.00018 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U
m-Xylene & p-Xylene	1	NA	0.00164 J	0.00169 J	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000457 J	0.000571 U	0.00056 J	0.000205 U	0.000205 U	0.000205 U	0.00021 U	0.000924 J	0.000803 J	0.000607 J	0.000573 J	0.000508 J	0.000511 J	0.000759 J	0.000458 J	0.000434 J	
Naphthalene	1.5	654000 NA	0.00405 J	0.00413 J	0.00135 U	0.00135 U	0.002 U	0.002 U	0.002 U	0.002 U	0.00064 J	0.002 UH	0.000129 U*	0.000129 U*	0.000129 U	0.00013 U	0.00184 J	0.0019 J	0.000129 U	0.00143 J b	0.000593 J	0.000568 J	0.0022	0.000129 U	0.0029	
n-Butylbenzene	3.7	NA	0.000945 J	0.000928 J	0.000644 U	0.000644 U	0.000362 J	0.000337 J	0.000286 U	0.000768 J	0.002 U	0.00032 J	0.000212 U*	0.000212 U*	0.000212 U	0.00021 U	0.000212 U	0.000212 U	0.000418 J	0.000363 J	0.000212 U	0.000305 J	0.000603 J	0.000212 U	0.000212 U	
n-Hexane	4.4	NA	0.000517 U	0.000517 U	0.000517 U	0.000517 U	0.000369 U	0.000369 U *	0.000369 U	0.00041 J	0.000369 U		0.000256 U	0.000256 U	0.000256 U	0.00026 U	0.000259 J	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	
N-Propylbenzene	2.9	NA	0.00301	0.0032	0.00264	0.00256	0.00162	0.00167	0.000179 U	0.00385	0.000369 U	0.0024	0.00471	0.00544	0.00146	0.00151	0.00308	0.00259	0.00148	0.00136	0.00203	0.00194	0.00261	0.00139	0.00183	
o-Xylene	1	NA	0.000551 U	0.000551 U	0.000551 U	0.000551 U	0.000192 U	0.000192 U	0.000192 U	0.00036 J	0.00272	0.00039 J	0.000369 J	0.000393 J	0.000192 U	0.00019 U	0.000618 J	0.000548 J	0.00044 J	0.000393 J	0.00037 J	0.00035 J	0.000489 J	0.000364 J	0.000414 J	
sec-Butylbenzene	2.9	NA	0.00535	0.00554	0.0068	0.00631	0.00519	0.00545	0.00747	0.00843	0.00038 J	0.00547	0.00931	0.0103	0.00402	0.00409	0.00766	0.00712	0.00367	0.00354	0.00372	0.00359	0.00625	0.00191	0.00342	
Styrene	0.1	NA	0.000655 U	0.000655 U	0.000655 U	0.000655 U	0.000623 U	0.000623 U	0.000623 U	0.000623 U	0.00601	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.00018 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U
tert-Butylbenzene	2.9	NA	0.00336	0.00341	0.00257	0.00254	0.00316	0.00351	0.00288	0.0033	0.000162 U	0.00347	0.00338 *	0.00351 *	0.00255	0.0026	0.0031	0.00283	0.00262	0.00252	0.00196	0.00194	0.00374	0.00125	0.000216 U	
Tetrachloroethene	0.005	NA	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.00324	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.00033 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U
Toluene	1	NA	0.000475 U	0.000475 U	0.000475 U	0.000475 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000447 J	0.000198 U	0.000198 U	0.0002 U	0.000554 J	0.00045 J	0.000383 J	0.000343 J	0.000413 J	0.00042 J	0.000595 J	0.000558 J	0.000712 J b	
trans-1,2-Dichloroethene	0.1	NA	0.000945 U	0.000945 U	0.000945 U	0.000945 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.0005 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.00019 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U
trans-1,3-Dichloropropene	0.02	NA	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.000752 U	0.000752 U	0.000752 U	0.000752 U	0.000256 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.00014 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U
Trichloroethene	0.005	NA	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000424 U	0.000424 U	0.000424 U	0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.00014 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U
Trichlorofluoromethane	22	NA	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000245 U	0.000245 U	0.000245 U	0.000245 U	0.000424 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.00024 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U
Vinyl acetate	7.3	NA	0.00214 U	0.00214 U	0.00214 U	0.00214 U	0.00357 U	0.00357 U	0.00357 U	0.00357 U	0.000245 U	0.00357 U	0.000854 U*	0.000854 U*	0.00161 J	0.00085 U	0.000854 U	0.000854 U	0.000854 U	0.00194 J	0.000854 U	0.000854 U	0.00157 J	0.000854 U	0.000854 U	
Vinyl chloride	0.002	435 NA	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000234 U	0.000234 U	0.000234 U	0.000234 U	0.00357 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.00025 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U
Xylenes, Total	10	NA	0.00164 J	0.00169 J	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000817 J	0.000234 U	0.00095 J	0.000369 J	0.000393 J	0.000366 U	0.00037 U	0.00154	0.00135	0.00105	0.000966 J	0.000878 J	0.000861 J	0.00125	0.000822 J	0.000848 J	
Metals by EPA 6020																										
Lead	0.015	NA	0.000112 U	0.000112 U	0.000152 U	0.000152 U	0.00016 U	0.000204 U	0.000152 U	0.000175 J	0.000152 U	0.000165 J	0.000165 U	0.000371 J b	0.000329 J	0.00051	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	

Notes:

U = Analyte wasU = Analyte was not detected at or above the SDL.

J = Result is lesJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wasH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas fTRRP = Texas Risk Reduction Program

PCL = protectiPCL = protectice concentration level

1 TRRP PCL = C1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua AAL = Attenuation Action Level

All results repAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			AMP-1		AMP-1		AMP-1		AMP-1		AMP-1		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2		AMP-2 duplicate		AMP-2		AMP-2		AMP-2		AMP-2	
Sample Date			7/13/2016		1/14/2016		7/22/2015		1/28/2015		7/23/2014		7/21/2023		1/31/2023		7/29/2022		1/14/2022		7/2/2021		1/21/2021		7/28/2020		1/21/2020		7/5/2019		1/15/2019		7/18/2018		2/23/2018 resampled for		1/18/2018		7/19/2017		1/26/2017		7/13/2016	
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.032		0.032		0.032		0.032		0.032		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011		0.011	
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																																									
1,2-Dichloroethane	0.005		0.000116	U	0.000116	U	0.000116	U	0.0005	U	0.00014	U	NA		0.00059	U	0.00059	U	0.000285	U	0.000285	U	0.000285	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.0005	U
1,2-Dichloropropane	0.005		0.000136	U	0.000136	U	0.000136	U	0.00067	U	0.00016	U	NA		0.000667	U	0.000667	U	0.000396	U	0.000396	U	0.000396	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.00067	U
1,3,5-Trimethylbenzene	3.7		0.00021	U	0.000210	U	0.00021	U	0.00031	U*	0.0001	U	NA		0.000456	U	0.000456	U	0.000279	U	0.000279	U	0.000279	U	0.000210	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00031	U
1,3-Dichlorobenzene	2.2		0.00021	U	0.000210	U	0.00021	U	0.00043	U	0.00013	U	NA		0.000513	U	0.000513	U	0.000197	U	0.000197	U	0.000197	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00043	U
1,3-Dichloropropane	0.02		0.00022	U	0.000220	U	0.00022	U	0.00034	U	0.00022	U	NA		0.000514	U	0.000514	U	0.000439	U	0.000439	U	0.000439	U	0.000220	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00034	U
1,4-Dichlorobenzene	0.075		0.000176	U	0.000176	U	0.000176	U	0.00046	U	0.00011	U	NA		0.000513	U	0.000513	U	0.000199	U	0.000199	U	0.000199	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.00046	U
2,2-Dichloropropane	0.03		0.000258	U	0.000258	U	0.000258	U	0.00037	U	0.00013	U	NA		0.00078	U	0.00078	U	0.00036	U	0.00036	U	0.00036	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.00037	U
2-Butanone (MEK)	4.4		0.00076	U	0.000760	U	0.000953	J	0.0034	U	0.00076	U	NA		0.00828	U	0.00828	U	0.0027	U	0.0027	U	0.0027	U	0.000760	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0034	U
2-Chlorotoluene	1.5		0.000226	U	0.000226	U	0.000226	U	0.00027	U	0.00013	U	NA		0.00118	U	0.00118	U	0.000214	U	0.000214	U	0.00022	J	0.000226	U*	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000284	J	0.000226	U	0.000255	J	0.000226	U	0.000226	U	0.00027	U
4-Chlorotoluene	1.50		0.00021	U	0.000210	U	0.00021	U	0.00045	U	0.00014	U	NA		0.000472	U	0.000472	U	0.000183	U	0.000183	U	0.000183	U	0.000210	U*	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.000210	U	0.00045	U
4-Isopropyltoluene	2.4		0.000228	U	0.000228	U	0.000228	U	0.00048	U	0.0001	U	NA		0.000919	U	0.000919	U	0.000233	U	0.000233	U	0.000233	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.00048	U
4-Methyl-2-pentanone (MIBK)	5.8		0.000348	U	0.000348	U	0.000342	U	0.0021	U	0.00045	U	NA		0.00749	U	0.00749	U	0.00106	U	0.00106	U	0.00106	U	0.000348	U*	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.0021	U
Acetone	66		0.000447	U	0.000447	U	0.0103		0.007	U	0.0268		NA		0.00119	U	0.00646	J	0.0123	U	0.0123	U	0.0123	U	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.00982		0.00523		0.0178		0.000447	U	0.000447	U	0.000447	U	0.00549		0.007	U
Benzene	0.005	6710	0.000666	J	0.001200		0.00057	J	0.00067	J	0.00173		***0.0129***		0.000533	U	0.000533	U	0.000214	U	0.000255	J	0.000214	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000198	J	0.000254	J	0.000288	J	0.000176	U	0.000176	U	0.00043	U
Bromobenzene	0.58		0.000195	U	0.000195	U	0.000195	U	0.0005	U	0.00019	U	NA		0.000665	U	0.000665	U	0.0003	U	0.0003	U	0.0003	U	0.000195	U*	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.0005	U
Bromodichloromethane	0.033		0.000153	U	0.000153	U	0.000153	U	0.00044	U	0.00016	U	NA		0.000552	U	0.000552	U	0.000231	U	0.000209	U	0.000209	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.00044	U
Bromoform	0.26		0.000151	U	0.000151	U	0.000151	U	0.00043	U	0.00019	U	NA		0.000633	U	0.000633	U	0.00063	U	0.000231	U	0.000231	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.00043	U
Bromomethane	0.1		0.00025	U	0.000250	U	0.00025	U	0.0025	U	0.00025	U	NA		0.00142	U	0.00142	U	0.00105	U	U		0.00063	U	0.000250	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U*	0.00025	U	0.00025	U	0.00025	U	0.000250	U	0.00025	U	0.0025	U
Carbon disulfide	7.8		0.000216	U	0.000216	U	0.000216	U	0.001	U	0.00024	U	NA		0.00191	U	0.00191	U	0.000373	U	0.00105	U	0.00105	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.001	U
Carbon tetrachloride	0.005		0.000183	U	0.000183	U	0.000183	U	0.00033	U	0.00015	U	NA		0.000896	U	0.000896	U	0.000423	U	0.000373	U	0.000373	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.00033	U
Chlorobenzene	0.1		0.00714		0.008320		0.0108		0.00968		0.00768		NA		0.000852	J	0.00053	U	0.000159	U	0.000423	U	0.000423	U	0.000234	J	0.000756	J	0.000253	J	0.000241	J	0.000534	J	0.000235	J	0.00128		0.00106		0.00124		0.000838	J	0.000185	U	0.00075	J	0.00026	U
Chlorobromomethane	2.9		0.000162	U	0.000162	U	0.000162	U	0.00045	U	0.00018	U	NA		0.000657	U	0.000657	U	0.000209	U	0.000159	U	0.000159	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.00045	U
Chloroethane	29		0.00024	U	0.000240	U	0.00024	U	0.0025	U	0.00008	U	NA		0.00198	U	0.00198	U	0.000433	U	0.000433	U	0.000433	U	0.000240	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.0025	U
Chloroform	0.73		0.000151	U	0.000151	U	0.000151	U	0.0005	U	0.00013	U	NA		0.000643	U	0.000643	U	0.000259	U	0.000259	U	0.000259	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.0005	U
Chloromethane	0.16		0.000209	U	0.000209	U	0.000383	J*	0.0004	U	0.00018	U	NA		0.00204	U	0.00204	U	0.000318	U	0.000318	U	0.000318	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000316	J*	0.0004	U
cis-1,2-Dichloroethene	0.07		0.000157	U	0.000157	U	0.000802	J	0.00041	U	0.00006	U	NA		0.000714	U	0.000714	U	0.000174	U	0.000174	U	0.000174	U	0.000157	U	0.000234	J	0.000157	U	0.000157	U	0.000157	U	0.000215	J	0.000389	J	0.000611	J	0.000221	J	0.000219	J	0.000157	U	0.00044	J	0.00041	U
cis-1,3-Dichloropropene	0.0038		0.00016	U	0.000160	U	0.00016	U	0.0004	U	0.00018	U	NA		0.00107	U	0.00107	U	0.00069	U	0.00069	U	0.00069	U	0.000160	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.0004	U
Dibromochloromethane	0.024		0.000119	U	0.000119	U	0.000119	U	0.00032	U	0.00015	U	NA		0.000547	U	0.000547	U	0.000739	U	0.000739	U	0.000739	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.00032	U
Dibromomethane	0.27		0.00052	U	0.000520	U	0.00052	U	0.00035	U	0.00052	U	NA		0.000689	U	0.000689	U	0.00013	U	0.00013	U	0.00013	U	0.000520	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.000520	U	0.00052	U	0.00035	U
Dichlorodifluoromethane	15		0.000859	U	0.000859	U	0.000859	U	0.0006	U	0.00012	U	NA		0.000919	U	0.000919	U	0.000316	U	0.000316	U*	0.000316	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.0006	U
Ethylbenzene	0.7		0.000212	U	0.000212	U	0.000212	U	0.00033	U	0.00011	U	NA		0.000411	U	0.000411	U	0.000515	U	0.000515	U	0.000146	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00033	U
Hexachlorobutadiene	0.026		0.000215	U	0.000215	U	0.000215	U	0.0025	U	0.00017	U	NA		0.00126	U	0.00126	U	0.002	U	0.002	U	0.002	U	0.000215	U*	0.000215	U*	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.0025	U
Isopropylbenzene	2.4		0.0122		0.012400		0.0102		0.0142		0.0103		NA		0.000613	U	0.000613	U	0.000161	U	0.000161	U	0.000161	U	0.000241	U*	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.00035	U
Methyl tert-butyl ether	0.73		0.000105	U	0.000105	U	0.000105	U	0.0003	U	0.000154	J	NA		0.00139	U	0.00139	U	0.000571	U	0.000571	U	0.00191	U	0.00120	*	0.00146		0.00219		0.00149		0.000329	J	0.000105	U	0.000105	U	0.000179	J	0.000105	U	0.000105	U	0.000105	U	0.000105	U	0.0003	U
Methylene Chloride	0.005		0.000176	U	0.000176	U	0.000176	U	0.0025	U	0.00015	U	NA		0.00173	U	0.00173	U	0.00191	U	0.00191	U	0.000571	U	0.00341	J*	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.0025	U
m-Xylene & p-Xylene	1		0.000205	U	0.000205	U	0.000205	U	0.000991	J	0.000816	J	NA		0.00124	U	0.00124	U	0.00033	U	0.00033	U	0.00033	U	0.000205	U	0.00026	J	0.000205	U	0.000205	U	0.000205	U	0.000252	J	0.000205	U	0.000259	J	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.00033	U
Naphthalene	1.5	654000	0.00131	J	0.001660	J	0.00102	J	0.0025	U	0.000537	J*	NA		0.00135	U	0.00135	U	0.002	U	0.002	U	0.002	UH	0.001790	J*	0.000129	U	0.000129	U	0.000244	J b	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000141	J	0.000129	U	0.000129	U	0.0025	U
n-Butylbenzene	3.7		0.000417	J	0.000561	J	0.000212	U	0.00047	U	0.00016	U	NA		0.000644	U	0.000644	U	0.000286	U	0.000286	U	0.000286	U	0.000212	U*	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00047	U
n-Hexane	4.4		0.000256	U	0.000256	U	0.000256	U	0.00076	U	0.00016	U	NA		0.000517	U	0.000517	U	0.000369	U	0.000369	U	0.000369	U	0.000720	J	0.000256	U	0.000427	J	0.000256	U	0.000481	J	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.00076	U
N-Propylbenzene	2.9		0.00217		0.002250		0.00228		0.00357		0.0027		NA		0.000498	U	0.000498	U	0.000179	U	0.000179	U	0.000179	U	0.000230	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.000230	U	0.00023	U	0.00038	U
o-Xylene	1		0.000395	J	0.000453	J	0.000658	J	0.000641	J	0.000345	J	NA		0.000551	U	0.000551	U	0.000192	U	0.000192	U	0.00022	J	0.000192	U	0.000334	J	0.000192	U	0.000192	U	0.000195	J	0.000192	U	0.000406	J	0.000298	J	0.000394	J	0.000192	U	0.000192	U	0.000192	U	0.000195	J	0.00023	U
sec-Butylbenzene	2.9		0.00363		0.004510		0.004		0.00042	U	0.00419		NA		0.000468	U	0.000468	U	0.000199	U	0.000199	U	0.000199	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.00042	U
Styrene	0.1		0.000175	U	0.000175	U	0.000175	U	0.00027	U	0.00007	U	NA		0.000655	U	0.000655	U	0.000623	U	0.000623	U	0.000162	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.00027	U
tert-Butylbenzene	2.9		0.00188		0.002050		0.00201		0.00275		0.00181		NA		0.000442	U	0.000442	U	0.000195	U	0.000195	U	0.000195	U	0.000216	U*	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.00045	U
Tetrachloroethene	0.005		0.000333	U	0.000333	U	0.000535	J	0.00074	U	0.00013	U	NA		0.000801	U	0.000801	U	0.0005	U	0.0005	U	0.0005	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000514	U	0.00074	U
Toluene	1		0.000476	J	0.000692	J	0.000709	J	0.000709	J	0.000565	J	NA		0.000475	U	0.000475	U	0.0005	U	0.000533	J	0.0005	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.00129		0.000198	U	0.000201	J	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.00048	U
trans-1,2-Dichloroethene	0.1		0.000192	U	0.000192	U	0.000192	U	0.00037	U	0.00009	U	NA		0.000945	U	0.000945	U	0.000256	U	0.000256	U	0.000256	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00037	U
trans-1,3-Dichloropropene	0.02		0.000137	U	0.000137	U	0.000137	U	0.00042	U	0.00021	U	NA		0.00127	U	0.00127	U	0.000752	U	0.000752	U	0.000752	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.00042	U
Trichloroethene	0.005		0.000138	U	0.000138	U	0.000641	J	0.00048	U	0.00018	U	NA		0.000791	U	0.000791	U	0.000424	U	0.000424	U	0.000424	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.00016	J	0.00048	U
Trichlorofluoromethane	22		0.000244	U	0.000244	U	0.000244	U	0.00042	U	0.00008	U	NA		0.000638	U	0.000638	U	0.000245	U	0.000245	U	0.000245	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.00042	U
Vinyl acetate	7.3		0.000854	U	0.000854	U*	0.000854	U	0.00081	U	0.00021	U	NA		0.00214	U	0.00214	U	0.00357	U	0.00357	U	0.00357	U	0.000854	U*	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U*	0.000854	U	0.00081	U
Vinyl chloride	0.002	435	0.000248	U	0.000248	U	0.000248	U	0.0005	U	0.00011	U	NA		0.000638	U	0.000638	U	0.000234	U	0.000234	U	0.000234	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.0005	U
Xylenes, Total	10		0.000395	J	0.000453	J	0.000658	J	0.00163		0.00116	J	NA		0.00124	U	0.00124	U	0.00033	U	0.00033	U	0.00022	J	0.000366	U	0.000594	J	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000658	J	0.000366	U	0.000653	J	0.000366	U	0.000366	U	0.000366	U	0.00023	U
Metals by EPA 6020																																														
Lead	0.015		0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	NA		0.000112	U	0.000587	J	0.000152	U	0.000152	U	0.000152	U	0.000165	U	0.000165	U	0.00176	J	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.00227	J

Notes:

U = Analyte was not detected at or above the SDL.

J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample was prepped or analyzed beyond the specified holding time

b = The compound was found in the blank and sample

NA = Not Analyzed

* = LCS or LCSD exceeds the control limits

Bold Italic = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas Risk Reduction Program

PCL = protectice concentration level

1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenuation Action Level

All results reported in milligrams per liter (mg/L)

P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			AMP-2	AMP-2 DUP	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3	AMP-3		RI-3-01	RI-3-01	RI-3-01
Sample Date			7/23/2014	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/29/2018	7/19/2017	1/25/2017	7/14/2016	1/18/2016	7/21/2015	1/27/2015	7/24/2014		7/21/2023	1/31/2023	7/29/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum			0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010				
Analytes	TRRP PCL [1]	Tier 2 AirGW Inh-V PCL [2]																						2023 GWPS			
1,2-Dichloroethane	0.005		0.00014 U	0.00014 U	NA	0.00059 U	0.00059 U	0.000285 U	0.000285 U	0.000285 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.0005 U	0.00014 U		NA	0.00059 U	0.00059 U
1,2-Dichloropropane	0.005		0.00016 U	0.00016 U	NA	0.000667 U	0.000667 U	0.000396 U	0.000396 U	0.000396 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00067 U	0.00016 U		NA	0.000667 U	0.000667 U
1,3,5-Trimethylbenzene	3.7		0.0001 U	0.0001 U	NA	0.000456 U	0.000456 U	0.000279 U	0.000279 U	0.000279 U	0.00021 U	0.0021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00031 U	0.0001 U		NA	0.000456 U	0.000456 U
1,3-Dichlorobenzene	2.2		0.00013 U	0.00013 U	NA	0.000513 U	0.000513 U	0.000197 U	0.000197 U	0.000197 U	0.00021 U	0.0021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00043 U	0.00013 U		NA	0.000513 U	0.000513 U
1,3-Dichloropropane	0.02		0.00022 U	0.00022 U	NA	0.000514 U	0.000514 U	0.000439 U	0.000439 U	0.000439 U	0.00022 U	0.0022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00034 U	0.00022 U		NA	0.000514 U	0.000514 U
1,4-Dichlorobenzene	0.075		0.00011 U	0.00011 U	NA	0.000513 U	0.000513 U	0.000199 U	0.000199 U	0.000199 U	0.00176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00046 U	0.00011 U		NA	0.000513 U	0.000513 U
2,2-Dichloropropane	0.03		0.00013 U	0.00013 U	NA	0.00078 U	0.00078 U	0.00036 U	0.00036 U	0.00036 U	0.000258 U	0.00258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.00037 U	0.00013 U		NA	0.00078 U	0.00078 U
2-Butanone (MEK)	4.4		0.00076 U	0.00076 U	NA	0.00828 U	0.00828 U	0.0027 U	0.0027 U	0.0027 U	0.00760 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.0034 U	0.00076 U		NA	0.00828 U	0.00828 U
2-Chlorotoluene	1.5		0.000142 J	0.000158 J	NA	0.00118 U	0.00118 U	0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.00027 U	0.00013 U		NA	0.00118 U	0.00118 U
4-Chlorotoluene	1.50		0.00014 U	0.00014 U	NA	0.000472 U	0.000472 U	0.000183 U	0.000183 U	0.000183 U	0.000210 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00045 U	0.00014 U		NA	0.000472 U	0.000472 U
4-Isopropyltoluene	2.4		0.0001 U	0.0001 U	NA	0.000919 U	0.000919 U	0.000233 U	0.000233 U	0.000233 U	0.00228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.00048 U	0.0001 U		NA	0.000919 U	0.000919 U
4-Methyl-2-pentanone (MIBK)	5.8		0.00045 U	0.00045 U	NA	0.00749 U	0.00749 U	0.00106 U	0.00106 U	0.00106 U	0.00348 U*	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000342 U	0.0021 U	0.00045 U		NA	0.00749 U	0.00749 U
Acetone	66		0.00463	0.004	NA	0.00119 U	0.00119 U	0.0123 U	0.0123 U	0.0123 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U*	0.000447 U	0.000447 U	0.0029 J	0.00268 J	0.007 U	0.00875		NA	0.00119 U	0.00802 J
Benzene	0.005	6710	0.000181 J	0.000188 J	0.00046 U	0.000533 U	0.000533 U	0.000214 U	0.000214 U	0.000214 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00148	0.00043 U	0.00008 U	5920	0.00046 U	0.000533 U	0.000533 U
Bromobenzene	0.58		0.00019 U	0.00019 U	NA	0.000665 U	0.000665 U	0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.0005 U	0.00019 U		NA	0.000665 U	0.000665 U
Bromodichloromethane	0.033		0.00016 U	0.00016 U	NA	0.000552 U	0.000552 U	0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.00044 U	0.00016 U		NA	0.000552 U	0.000552 U
Bromoform	0.26		0.00019 U	0.00019 U	NA	0.000633 U	0.000633 U	0.00063 U	0.000231 U	0.000231 U	0.00151 U	0.00151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.00043 U	0.00019 U		NA	0.000633 U	0.000633 U
Bromomethane	0.1		0.00025 U	0.00025 U	NA	0.00142 U	0.00142 U	0.00105 U	0.00063 U	0.00063 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.0025 U	0.00025 U		NA	0.00142 U	0.00142 U
Carbon disulfide	7.8		0.00024 U	0.00024 U	NA	0.00191 U	0.00191 U	0.000373 U	0.00105 U	0.00105 U	0.00216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.001 U	0.00024 U		NA	0.00191 U	0.00191 U
Carbon tetrachloride	0.005		0.00015 U	0.00015 U	NA	0.000896 U	0.000896 U	0.000423 U	0.000373 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.00033 U	0.00015 U		NA	0.000896 U	0.000896 U
Chlorobenzene	0.1		0.00105	0.00101	NA	0.00053 U	0.00053 U	0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.00026 U	0.00012 U	8780	0.00053 U	0.00053 U	0.00053 U
Chlorobromomethane	2.9		0.00018 U	0.00018 U	NA	0.000657 U	0.000657 U	0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.00045 U	0.00018 U		NA	0.000657 U	0.000657 U
Chloroethane	29		0.00008 U	0.00008 U	NA	0.00198 U	0.00198 U	0.000433 U	0.000433 U	0.000433 U	0.00240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.0025 U	0.00008 U*		NA	0.00198 U	0.00198 U
Chloroform	0.73		0.00013 U	0.00013 U	NA	0.000643 U	0.000643 U	0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.0005 U	0.00013 U		NA	0.000643 U	0.000643 U
Chloromethane	0.16		0.00018 U	0.00018 U	NA	0.00204 U	0.00204 U	0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000451 J*	0.0004 U	0.00018 U		NA	0.00204 U	0.00204 U
cis-1,2-Dichloroethene	0.07		0.000363 J	0.000366 J	NA	0.000714 U	0.000714 U	0.000174 U	0.000174 U	0.000174 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000239 J	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.00041 U	0.000728 J	56900	0.000714 U	0.000714 U	0.000714 U
cis-1,3-Dichloropropene	0.0038		0.00018 U	0.00018 U	NA	0.00107 U	0.00107 U	0.00069 U	0.00069 U	0.00069 U	0.00160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.0004 U	0.00018 U		NA	0.00107 U	0.00107 U
Dibromochloromethane	0.024		0.00015 U	0.00015 U	NA	0.000547 U	0.000547 U	0.000739 U	0.000739 U	0.000739 U	0.00119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.00032 U	0.00015 U		NA	0.000547 U	0.000547 U
Dibromomethane	0.27		0.00052 U	0.00052 U	NA	0.000689 U	0.000689 U	0.00013 U	0.00013 U	0.00013 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00035 U	0.00052 U		NA	0.000689 U	0.000689 U
Dichlorodifluoromethane	15		0.00012 U	0.00012 U	NA	0.000919 U	0.000919 U	0.000316 U	0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.0006 U	0.00012 U		NA	0.000919 U	0.000919 U
Ethylbenzene	0.7		0.00011 U	0.00011 U	NA	0.000411 U	0.000411 U	0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000565 J	0.00033 U	0.00011 U	20800	0.000411 U	0.000411 U	0.000411 U
Hexachlorobutadiene	0.026		0.00017 U	0.00017 U	NA	0.00126 U	0.00126 U	0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.0025 U	0.00017 U		NA	0.00126 U	0.00126 U
Isopropylbenzene	2.4		0.00018 U	0.00018 U	NA	0.000613 U	0.000613 U	0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.00035 U	0.00018 U		NA	0.000613 U	0.000613 U
Methyl tert-butyl ether	0.73		0.00012 U	0.00012 U	NA	0.00139 U	0.00139 U	0.000571 U	0.000958 J	0.00191 U	0.000875 J*	0.000865 J	0.00119	0.00116	0.00122	0.000759 J	0.000105 U	0.000326 J	0.000105 U	0.000341 J	0.000311 J	0.000473 J	0.000481 J		NA	0.00139 U	0.00139 U
Methylene Chloride	0.005		0.00015 U	0.00015 U	NA	0.00173 U	0.00173 U	0.00191 U	0.00191 U	0.00106 J	0.000865 J*	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.0025 U	0.00015 U*		NA	0.00173 U	0.00173 U
m-Xylene & p-Xylene	1		0.00017 U	0.00017 U	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000389 J	0.00035 U	0.00017		NA	0.00124 U	0.00124 U
Naphthalene	1.5	654000	0.00032 U	0.00032 U	NA	0.00135 U	0.00135 U	0.002 U	0.002 U	0.002 UH	0.000768 J*	0.000129 U	0.000129 U	0.00033 J b	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.00129 J	0.0025 U	0.00032 U		NA	0.00381 J	0.00135 U
n-Butylbenzene	3.7		0.00016 U	0.00016 U	NA	0.000644 U	0.000644 U	0.000286 U	0.000286 U	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00047 U	0.00016 U		NA	0.000644 U	0.000644 U
n-Hexane	4.4		0.00016 U	0.00016 U	NA	0.000517 U	0.000517 U	0.000369 U	0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.00076 U	0.00016 U		NA	0.000517 U	0.000517 U
N-Propylbenzene	2.9		0.00015 U	0.00015 U	NA	0.000498 U	0.000498 U	0.000179 U	0.000179 U	0.000179 U	0.000230 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00038 U	0.00015 U		NA	0.000498 U	0.000498 U
o-Xylene	1		0.000254 J	0.000232 J	NA	0.000551 U	0.000551 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000377 J	0.00023 U	0.00012 U		NA	0.000551 U	0.000551 U
sec-Butylbenzene	2.9		0.00012 U	0.00012 U	NA	0.000468 U	0.000468 U	0.000199 U	0.000199 U	0.000199 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.00042 U	0.00012 U		NA	0.000468 U	0.000468 U
Styrene	0.1		0.00007 U	0.00007 U	NA	0.000655 U	0.000655 U	0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.00027 U	0.00007 U		NA	0.000655 U	0.000655 U
tert-Butylbenzene	2.9		0.00008 U	0.00008 U	NA	0.000442 U	0.000442 U	0.000195 U	0.000195 U	0.000195 U	0.000216 U*	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.00045 U	0.00008 U		NA	0.000442 U	0.000442 U
Tetrachloroethene	0.005		0.00013 U	0.00013 U	NA	0.000801 U	0.000801 U	0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000514 U	0.00074 U	0.00013 U	18000	0.000801 U	0.000801 U	0.000801 U
Toluene	1		0.00015 U	0.00015 U	NA	0.000475 U	0.000475 U	0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.00113	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000861 J	0.00048 U	0.00015 U	40200	0.000475 U	0.000475 U	0.000475 U
trans-1,2-Dichloroethene	0.1		0.00009 U	0.00009 U	NA	0.000945 U	0.000945 U	0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00037 U	0.00009 U		NA	0.000945 U	0.000945 U
trans-1,3-Dichloropropene	0.02		0.00021 U	0.00021 U	NA	0.00127 U	0.00127 U	0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.00042 U	0.00021 U		NA	0.00127 U	0.00127 U
Trichloroethene	0.005		0.00018 U	0.00018 U	NA	0.000791 U	0.000791 U	0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.00048 U	0.000862 J	34100	0.000791 U	0.000791 U	0.000825 J
Trichlorofluoromethane	22		0.00008 U	0.00008 U	NA	0.000638 U	0.000638 U	0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.00042 U	0.00008 U		NA	0.000638 U	0.000638 U
Vinyl acetate	7.3		0.00021 U	0.00021 U	NA	0.00214 U	0.00214 U	0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.00081 U	0.00021 U		NA	0.00214 U	0.00214 U
Vinyl chloride	0.002	435	0.00011 U	0.00011 U	NA	0.000638 U	0.000638 U	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.0005 U	0.00011 U	435	0.000638 U	0.000638 U	0.000638 U
Xylenes, Total	10		0.00026 U	0.00026 U	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000766 J	0.00023 U	0.00026 U	71100	0.00124 U	0.00124 U	0.00124 U
Metals by EPA 6020																										
Lead	0.015		0.000907 J	0.000733 U	NA	0.000494 J	0.000301 J	0.00029 U	0.000233 J	0.000223 J	0.000279 J b	0.000271 J	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	443	0.000367 U	0.000266 J	0.000152 U

Notes:

U = Analyte w: U = Analyte was not detected at or above the SDL.

J = Result is le: J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample w: H = Sample was prepped or analyzed beyond the specified holding time

b = The compc: b = The compound was found in the blank and sample

NA = Not Anal: NA = Not Analyzed

* = LCS or LCS: * = LCS or LCSD exceeds the control limits

Bold Italic = E: ***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas I: TRRP = Texas Risk Reduction Program

PCL = protecti: PCL = protectice concentration level

1 TRRP PCL = C: 1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW: 2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua: AAL = Attenuation Action Level

All results repr: All results reported in milligrams per liter (mg/L)

P1 - The %Diff: P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

Notes:

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-3-01	RI-03-01	RI-03-01	RI-03-01	RI-03-01	RI-03-01	RI-03-01	MW-35R	MW-35R	MW-35R	MW-35R	MW-35R	MW-35R	MW-35	MW-35
Sample Date			1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/30/2018	7/18/2017	1/27/2017	7/18/2016	1/18/2016	7/22/2015	1/27/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	Not sampled July 2020 - not found	1/21/2020
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																										
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																								
1,2-Dichloroethane	0.005		0.000285 U	0.000285 U	0.000285 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.0005 U	0.00014 U	NA	1.18 U	0.0118 U	0.0143 U	0.143 U	0.000285 U		0.0058 U
1,2-Dichloropropane	0.005		0.000396 U	0.000396 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.00067 U	0.00016 U	NA	1.33 U	0.0133 U	0.0198 U	0.198 U	0.000396 U		0.0068 U
1,3,5-Trimethylbenzene	3.7		0.000279 U	0.000279 U	0.000279 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00031 U*	0.0001 U	NA	0.912 U	0.213	0.236	0.233 J	0.334 D		0.027 J
1,3-Dichlorobenzene	2.2		0.000197 U	0.000197 U	0.000197 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00043 U	0.00013 U	NA	1.03 U	0.0103 U	0.00983 U	0.0983 U	0.000197 U		0.0105 U
1,3-Dichloropropane	0.02		0.000439 U	0.000439 U	0.000439 U	0.000220 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00034 U	0.00022 U	NA	1.03 U	0.0103 U	0.022 U	0.22 U	0.000439 U		0.011 U
1,4-Dichlorobenzene	0.075		0.000199 U	0.000199 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00046 U	0.00011 U	NA	1.03 U	0.0103 U	0.00994 U	0.0994 U	0.000199 U		0.0088 U
2,2-Dichloropropane	0.03		0.00036 U	0.00036 U	0.00036 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.00037 U	0.00013 U	NA	1.56 U	0.0156 U	0.018 U *	0.18 U	0.00036 U		0.0129 U
2-Butanone (MEK)	4.4		0.0027 U	0.0027 U	0.0027 U	0.000760 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.0034 U	0.00076 U	NA	16.6 U	0.166 U	0.135 U	1.35 U	0.0027 U		0.038 U
2-Chlorotoluene	1.5		0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.00027 U	0.00013 U	NA	2.35 U	0.0235 U	0.0107 U	0.107 U	0.000214 U		0.0113 U
4-Chlorotoluene	1.50		0.000183 U	0.000183 U	0.000183 U	0.000210 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00045 U	0.00014 U	NA	0.944 U	0.00944 U	0.00914 U	0.0914 U	0.000183 U		0.0105 U
4-Isopropyltoluene	2.4		0.000233 U	0.000233 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.00048 U	0.0001 U	NA	1.84 U	0.0184 U	0.0116 U	0.116 U	0.00417		0.0114 U
4-Methyl-2-pentanone (MIBK)	5.8		0.00106 U	0.00106 U	0.00106 U	0.000348 U*	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000342 U	0.0021 U	0.00045 U	NA	15 U	0.15 U	0.0532 U	0.532 U	0.00106 U		0.0174 U
Acetone	66		0.0123 U	0.0123 U	0.0123 U	0.00160 J	0.000447 U	0.0047 J	0.000447 U	0.000447 U	0.000447 U*	0.000447 U	0.000447 U	0.000447 U	0.00129 J	0.00578	0.007 U	0.00343	NA	2.39 U	0.0239 U	0.616 U	6.16 U	0.0123 U		0.0224 U
Benzene	0.005	6710	0.000214 U	0.000214 U	0.000214 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00043 U	0.00008 U	0.264	1.07 U	0.329	0.381	0.291 J	0.267 D		0.569
Bromobenzene	0.58		0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.0005 U	0.00019 U	NA	1.33 U	0.0133 U	0.015 U	0.15 U	0.0003 U		0.00975 U
Bromodichloromethane	0.033		0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.00044 U	0.00016 U	NA	1.1 U	0.011 U	0.0115 U	0.105 U	0.000209 U		0.00765 U
Bromoform	0.26		0.00063 U	0.000231 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.00043 U	0.00019 U	NA	1.27 U	0.0127 U	0.0315 U	0.115 U	0.000231 U		0.00755 U
Bromomethane	0.1		0.00105 U	0.00063 U	0.00063 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.0025 U	0.00025 U	NA	2.84 U	0.0284 U	0.0527 U	0.315 U	0.00063 U		0.0125 U
Carbon disulfide	7.8		0.000373 U	0.00105 U	0.00105 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000579 J	0.000216 U	0.000279 J	0.001 U	0.00024 U	NA	3.82 U	0.0382 U	0.0187 U	0.527 U	0.00105 U		0.0108 U
Carbon tetrachloride	0.005		0.000423 U	0.000373 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.00033 U	0.00015 U	NA	1.79 U	0.0179 U	0.0211 U	0.187 U	0.000373 U		0.00915 U
Chlorobenzene	0.1		0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.00026 U	0.00012 U	0.00053 U	1.06 U	0.0106 U	0.00795 U	0.211 U	0.000423 U		0.00925 U
Chlorobromomethane	2.9		0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.00045 U	0.00018 U	NA	1.31 U	0.0131 U	0.0105 U	0.0795 U	0.000159 U		0.0081 U
Chloroethane	29		0.000433 U	0.000433 U	0.000433 U	0.000240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.0025 U	0.00008 U	NA	3.97 U	0.0397 U	0.0216 U	0.216 U	0.000433 U		0.012 U
Chloroform	0.73		0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.0005 U	0.00013 U	NA	1.29 U	0.0129 U	0.0129 U	0.129 U	0.000259 U		0.00755 U
Chloromethane	0.16		0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000455 J * b	0.0004 U	NA	4.07 U	0.0407 U	0.0159 U	0.159 U	0.00084 J		0.0105 U
cis-1,2-Dichloroethene	0.07		0.000174 U	0.000174 U	0.000174 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000595 J	0.000157 U	0.00041 U	0.00006 U	160	175	193	200	112	97.2 D		203
cis-1,3-Dichloropropene	0.0038		0.00069 U	0.00069 U	0.00069 U	0.000160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.0004 U	0.00018 U	NA	2.13 U	0.0213 U	0.0345 U	0.345 U	0.00069 U		0.008 U
Dibromochloromethane	0.024		0.000739 U	0.000739 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.00032 U	0.00015 U	NA	1.09 U	0.0109 U	0.037 U	0.37 U	0.000739 U		0.00595 U
Dibromomethane	0.27		0.00013 U	0.00013 U	0.00013 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00035 U	0.00052 U	NA	1.38 U	0.0138 U	0.0065 U	0.065 U	0.00013 U		0.026 U
Dichlorodifluoromethane	15		0.000316 U	0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.0006 U	0.00012 U	NA	1.84 U *	0.0184 U	0.0158 U *	0.158 U *	0.000316 U		0.043 U
Ethylbenzene	0.7		0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00033 U	0.00011 U	0.199	0.822 U	0.302	0.349	0.406 J	0.717 D		0.121
Hexachlorobutadiene	0.026		0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000215 U*	0.000215 U	0.000215 U	0.0025 U	0.00017 U	NA	2.53 U	0.0253 U	0.1 U	1 U	0.002 U		0.0108 U*
Isopropylbenzene	2.4		0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U	0.000241 U	0.000336 J	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.00035 U	0.00018 U	NA	1.23 U	0.0192 J	0.0241 J	0.0803 U	0.0195		0.0121 U
Methyl tert-butyl ether	0.73		0.000571 U	0.000571 U	0.00191 U	0.000105 U*	0.000105 U	0.000105 U	0.000105 U	0.000105 U	0.000105 U	0.000763 J	0.000254 J	0.000105 U	0.00041 J	0.000695 J	0.0008 J	0.00065 J	NA	2.78 U	0.0278 U	0.0285 U	0.285 U	0.00191 U		0.00525 U
Methylene Chloride	0.005		0.00191 U	0.00191 U	0.000571 U	0.00213 J *	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000292 J b	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.0025 U	0.00015 U	NA	3.45 U	0.0345 U	0.0956 U	0.956 U	0.000571 U		0.0545 J
m-Xylene & p-Xylene	1		0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.00035 U	0.00017 U	NA	2.48 U	0.234	0.346 J	0.516 J	1.54 D		0.14
Naphthalene	1.5	654000	0.002 U	0.002 U	0.002 U	0.00488 *	0.000129 U	0.000319 J	0.00113 J b	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000129 U	0.000169 J b	0.000129 U	0.0025 U	0.00032 U	NA	2.71 U	10.6	4.92	2.92 J	0.997 DH		6.28 *
n-Butylbenzene	3.7		0.000286 U	0.000286 U	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00047 U	0.00016 U	NA	1.29 U	0.0129 U	0.0143 U	0.143 U	0.0107		0.0106 U
n-Hexane	4.4		0.000369 U	0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.00076 U	0.00016 U	NA	1.03 U *	0.0103 U	0.0185 U *	0.185 U	0.000369 U		0.0128 U
N-Propylbenzene	2.9		0.000179 U	0.000179 U	0.000179 U	0.000230 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00038 U	0.00015 U	NA	0.996 U	0.0618	0.0689	0.0895 U	0.129		0.0115 U
o-Xylene	1		0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00023 U	0.00012 U	NA	1.1 U	0.0496	0.06	0.107 J	0.437 D		0.0733
sec-Butylbenzene	2.9		0.000199 U	0.000199 U	0.000199 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.00042 U	0.00012 U	NA	0.936 U	0.00936 U	0.00994 U	0.0994 U	0.00891		0.0112 U
Styrene	0.1		0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.00027 U	0.00007 U	NA	1.31 U	0.0131 U	0.0312 U	0.312 U	0.000162 U		0.00875 U
tert-Butylbenzene	2.9		0.000195 U	0.000195 U	0.000195 U	0.000216 U*	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.00045 U	0.00008 U	NA	0.884 U	0.00884 U	0.00975 U	0.0975 U	0.000195 U		0.0108 U
Tetrachloroethene	0.005		0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.00074 U	0.00013 U	0.868	2.68	5.08	10.9	11.2	16.7 D		0.0167 U
Toluene	1		0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.00059 J	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.00048 U	0.00015 U	0.19	0.95 U	0.251	0.349	0.718	5.81 D		0.474
trans-1,2-Dichloroethene	0.1		0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00037 U	0.00009 U	NA	1.89 U	1.34	0.692	0.234 J	0.237 D		2.31
trans-1,3-Dichloropropene	0.02		0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.00042 U	0.00021 U	NA	2.53 U	0.0253 U	0.0376 U	0.376 U	0.000752 U		0.00685 U
Trichloroethene	0.005		0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000259 J	0.000138 U	0.00048 U	0.00018 U	2.86	3.2 J	4.66	10.4	5.4	4.22 D		0.0188 J
Trichlorofluoromethane	22		0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.00042 U	0.00008 U	NA	1.28 U	0.0128 U	0.0122 U	0.122 U	0.000245 U		0.0122 U
Vinyl acetate	7.3		0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.00081 U	0.00021 U	NA	4.28 U	0.0428 U	0.178 U	1.78 U	0.00357 U		0.0427 U
Vinyl chloride	0.002	435	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.0005 U	0.00011 U	12.1	7.91	7.47	6.64	3.76	5.76 D		2.36
Xylenes, Total	10		0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.00023 U	0.00026 U	0.161 J	2.48 U	0.284	0.406 J	0.623 J	1.98		0.213
Metals by EPA 6020																										
Lead	0.015		0.000152 U	0.00102 J	0.000216 J	0.000165 U	0.000678	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.00397 J	0.000733 U	0.000733 U	0.000367 U	0.000206 J	0.000203 J	0.000298 U	0.000289 J	0.00243		0.000165 U

Notes:

U = Analyte wiU = Analyte was not detected at or above the SDL.

J = Result is leJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample waH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCS* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas rTRRP = Texas Risk Reduction Program

PCL = protectiPCL = protective concentration level

1 TRRP PCL = t1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = AttenuaAAL = Attenuation Action Level

All results repAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

Notes:

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36
Sample Date			Not sampled July 2019 - buried	Not sampled Jan 2019 - buried	7/18/2018	1/26/2018	7/20/2017	1/25/2017	7/18/2016	Not sampled Jan 2016	7/23/2015	1/28/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/26/2018	7/20/2017
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																									
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																							
1,2-Dichloroethane	0.005				0.029 U	0.058 U	0.0232 U	0.0058 U	0.0058 U		0.116 U	0.5 U	0.14 U	NA	0.118 U	0.00059 U	0.0143 U	0.000285 U	0.00285 U	0.0232 U	0.0058 U	0.0058 U	0.0058 U	0.0029 U	0.00232 U	0.000116 U
1,2-Dichloropropane	0.005				0.034 U	0.068 U	0.0272 U	0.0068 U	0.0313 J		0.136 U	0.67 U	0.16 U	NA	0.133 U	0.000667 U	0.0198 U	0.000396 U	0.00396 U	0.0272 U	0.0068 U	0.0068 U	0.0068 U	0.0034 U	0.00272 U	0.000136 U
1,3,5-Trimethylbenzene	3.7				0.0525 U	0.105 U	0.042 U	0.0223 J	0.0136 J		0.21 U	0.31 U	0.1 U	NA	0.0912 U	0.000456 U	0.0139 U	0.000279 U	0.00279 U	0.0420 U	0.0105 U	0.0105 U	0.0105 U	0.00525 U	0.0042 U	0.00021 U
1,3-Dichlorobenzene	2.2				0.0525 U	0.105 U	0.042 U	0.0105 U	0.0105 U		0.21 U	0.43 U	0.13 U	NA	0.103 U	0.000513 U	0.00983 U	0.000197 U	0.00197 U	0.0420 U	0.0105 U	0.0105 U	0.0105 U	0.00525 U	0.0042 U	0.00021 U
1,3-Dichloropropane	0.02				0.055 U	0.11 U	0.044 U	0.011 U	0.011 U		0.22 U	0.34 U	0.22 U	NA	0.103 U	0.000514 U	0.022 U	0.000439 U	0.00439 U	0.0440 U	0.011 U	0.011 U	0.011 U	0.0055 U	0.0044 U	0.00022 U
1,4-Dichlorobenzene	0.075				0.044 U	0.088 U	0.0352 U	0.0088 U	0.0088 U		0.176 U	0.46 U	0.11 U	NA	0.103 U	0.000513 U	0.00994 U	0.000199 U	0.00199 U	0.0352 U	0.0088 U	0.0088 U	0.0088 U	0.0044 U	0.00352 U	0.000285 J
2,2-Dichloropropane	0.03				0.0645 U	0.129 U	0.0516 U	0.0129 U	0.0129 U		0.258 U	0.37 U	0.13 U	NA	0.156 U	0.00078 U	0.018 U *	0.00036 U	0.0036 U	0.0516 U	0.0129 U	0.0129 U	0.0129 U	0.00645 U	0.00516 U	0.000258 U
2-Butanone (MEK)	4.4				0.19 U	0.38 U	0.152 U	0.038 U	0.038 U		0.76 U	3.4 U	0.76 U	NA	1.66 U	0.00828 U	0.135 U	0.0027 U	0.027 U	0.1520 U	0.038 U	0.038 U	0.038 U	0.019 U	0.0152 U	0.00076 U
2-Chlorotoluene	1.5				0.0565 U	0.113 U	0.0452 U	0.0113 U	0.0113 U		0.226 U	0.27 U	0.13 U	NA	0.235 U	0.00118 U	0.0107 U	0.000214 U	0.00214 U	0.0452 U*	0.0113 U	0.0113 U	0.0113 U	0.00565 U	0.00452 U	0.000226 U
4-Chlorotoluene	1.50				0.0525 U	0.105 U	0.042 U	0.0105 U	0.0105 U		0.21 U	0.45 U	0.14 U	NA	0.0944 U	0.000472 U	0.00914 U	0.000183 U	0.00183 U	0.0420 U*	0.0105 U	0.0105 U	0.0105 U	0.00525 U	0.0042 U	0.00021 U
4-Isopropyltoluene	2.4				0.057 U	0.114 U	0.0456 U	0.0114 U	0.0114 U		0.228 U	0.48 U	0.1 U	NA	0.184 U	0.000919 U	0.0116 U	0.000233 U	0.00233 U	0.0456 U	0.0114 U	0.0114 U	0.0114 U	0.0057 U	0.00456 U	0.000228 U
4-Methyl-2-pentanone (MIBK)	5.8				0.087 U *	0.174 U	0.0696 U	0.0174 U	0.0174 U		0.342 U	2.1 U	0.45 U	NA	1.5 U	0.00749 U	0.0532 U	0.00106 U	0.0106 U	0.0696 U*	0.0174 U	0.0174 U	0.0174 U	0.0087 U *	0.00696 U	0.000348 U
Acetone	66				0.112 U	0.224 U	0.0894 U	0.0224 U	0.0224 U		0.447 U	7 U	0.99 U	NA	0.239 U	0.00119 U	0.616 U	0.0123 U	0.123 U	0.0894 U	0.0224 U	0.0224 U	0.0224 U	0.0112 U	0.00894 U	0.000447 U
Benzene	0.005	6710			0.558	0.548	0.671	0.491	0.55		0.647 J	0.558 J	0.582 J	0.106	0.15 J	0.159	0.155	0.133	0.139	0.154 J b	0.123	0.169	0.242	0.129	0.131	0.127
Bromobenzene	0.58				0.0488 U	0.0975 U	0.039 U	0.00975 U	0.00975 U		0.195 U	0.5 U	0.19 U	NA	0.133 U	0.000665 U	0.015 U	0.0003 U	0.003 U	0.0390 U*	0.00975 U	0.00975 U	0.00975 U	0.00488 U	0.0039 U	0.000195 U
Bromodichloromethane	0.033				0.0844 J	0.0765 U	0.0306 U	0.00765 U	0.00765 U		0.153 U	0.44 U	0.16 U	NA	0.11 U	0.000552 U	0.0115 U	0.000209 U	0.00209 U	0.0306 U	0.00765 U	0.00765 U	0.00765 U	0.301	0.00306 U	0.000153 U
Bromoform	0.26				0.0378 U	0.0755 U	0.0302 U	0.00755 U	0.00755 U		0.151 U	0.43 U	0.19 U	NA	0.127 U	0.000633 U	0.0315 U	0.000231 U	0.00231 U	0.0302 U	0.00755 U	0.00755 U	0.00755 U	0.00378 U	0.00302 U	0.000151 U
Bromomethane	0.1				0.0625 U	0.125 U	0.05 U	0.0125 U	0.0125 U		0.25 U	2.5 U	0.25 U	NA	0.284 U	0.00142 U	0.0527 U	0.00063 U	0.0063 U	0.0500 U	0.0125 U	0.0125 U	0.0125 U	0.00625 U	0.005 U	0.00025 U
Carbon disulfide	7.8				0.054 U	0.108 U	0.0432 U	0.0108 U	0.0108 U		0.216 U	1 U	0.24 U	NA	0.382 U	0.00191 U	0.0187 U	0.00105 U	0.0105 U	0.0432 U	0.0108 U	0.0108 U	0.0108 U	0.0054 U	0.00432 U	0.000216 U
Carbon tetrachloride	0.005				0.0458 U	0.0915 U	0.0366 U	0.00915 U	0.00915 U		0.183 U	0.33 U	0.15 U	NA	0.179 U	0.000896 U	0.0211 U	0.000373 U	0.00373 U	0.0366 U	0.00915 U	0.00915 U	0.00915 U	0.00458 U	0.00366 U	0.000183 U
Chlorobenzene	0.1				0.0463 U	0.0925 U	0.037 U	0.00925 U	0.00925 U		0.185 U	0.26 U	0.12 U	0.00189	0.106 U	0.00213	0.00795 U	0.000423 U	0.00423 U	0.0370 U	0.00925 U	0.00925 U	0.00925 U	0.00463 U	0.0037 U	0.0022
Chlorobromomethane	2.9				0.0405 U	0.081 U	0.0324 U	0.0081 U	0.0081 U		0.162 U	0.45 U	0.18 U	NA	0.131 U	0.000657 U	0.0105 U	0.00186	0.00159 U	0.0324 U	0.0081 U	0.0081 U	0.0081 U	0.00405 U	0.00324 U	0.000162 U
Chloroethane	29				0.06 U	0.12 U	0.048 U	0.012 U	0.012 U		0.24 U	2.5 U	0.08 U	NA	0.397 U	0.00198 U	0.0216 U	0.000433 U	0.00433 U	0.0480 U	0.012 U	0.012 U	0.012 U	0.006 U	0.0048 U	0.00024 U
Chloroform	0.73				0.0378 U	0.0755 U	0.0302 U	0.00755 U	0.00755 U		0.151 U	0.5 U	0.13 U	NA	0.129 U	0.000643 U	0.0129 U	0.000259 U	0.00259 U	0.0302 U	0.00755 U	0.00755 U	0.00755 U	0.00378 U	0.00302 U	0.000151 U
Chloromethane	0.16				0.0523 U	0.105 U	0.0418 U	0.0105 U	0.0105 U		0.305 J *	0.4 U	0.18 U	NA	0.407 U	0.00204 U	0.0159 U	0.000318 U	0.00318 U	0.0418 U	0.0105 U	0.0105 U	0.0105 U	0.00523 U	0.00418 U	0.000209 U
cis-1,2-Dichloroethene	0.07				215 b	271	217	194	214		253	165	208	27.8 b	26.2	29.3	27.6	21.9	22.1 D	20.0	21.4	23	29.1	20.1	31.9	22.7 b
cis-1,3-Dichloropropene	0.0038				0.04 U	0.08 U	0.032 U	0.008 U	0.008 U		0.16 U	0.4 U	0.18 U	NA	0.213 U	0.00107 U	0.0345 U	0.00069 U	0.0069 U	0.0320 U	0.008 U	0.008 U	0.008 U	0.004 U	0.0032 U	0.00016 U
Dibromochloromethane	0.024				0.0298 U	0.0595 U	0.0238 U	0.00595 U	0.00595 U		0.119 U	0.32 U	0.15 U	NA	0.109 U	0.000547 U	0.037 U	0.000739 U	0.00739 U	0.0238 U	0.00595 U	0.00595 U	0.00595 U	0.00298 U	0.00238 U	0.000119 U
Dibromomethane	0.27				0.13 U	0.26 U	0.104 U	0.026 U	0.026 U		0.52 U	0.35 U	0.52 U	NA	0.138 U	0.000689 U	0.0065 U	0.00013 U	0.0013 U	0.104 U	0.026 U	0.026 U	0.026 U	0.013 U	0.0104 U	0.00052 U
Dichlorodifluoromethane	15				0.215 U	0.43 U	0.172 U	0.043 U	0.043 U		0.859 U	0.6 U	0.12 U	NA	0.184 U	0.000919 U	0.0158 U *	0.000316 U	0.00316 U	0.172 U	0.043 U	0.043 U	0.043 U	0.0215 U	0.0172 U	0.000859 U
Ethylbenzene	0.7				0.119 J	0.106 U	0.107 J	0.101	0.0958		0.212 U	0.33 U	0.136 J	0.00597	0.0822 U	0.00614	0.0257 U	0.000841 J	0.0103	0.0424 U	0.0106 U	0.0106 U	0.014 J	0.00882 J	0.00799 J	0.00402
Hexachlorobutadiene	0.026				0.0538 U	0.108 U	0.043 U	0.0108 U	0.0108 U		0.215 U	2.5 U	0.17 U	NA	0.253 U	0.00126 U	0.1 U	0.002 U	0.02 U	0.0430 U*	0.0108 U *	0.0108 U	0.0108 U	0.00538 U	0.0043 U	0.000215 U
Isopropylbenzene	2.4				0.0603 U	0.121 U	0.0482 U	0.0121 U	0.0121 U		0.241 U	0.35 U	0.18 U	NA	0.123 U	0.0011	0.00803 U	0.000747 J	0.002 J	0.0482 U*	0.0121 U	0.0121 U	0.0121 U	0.00603 U	0.00482 U	0.00055 J
Methyl tert-butyl ether	0.73				0.0263 U	0.0525 U	0.021 U	0.00525 U	0.00525 U		0.105 U	0.3 U	0.12 U	NA	0.278 U	0.00139 U	0.0285 U	0.000571 U	0.0191 U	0.0210 U*	0.00525 U	0.00525 U	0.00525 U	0.00263 U	0.0021 U	0.00064 J
Methylene Chloride	0.005				0.125 J	0.496 J b	0.287 J	0.0088 U	0.0141 J		0.176 U	2.5 U	0.15 U	NA	0.345 U	0.00173 U	0.0956 U	0.00191 U	0.00571 U	0.0410 J*	0.046 J	0.0088 U	0.0088 U	0.0144 J	0.0168 J b	0.000176 U
m-Xylene & p-Xylene	1				0.107 J	0.108 J	0.127 J	0.12	0.158		0.205 U	0.35 U	0.17 U	NA	0.248 U	0.00308 J	0.0165 U	0.00203 J	0.0041 J	0.0410 U	0.0103 U	0.0103 U	0.0103 U	0.00513 U	0.0041 U	0.00221
Naphthalene	1.5	654000			7.52	107	6.84	2.29	2.86		5.44	3.74 J	5.36	NA	0.271 U	0.00135 U	0.262 J	0.002 U	0.02 U	0.0258 U*	0.00645 U	0.00645 U	0.00645 U	0.00323 U	0.435	0.000129 U
n-Butylbenzene	3.7				0.053 U	0.106 U	0.0424 U	0.0106 U	0.0106 U		0.212 U	0.47 U	0.16 U	NA	0.129 U	0.000644 U	0.0143 U	0.000286 U	0.00286 U	0.0424 U*	0.0106 U	0.0106 U	0.0106 U	0.0053 U	0.00424 U	0.000212 U
n-Hexane	4.4				0.064 U	0.128 U	0.0512 U	0.0128 U	0.0128 U		0.256 U	0.76 U	0.16 U	NA	0.103 U	0.00234 J	0.0185 U *	0.00169 J	0.00369 U	0.0512 U	0.0128 U	0.0128 U	0.0128 U	0.0064 U	0.00512 U	0.000639 J
N-Propylbenzene	2.9				0.0575 U	0.115 U	0.046 U	0.0115 U	0.0115 U		0.23 U	0.38 U	0.15 U	NA	0.0996 U	0.000498 U	0.00895 U	0.000179 U	0.00179 U	0.0460 U	0.0115 U	0.0115 U	0.0115 U	0.00575 U	0.0046 U	0.00023 U
o-Xylene	1				0.0606 J	0.096 U	0.0649 J	0.0689	0.0469 J		0.192 U	0.23 U	0.12 U	NA	0.11 U	0.000551 U	0.00958 U	0.000192 U	0.00192 U	0.0384 U	0.0096 U	0.0096 U	0.0096 U	0.0048 U	0.00384 U	0.000234 J
sec-Butylbenzene	2.9				0.056 U	0.112 U	0.0448 U	0.0112 U	0.0112 U		0.224 U	0.42 U	0.12 U	NA	0.0936 U	0.000468 U	0.00994 U	0.000199 U	0.00199 U	0.0448 U	0.0112 U	0.0112 U	0.0112 U	0.0056 U	0.00448 U	0.000224 U
Styrene	0.1				0.0438 U	0.0875 U	0.035 U	0.00875 U	0.00875 U		0.175 U	0.27 U	0.07 U	NA	0.131 U	0.000655 U	0.0312 U	0.000623 U	0.00162 U	0.0350 U	0.00875 U	0.00875 U	0.00875 U	0.00438 U	0.0035 U	0.000175 U
tert-Butylbenzene	2.9				0.054 U	0.108 U	0.0432 U	0.0197 J	0.0108 U		0.216 U	0.45 U	0.08 U	NA	0.0884 U	0.000442 U	0.00975 U	0.000195 U	0.00195 U	0.0432 U*	0.0108 U	0.0108 U	0.0108 U	0.0054 U	0.00432 U	0.000216 U
Tetrachloroethene	0.005				0.474	0.739	0.0666 U	0.0167 U	0.557		1.8	1.08	1.41	2.14	2.35	2.47	2.64	2.78	3.22 D	2.61	2.95	3.97	4.67	4.67	4.34	5.05
Toluene	1				0.47	0.429 J	0.507	0.454	0.574		0.663 J	0.48 U	0.58 J	0.0236	0.095 U	0.0279	0.0298 J	0.0246	0.0285	0.0604 J	0.0254 J	0.0323 J	0.039 J	0.0264	0.031	0.0248
trans-1,2-Dichloroethene	0.1				0.893	0.807	1.06	0.859	1.55		1.22	0.975 J	0.965 J	NA	0.189 U	0.0939	0.0934	0.0929	0.0906	0.0892 J	0.0786	0.0891	0.125	0.074	0.0652	0.0799
trans-1,3-Dichloropropene	0.02				0.0343 U	0.0685 U	0.0274 U	0.00685 U	0.00685 U		0.137 U	0.42 U	0.21 U	NA	0.253 U	0.00127 U	0.0376 U	0.000752 U	0.00752 U	0.0274 U	0.00685 U	0.00685 U	0.00685 U	0.00343 U	0.00274 U	0.000137 U
Trichloroethene	0.005				6.64	1.03	0.0276 U	0.746	4.5		13.7	8.51	15	8	9.03	9.31	10.3	7.84	10.2 D	8.37	7.51	10	13.3	9.89	8.9	11.8
Trichlorofluoromethane	22				0.061 U	0.122 U	0.0488 U	0.0122 U	0.0122 U		0.244 U	0.42 U	0.08 U	NA	0.128 U	0.000638 U	0.0122 U	0.000245 U	0.00245 U	0.0488 U	0.0122 U	0.0122 U	0.0122 U	0.0061 U	0.00488 U	0.000244 U
Vinyl acetate	7.3				0.214 U	0.427 U	0.171 U	0.0427 U	0.0427 U		0.854 U	0.81 U	0.21 U	NA	0.428 U	0.00214 U	0.178 U	0.00357 U	0.0357 U	0.171 U*	0.0427 U	0.0427 U	0.0427 U	0.0214 U	0.0171 U	0.000854 U
Vinyl chloride	0.002	435			4.27	2.77	4.2	2.06	3.96		4.84	2.15	2.94	0.343	0.367 J	0.493	0.386	0.342	0.447	0.427	0.175	0.421	0.669	0.469	0.301	0.421
Xylenes, Total	10				0.168 J	0.183 U	0.192 J	0.189	0.205		0.366 U	0.23 U	0.26 U	0.00281 J	0.248 U	0.00308 J	0.0165 U	0.00203 J	0.0041 J	0.0732 U	0.0183 U	0.0183 U	0.0183 U	0.00915 U	0.00732 U	0.00244
Metals by EPA 6020																									
Lead	0.015				0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U		0.000733 U	0.000733 U	0.000733 U	0.000468 J	0.00092 J	0.000665 J	0.000628 U	0.000284 J	0.000196 J	0.00150 b	0.000573	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U

Notes:

U = Analyte wa U = Analyte was not detected at or above the SDL.

J = Result is le J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wa H = Sample was prepped or analyzed beyond the specified holding time

b = The compa b = The compound was found in the blank and sample

NA = Not Anal NA = Not Analyzed

* = LCS or LCS * = LCS or LCSD exceeds the control limits

Bold Italic = E ***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas I TRRP = Texas Risk Reduction Program

PCL = protecti PCL = protectice concentration level

1 TRRP PCL = C 1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW 2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua AAL = Attenuation Action Level

All results repo All results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			MW-36		MW-36		MW-36		MW-36		MW-36		MW-36		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37		MW-37	
Sample Date			1/25/2017		7/18/2016		1/14/2016		7/23/2015		1/28/2015		7/24/2014		7/21/2023		1/31/2023		7/29/2022		1/14/2022		7/2/2021		1/21/2021		7/28/2020		1/21/2020		7/5/2019		1/15/2019		7/18/2018		1/30/2018		7/18/2017		7/18/2017	not sampled Jan 2017	7/18/2016		1/18/2016		7/22/2015		1/27/2015	
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																																															
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																																														
1,2-Dichloroethane	0.005		0.000116	U	0.000116	U	0.00580	U	0.000116	U	0.1	U	0.007	U	NA		0.00059	U	0.00059	U	0.000285	U	0.000285	U	0.000285	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.00058	U	0.00058	U	0.00058	U			0.000116	U	0.000149	J	0.000116	U	0.0005	U
1,2-Dichloropropane	0.005		0.000136	U	0.0288		0.00680	U	0.000136	U	0.134	U	0.008	U	NA		0.000667	U	0.000667	U	0.000396	U	0.000396	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.00068	U	0.00068	U	0.00068	U			0.000136	U	0.000136	U	0.000136	U	0.00067	U
1,3,5-Trimethylbenzene	3.7		0.000506	J	0.00021	U	0.01050	U	0.00021	U	0.062	U	0.005	U	NA		0.000456	U	0.000456	U	0.000279	U	0.000279	U	0.000279	U	0.000210	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00105	U	0.00105	U	0.00105	U			0.00021	U	0.00021	U	0.00021	U	0.00031	U
1,3-Dichlorobenzene	2.2		0.00021	U	0.00021	U	0.01050	U	0.00021	U	0.086	U	0.0065	U	NA		0.000513	U	0.000513	U	0.000197	U	0.000197	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00105	U	0.00105	U	0.00105	U			0.00021	U	0.00021	U	0.00021	U	0.00043	U
1,3-Dichloropropane	0.02		0.00102		0.00022	U	0.01100	U	0.000239	J	0.068	U	0.011	U	NA		0.000514	U	0.000514	U	0.000439	U	0.000439	U	0.000220	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.0011	U	0.0011	U	0.0011	U			0.00022	U	0.00022	U	0.00022	U	0.00034	U
1,4-Dichlorobenzene	0.075		0.000315	J	0.000176	U	0.00880	U	0.000176	U	0.092	U	0.0055	U	NA		0.000513	U	0.000513	U	0.000199	U	0.000199	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.00088	U	0.00088	U	0.00088	U			0.000176	U	0.000176	U	0.000176	U	0.00046	U
2,2-Dichloropropane	0.03		0.000258	U	0.000258	U	0.01290	U	0.000258	U	0.074	U	0.0065	U	NA		0.00078	U	0.00078	U	0.00036 U *		0.00036	U	0.00036	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.00129	U	0.00129	U	0.00129	U			0.000258	U	0.000258	U	0.000258	U	0.00037	U
2-Butanone (MEK)	4.4		0.00076	U	0.00076	U	0.03800	U	0.00076	U	0.68	U	0.038	U	NA		0.00828	U	0.00828	U	0.0027	U	0.0027	U	0.0027	U	0.000760	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0038	U	0.0038	U	0.0038	U			0.00076	U	0.00076	U	0.00076	U	0.0034	U
2-Chlorotoluene	1.5		0.000226	U	0.000226	U	0.01130	U	0.000226	U	0.054	U	0.0065	U	NA		0.00118	U	0.00118	U	0.000214	U	0.000214	U	0.000214	U	0.000226	U*	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.00113	U	0.00113	U	0.00113	U			0.000226	U	0.000226	U	0.000226	U	0.00027	U
4-Chlorotoluene	1.50		0.00021	U	0.00021	U	0.01050	U	0.00021	U	0.09	U	0.007	U	NA		0.000472	U	0.000472	U	0.000183	U	0.000183	U	0.000210	U*	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00105	U	0.00105	U	0.00105	U			0.00021	U	0.00021	U	0.00021	U	0.00045	U
4-Isopropyltoluene	2.4		0.000228	U	0.000228	U	0.01140	U	0.000228	U	0.096	U	0.005	U	NA		0.000919	U	0.000919	U	0.000233	U	0.000233	U	0.000233	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.00114	U	0.00114	U	0.00114	U			0.000228	U	0.000228	U	0.000228	U	0.00048	U
4-Methyl-2-pentanone (MIBK)	5.8		0.000348	U	0.000348	U	0.01740	U	0.000342	U	0.42	U	0.0225	U	NA		0.00749	U	0.00749	U	0.00106	U	0.00106	U	0.00106	U	0.000348	U*	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.00174	U	0.00174	U	0.00174	U			0.000348	U	0.000348	U	0.000342	U	0.0021	U
Acetone	66		0.000447	U	0.000447	U	0.24400	J	0.000447	U	1.4	U	0.0519	Jb	NA		0.00119	U	0.00119	U	0.0123	U	0.0123	U	0.0123	U	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.00224	U*	0.00224	U	0.00224	U			0.000447	U	0.000447	U	0.000447	U	0.007	U
Benzene	0.005	6710	0.109		0.116		0.11300		0.0815		0.086	U	0.145		0.00535		0.0107		0.018		0.0328		0.0186		0.0479		0.0218	b	0.0639		0.0455		0.0372		0.0389		0.0145		0.0184		0.00088	U			0.000176	U	0.000432	J	0.0119		0.0055	
Bromobenzene	0.58		0.000195	U	0.000195	U	0.00975	U	0.000195	U	0.1	U	0.0095	U	NA		0.000665	U	0.000665	U	0.0003	U	0.0003	U	0.0003	U	0.000195	U*	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000975	U	0.000975	U	0.000975	U			0.000195	U	0.000195	U	0.000195	U	0.0005	U
Bromodichloromethane	0.033		0.032		0.000153	U	0.00765	U	0.0293		0.088	U	0.147		NA		0.000552	U	0.000552	U	0.000231	U	0.000209	U	0.000209	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000765	U	0.000765	U	0.000765	U			0.000153	U	0.000153	U	0.000153	U	0.00044	U
Bromoform	0.26		0.000151	U	0.000151	U	0.00755	U	0.000151	U	0.086	U	0.0095	U	NA		0.000633	U	0.000633	U	0.00063	U	0.000231	U	0.000231	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000755	U	0.000755	U	0.000755	U			0.000151	U	0.000151	U	0.000151	U	0.00043	U
Bromomethane	0.1		0.00025	U*	0.00025	U	0.01250	U	0.00025	U	0.5	U	0.0125	U	NA		0.00142	U	0.00142	U	0.00105	U	0.00063	U	0.00063	U	0.000250	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00125	U	0.00125	U	0.00125	U			0.00025	U	0.00025	U	0.00025	U	0.0025	U
Carbon disulfide	7.8		0.000216	U	0.000216	U	0.01080	U	0.000216	U	0.2	U	0.012	U	NA		0.00191	U	0.00191	U	0.000373	U	0.00105	U	0.00105	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.00108	U	0.00108	U	0.00108	U			0.000216	U	0.000216	U	0.000216	U	0.001	U
Carbon tetrachloride	0.005		0.000183	U	0.000183	U	0.00915	U	0.000183	U	0.066	U	0.0075	U	NA		0.000896	U	0.000896	U	0.000423	U	0.000373	U	0.000373	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000915	U	0.000915	U	0.000915	U			0.000183	U	0.000183	U	0.000183	U	0.00033	U
Chlorobenzene	0.1		0.00234		0.00176		0.00925	U	0.00214		0.052	U	0.006	U	0.00106		0.00053	U	0.00053	U	0.000841	J	0.000423	U	0.000423	U	0.000493	J	0.000824	J	0.000771	J	0.000533	J	0.000532	J	0.000925	U	0.000925	U	0.000925	U			0.000257	J	0.000491	J	0.000829	J	0.00026	U
Chlorobromomethane	2.9		0.000162	U	0.000162	U	0.00810	U	0.000162	U	0.09	U	0.009	U	NA		0.000657	U	0.000657	U	0.000209	U	0.000159	U	0.0008	J	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.00081	U	0.00081	U	0.00081	U			0.000162	U	0.000162	U	0.000162	U	0.00045	U
Chloroethane	29		0.00024	U	0.00024	U	0.01200	U*	0.00024	U	0.5	U	0.004	U	NA		0.00198	U	0.00198	U	0.000433	U	0.000433	U	0.000433	U	0.000240	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.0012	U	0.0012	U	0.0012	U			0.00024	U	0.00024	U	0.00024	U	0.0025	U
Chloroform	0.73		0.000151	U	0.000151	U	0.00755	U	0.000151	U	0.1	U	0.0065	U	NA		0.000643	U	0.000643	U	0.000259	U	0.000259	U	0.000259	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000755	U	0.000755	U	0.000755	U			0.000151	U	0.000151	U	0.000151	U	0.0005	U
Chloromethane	0.16		0.000209	U	0.000209	U	0.01050	U	0.00023	J*	0.08	U	0.009	U	NA		0.00204	U	0.00204	U	0.000318	U	0.000318	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.00105	U	0.00105	U	0.00105	U			0.000209	U	0.000209	U	0.000209	U	0.0004	U
cis-1,2-Dichloroethene	0.07		19.1		18.4		20.0		17.7		16.6		18.4		0.000714	U	0.000714	U	0.000714	U	0.000174	U	0.000174	U	0.00018	J	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000785	U	0.000785	U	0.000785	U			0.000157	U	0.000157	U	0.000157	U	0.00041	U
cis-1,3-Dichloropropene	0.0038		0.00016	U	0.00016	U	0.00800	U	0.00016	U	0.08	U	0.009	U	NA		0.00107	U	0.00107	U	0.00069	U	0.00069	U	0.00069	U	0.000160	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.0008	U	0.0008	U	0.0008	U			0.00016	U	0.00016	U	0.00016	U	0.0004	U
Dibromochloromethane	0.024		0.000119	U	0.000119	U	0.00595	U	0.000119	U	0.064	U	0.0075	U	NA		0.000547	U	0.000547	U	0.000739	U	0.000739	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000595	U	0.000595	U	0.000595	U			0.000119	U	0.000119	U	0.000119	U	0.00032	U
Dibromomethane	0.27		0.00052	U	0.00052	U	0.02600	U	0.00052	U	0.07	U	0.026	U	NA		0.000689	U	0.000689	U	0.00013	U	0.00013	U	0.00013	U	0.000520		0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.0026	U	0.0026	U	0.0026	U			0.00052	U	0.00052	U	0.00052	U	0.00035	U
Dichlorodifluoromethane	15		0.000859	U	0.000859	J	0.04300	U	0.000859	U	0.12	U	0.006	U	NA		0.000919	U	0.000919	U	0.000316 U *		0.000316 UX		0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.0043	U	0.0043	U	0.0043	U			0.000859	U	0.000859	U	0.000859	U	0.0006	U
Ethylbenzene	0.7		0.00476		0.000428	J	0.01060	U	0.000287	J	0.066	U	0.0055	U	0.000411	U	0.000411	U	0.000411	U	0.000515	U	0.000515	U	0.00028	J	0.000212	U	0.000274	J	0.000212	U	0.000212	U	0.000212	U	0.00106	U	0.00106	U	0.00106	U			0.000212	U	0.000212	U	0.000212	U	0.00033	U
Hexachlorobutadiene	0.026		0.000215	U	0.000215	U	0.01080	U	0.000215	U	0.5	U	0.0085	U	NA		0.00126	U	0.00126	U	0.002	U	0.002	U	0.002	U	0.000215	U*	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.00108	U	0.00108	U	0.00108	U			0.000215	U	0.000215	U	0.000215	U	0.0025	U
Isopropylbenzene	2.4		0.00109		0.000241	U	0.01210	U	0.00038	J	0.07	U	0.009	U	NA		0.000729	J	0.000675	J	0.00171		0.000807	J	0.00254		0.00138	*	0.0035		0.00169		0.000796	J	0.00106		0.00121	U	0.00121	U	0.00121	U			0.000241	U	0.000554	J	0.0019		0.000517	J
Methyl tert-butyl ether	0.73		0.000627	J	0.000412	J	0.00525	U	0.000443	J	0.06	U	0.006	U	NA		0.00187	J	0.00181	J	0.00271	J	0.00231	J	0.00191	U	0.00226	*	0.00231		0.00226	*	0.00231		0.00276		0.00264		0.00206	J	0.00207	J	0.00222	J			0.00187		0.00221		0.00213		0.00193	J
Methylene Chloride	0.005		0.000176	U	0.000176	U	0.00880	U	0.000176	U	0.5	U	0.0075	U	NA		0.00173	U	0.00173	U	0.00191	U	0.00191	U	0.00232	J	0.000848	J *	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.0111	J b	0.0073	J b	0.00874	J b			0.000176	U	0.000176	U	0.000176	U	0.0025	U
m-Xylene & p-Xylene	1		0.00435		0.00124		0.01030	U	0.000961	J	0.07	U	0.0085	U	NA		0.00124	U	0.00124	U	0.000651	J	0.000457	J	0.00092	J	0.000448	J	0.00182		0.00102		0.000386	J	0.000787	J	0.00103	U	0.00103	U	0.00103	U			0.000205	U	0.000205	U	0.000574	J	0.00035	U
Naphthalene	1.5	654000	0.27		0.000129	U	0.00645	U	0.000129	U	0.5	U	0.016	U	NA		0.00135	U	0.00155	J	0.002	U	0.002	U	0.00202	J	0.00560	*	0.000136	J	0.00036	J	0.000746	J b	0.000129	U	0.000645	U	0.000645	U	0.000645	U			0.000129	U	0.000129	U	0.000129	U	0.0025	U
n-Butylbenzene	3.7		0.000212	U	0.000212	U	0.01060	U*	0.000212	U	0.094	U	0.008	U	NA		0.000644	U	0.000644	U	0.000286	U	0.000286	U	0.000286	U	0.000212	U*	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00106	U	0.00106	U	0.00106	U			0.000212	U	0.000212	U	0.000212	U	0.00047	U
n-Hexane	4.4		0.000462	J	0.000256	U	0.01280	U	0.000318	J	0.152	U	0.008	U	NA		0.000517	U	0.000517	U	0.000369 U *		0.000369	U	0.000369	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.00128	U	0.00128	U	0.00128	U			0.000256	U	0.000256	U	0.000264	J	0.00076	U
N-Propylbenzene	2.9		0.00023	U	0.00023	U	0.01150	U	0.00023	U	0.076	U	0.0075	U	NA		0.000498	U	0.000498	U	0.000627	J	0.000368	J	0.00097	J	0.000567	J	0.0016		0.000675	J	0.00023	U	0.000454	J	0.00115	U	0.00115	U	0.00115	U			0.00023	U	0.00023	U	0.000822	J	0.00038	U
o-Xylene	1		0.000865	J	0.000192	U	0.00960	U	0.000192	U	0.046	U	0.006	U	NA		0.000551	U	0.000589	J	0.00128		0.000628	J	0.00191		0.000805	J	0.00244		0.00115		0.000434	J	0.00125		0.00096	U	0.00096	U	0.00096	U			0.000192	U	0.000192	U	0.000744	J	0.00023	U
sec-Butylbenzene	2.9		0.000224	U	0.000224	U	0.01120	U	0.000224	U	0.084	U	0.006	U	NA		0.000468	U	0.000468	U	0.00055	J	0.000204	J	0.00056	J	0.000335	J	0.000809	J	0.000572	J	0.000224	U	0.00031	J	0.00112	U	0.00112	U	0.00112	U			0.000224	U	0.000274	J	0.000686	J	0.00042	U
Styrene	0.1		0.000175	U	0.000175	U	0.00875	U	0.000175	U	0.054	U	0.0035	U	NA		0.000655	U	0.000655	U	0.000623	U	0.000623	U	0.000162	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000875	U	0.000875	U	0.000875	U			0.000175	U	0.000175	U	0.000175	U	0.00027	U
tert-Butylbenzene	2.9		0.000464	J	0.000216	U	0.01080	U	0.000216	U	0.09	U	0.004	U	NA		0.000442	U	0.000579	J	0.00148		0.00045	J	0.00101		0.000675	J *	0.00136		0.00117		0.000656	J	0.000705	J	0.00108	U	0.00108	U	0.00108	U			0.000216	U	0.000888	J	0.00134		0.00045	U
Tetrachloroethene	0.005		6.36		3.7		6.34		8.17		5.86		7.04		0.000801	U	0.000801	U	0.000801	U	0.0005	U	0.0005	U	0.0005	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.00167	U	0.00167	U	0.00167	U			0.000333	U	0.000333	U	0.000514	U	0.00074	U
Toluene	1		0.0318	b	0.0177		0.02410	J	0.0163		0.096	U	0.0195	J	0.000475	U	0.000475	U	0.000601	J	0.00109		0.000793	J	0.00186		0.00102		0.00277		0.00168		0.000838	J	0.00115		0.00101	J	0.00099	U	0.00099	U			0.000198	U	0.000198	U	0.00074	J	0.00048	U
trans-1,2-Dichloroethene	0.1		0.0664		0.0628		0.06000		0.252		0.074	U	0.0565		NA		0.000945	U	0.000945	U	0.000256	U	0.000256	U	0.000256	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00096	U	0.00096	U	0.00096	U			0.000192	U	0.000192	U	0.000192	U	0.00037	U
trans-1,3-Dichloropropene	0.02		0.000137	U	0.000137	U	0.00685	U	0.000137	U	0.084	U	0.0105	J	NA		0.00127	U	0.00127	U	0.000752	U	0.000752	U	0.000752	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000685	U	0.000685	U	0.000685	U			0.000137	U	0.000137	U	0.000137	U	0.00042	U
Trichloroethene	0.005		11		10.4		11.3		14.1		11.2		12.9		0.000791	U	0.000791	U	0.000791	U	0.000424	U	0.000424	U	0.000424	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.00069	U	0.00069	U	0.00069	U			0.000138	U	0.000138	U	0.000138	U	0.00048	U
Trichlorofluoromethane	22		0.000244	U	0.000244	U	0.01220	U	0.000244	U	0.084	U	0.004	U	NA		0.000638	U	0.000638	U	0.000245	U	0.000245	U	0.000245	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.00122	U	0.00122	U	0.00122	U			0.000244	U	0.000244	U	0.000244	U	0.00042	U
Vinyl acetate	7.3		0.000854	U	0.000854	U	0.04270	U*	0.000854	U	0.162	U	0.0105	U	NA		0.00214	U	0.00214	U	0.00357	U	0.00357	U	0.00357 UX		0.000854	U*	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.00427	U	0.00427	U	0.00427	U			0.000854	U	0.000854	U	0.000854	U	0.00081	U
Vinyl chloride	0.002	435	0.462		0.46		0.85500		0.274		0.19	J	0.211		0.000638	U	0.000638	U	0.000638	U	0.000234	U	0.000234	U	0.000234	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.00124	U	0.00124	U	0.00124	U			0.000248	U	0.000248	U	0.000248	U	0.0005	U
Xylenes, Total	10		0.00522		0.00124		0.01830	U	0.000961	J	0.046	U	0.013	U	0.00124	U	0.00124	U	0.00124	U	0.00193	J	0.00109	J	0.00283		0.00125		0.00426		0.00217		0.00082	J	0.00204		0.00183	U	0.00183	U	0.00183	U			0.000366	U	0.000366	U	0.00132	J	0.00023	U
Metals by EPA 6020																																															
Lead	0.015		0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000367	U	0.000115	J	0.000152	U	0.000152	U	0.000152	U	0.000152	U	0.000165	U	0.000165	U	0.000733	U	0.000733	U	0.000733	U	0.000777	J	0.000733	U	0.000733	U			0.000733	U	0.000733	U	0.000733	U	0.000733	U

Notes: Notes:

U = Analyte wiU = Analyte was not detected at or above the SDL.

J = Result is leJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample weH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas fTRRP = Texas Risk Reduction Program

PCL = protectiiPCL = protectice concentration level

1 TRRP PCL = C1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = AttenuaAAL = Attenuation Action Level

All results repiAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			MW-37	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-18	RI-1-17	RI-1-17	RI-1-17	RI-1-17
Sample Date			7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022	7/2/2021	1/21/2021	7/28/2020	1/21/2020	7/5/2019	1/15/2019	7/18/2018	1/18/2018	7/19/2017	1/25/2017	7/13/2016	1/18/2016	7/23/2015	1/28/2015	7/23/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																									
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																							
1,2-Dichloroethane	0.005		0.000171 J	NA	0.00059 U	0.00059 U	0.000285 U	0.000285 U	0.000285 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.0005 U	0.00014 U	NA	0.00059 U	0.00059 U	0.000285 U
1,2-Dichloropropane	0.005		0.00016 U	NA	0.000667 U	0.000667 U	0.000396 U	0.000396 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.00067 U	0.00016 U	NA	0.000667 U	0.000667 U	0.000396 U
1,3,5-Trimethylbenzene	3.7		0.0001 U	NA	0.000456 U	0.000456 U	0.000279 U	0.000279 U	0.000279 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00031 U*	0.0001 U	NA	0.000456 U	0.000456 U	0.000279 U
1,3-Dichlorobenzene	2.2		0.00013 U	NA	0.000513 U	0.000513 U	0.000197 U	0.000197 U	0.000197 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00043 U	0.00013 U	NA	0.000513 U	0.000513 U	0.000197 U
1,3-Dichloropropane	0.02		0.00022 U	NA	0.000514 U	0.000514 U	0.000439 U	0.000439 U	0.000439 U	0.000220 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00034 U	0.00022 U	NA	0.000514 U	0.000514 U	0.000439 U
1,4-Dichlorobenzene	0.075		0.00011 U	NA	0.000513 U	0.000513 U	0.000199 U	0.000199 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.00046 U	0.00011 U	NA	0.000513 U	0.000513 U	0.000199 U
2,2-Dichloropropane	0.03		0.00013 U	NA	0.00078 U	0.00078 U	0.00036 U *	0.00036 U	0.00036 U	0.000258 U	0.00258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.00037 U	0.00013 U	NA	0.00078 U	0.00078 U	0.00036 U
2-Butanone (MEK)	4.4		0.00076 U	NA	0.00828 U	0.00828 U	0.0027 U	0.0027 U	0.0027 U	0.000760 U	0.00076 U	0.00155 J	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.0034 U	0.00076 U	NA	0.00828 U	0.00828 U	0.0027 U
2-Chlorotoluene	1.5		0.00013 U	NA	0.00118 U	0.00118 U	0.000214 U	0.000214 U	0.000214 U	0.000226 U*	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.00027 U	0.00013 U	NA	0.00118 U	0.00118 U	0.000214 U
4-Chlorotoluene	1.50		0.00014 U	NA	0.000472 U	0.000472 U	0.000183 U	0.000183 U	0.000183 U	0.000210 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00045 U	0.00014 U	NA	0.000472 U	0.000472 U	0.000183 U
4-Isopropyltoluene	2.4		0.0001 U	NA	0.000919 U	0.000919 U	0.000233 U	0.000233 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.00048 U	0.0001 U	NA	0.000919 U	0.000919 U	0.000233 U
4-Methyl-2-pentanone (MIBK)	5.8		0.00045 U	NA	0.00749 U	0.00749 U	0.00106 U	0.00106 U	0.00106 U	0.000348 U*	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000342 U	0.0021 U	0.00045 U	NA	0.00749 U	0.00749 U	0.00106 U
Acetone	66		0.00948	NA	0.00119 U	0.00756 J	0.0123 U	0.0123 U	0.0123 U	0.00217 J	0.000447 U	0.00221 J	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.000447 U	0.00334 J	0.00138 J	0.007 U	0.00854	NA	0.00119 U	0.00119 U	0.0123 U
Benzene	0.005	6710	0.0171	0.00046 U	0.000533 U	0.000533 U	0.000214 U	0.000214 U	0.000214 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000811 J	0.000176 U	0.000176 U	0.000176 U	0.00043 U	0.00008 U	0.00046 U	0.000533 U	0.000533 U	0.000214 U
Bromobenzene	0.58		0.00019 U	NA	0.000665 U	0.000665 U	0.0003 U	0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.0005 U	0.00019 U	NA	0.000665 U	0.000665 U	0.0003 U
Bromodichloromethane	0.033		0.00016 U	NA	0.000552 U	0.000552 U	0.000231 U	0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.00044 U	0.00016 U	NA	0.000552 U	0.000552 U	0.000231 U
Bromoform	0.26		0.00019 U	NA	0.000633 U	0.000633 U	0.00063 U	0.000231 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.00043 U	0.00019 U	NA	0.000633 U	0.000633 U	0.00063 U
Bromomethane	0.1		0.00025 U	NA	0.00142 U	0.00142 U	0.00105 U	0.00063 U	0.00063 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U*	0.00025 U	0.00025 U*	0.00025 U	0.00025 U	0.00025 U	0.0025 U	0.00025 U	NA	0.00142 U	0.00142 U	0.00105 U
Carbon disulfide	7.8		0.00024 U	NA	0.00191 U	0.00191 U	0.000373 U	0.00105 U	0.00105 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.000216 U	0.001 U	0.00024 U	NA	0.00191 U	0.00191 U	0.000373 U
Carbon tetrachloride	0.005		0.00015 U	NA	0.000896 U	0.000896 U	0.000423 U	0.000373 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.00033 U	0.00015 U	NA	0.000896 U	0.000896 U	0.000423 U
Chlorobenzene	0.1		0.000641 J	0.00053 U	0.00053 U	0.00053 U	0.000159 U	0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000286 J	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.00026 U	0.00012 U	0.00053 U	0.00053 U	0.000159 U
Chlorobromomethane	2.9		0.00018 U	NA	0.000657 U	0.000657 U	0.000209 U	0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.00045 U	0.00018 U	NA	0.000657 U	0.000657 U	0.000209 U
Chloroethane	29		0.00008 U	NA	0.00198 U	0.00198 U	0.000433 U	0.000433 U	0.000433 U	0.000240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.0025 U	0.00008 U	NA	0.00198 U	0.00198 U	0.000433 U
Chloroform	0.73		0.00013 U	NA	0.000643 U	0.000643 U	0.000259 U	0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.0005 U	0.00013 U	NA	0.000643 U	0.000643 U	0.000259 U
Chloromethane	0.16		0.00018 U	NA	0.00204 U	0.00204 U	0.000318 U	0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000309 J *	0.0004 U	0.00018 U	NA	0.00204 U	0.00204 U	0.000318 U
cis-1,2-Dichloroethene	0.07		0.000138 J	0.000714 U	0.000714 U	0.000714 U	0.000174 U	0.000174 U	0.000174 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.00041 U	0.00006 U	0.000714 U	0.000714 U	0.000174 U	0.000174 U
cis-1,3-Dichloropropene	0.0038		0.00018 U	NA	0.00107 U	0.00107 U	0.00069 U	0.00069 U	0.00069 U	0.000160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.0004 U	0.00018 U	NA	0.00107 U	0.00107 U	0.00069 U
Dibromochloromethane	0.024		0.00015 U	NA	0.000547 U	0.000547 U	0.000739 U	0.000739 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.00032 U	0.00015 U	NA	0.000547 U	0.000547 U	0.000739 U
Dibromomethane	0.27		0.00052 U	NA	0.000689 U	0.000689 U	0.00013 U	0.00013 U	0.00013 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00035 U	0.00052 U	NA	0.000689 U	0.000689 U	0.00013 U
Dichlorodifluoromethane	15		0.00012 U	NA	0.000919 U	0.000919 U	0.000316 U *	0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.0006 U	0.00012 U	NA	0.000919 U	0.000919 U	0.000316 U
Ethylbenzene	0.7		0.00011 U	0.000411 U	0.000411 U	0.000411 U	0.000515 U	0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00033 U	0.00011 U	0.000411 U	0.000411 U	0.000515 U
Hexachlorobutadiene	0.026		0.00017 U	NA	0.00126 U	0.00126 U	0.002 U	0.002 U	0.002 U	0.000215 U*	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.000869 J	0.000215 U	0.000215 U	0.000215 U	0.000215 U	0.0025 U	0.00017 U	NA	0.00126 U	0.00126 U	0.002 U
Isopropylbenzene	2.4		0.00195	NA	0.000613 U	0.000613 U	0.000161 U	0.000161 U	0.000161 U	0.000241 U*	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000241 U	0.000245 J	0.000362 J	0.00035 U	0.000324 J	NA	0.00615	0.000793 J	0.000231 U
Methyl tert-butyl ether	0.73		0.00288	NA	0.00162 J	0.0017 J	0.0022 J	0.00149 J	0.00191 U	0.00200 *	0.00277	0.00253	0.00343	0.00205	0.00311	0.0037	0.0032	0.00232	0.00392	0.00443	0.00424 J	0.00662	NA	0.00167 J	0.00169 J	0.00273 J
Methylene Chloride	0.005		0.00015 U	NA	0.00173 U	0.00173 U	0.00191 U	0.00191 U	0.00198 J	0.00211 J*	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.0025 U	0.00015 U	NA	0.00173 U	0.00173 U	0.00191 U
m-Xylene & p-Xylene	1		0.000625 J	NA	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.00035 U	0.00017 U	NA	0.00124 U	0.00124 U	0.00033 U
Naphthalene	1.5	654000	0.00032 U	NA	0.00135 U	0.00135 U	0.002 U	0.002 U	0.002 U	0.00260 *	0.000129 U	0.00038 J	0.000129 U	0.000129 U	0.000798 J	0.000129 U	0.000129 U*	0.000436 J	0.000129 U	0.000129 U	0.0025 U	0.00032 U	NA	0.00135 U	0.00135 U	0.002 U
n-Butylbenzene	3.7		0.00016 U	NA	0.000644 U	0.000644 U	0.000286 U	0.000286 U	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.00047 U	0.00016 U	NA	0.000644 U	0.000644 U	0.000286 U
n-Hexane	4.4		0.000391 J	NA	0.000517 U	0.000517 U	0.000369 U *	0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.00076 U	0.00016 U	NA	0.000517 U	0.000517 U	0.000369 U
N-Propylbenzene	2.9		0.00067 J	NA	0.000498 U	0.000498 U	0.000179 U	0.000179 U	0.000179 U	0.000230 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00038 U	0.00015 U	NA	0.000964 J	0.000498 U	0.000179 U
o-Xylene	1		0.000652 J	NA	0.000551 U	0.000551 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00023 U	0.00012 U	NA	0.000551 U	0.000551 U	0.000192 U
sec-Butylbenzene	2.9		0.000919 J	NA	0.000468 U	0.000468 U	0.000199 U	0.000369 J	0.00038 J	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000598 J	0.000224 U	0.00042 U	0.00012 U	NA	0.000468 U	0.000468 U	0.000258 J
Styrene	0.1		0.000412 J	NA	0.000655 U	0.000655 U	0.000623 U	0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.00027 U	0.00007 U	NA	0.000655 U	0.000655 U	0.000623 U
tert-Butylbenzene	2.9		0.00118	NA	0.00226	0.00277	0.00173	0.00147	0.0017	0.000418 J*	0.0013	0.00147	0.00211	0.00164	0.00355	0.000993 J	0.000216 U	0.00228	0.00362	0.00399	0.00283	0.00324	NA	0.00402	0.00482	0.00236
Tetrachloroethene	0.005		0.00013 U	0.000801 U	0.000801 U	0.000801 U	0.0005 U	0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000514 U	0.00074 U	0.00013 U	0.000801 U	0.000801 U	0.0005 U
Toluene	1		0.000788 J	0.000475 U	0.000475 U	0.000475 U	0.0005 U	0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000198 U	0.000256 J b	0.000198 U	0.000198 U	0.000198 U	0.00048 U	0.00015 U	0.000475 U	0.000475 U	0.000475 U	0.0005 U
trans-1,2-Dichloroethene	0.1		0.00009 U	NA	0.000945 U	0.000945 U	0.000256 U	0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.00037 U	0.00009 U	NA	0.000945 U	0.000945 U	0.000256 U
trans-1,3-Dichloropropene	0.02		0.00021 U	NA	0.00127 U	0.00127 U	0.000752 U	0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.00042 U	0.00021 U	NA	0.00127 U	0.00127 U	0.000752 U
Trichloroethene	0.005		0.00018 U	0.000791 U	0.000791 U	0.000791 U	0.000424 U	0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.00048 U	0.00018 U	0.000791 U	0.000791 U	0.000424 U
Trichlorofluoromethane	22		0.00008 U	NA	0.000638 U	0.000638 U	0.000245 U	0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.00042 U	0.00008 U	NA	0.000638 U	0.000638 U	0.000245 U
Vinyl acetate	7.3		0.00021 U	NA	0.00214 U	0.00214 U	0.00357 U	0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.00081 U	0.00021 U	NA	0.00214 U	0.00214 U	0.00357 U
Vinyl chloride	0.002	435	0.00011 U	0.000638 U	0.000638 U	0.000638 U	0.000234 U	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.0005 U	0.00011 U	0.000638 U	0.000638 U	0.000638 U	0.000234 U
Xylenes, Total	10		0.00128 J	0.00124 U	0.00124 U	0.00124 U	0.00033 U	0.00033 U	0.000192 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.00023 U	0.00026 U	0.00124 U	0.00124 U	0.00124 U	0.00033 U
Metals by EPA 6020																									
Lead	0.015		0.000733 U	0.000367 U	0.000112 U	0.000152 U	0.000152 U	0.000152 U	0.000152 U	0.000165 U	0.000165 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000733 U	0.000424 J	0.000392 J	0.00205	0.000215 U

Notes:

Notes:

U = Analyte wasU = Analyte was not detected at or above the SDL.

J = Result is lesJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wasH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas rTRRP = Texas Risk Reduction Program

PCL = protectiPCL = protective concentration level

1 TRRP PCL = C1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua AAL = Attenuation Action Level

All results repAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			RI-1-17	RI-1-17	RI-1-17	RI-1-17	RI-1-17	RI-1-09	MW-40	MW-41	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17	MW-17
Sample Date			7/2/2021	1/21/2021	7/28/2020	2/7/2020	8/8/2019	1/30/2018	1/25/2018	1/25/2018	7/20/2023	1/30/2023	7/28/2022	1/14/2022	7/2/2021	1/20/2021	7/27/2020	1/20/2020	7/3/2019	1/16/2019	7/16/2018	1/9/2018	7/19/2017	1/17/2017	7/6/2016	1/12/2016	7/15/2015
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																											
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																									
1,2-Dichloroethane	0.005		0.000285 U	0.000285 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.000116 U	0.0059 U	0.015 U	0.012 U	0.014 U	0.0057 U	0.143 U	0.0023 U	NA	0.0023 U	0.0012 U	0.0012 U	0.0012 U	0.00232 U	0.0023 U	0.0058 U	0.00012 U	0.00012 U
1,2-Dichloropropane	0.005		0.000396 U	0.000396 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.000136 U	0.0067 U	0.017 U	0.013 U	0.02 U	0.0079 U	0.198 U	0.0027 U	0.0027 U	0.0027 U	0.0014 U	0.0014 U	0.0014 U	0.00272 U	0.0027 U	0.0068 U	0.00014 U	0.00014 U
1,3,5-Trimethylbenzene	3.7		0.000279 U	0.000279 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0042 U	NA	NA	NA	NA
1,3-Dichlorobenzene	2.2		0.000197 U	0.000197 U	0.000210 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0042 U	NA	NA	NA	NA
1,3-Dichloropropane	0.02		0.000439 U	0.000439 U	0.000220 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0044 U	NA	NA	NA	NA
1,4-Dichlorobenzene	0.075		0.000199 U	0.000199 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	0.000176 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00352 U	NA	NA	NA	NA
2,2-Dichloropropane	0.03		0.00036 U	0.00036 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	0.000258 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00516 U	NA	NA	NA	NA
2-Butanone (MEK)	4.4		0.0027 U	0.0027 U	0.000760 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.083 U	0.21 U	0.17 U	0.14 U	0.054 U	1.35 U	0.015 U	0.015 U	0.015 U	0.0076 U	0.0076 U	0.0076 U	0.0152 U	0.015 U	0.038 U	0.00076 U	0.00076 U
2-Chlorotoluene	1.5		0.000214 U	0.000214 U	0.000226 U*	0.000226 U	0.000226 U	0.000226 U	0.000226 U	0.000226 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00452 U	NA	NA	NA	NA
4-Chlorotoluene	1.50		0.000183 U	0.000183 U	0.000210 U*	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0042 U	NA	NA	NA	NA
4-Isopropyltoluene	2.4		0.000233 U	0.000233 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	0.000228 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00456 U	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	5.8		0.00106 U	0.00106 U	0.000348 U*	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.000348 U	0.075 U	0.19 U	0.15 U	0.053 U	0.021 U	0.532 U	0.007 U	0.007 U	0.007 U	0.0035 U	0.0035 U	0.0035 U	0.00696 U	0.007 U	0.017 U	0.00035 U	0.00034 U
Acetone	66		0.0123 U	0.0123 U	0.000447 U	0.000447 U	0.0058	0.000447 U*	0.000447 U	0.0279	0.012 U	0.03 U	0.024 U	0.62 U	0.25 U	6.16 U	0.29	0.0089 U	0.0089 U	0.0045 U*	0.0045 U	0.0045 U	0.00894 U	0.0089 U*	0.022 U	0.00045 U	0.0015 J
Benzene	0.005	6710	0.000214 U	0.000214 U	0.000176 U	0.000176 U	0.000251 J	0.000176 U	0.000176 U	0.000176 U	0.86	2.5	10	10	120	12.5 D	25	17	19	11	13	4.3	5.71	1.2	2	1.2	0.00057 J
Bromobenzene	0.58		0.0003 U	0.0003 U	0.000195 U*	0.000195 U	0.000195 U	0.000195 U	0.000195 U	0.000195 U	NA	NA	NA	NA	NA U	NA	NA	NA	NA	NA	NA	NA	0.0039 U	NA	NA	NA	NA
Bromodichloromethane	0.033		0.000209 U	0.000209 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	0.000153 U	NA	NA	NA	NA	NA J	NA	NA	NA	NA	NA	NA	NA	0.00306 U	NA	NA	NA	NA
Bromoform	0.26		0.000231 U	0.000231 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	NA	NA	NA	NA	NA U	NA	NA	NA	NA	NA	NA	NA	0.00302 U	NA	NA	NA	NA
Bromomethane	0.1		0.00063 U	0.00063 U	0.000250 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.005 U	NA	NA	NA	NA
Carbon disulfide	7.8		0.00105 U	0.00105 U	0.000216 U	0.000216 U	0.000292 J	0.000216 U	0.000216 U	0.000216 U	NA	NA	NA	NA	NA	0.187 U	0.0043 U	0.0043 U	0.0043 U	0.0022 U	0.0022 U	0.0022 U	0.00432 U	0.0043 U	0.011 U	0.00022 U	0.00022 U
Carbon tetrachloride	0.005		0.000373 U	0.000373 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.000183 U	0.019 U	0.048 U	0.038 U	0.019 U	0.0075 J	NA	NA	NA	NA	NA	NA	NA	0.00366 U	NA	NA	NA	NA
Chlorobenzene	0.1		0.000423 U	0.000423 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	0.000185 U	NA	NA	NA	NA	NA	0.0795 UD	0.0037 U	0.0037 U	0.0037 U	0.0019 U	0.0019 U	0.0019 U	0.0037 U	0.0037 U	0.0093 U	0.00019 U	0.00019 U
Chlorobromomethane	2.9		0.000159 U	0.000159 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.000162 U	0.0053 U	0.013 U	0.011 U	0.008 U	0.0072 U	NA	NA	NA	NA	NA	NA	NA	0.00324 U	NA	NA	NA	NA
Chloroethane	29		0.000433 U	0.000433 U	0.000240 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U	NA U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0048 U	NA	NA	NA	NA
Chloroform	0.73		0.000259 U	0.000259 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.000151 U	0.0064	0.016 U	0.013 U	0.013 U	0.0052 U	0.129 U	0.003 U	0.003 U	0.003 U	0.0015 U	0.0015 U	0.0015 U	0.00302 U	0.003 U	0.0076 U	0.00015 U	0.00015 U
Chloromethane	0.16		0.000318 U	0.000318 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	0.000209 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00418 U	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07		0.000174 U	0.000174 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	0.000157 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00314 U	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.0038		0.00069 U	0.00069 U	0.000160 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0032 U	NA	NA	NA	NA
Dibromochloromethane	0.024		0.000739 U	0.000739 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	0.000119 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00238 U	NA	NA	NA	NA
Dibromomethane	0.27		0.00013 U	0.00013 U	0.000520 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0104 U	NA	NA	NA	NA
Dichlorodifluoromethane	15		0.000316 U	0.000316 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	0.000859 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0172 U	NA	NA	NA	NA
Ethylbenzene	0.7		0.000515 U	0.000146 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.061 U	0.033	0.059	0.038 J	0.061 U	0.0728 UD	0.032	0.025	0.023	0.011	0.012	0.0061 J	0.00751 J	0.0045 J	0.011 U	0.0027	0.00021 U
Hexachlorobutadiene	0.026		0.002 U	0.002 U	0.000215 U*	0.000215 U	0.000215 U*	0.000215 U	0.000215 U	0.000215 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0043 U	NA	NA	NA	NA
Isopropylbenzene	2.4		0.00478	0.00168	0.00199 *	0.00653		0.00182	0.000241 U	0.000241 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00824 J	NA	NA	NA	NA
Methyl tert-butyl ether	0.73		0.00263 J	0.00191 U	0.00259 *	0.0041		0.00508	0.000105 U	0.000105 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0021 U	NA	NA	NA	NA
Methylene Chloride	0.005		0.00191 U	0.00275 J	0.00216 J*	0.000176 U	0.000332 J b	0.000176 U	0.000176 U	0.000176 U	0.0052 U	0.043 U	0.035 U	0.096 U	0.038 U	0.956 U	0.0035 U	0.007 J	0.0036 J B	0.017 J B	0.0038 J B	0.0018 U	0.00352 U	0.0035 U	0.022 J	0.00018 U	0.00018 U
m-Xylene & p-Xylene	1		0.00033 U	0.00033 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	0.000205 U	NA	NA	NA	NA	NA	NA	0.058	0.059	0.061	0.058	0.047	0.068	0.0535	0.046	0.036 J	0.047	0.00021 U
Naphthalene	1.5	654000	0.002 U	0.002 U	0.002060 *	0.000213 J b	0.000129 U	0.000129 U	0.000129 U	0.000129 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00258 U	NA	NA	NA	NA
n-Butylbenzene	3.7		0.000286 U	0.000286 U	0.000212 U*	0.000212 U	0.000212 U	0.000212 U	0.000212 U	0.000212 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00424 U	NA	NA	NA	NA
n-Hexane	4.4		0.000369 U	0.000369 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.000256 U	0.017 U	0.013 U	0.01 U	0.018 U *+	0.02	0.185 U	0.0051 U	0.011 J	0.0086 J	0.015	0.008 J	0.013	0.00512 U	0.0095 J	0.013 U	0.0062	0.00026 U
N-Propylbenzene	2.9		0.00161	0.00042 J	0.000230 U	0.00211		0.000726 J	0.00023 U	0.00023 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 J	NA	NA	NA	NA
o-Xylene	1		0.000192 U	0.00027 J	0.000192 U	0.000258 J	0.000192 U	0.000192 U	0.000192 U	0.000192 U	NA	NA	NA	NA	NA	NA	0.012 J	0.01 J	0.0098 J	0.0086 J	0.0071	0.0095 J	0.00656 J	0.0065 J	0.0096 U	0.0056	0.00019 U
sec-Butylbenzene	2.9		0.000968 J	0.000199 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	0.000224 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00448 U	NA	NA	NA	NA
Styrene	0.1		0.000623 U	0.000162 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.000175 U	0.0066 U	0.016 U	0.013 U	0.031 U	0.012 U	0.0812 UD	0.0035 U	0.0035 U	0.0035 U	0.0018 U	0.0018 U	0.0018 U	0.0035 U	0.0035 U	0.0088 U	0.00018 U	0.00017 U
tert-Butylbenzene	2.9		0.00268	0.00279	0.00266 *	0.00417		0.00263	0.000216 U	0.000216 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00432 U	NA	NA	NA	NA
Tetrachloroethene	0.005		0.0005 U	0.0005 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.000333 U	0.008	0.02 U	0.016 U	0.025 U	0.01 U	0.25 UD	0.0067 U	0.0067 U	0.0067 U	0.0033 U	0.0033 U	0.0033 U	0.0215	0.0067 U	0.017 U	0.00033 U	0.00051 U
Toluene	1		0.0005 U	0.0005 U	0.000198 U	0.000198 U	0.000198 U	0.000846 J	0.00136	0.00104	0.03 U	0.034	0.048	0.043 J	0.065 U	0.25 UD	0.033	0.041	0.035	0.03	NA	0.021	0.0237	0.0055 J	0.016 J	0.01	0.0002 U
trans-1,2-Dichloroethene	0.1		0.000256 U	0.000256 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.000192 U	0.0095 U	0.024 U	0.019 U	0.013 U	0.0051 J	0.128 UH	0.0038 U	0.0038 U	0.0038 U	0.0019 U	0.025	0.0019 U	0.00384 U	0.0038 U	0.0096 U	0.00019 U	0.00019 U
trans-1,3-Dichloropropene	0.02		0.000752 U	0.000752 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	0.000137 U	NA	NA	NA	0.021 U	NA	NA	0.0028 U	0.0028 U	0.0028 U	0.0014 U	NA	NA	0.00274 U	NA	NA	NA	NA
Trichloroethene	0.005		0.000424 U	0.000424 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.000138 U	0.0079 U	0.02 U	NA	NA	0.0085 U	0.212 U	NA	NA	NA	NA	0.0019 U	0.0014 U	0.0365	0.0028 U	0.0069 U	0.00014 U	0.00014 U
Trichlorofluoromethane	22		0.000245 U	0.000245 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	0.000244 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0014 U	NA	0.00488 U	NA	NA	NA	NA
Vinyl acetate	7.3		0.00357 U	0.00357 U	0.000854 U*	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.000854 U	0.021 U	0.053 U	0.043 U	0.18 U	0.071 U	1.78 U	0.017 U	0.017 U	0.017 U	0.0085 U	0.0085 U	0.0085 U	0.0171 U	0.017 U	0.043 U	0.00085 U	0.00085 U
Vinyl chloride	0.002	435	0.000234 U	0.000234 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.000248 U	0.0064 J	0.016 U	0.013 U	0.012 U	0.0047 U	0.117 UD	0.005 U	0.005 U	0.005 U	0.0025 U	0.0025 U	0.0025 U	0.00496 U	0.005 U	0.012 U	0.00025 U	0.00025 U
Xylenes, Total	10		0.00033 U	0.00027 J	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.000366 U	0.072	0.051 J	0.08 J	0.079 J	0.12 J	0.0958 U	0.07	0.069	0.071	0.067	0.054	0.078	0.0601	0.053	0.036 J	0.053	0.00037 U
Metals by EPA 6020																											
Lead	0.015		0.00168 J	0.000291 J	0.000371 J b	0.000533	0.0068	0.00247 J	0.000733 U	0.000733 U	0.0015 J	0.0015 J	0.0015 J	0.0017 J	0.0018 J	0.00136 J	0.00085	0.0016	0.0016 J	0.0012 J	0.0011 J	0.0008 J	0.000733 U	0.00089 J	0.00073 U	0.00073 U	0.00073 U

Notes: Notes:

U = Analyte w:U = Analyte was not detected at or above the SDL.

J = Result is le:J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample w:H = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not Anal NA = Not Analyzed

* = LCS or LCS:* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas ITRRP = Texas Risk Reduction Program

PCL = protectiPCL = protectice concentration level

1 TRRP PCL = (1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua AAL = Attenuation Action Level

All results repAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			MW-17	MW-17	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-29	MW-38	MW-38	MW-38	MW-38
Sample Date			1/21/2015	7/16/2014	7/20/2023	1/30/2023	7/28/2022	1/14/2022	7/2/2021	1/20/2021	7/27/2020	1/20/2020	7/3/2019	1/16/2019	7/16/2018	1/11/2018	7/19/2017	1/18/2017	7/8/2016	1/12/2016	7/15/2015	1/20/2015	7/24/2014	7/21/2023	1/31/2023	7/29/2022	1/14/2022
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																										
Analytes	**TRRP PCL [1]**	**Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]**																								
1,2-Dichloroethane	0.005		0.0025 U	0.0014 U	0.00059 U	0.00059 U	0.00059 U	0.00029 U	0.00029 U	0.000285 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.000116 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00050 U	0.00014 U	NA	0.00059 U	0.00059 U	0.000285 U
1,2-Dichloropropane	0.005		0.0034 U	0.0016 U	0.00067 U	0.00067 U	0.00067 U	0.0004 U	0.0004 U	0.000396 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.000136 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00067 U	0.00016 U	NA	0.000667 U	0.000667 U	0.000396 U
1,3,5-Trimethylbenzene	3.7		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00021 U	NA	NA	NA	NA	NA	NA	NA	0.000456 U	0.000456 U	0.000279 U
1,3-Dichlorobenzene	2.2		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00021 U	NA	NA	NA	NA	NA	NA	NA	0.000513 U	0.000513 U	0.000197 U
1,3-Dichloropropane	0.02		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00022 U	NA	NA	NA	NA	NA	NA	NA	0.000514 U	0.000514 U	0.000439 U
1,4-Dichlorobenzene	0.075		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000176 U	NA	NA	NA	NA	NA	NA	NA	0.000513 U	0.000513 U	0.000199 U
2,2-Dichloropropane	0.03		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000258 U	NA	NA	NA	NA	NA	NA	NA	0.00078 U	0.00078 U	0.00036 U *
2-Butanone (MEK)	4.4		0.017 U	0.0076 U	0.0083 U	0.0083 U	0.0083 U	0.0027 U	0.0027 U	0.0027 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U*	0.00076 U	0.00076 U*	0.00076 U	0.00076 U	0.00076 U	0.0034 U	0.00076 U	NA	0.00828 U	0.00828 U	0.0027 U
2-Chlorotoluene	1.5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000226 U	NA	NA	NA	NA	NA	NA	NA	0.00118 U	0.00118 U	0.000214 U
4-Chlorotoluene	1.50		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00021 U	NA	NA	NA	NA	NA	NA	NA	0.000472 U	0.000472 U	0.000183 U
4-Isopropyltoluene	2.4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000228 U	NA	NA	NA	NA	NA	NA	NA	0.000919 U	0.000919 U	0.000233 U
4-Methyl-2-pentanone (MIBK)	5.8		0.011 U	0.0038	0.0075 U	0.0075 U	0.0075 U	0.0011 U	0.0011 U	0.00106 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U*	0.000348 U	0.00035 U	0.00035 U	0.00035 U	0.00034 U	0.0021 U	0.00045 U	NA	0.00749 U	0.00749 U	0.00106 U
Acetone	66		0.035 U	0.0099 U	0.0012 U	0.0012 U	0.0012 U	0.012 U	0.012 U	0.0123 U	0.012	0.00045 U	0.00045 U	0.00045 U*	0.00045 U	0.00045 U*	0.000447 U	0.00045 U	0.00045 U	0.00045 U	0.00045 U	0.0070 U	0.0031 J	NA	0.00119 U	0.00119 U	0.0123 U
Benzene	0.005	6710	0.70	0.33	0.00046 U	0.00053 U	0.00053 U	0.00021 U	0.00021 U	0.00296	0.0021	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.0017	0.000176 U	0.00023 J	0.00018 U	0.00018 U	0.056	0.0025	0.00008 U	0.00046 U	0.000533 U	0.000533 U	0.000214 U
Bromobenzene	0.58		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000195 U	NA	NA	NA	NA	NA	NA	NA	0.000665 U	0.000665 U	0.0003 U
Bromodichloromethane	0.033		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000153 U	NA	NA	NA	NA	NA	NA	NA	0.000552 U	0.000552 U	0.000231 U
Bromoform	0.26		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000151 U	NA	NA	NA	NA	NA	NA	NA	0.000633 U	0.000633 U	0.00063 U
Bromomethane	0.1		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00025 U	NA	NA	NA	NA	NA	NA	NA	0.00142 U	0.00142 U	0.00105 U
Carbon disulfide	7.8		0.0050 U	0.0024 U	NA	NA	NA	NA	NA	0.000373 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.000216 U	0.00022 U	0.00022 U	0.00022 U	0.00022 J	0.0010 U	0.00024 U	NA	0.00191 U	0.00191 U	0.000373 U
Carbon tetrachloride	0.005		NA	NA	0.0019 U	0.0019 U	0.0019 U	0.00037 U	0.00037 U	NA	NA	NA	NA	NA	NA	NA	0.000183 U	NA	NA	NA	NA	NA	NA	NA	0.000896 U	0.000896 U	0.000423 U
Chlorobenzene	0.1		0.0013 U	0.00052 J	NA	NA	NA	NA	NA	0.000159 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000185 U	0.00019 U	0.00019 U	0.00019 U	0.0038	0.00026 U*	0.00012 U	0.00053 U	0.00053 U	0.00053 U	0.000159 U
Chlorobromomethane	2.9		NA	NA	0.00053 U	0.00053 U	0.00053 U	0.00016 U	0.00016 U	NA	NA	NA	NA	NA	NA	NA	0.000162 U	NA	NA	NA	NA	NA	NA	NA	0.000657 U	0.000657 U	0.000209 U
Chloroethane	29		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00024 U	NA	NA	NA	NA	NA	NA	NA	0.00198 U	0.00198 U	0.000433 U
Chloroform	0.73		0.0025 U	0.0013 U	0.00064 U	0.00064 U	0.00064 U	0.00026 U	0.00026 U	0.000259 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.000151 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00050 U	0.00013 U	NA	0.000643 U	0.000643 U	0.000259 U
Chloromethane	0.16		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000209 U	NA	NA	NA	NA	NA	NA	NA	0.00204 U	0.00204 U	0.000318 U
cis-1,2-Dichloroethene	0.07		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000157 U	NA	NA	NA	NA	NA	NA	0.000714 U	0.000714 U	0.000714 U	0.000234 J
cis-1,3-Dichloropropene	0.0038		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00016 U	NA	NA	NA	NA	NA	NA	NA	0.00107 U	0.00107 U	0.00069 U
Dibromochloromethane	0.024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000119 U	NA	NA	NA	NA	NA	NA	NA	0.000547 U	0.000547 U	0.000739 U
Dibromomethane	0.27		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00052 U	NA	NA	NA	NA	NA	NA	NA	0.000689 U	0.000689 U	0.00013 U
Dichlorodifluoromethane	15		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000859 U	NA	NA	NA	NA	NA	NA	NA	0.000919 U	0.000919 U	0.000316 U *
Ethylbenzene	0.7		0.0022 J	0.0025	0.00041 U	0.00041 U	0.00041 U	0.00051 U	0.00051 U	0.000146 U	0.00021 U	0.00021 U	NA	NA	0.00021 U	0.00076 J B	0.000212 U	0.00021 U	0.00021 U	0.00021 U	0.0082	0.00037 J	0.00011 U	0.000411 U	0.000411 U	0.000411 U	0.000515 U
Hexachlorobutadiene	0.026		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00021 U	0.00021 U	NA	NA	0.000215 U	NA	NA	NA	NA	NA	NA	NA	0.00126 U	0.00126 U	0.002 U
Isopropylbenzene	2.4		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000241 U	NA	NA	NA	NA	NA	NA	NA	0.000613 U	0.000613 U	0.000161 U
Methyl tert-butyl ether	0.73		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000105 U	NA	NA	NA	NA	NA	NA	NA	0.00709	0.00741	0.00903
Methylene Chloride	0.005		0.013 U	0.0015 U	0.0017 U	0.0017 U	0.0017 U	0.0019 U	0.0019 U	0.00191 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.000176 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.0025 U	0.00015 U	NA	0.00173 U	0.00173 U	0.00191 U
m-Xylene & p-Xylene	1		0.034	NA	NA	NA	NA	NA	NA	NA	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00028 J	0.000205 U	0.00021 U	0.00021 U	0.00021 U	0.0043	NA	0.00017 U	NA	0.00124 U	0.00124 U	0.00033 U
Naphthalene	1.5	654000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000129 U	NA	NA	NA	NA	NA	NA	NA	0.00135 U	0.00135 U	0.002 U
n-Butylbenzene	3.7		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000212 U	NA	NA	NA	NA	NA	NA	NA	0.000644 U	0.000644 U	0.000286 U
n-Hexane	4.4		0.0077 J	0.0067	0.00052 U	0.00052 U *+	0.00052 U	0.00037 U	0.00037 U	0.000369 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.000256 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00076 U	0.00016 U	NA	0.000517 U	0.000517 U	0.000369 U *
N-Propylbenzene	2.9		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00023 U	NA	NA	NA	NA	NA	NA	NA	0.000498 U	0.000498 U	0.000179 U
o-Xylene	1		0.0055	NA	NA	NA	NA	NA	NA	NA	0.00019 U	0.00019 U	0.000019 U	0.00019 U	0.00019 U	0.00029 J	0.000192 U	0.00019 U	0.00019 U	0.00019 U	0.0036	NA	0.00012 U	NA	0.000551 U	0.000551 U	0.000192 U
sec-Butylbenzene	2.9		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000224 U	NA	NA	NA	NA	NA	NA	NA	0.000468 U	0.000468 U	0.000199 U
Styrene	0.1		0.0014 U	0.00007 U	0.00066 U	0.00066 U	0.00066 U	0.00062 U	0.00062 U	0.000162 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.000175 U	0.00018 U	0.00018 U	0.00018 U	0.00017 U	0.00027 U	0.00007 U	NA	0.000655 U	0.000655 U	0.000623 U
tert-Butylbenzene	2.9		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000216 U	NA	NA	NA	NA	NA	NA	NA	0.000442 U	0.000442 U	0.000195 U
Tetrachloroethene	0.005		0.0037 U	0.0013 U	0.0008 U	0.0008 U	0.0008 U	0.0005 U	0.0005 U	0.0005 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.00033 U	0.000333 U	0.00033 U	0.00033 U	0.00033 U	0.00051 U	0.00074 U*	0.00013 U	0.000801 U	0.000801 U	0.000801 U	0.0005 U
Toluene	1		0.0079	0.0067	0.00048 U	0.00048 U	0.00048 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0021	0.000198 U	0.0002 U	0.0002 U	0.0002 U	0.039	0.00065 J	0.00015 U	0.000475 U	0.000475 U	0.000475 U	0.0005 U
trans-1,2-Dichloroethene	0.1		0.0019 U	0.00009 U	0.00095 U	0.00095 U	0.00095 U	0.00026 U	0.00026 U	0.000256 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.000192 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00037 U	0.00009 U	NA	0.000945 U	0.000945 U	0.000256 U
trans-1,3-Dichloropropene	0.02		NA	NA	NA	NA	0.00079 U	0.00042 U	NA	NA	NA	NA	NA	NA	NA	NA	0.000137 U	NA	NA	NA	NA	NA	NA	NA	0.00127 U	0.00127 U	0.000752 U
Trichloroethene	0.005		0.0024 U	0.0018 U	0.00079 U	0.00079 U	NA	NA	0.00042 U	0.000424 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.000138 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00048 U	0.00018 U	0.000791 U	0.000791 U	0.000791 U	0.000424 U
Trichlorofluoromethane	22		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000244 U	NA	NA	NA	NA	NA	NA	NA	0.000638 U	0.000638 U	0.000245 U
Vinyl acetate	7.3		0.0041 U	0.0011 U	0.0021 U	0.0021 U	0.0021 U	0.0036 U	0.0036 U	0.00357 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.000854 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00081 U	0.00021 U	NA	0.00214 U	0.00214 U	0.00357 U
Vinyl chloride	0.002	435	0.0025 U	0.0067	0.00064 U	0.00064 U	0.00064 U	0.00023 U	0.00023 U	0.000234 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.000248 U	0.00025 U	0.00025 U	0.00025 U	0.002	0.00050 U	0.00011 U	0.000638 U	0.000638 U	0.000638 U	0.000234 U
Xylenes, Total	10		0.039	0.0021 U	0.0012 U	0.0012 U	0.0012 U	0.00033 U	0.00033 U	0.000192 U	0.00037 U	0.00037 U	0.00037 U	0.00037 U	0.00037 U	0.00057 J	0.000366 U	0.00037 U	0.00037 U	0.00037 U	0.0079	0.00027 J	0.00026 U	0.00124 U	0.00124 U	0.00124 U	0.00033 U
Metals by EPA 6020																										
Lead	0.015		0.00078 J	0.00073 U	0.00037 U	0.00011 U	0.00085 J	0.001 J	0.0002 J	0.000205 J	0.00017 U	0.00017 U	0.0024 J	0.00073 U	0.00073 U	0.00073 U	0.000733 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.00073 U	0.000367 U	0.000112 U	0.000152 U	0.000152 U

Notes: Notes:

U = Analyte w:U = Analyte was not detected at or above the SDL.

J = Result is lesJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wxH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas fTRRP = Texas Risk Reduction Program

PCL = protectiPCL = protective concentration level

1 TRRP PCL = C1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = Attenua AAL = Attenuation Action Level

All results repAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

CENTRAL PLANT

KM Liquids Terminals LLC

Galena Park Terminal

Sample Location			MW-38		MW-38		MW-38		MW-38		MW-38		MW-38		MW-38		MW-38		MW-38		MW-38		MW-38		MW-38	
Sample Date			7/2/2021		1/21/2021		7/28/2020		1/21/2020		7/5/2019		1/15/2019		7/18/2018		1/26/2018		7/19/2017		1/25/2017		7/18/2016		1/14/2016		7/23/2015		1/28/2015		7/24/2014	
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																														
Analytes	TRRP PCL [1]	Tier 2 $^{Air}GW_{Inh-V}$ PCL [2]																												
1,2-Dichloroethane	0.005		0.000285	U	0.000285	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.0005	U	0.00014	U
1,2-Dichloropropane	0.005		0.000396	U	0.000396	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.000136	U	0.00067	U	0.00016	U
1,3,5-Trimethylbenzene	3.7		0.000279	U	0.000279	U	0.000210	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00031	U	0.0001	U
1,3-Dichlorobenzene	2.2		0.000197	U	0.000197	U	0.000210	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00043	U	0.00013	U
1,3-Dichloropropane	0.02		0.000439	U	0.000439	U	0.000220	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00034	U	0.00022	U
1,4-Dichlorobenzene	0.075		0.000199	U	0.000199	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.00011	U
2,2-Dichloropropane	0.03		0.00036	U	0.00036	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.000258	U	0.00037	U	0.00013	U
2-Butanone (MEK)	4.4		0.0027	U	0.0027	U	0.000760	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.00076	U	0.0034	U	0.00076	U
2-Chlorotoluene	1.5		0.000214	U	0.000214	U	0.000226	U*	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.000226	U	0.00027	U	0.00013	U
4-Chlorotoluene	1.50		0.000183	U	0.000183	U	0.000210	U*	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00045	U	0.00014	U
4-Isopropyltoluene	2.4		0.000233	U	0.000233	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.000228	U	0.00048	U	0.0001	U
4-Methyl-2-pentanone (MIBK)	5.8		0.00106	U	0.00106	U	0.000348	U*	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000348	U	0.000342	U	0.0021	U	0.00045	U
Acetone	66		0.0123	U	0.0123	U	0.00150	J	0.000447	U	0.000447	U	0.000447	U	0.00419	J	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.000447	U	0.007	U	0.00099	U
Benzene	0.005	6710	0.000214	U	0.000214	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.00043	U	0.00008	U
Bromobenzene	0.58		0.0003	U	0.0003	U	0.000195	U*	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.000195	U	0.0005	U	0.00019	U
Bromodichloromethane	0.033		0.000209	U	0.000209	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.000153	U	0.00044	U	0.00016	U
Bromoform	0.26		0.000231	U	0.000231	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.00043	U	0.00019	U
Bromomethane	0.1		0.00063	U	0.00063	U	0.000250	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.00025	U	0.0025	U	0.00025	U
Carbon disulfide	7.8		0.00105	U	0.00105	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.001	U	0.00024	U
Carbon tetrachloride	0.005		0.000373	U	0.000373	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.000183	U	0.00033	U	0.00015	U
Chlorobenzene	0.1		0.000423	U	0.000423	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.00026	U	0.00012	U
Chlorobromomethane	2.9		0.000159	U	0.000159	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.000162	U	0.00045	U	0.00018	U
Chloroethane	29		0.000433	U	0.000433	U	0.000240	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.00024	U	0.0025	U	0.00008	U*
Chloroform	0.73		0.000259	U	0.000259	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.000151	U	0.0005	U	0.00013	U
Chloromethane	0.16		0.000318	U	0.000318	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000209	U	0.000343	J *	0.0004	U	0.00018	U
cis-1,2-Dichloroethene	0.07		0.000174	U	0.000174	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000244	J b	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.00048	J	0.00138		0.00135	
cis-1,3-Dichloropropene	0.0038		0.00069	U	0.00069	U	0.000160	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.0004	U	0.00018	U
Dibromochloromethane	0.024		0.000739	U	0.000739	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.000119	U	0.00032	U	0.00015	U
Dibromomethane	0.27		0.00013	U	0.00013	U	0.000520	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00052	U	0.00035	U	0.00052	U
Dichlorodifluoromethane	15		0.000316	U	0.000316	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.000859	U	0.0006	U	0.00012	U
Ethylbenzene	0.7		0.000515	U	0.000146	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00033	U	0.00011	U
Hexachlorobutadiene	0.026		0.002	U	0.002	U	0.000215	U*	0.000215	U *	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.000215	U	0.0025	U	0.00017	U
Isopropylbenzene	2.4		0.000161	U	0.000161	U	0.000241	U*	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.00035	U	0.00018	U
Methyl tert-butyl ether	0.73		0.00832		0.00191	U	0.00750	*	0.00777		0.0111		0.0105		0.0109		0.00736		0.00859		0.00718		0.006		0.00557		0.00707		0.00892	J	0.00692	
Methylene Chloride	0.005		0.00191	U	0.00788		0.00115	J *	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.0025	U	0.00015	U*
m-Xylene & p-Xylene	1		0.00033	U	0.00033	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.000205	U	0.00035	U	0.00017	U
Naphthalene	1.5	654000	0.002	U	0.002	U	0.00259	*	0.000129	U	0.00169	J	0.000631	J b	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.000129	U	0.0025	U	0.000918	Jb
n-Butylbenzene	3.7		0.000286	U	0.000286	U	0.000212	U*	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00047	U	0.00016	U
n-Hexane	4.4		0.000369	U	0.000369	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.000256	U	0.00076	U	0.00016	U
N-Propylbenzene	2.9		0.000179	U	0.000179	U	0.000230	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00023	U	0.00038	U	0.00015	U
o-Xylene	1		0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00023	U	0.00012	U
sec-Butylbenzene	2.9		0.000199	U	0.000199	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.000224	U	0.00042	U	0.00012	U
Styrene	0.1		0.000623	U	0.000162	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.000175	U	0.00027	U	0.00007	U
tert-Butylbenzene	2.9		0.000195	U	0.000195	U	0.000216	U*	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.000216	U	0.00045	U	0.00008	U
Tetrachloroethene	0.005		0.0005	U	0.0005	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.00055	J	0.00074	U	0.00013	U
Toluene	1		0.0005	U	0.0005	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.0013		0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.000198	U	0.00048	U	0.00015	U
trans-1,2-Dichloroethene	0.1		0.000256	U	0.000256	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.000192	U	0.00037	U	0.00009	U
trans-1,3-Dichloropropene	0.02		0.000752	U	0.000752	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.000137	U	0.00042	U	0.00021	U
Trichloroethene	0.005		0.000424	U	0.000424	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000603	J	0.00104		0.000188	J
Trichlorofluoromethane	22		0.000245	U	0.000245	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.000244	U	0.00042	U	0.00008	U
Vinyl acetate	7.3		0.00357	U	0.00357	U	0.000854	U*	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U	0.000854	U *	0.000854	U	0.00081	U	0.00021	U
Vinyl chloride	0.002	435	0.000234	U	0.000234	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.0005	U	0.00011	U
Xylenes, Total	10		0.00033	U	0.000192	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.00023	U	0.00026	U
Metals by EPA 6020																														
Lead	0.015		0.000152	U	0.000152	U	0.000165	U	0.000165	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U	0.000733	U

Notes: Notes:

U = Analyte w;U = Analyte was not detected at or above the SDL.

J = Result is lesJ = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

H = Sample wzH = Sample was prepped or analyzed beyond the specified holding time

b = The compcb = The compound was found in the blank and sample

NA = Not AnalNA = Not Analyzed

* = LCS or LCSI* = LCS or LCSD exceeds the control limits

Bold Italic = E***Bold Italic*** = Exceeds the TRRP Tier 1 PCL. PCLs from TCEQ TRRP Tier 1 Tables, last revised November 12, 2014

TRRP = Texas fTRRP = Texas Risk Reduction Program

PCL = protectiPCL = protective concentration level

1 TRRP PCL = C1 TRRP PCL = GWGWIng = Ingestion of COCs in Class 1 or 2 groundwater

2 Tier 2 AirGW2 Tier 2 AirGWInh-V PCL = Calculated Tier 2 Invalation Exposure PCL

AAL = AttenuaAAL = Attenuation Action Level

All results reptAll results reported in milligrams per liter (mg/L)

P1 - The %Diff P1 - The %Difference between the primary and confirmation column/detector is >40%. The higher value has been reported.

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

F - RPD exceeded lab control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Pink highlighted wells are COA wells

Biege highlighted wells are AMP wells

Dark green highlighted wells are background

Light green highlighted wells are POE wells

MW-17 and MW-29 are sampled as part of the SEHB program and not all Central Plant analytes are required.

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area **West Plant**

			POE Wells																													
			MW-18																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 10-22-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-03-16		Sampled 08-12-16		Sampled 02-02-17		Sampled 08-23-17		Sampled 02-05-18		Sampled 08-02-18		Sampled 2/12/19		Sampled 8/23/19		Sampled 02-07-20		Sampled 08-03-20	
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0028	U	0.0372	J	0.0058	U	0.00232	U	0.000116	U	0.000116	U	0.0116	U	0.0058	U	0.0058	U	0.0058	U	0.00580	U	0.0058	U	0.00580	U
Benzene	1470	**mg/L**	1.14		1.37		3.50		2.15		2.1		1.84		1.54		0.731		0.758		0.149		0.324		0.0681		0.0991	
Chlorobenzene	2190	**mg/L**	0.0024	U	0.025	U	0.00925	U	0.0037	U	0.000185	U*	0.000185	U	0.0185	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0012	U	0.025	U	0.00785	U	0.00314	U	0.000157	U	0.000157	U	0.0157	U	0.00785	U	0.00785	U	0.00785	U	0.00785	U	0.00785	U	0.00785	U
Ethylbenzene	5180	**mg/L**	0.548		0.259		0.607		0.33		0.396		0.528		0.49		0.391		0.58		0.115		0.507		0.105		0.0823	
Isopropylbenzene	4890	**mg/L**	0.0557		0.0356J		0.0640		0.0412		0.0413	*	0.0537		0.0496	J	0.0865		0.0494	J	0.0342	J	0.0827		0.0264	J	0.0496	J
Tetrachloroethylene	4470	**mg/L**	0.0026	U	0.029	U	0.0167	U	0.00666	U	0.000333	U*	0.000333	U	0.0333	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U
Trichloroethylene	8490	**mg/L**	0.0036	U	0.025	U	0.0069	U	0.00276	U	0.000138	U	0.000138	U	0.0138	U	0.0069	U	0.0069	U	0.0069	U	0.00690	U	0.0069	U	0.0069	U
Vinyl chloride	5760	**mg/L**	0.0022	U	0.025	U	0.0124	U	0.00496	U	0.000248	U	0.000248	U	0.0248	U	0.0124	U	0.0124	U	0.0124	U	0.0124	U	0.0124	U	0.0124	U
Xylene (Total)	17700	**mg/L**	10.3		6.16		12.0		7.51		10.6		9.97		13.1		9.01		14.1		5.54		15.5		6.15		6.22	
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00064		0.00180	U	0.000188	UH	0.00180	U	0.0036	U	0.000447	J	0.0036	UH	0.00018	U *	0.000595	J	0.00180	U	0.00180	U	0.0036		0.000180	U

Notes:
Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{ow}GW_{Ing}$)
GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits
- - Not reported
NS - Not sampled
F - RPD exceeded lab control limits.
U - Indicates the analyte was analyzed for but not detected.
Bold Italic - Exceeds GWPS
NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a
Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL
POE = Point of Exposure
AMP = Attenuation Monitoring Point
CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																											
			MW-18														MW-25														
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		
Analytes	GWPS	**Units**	Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-22-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-03-16		Sampled 08-12-16		Sampled 08-12-16		Sampled 02-02-17			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.0285	U	0.01430	U	0.000285	U	0.00295	U	0.00118	U	0.0118	U	0.0028	U	0.05	U	0.0116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U		
Benzene	1470	**mg/L**	0.0214	U	0.0626		0.0176		0.0367		0.00402		0.0107	J	0.358		0.304		0.0838	J	0.037		0.105		0.107		0.122			
Chlorobenzene	2190	**mg/L**	0.0159	U	0.00795	U	0.000159	U	0.00265	U	0.00106	U	0.0106	U	0.0024	U	0.05	U	0.0185	U	0.000479	J	0.000457	J	0.0002	J *	0.000221	J		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0174	U	0.0087	U	0.000174	U	0.00357	U	0.00143	U	0.0143	U	0.0012	U	0.05	U	0.0157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U		
Ethylbenzene	5180	**mg/L**	2.85		0.0257	U	0.00447		0.00725		0.000822	U	0.00822	U	0.0854		0.0643J		0.0433		0.0781		0.0387		0.0424		0.0205			
Isopropylbenzene	4890	**mg/L**	0.0161	U	0.0321	J	0.0179		0.0159		0.00992		0.0123	U	14.6		12.7		14.3		14.3		11		11.2		6.24			
Tetrachloroethylene	4470	**mg/L**	0.05	U	0.025	U	0.000500	U	0.00401	U	0.001600	U	0.016	U	0.0026	U	0.058	U	0.0333	U	0.000333	U	0.000333	U	0.000333	U *	0.000333	U		
Trichloroethylene	8490	**mg/L**	0.0424	U	0.0212	U	0.000424	U	0.00396	U	0.00158	U	0.0158	U	0.0036	U	0.05	U	0.0138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	0.0234	U	0.0117	U	0.000234	U	0.00319	U	0.00128	U	0.0128	U	0.0022	U	0.05	U	0.0248	U	0.00399		0.00313		0.00272		0.0023			
Xylene (Total)	17700	**mg/L**	3.89		5.32		2.09		2.79		0.227		1.81		0.0052	U	0.06	U	0.0366	U	0.0451		0.00618		0.00912	*	0.0147			
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U	0.000278	U	0.000278	UJL	0.000278	U	0.000278	U	0.000278	U	0.00182		0.00157		0.00180	U	0.00218		0.00080	J	0.00178		0.00127	J		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																													
			MW-25																													
GWPS Achieved?			Yes		Yes		DUP-1		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-23-17		Sampled 02-07-18		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.00058	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.0143	U	0.000285	U	0.000285	U	0.0118	U	0.0148	U
Benzene	1470	**mg/L**	0.134		0.0437		0.0372		0.0361		0.00657	J	0.0595		0.0878		0.0201		0.0325	J	0.0466		0.0464		0.0174	J	0.0133	U
Chlorobenzene	2190	**mg/L**	0.000925	U	0.00536	J	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.00370	U	0.00795	U	0.00016	U	0.000159	U	0.0106	U	0.0133	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000785	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.0087	U	0.000174	U	0.000174	U	0.0143	U	0.0179	U
Ethylbenzene	5180	**mg/L**	0.00166	J	0.0105	J	0.00717	J	0.00896	J	0.00424	U	0.00424	U	0.0165	J	0.00424	U	0.00728	U	0.00645		0.00400		0.00822	U	0.0103	U
Isopropylbenzene	4890	**mg/L**	0.233		1.7		1.67		4.72		2.54		6.96		11.1		2.89		3.16	X	6.26		4.83	b	6.24		4.07	
Tetrachloroethylene	4470	**mg/L**	0.00167	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.025	U	0.0005	U	0.000500	U	0.016	U	0.0200	U
Trichloroethylene	8490	**mg/L**	0.00069	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.0212	U	0.000424	U	0.000424	U	0.0158	U	0.0198	U
Vinyl chloride	5760	**mg/L**	0.00124	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.0117	U	0.000234	U	0.000234	U	0.0128	U	0.0160	U
Xylene (Total)	17700	**mg/L**	0.00183	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00958	U	0.000554	J	0.00116	J	0.0248	U	0.031	U
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00139	J H	0.000196	U	0.000205	U	0.00224		0.000961	J	0.000759	J	0.00196	J	0.000549	J	0.00088	F	0.00115		0.000278	UJJ	0.00117	J	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tvw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																									
			MW-25	MW-28																								
GWPS Achieved?			Yes	Yes		Yes		Yes		Yes		DUP-1		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-15-23	Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-04-16		Sampled 02-04-16		Sampled 08-12-16		Sampled 02-02-17		Sampled 08-22-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.0118 U	0.000227	J	0.001	U	0.000508	J	0.00232	U	0.00232	U	0.000116	U	0.00109		0.0029	U	0.000664	J	0.000621	J	0.000116	U	0.00232	U
Benzene	1470	**mg/L**	0.014 J	**0.104**		**0.199**		**0.0346**		0.026		0.0257		0.0108		0.0103		0.0453		0.00633		0.0336		1.49		0.247	
Chlorobenzene	2190	**mg/L**	0.0106 U	0.00012	U	0.001	U	0.000185	U	0.0037	U	0.0037	U	0.000185	U	0.000185	U	0.00463	U	0.000185	U	0.000185	U	0.000185	U	0.00370	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0143 U	0.000428	J	0.001	U	0.000392	J	0.00314	U	0.00314	U	0.000157	U	0.000407	J	0.00393	U	0.000255	J	0.000497	J	0.000157	U	0.00314	U
Ethylbenzene	5180	**mg/L**	0.00822 U	0.004		0.002	J	0.00135		0.0132	J	0.0131	J	0.00232		0.00265		0.00634	J	0.00122		0.000503	J	0.000299	J	0.08520	
Isopropylbenzene	4890	**mg/L**	3.23	0.119		0.106		0.107		0.137		0.119		0.063		0.081		0.101		0.107		0.0801		0.068300		0.06150	
Tetrachloroethylene	4470	**mg/L**	0.016 U	0.00013	U	0.00116	U	0.000333	U	0.00666	U	0.00666	U	0.000333	U	0.000333	U	0.00833	U	0.000333	U	0.000333	U	0.000333	U	0.00666	U
Trichloroethylene	8490	**mg/L**	0.0158 U	0.00018	U	0.001	U	0.000138	U	0.00276	U	0.00276	U	0.000138	U	0.000138	U	0.00345	U	0.000138	U	0.000138	U	0.000138	U	0.00276	U
Vinyl chloride	5760	**mg/L**	0.0128 U	0.000338	J	0.001	U	0.000248	U	0.00496	U	0.00496	U	0.000248	U	0.000248	U	0.0062	U	0.000248	U	0.000248	U*	0.000248	U	0.00496	U
Xylene (Total)	17700	**mg/L**	0.0248 U	0.0472		0.397		0.368		0.815		0.821		0.399		0.39		2.87		0.213		0.0486		0.003490		1.26000	
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00278 U	0.000146	U	0.00018	U	0.00018	U	0.00018	U	0.00180	U	0.000173	U	0.00018	U	0.00018	UH	0.000205	U	0.000208	J	0.00018	U	0.00180	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE wells																											
			MW-28																		MW-26									
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-04-16		Sampled 08-12-16			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.000653	J	0.000395	J	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059 U		0.000145	J	0.0005	U	0.000116	U	0.000116	U	0.000116	U		
Benzene	1470	**mg/L**	0.288		0.000410	J	0.00167		0.000392	J	0.118		0.0857		0.0032		0.00066 J		**0.0142**		**0.0160**		**0.00983**		0.00558		0.00313			
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053 U		0.00012	U	0.0005	U	0.000185	U	0.000185	U	0.000185	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000611	J	0.000227	J	0.000174	U	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714 U		0.000532	J	0.000975	J	0.000888	J	0.000939	J	0.000157	U		
Ethylbenzene	5180	**mg/L**	0.002600		0.000212	U	0.0391		0.000515	U	0.0616		0.000913	J	0.00041	U	0.000411 U		0.000438	J	0.0005	U	0.000212	U	0.000212	U	0.000212	U		
Isopropylbenzene	4890	**mg/L**	0.073500		0.0344		0.0829		0.0312		0.0686		0.0541		0.0395		0.0257		0.00274		0.00327		0.00259		0.00706		0.00265			
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U	0.000801	U	0.000801 U		0.00013	U	0.00058	U	0.000333	U	0.000333	U	0.000333	U		
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791 U		0.00018	U	0.0005	U	0.000138	U	0.000138	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638 U		0.00011	U	0.0005	U	0.000248	U	0.000248	U	0.000248	U		
Xylene (Total)	17700	**mg/L**	0.275000		0.00385		0.0489		0.00372	J	0.648		0.0254		0.0102		0.00874 J		0.00112	J	0.0016	U	0.000366	U	0.000366	U	0.000366	U		
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00180	U	0.000180	U	0.0004	J	0.000267	U	0.000278	UJL	0.000278	UJL	0.00028	U	0.000278 U		**0.00305**		**0.00302**		**0.00253**		0.00258		0.00191			

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{c\text{-}w}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells																													
			MW-26																													
GWPS Achieved?			Yes		Yes		Yes		Yes		DUP		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-02-17		Sampled 08-24-17		Sampled 02-08-18		Sampled 08-02-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019		Sampled 02-07-2020		Sampled 08-03-20		Sampled 02-07-2020		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22					
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.000189	J	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U				
Benzene	1470	**mg/L**	0.00373		0.00203		0.0238		0.0431		0.0408		0.0502		0.00952		0.0155		0.00594		0.00665		0.00737		0.0175		0.0221					
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.00031	J	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000582	J	0.000274	J	0.000239	J	0.000196	J	0.000187	J	0.000157	U	0.000157	U	0.000157	U	0.000189	J	0.000174	U	0.000174	U	0.000181	J	0.000714	U				
Ethylbenzene	5180	**mg/L**	0.000266	J	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.0003	J	0.000515	U	0.000515	U	0.000411	U				
!sopropylbenzene	4890	**mg/L**	0.00526		0.00531		0.014		0.00413		0.00436		0.00793		0.000972	J	0.00918		0.00342		0.0112		0.00944		0.0132		0.00652					
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801	U				
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U				
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U				
Xylene (Total)	17700	**mg/L**	0.000605	J	0.000366	U	0.000738	J	0.000366	U	0.000366	U	0.00051	J	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.00033	U	0.00152	J	0.00124	U				
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00271		0.00221		0.000196	U	0.00270		0.00143	J	0.00196		0.00238		0.00190		0.000173	U	0.0027		0.00162		0.00186	JL	0.00135	JL				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			POE Wells				AMP Wells																											
			MW-26				MW-36																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-18-15		Sampled 08-11-15		Sampled 02-04-16		Sampled 08-09-16		Sampled 02-02-17		Sampled 08-22-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019							
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.00059	U	0.00059	U	0.00344		0.0005	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U				
Benzene	1470	**mg/L**	0.0417		0.0301		0.000181	J	0.00038	U	0.0113		0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U				
Chlorobenzene	2190	**mg/L**	0.00053	U	0.00053	U	0.00012	U	0.0005	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000714	U	0.000714	U	0.00103		0.0005	U	0.000188	J	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000193	J	0.000157	U	0.000157	U	0.000157	U				
Ethylbenzene	5180	**mg/L**	0.000411	U	0.000411	U	0.00011	U	0.00050	U	0.00815		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U				
Isopropylbenzene	4890	**mg/L**	0.0151		0.00558		0.00018	U	0.00053	U	0.0699		0.000241	U	0.000241	U	0.000344	J	0.000241	U *	0.000241	U	0.000241	U	0.000241	U	0.000241	U				
Tetrachloroethylene	4470	**mg/L**	0.000801	U	0.000801	U	0.00013	U	0.00058	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U				
Trichloroethylene	8490	**mg/L**	0.000791	U	0.000791	U	0.00018	U	0.00050	U	0.00014	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U				
Vinyl chloride	5760	**mg/L**	0.000638	U	0.000638	U	0.00011	U	0.0005	U	0.000248	U	0.000248	U	0.000539	J *	0.000248	U	0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U				
Xylene (Total)	17700	**mg/L**	0.00124	U	0.00124	U	0.00026	U	0.0006	U	0.0512		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U				
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00171	J	0.00257		0.000144	U	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000188	U	0.000173	UH	0.000180	U *	0.000180	U	0.000188	U	0.000188	U				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-36																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-05-16							
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.000657	J	0.000741	J	0.000779	J	0.000116	U						
Benzene	1470	**mg/L**	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000533	U	0.000533	U	0.00046	U	0.00008	U	0.000706	J	0.000176	U	0.000176	U						
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.00012	U	0.0005	U	0.000185	U	0.000185	U						
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U	0.000714	U	0.000714	U	0.000714	U	0.00006	U	0.0005	U	0.000157	U	0.000157	U						
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.000411	U	0.000411	U	0.00011	U	0.0005	U	0.000212	U	0.000212	U						
Isopropylbenzene	4890	**mg/L**	0.000256	J	0.000547	J	0.000161	U	0.000161	U	0.000161	U	0.000613	U	0.000613	U	0.000613	U	0.00018	U	0.00053	U	0.000241	U	0.000241	U						
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.00013	U	0.00058	U	0.000333	U	0.000333	U						
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.000791	U	0.000791	U	0.00018	U	0.0005	U	0.000138	U	0.000138	U						
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.000638	U	0.000638	U	0.00011	U	0.0005	U	0.000248	U	0.000248	U						
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.000192	U	0.000330	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.00026	U	0.0006	U	0.000366	U	0.000366	U						
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000173	U	0.00029	U	0.000267	U	0.000278	UJL	0.000278	UJL	0.00111	U	0.000278	UJL	0.000146	U	0.000180	U	0.000188	UH	0.000180	U						

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{>w}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																																			
			MW-30																																					
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-09-16		Sampled 02-02-17		Sampled 08-22-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-2019		Sampled 8-23-2019		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22											
VOCs by 8260B:		**mg/L**																																				
Dichloroethane, 1,2-	1030	**mg/L**	0.000516	J	0.000886	J	0.000116	U	0.000636	J	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U										
Benzene	1470	**mg/L**	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000533	U										
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U										
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000252	J	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U	0.000714	U										
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411	U										
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000358	J	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613	U										
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U										
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U										
Vinyl chloride	5760	**mg/L**	0.000651	J *	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U										
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.00194		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.000330	U	0.000330	U	0.00124	U										
SVOCs by 8270C LL:		**Units**																																				
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000188	U	0.000173	UH	0.000196	U	0.000180	U	0.000188	U	0.000180	U	0.000180	U	0.000180	U	0.000278	U	0.000278	U	0.000278	UJL	0.000278	U										

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tvw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																											
			MW-30		MW-37																									
GWPS Achieved?			Yes	Yes	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 02-24-23	Sampled 08-15-23	Sampled 10-23-14		Sampled 02-17-15		Sampled 08-11-15		Sampled 02-04-16		Sampled 08-09-16		Sampled 02-02-17		Sampled 08-24-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 02-12-19			
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.00059 U	0.00059 U	0.007	U	0.025	U	0.000535	J	0.00232	U	0.00058	J	0.00244		0.029	U	0.0058	U	0.0058	U	0.0058	U	0.0058	U		
Benzene	1470	**mg/L**	0.00053 U	0.00046 U	0.0538		0.0192	J	0.0258		0.0094	J	0.157		0.174		0.044	U	0.0897		0.0586		0.0239	J	0.124			
Chlorobenzene	2190	**mg/L**	0.00053 U	0.00053 U	0.006	U	0.025	U	0.000185	U	0.0037	U	0.000185	U	0.000185	U	0.0463	U	0.00925	U	0.00925	U	0.00925	U	0.00925	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.00071 U	0.00071 U	17.8		4.56		13.90		1.89		19.7		27.4		5.95		6.4		5.36		1.21		10.4			
Ethylbenzene	5180	**mg/L**	0.00041 U	0.00041 U	0.021	J	0.025	U	0.000212	U	0.00424	U	0.000212	U	0.000212	U	0.053	U	0.0106	U	0.0106	U	0.0106	U	0.0106	U		
Isopropylbenzene	4890	**mg/L**	0.00061 U	0.00061 U	0.033	J	0.027	U	0.000288	J	0.0102	J	0.00408		0.000992	J	0.0603	U	0.0217	J	0.0121	U	0.0121	U	0.0121	U		
Tetrachloroethylene	4470	**mg/L**	0.000801 U	0.0008 U	0.0065	U	0.029	U	0.000333	U	0.00666	U	0.000333	U	0.000511	J	0.0833	U	0.0167	U	0.0167	U	0.0167	U	0.0167	U		
Trichloroethylene	8490	**mg/L**	0.00079 U	0.00079 U	0.009	U	0.025	U	0.000664	J	0.00276	U	0.00076	J	0.00268		0.0345	U	0.0069	U	0.0069	U	0.0069	U	0.0069	U		
Vinyl chloride	5760	**mg/L**	0.00064 U	0.00064 U	11.9		5.52		10.5		2.86		19.5		10.9	*	5.13		7.41		5.67		4.03		12.7			
Xylene (Total)	17700	**mg/L**	0.001240 U	0.00124 U	0.0246	J	0.03	U	0.000366	U	0.00732	U	0.00307		0.00134		0.0915	U	0.0183	U	0.0183	U	0.0183	U	0.0183	U		
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00028 U	0.00028 U	0.000146	U	0.000180	U	0.000188	UH	0.000180	U	0.000173	U	0.000205	U	0.000180	U	0.000225	U	0.000180	U	0.000180	U	0.000188	U		

Notes:
Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{Ing}GW_{Ing}$)
GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits
- - Not reported
NS - Not sampled
F - RPD exceeded lab control limits.
U - Indicates the analyte was analyzed for but not detected.
Bold Italic - Exceeds GWPS
NA - Not applicable
D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL
POE = Point of Exposure
AMP = Attenuation Monitoring Point
CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-37																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-04-16		Sampled 08-10-16					
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0058	U	0.00580	U	0.00285	U	0.00029	U	0.000285	U	0.059	U	0.00059	U	0.00059	U	0.007	U	0.1	U	0.0058	U	0.00232	U	0.000116	U				
Benzene	1470	**mg/L**	0.015	J	0.00880	U	0.0087	J	0.00690		0.0627		0.0841	J	0.00203		0.0497		19.8		26.0		19.7		20.8		26.3					
Chlorobenzene	2190	**mg/L**	0.00925	U	0.00925	U	0.00159	U	0.000159	U	0.000159	U	0.053	U	0.00053	U	0.00053	U	0.006	U	0.1	U	0.00925	U	0.0037	U	0.000185	U	*			
Dichloroethene, cis-1,2-	14200	**mg/L**	1.11		0.333		0.405		0.0866		6.86		5.99		0.116		3.84		0.003	U	0.1	U	0.0086	J	0.00314	U	0.000157	U				
Ethylbenzene	5180	**mg/L**	0.0106	U	0.0106	U	0.00146	U	0.000515	U	0.000515	U	0.0411	U	0.000411	U	0.0217		1.41		1.55		0.733		0.772		0.346					
Isopropylbenzene	4890	**mg/L**	0.0121	U	0.0121	U	0.00161	U	0.000161	U	0.000876	J	0.0613	U	0.000613	U	0.00249		0.027	J	0.106	U	0.019	J	0.0443		0.0113					
Tetrachloroethylene	4470	**mg/L**	0.0167	U	0.0167	U	0.005	U	0.0005	U	0.000507	J	0.0801	U	0.000801	U	0.000801	U	0.0065	U	0.116	U	0.0167	U	0.00666	U	0.000333	U	*			
Trichloroethylene	8490	**mg/L**	0.0069	U	0.00690	U	0.00424	U	0.00042	U	0.00115	J	0.0791	U	0.000791	U	0.000791	U	0.009	U	0.1	U	0.0069	U	0.00276	U	0.000138	U				
Vinyl chloride	5760	**mg/L**	2.3		1.10		1.26		1.10		11.1		12.0		0.0913		5.9		0.0227	J	0.1	U	0.0254	J	0.0319	J	0.0274					
Xylene (Total)	17700	**mg/L**	0.0183	U	0.0183	U	0.00192	U	0.00033	U	0.00116	J	0.124	U	0.00124	U	0.0456		1.47		1.33		0.524		0.777		0.314					
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000173	U	0.00029	U	0.000278	U	0.000278	UJL	0.000278	UJL	0.000278	U	0.000278	U	0.000144	U	0.000180	U	0.000180	U	0.000180	U	0.000173	U				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																															
			MW-37				MW-27																													
GWPS Achieved?			Yes		Yes		Yes		8/2/2018		Yes		DUP-2		Yes		DUP-1		Yes		DUP		Yes		DUP-1		Yes								
Analytes	GWPS	**Units**	Sampled 02-03-17		Sampled 08-23-17		Sampled 02-06-18		Well not found		Sampled 02-12-19		Sampled 02-12-19		Sampled 8-23-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 02-07-2020		Sampled 08-03-20		Sampled 08-03-20		Sampled 02-01-21								
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.0116	U	0.116	U	0.0116	U	NA		0.0116	U	0.00232	U	0.0116	U	0.0058	U	0.0116	U	0.00232	U	0.0116	U	0.0116	U	0.0285	U							
Benzene	1470	**mg/L**	35.8		34.1		34.1		NA		41.7		41		55.9		53.2		61.6		57.4		50.8		51.2		45.1	D						
Chlorobenzene	2190	**mg/L**	0.0185	U	0.185	U	0.0253	J	NA		0.0185	U	0.0037	U	0.0185	U	0.00925	U	0.0185	U	0.0037	U	0.0185	U	0.0185	U	0.0159	U							
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0257	J	0.157	U	0.0157	U	NA		0.0157	U	0.00314	U	0.0157	U	0.0179	J	0.0157	U	0.00314	U	0.0157	U	0.0157	U	0.0174	U							
Ethylbenzene	5180	**mg/L**	1.45		0.379	J	0.295		NA		0.583		0.709		1.49		1.47		1.58		1.51		1.93		1.43		1.24								
Isopropylbenzene	4890	**mg/L**	0.0409	J	0.241	U	0.0362	J	NA		0.0476	J	0.0182	J	0.0266	J	0.0241	J	0.0818	J	0.0333		0.0655	J	0.0241	U	0.027	J							
Tetrachloroethylene	4470	**mg/L**	0.0333	U	0.333	U	0.0333	U	NA		0.0333	U	0.00666	U	0.0333	U	0.0167	U	0.0333	U	0.00666	U	0.0333	U	0.0333	U	0.05	U							
Trichloroethylene	8490	**mg/L**	0.0138	U	0.138	U	0.0138	U	NA		0.0138	U	0.00276	U	0.0138	U	0.0069	U	0.0138	U	0.00276	U	0.0138	U	0.0138	U	0.0424	U							
Vinyl chloride	5760	**mg/L**	0.0635	J	0.248	U	0.0248	U	NA		0.0269	J	0.0236	J	0.0248	U	0.0124	U	0.0248	U	0.0229	J	0.0248	U	0.0248	U	0.0234	U							
Xylene (Total)	17700	**mg/L**	1.33		0.366	U	0.257		NA		0.519		0.628		1.38		1.36		1.49		1.38		1.75		1.51		1.04								
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000188	U	0.000180	UH	0.000180	U *	NA		0.000180	U	0.000173	U	0.000188	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.000316	U							

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{3vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																													
			MW-27																								MW-38					
GWPS Achieved?			Yes		DUP-1		Yes		Yes		DUP-1		DUP-1		Yes		DUP-1		Yes		DUP-1		Yes		Yes		Yes			
Analytes	GWPS	**Units**	Sampled 08-13-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-15-23		Sampled 10-22-14		Duplicate 02-17-15		Sampled 02-17-15			
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0143	U	0.0285	U	0.000285	U	0.0295	U	0.000285	U	0.118	U	0.118	U	0.118	U	0.148	U	0.148	U	0.07	U	0.5	U	0.5	U		
Benzene	1470	**mg/L**	47.3		37.7		23.2		40.3		25.9		40.0		28.9		29.1		32.9		33.1		203		196		189			
Chlorobenzene	2190	**mg/L**	0.00795	U	0.0159	U	0.000159	U	0.0265	U	0.000159	U	0.106	U	0.106	U	0.106	U	0.133	U	0.133	U	0.06	U	0.5	U	0.5	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0087	U	0.0174	U	0.000410	J	0.0357	U	0.000432	J	0.143	U	0.143	U	0.143	U	0.179	U	0.179	U	0.0734	J	0.5	U	0.5	U		
Ethylbenzene	5180	**mg/L**	0.37		0.374		0.506		0.736		0.517		0.721		1.69		1.67		2.71		2.7		15.0		8.72		8.13			
Isopropylbenzene	4890	**mg/L**	0.0116	J	0.0173	J	0.0152		0.0307	U	0.0156	b	0.123	U	0.123	U	0.123	U	0.153	U	0.153	U	0.428	J	0.53	U	0.53	U		
Tetrachloroethylene	4470	**mg/L**	0.025	U	0.05	U	0.000500	U	0.0401	U	0.000500	U	0.16	U	0.160	U	0.160	U	0.2	U	0.2	U	0.065	U	0.58	U	0.58	U		
Trichloroethylene	8490	**mg/L**	0.0212	U	0.0424	U	0.000424	U	0.0396	U	0.000424	U	0.158	U	0.158	U	0.158	U	0.198	U	0.198	U	0.09	U	0.5	U	0.5	U		
Vinyl chloride	5760	**mg/L**	0.0117	U	0.0234	U	0.000234	U	0.0319	U	0.000234	U	0.128	U	0.128	U	0.128	U	0.16	U	0.16	U	0.055	U	0.5	U	0.5	U		
Xylene (Total)	17700	**mg/L**	0.308	J	0.306	J	0.360		0.518		0.373		0.332	J	1.410	J	1.44	J	2.07	J	1.97	J	12.1		8.05		7.55			
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000267	U	0.000278	U *	0.000278	UJL	0.00278	UJL	0.000278	UJL	0.000278	U	0.00028	U	0.00028	U	0.00278	U	0.00278	U	0.000144	U	0.00900	U	0.00900	U		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{>vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																					
			MW-38																					
GWPS Achieved?			Yes		Yes		Yes		Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well	Product in Well		Product in Well		Product in Well			
Analytes	GWPS	**Units**	Sampled 02-05-16		Sampled 08-10-16		Sampled 08-24-17		Not sampled 02-06-18	Not sampled 08-02-18	Not sampled 02-12-19	Not sampled 8-23-19	Not sampled 02-07-20	Not sampled 08-03-20	Not Sampled 02-01-21	Not Sampled 01-12-22	Not sampled 08-02-22		Not Sampled 02-24-23					
VOCs by 8260B:		**mg/L**																						
Dichloroethane, 1,2-	1030	**mg/L**	0.0232	U	0.0232	U	0.58	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Benzene	1470	**mg/L**	187		151		125		NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Chlorobenzene	2190	**mg/L**	0.037	U	0.037	U	0.925	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0389	J	0.0314	U	0.785	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Ethylbenzene	5180	**mg/L**	8.52		6.35		2.81	J	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Isopropylbenzene	4890	**mg/L**	0.34		0.171	J	1.21	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Tetrachloroethylene	4470	**mg/L**	0.0666	U	0.0666	U	1.67	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Trichloroethylene	8490	**mg/L**	0.0276	U	0.0276	U	0.69	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Vinyl chloride	5760	**mg/L**	0.0496	U	0.0496	U	1.24	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
Xylene (Total)	17700	**mg/L**	7.83		6.19		4.49	J	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					
SVOCs by 8270C LL:		**Units**																						
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00564		0.00173	U	0.00360	U	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS					

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells	Upgradient/AMP well																					
			MW-38	**MW-35**																					
GWPS Achieved?			Product in Well	Yes		Yes		Yes		Yes		Yes		Yes		DUP-1		DUP-1		Yes		Yes		DUP-2		Yes	
Analytes	GWPS	**Units**	Not sampled 08-15-23	Sampled 10-23-14		Sampled 02-18-15		Sampled 08-12-15		Sampled 02-05-16		Sampled 08-09-16		Sampled 02-03-17		Sampled 02-03-17		Sampled 08-22-17		Sampled 08-22-17		Sampled 02-07-18		Sampled 02-07-18		Sampled 08-02-18	
VOCs by 8260B:		**mg/L**																									
Dichloroethane, 1,2-	1030	**mg/L**	NS	0.00014	U	0.0005	U	0.00420		0.00119		0.000116	U	0.000978	J	0.0016		0.000116	U	0.000116	U	0.000623	J	0.000664	J	0.000116	U
Benzene	1470	**mg/L**	NS	0.000444	J	0.00038	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U
Chlorobenzene	2190	**mg/L**	NS	0.00012	U	0.0005	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000187	J	0.000185	U	0.000185	U
Dichloroethene, cis-1,2-	14200	**mg/L**	NS	0.00133	J	0.000563	J	0.000614	J	0.00034	J	0.000828	J	0.000588	J	0.000535	J	0.000984	J	0.000962	J	0.000447	J	0.000471	J	0.000713	J
Ethylbenzene	5180	**mg/L**	NS	0.000197	J	0.0005	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U
Isopropylbenzene	4890	**mg/L**	NS	0.00018	U	0.00053	U	0.000241	U	0.000241	U	0.000241	U	0.000598	J	0.000408	J	0.000241	U	0.000241	U	0.000241	U *	0.000241	U	0.000241	U
Tetrachloroethylene	4470	**mg/L**	NS	0.00013	U	0.00058	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U
Trichloroethylene	8490	**mg/L**	NS	0.00018	U	0.0005	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U
Vinyl chloride	5760	**mg/L**	NS	0.00011	U	0.0005	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U *
Xylene (Total)	17700	**mg/L**	NS	0.00026	U	0.0006	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U
SVOCs by 8270C LL:		**Units**																									
Bis(2-Chloroethyl)ether	110	**mg/L**	NS	0.000147	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.000188	U	0.000188	U	0.000180	UH	0.000173	UH	0.000180	U	0.000180	U	0.000180	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Upgradient/AMP well																										Amp wells					
			MW-35																										MW-20					
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 10-22-14		Sampled 02-17-15		Sampled 08-11-15							
VOCs by 8260B:		**mg/L**																																
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.007	U	0.025	U	0.0029	U						
Benzene	1470	**mg/L**	0.000176	U	0.000176	U	0.000176	U	0.000280	J	0.000214	U	0.000214	U	0.000214	U	0.000533	U	0.00053	U	0.00046	U	10.1		7.10		5.75							
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.006	U	0.025	U	0.00463	U						
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000443	J	0.000949	J	0.000257	J	0.000628	J	0.000174	U	0.000394	J	0.000174	U	0.000714	U	0.00071	U	0.00071	U	0.003	U	0.025	U	0.00393	U						
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000255	J	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.00041	U	1.37		0.904		0.985							
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000241	U	0.000347	J	0.000241	U	0.00057	J	0.000161	U	0.000161	U	0.000613	U	0.00061	U	0.00061	U	2.0		2.88		2.25							
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.000500	U	0.000500	U	0.000801	U	0.000801	U	0.0008	U	0.0065	U	0.029	U	0.00833	U						
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.00079	U	0.009	U	0.025	U	0.00345	U						
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.00064	U	0.0055	U	0.025	U	0.0062	U						
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.000330	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.33		0.469	J	0.467							
SVOCs by 8270C LL:		**Units**																																
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000267	U	0.000267	U	0.000278	UJL	0.000278	U	0.00111	U	0.00028	U	0.000144	U	0.00360	U	0.00180	U						

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{-vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Amp wells																													
			MW-20																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-03-16		Sampled 08-12-16		Sampled 02-03-17		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22					
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.00232	U	0.000116	U	0.0116	U	0.0058	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.00232	U	0.000116	U	0.00143	U	0.00143	U	0.000285	U				
Benzene	1470	**mg/L**	5.32		4.83		6.96		1.54		2.06		1.71		1.3		1.86		1.84		0.853	b	0.0697		0.016		0.110					
Chlorobenzene	2190	**mg/L**	0.0037	U	0.000185	U *	0.0185	U	0.00925	U	0.0186	J	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.000185	U	0.000795	U	0.000795	U	0.000159	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	0.00314	U	0.000157	U	0.0663	J	0.00785	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.00314	U	0.000157	U	0.00087	U	0.00087	U	0.000174	U				
Ethylbenzene	5180	**mg/L**	0.682		0.685		0.923		0.0303	J	0.185		0.169		0.0602		0.209		0.345		0.184		0.00785		0.00257	U	0.00319					
Isopropylbenzene	4890	**mg/L**	4.41		2.73		4.57		0.0896		1.81		3.49		2.52		3.44		5.29		1.88		0.254		0.265		0.348					
Tetrachloroethylene	4470	**mg/L**	0.00666	U	0.000333	U *	0.0333	U	0.0167	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.000333	U	0.0025	U	0.0025	U	0.000500	U				
Trichloroethylene	8490	**mg/L**	0.00276	U	0.000138	U	0.0138	U	0.0069	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.00276	U	0.000138	U	0.00212	U	0.00212	U	0.000424	U				
Vinyl chloride	5760	**mg/L**	0.00496	U	0.000248	U	0.0248	U	0.0124	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.00496	U	0.000248	U	0.00117	U	0.00117	U	0.000234	U				
Xylene (Total)	17700	**mg/L**	0.145		0.116		0.344		0.0193	J	0.0278		0.05		0.0216		0.106		0.117		0.0578		0.0156		0.00165	U	0.00165	J				
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000180	U	0.000173	U	0.000188	U	0.000180	UH	0.000214	U	0.000188	U	0.000180	U	0.000180	U	0.000180	U	0.000180	U	0.00029	U	0.00267	U	0.000278	UJL				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{ow}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Amp wells																													
			MW-20																													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21							
VOCs by 8260B:		**mg/L**																														
Dichloroethane, 1,2-	1030	**mg/L**	0.0059	U	0.00295 U		0.00118 U		0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U						
Benzene	1470	**mg/L**	0.285		0.077		0.0437		0.001190		0.003550		0.00157		0.0017		0.001030		0.000709	J	0.000176	U	0.00065	J	0.000543	J						
Chlorobenzene	2190	**mg/L**	0.0053	U	0.00265 U		0.00106 U		0.262		0.234		0.229		0.156		0.17		0.139		0.04320		0.053		0.237							
Dichloroethene, cis-1,2-	14200	**mg/L**	0.00714	U	0.00357 U		0.00143 U		0.001620		0.001570		0.00141		0.000781	J	0.000825	J	0.000679	J	0.000226	J	0.00054	J	0.000798	J						
Ethylbenzene	5180	**mg/L**	0.0121		0.0138		0.00301		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U						
Isopropylbenzene	4890	**mg/L**	1.94		0.505		0.277		0.000241	U *	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000283	J	0.000241	U	0.000161	U	0.000161	U						
Tetrachloroethylene	4470	**mg/L**	0.00801	U	0.004010 U		0.0016 U		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U						
Trichloroethylene	8490	**mg/L**	0.00791	U	0.00396 U		0.00158 U		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U						
Vinyl chloride	5760	**mg/L**	0.00638	U	0.00319 U		0.00128 U		0.000269	J	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U						
Xylene (Total)	17700	**mg/L**	0.0124	U	0.0062 U		0.00913 J		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000504	J	0.000366	U	0.000192	U	0.00033	U						
SVOCs by 8270C LL:		**Units**																														
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	UJL	0.000278 U		0.00278 U		0.000173	UH	0.000180	U *	0.000180	U	0.000180	U	0.000173	U	0.000180	U	0.000180	U	0.000278	U	0.000267	U						

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tx}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			Amp wells																									
			MW-29								MW-31																	
GWPS Achieved?			Yes		Yes		Yes	Yes	Yes		Yes		Yes		DUP		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	Sampled 08-15-23	Sampled 08-22-17		Sampled 02-06-18		Sampled 08-02-18		Sampled 08-02-18		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20	
VOCs by 8260B:		**mg/L**																						
Dichloroethane, 1,2-	1030	**mg/L**	0.000285	U	0.00059	U	0.00118 U	0.00118 U	0.00464	U	0.00742	J	0.00292	J	0.00556	J	0.00232	U	0.00312	J	0.00593	J	0.00452	J
Benzene	1470	**mg/L**	0.0108		0.000533	U	0.00107 U	0.000919 U	0.00704	U	0.00352	U	0.00352	U	0.00352	U	0.0102	J	0.00352	U	0.0186	J	0.00384	J
Chlorobenzene	2190	**mg/L**	0.181		0.200		0.191	0.159	0.0551		0.071		0.0428		0.0421		0.0428		0.0404		0.0379		0.0393	
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000829	J	0.000874	J	0.00143 U	0.00143 U	2.82		2.99		2.63		2.67		2.83		3.86		3.31		2.89	
Ethylbenzene	5180	**mg/L**	0.000515	U	0.000411	U	0.00082 U	0.000822 U	0.00848	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U	0.00424	U
Isopropylbenzene	4890	**mg/L**	0.000161	U	0.000613	U	0.00123 U	0.00123 U	0.00964	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U	0.00482	U
Tetrachloroethylene	4470	**mg/L**	0.000500	U	0.000801	U	0.001600 U	0.0016 U	0.0133	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U	0.00666	U
Trichloroethylene	8490	**mg/L**	0.000424	U	0.000791	U	0.00158 U	0.00158 U	0.00879	J	0.0097	J	0.00698	J	0.0077	J	0.00674	J	0.0093	J	0.0086	J	0.00713	J
Vinyl chloride	5760	**mg/L**	0.000234	U	0.000638	U	0.00128 U	0.00128 U	0.114		0.161		0.158		0.14	*	0.168		0.0889		0.155		0.175	
Xylene (Total)	17700	**mg/L**	0.000330	U	0.00124	U	0.002480 U	0.00248 U	0.0146	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U	0.00732	U
SVOCs by 8270C LL:		**Units**																						
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	UJL	0.000278	UJL	0.00028 U	0.000278 UJL	0.000180	UH	0.000180	U *	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000180	U	0.000180	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells																											
			MW-31																											
GWPS Achieved?			Yes		DUP-1		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-01-21		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21					
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.057	U	0.0143	U	0.0046		0.00437		0.0118	U	0.0118 U		0.0148 U		0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U				
Benzene	1470	**mg/L**	0.0429	U	0.0107	U	0.00287		0.00507		0.0107	U	0.0107 U		0.0115 U		0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U				
Chlorobenzene	2190	**mg/L**	0.0318	U	0.039	J	0.0463		0.0412		0.0471		0.0338		0.041		0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	2.58		2.71		2.51		2.78		2.25		2.32		2.23		0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U				
Ethylbenzene	5180	**mg/L**	0.0291	U	0.00728	U	0.000515	U	0.000515	U	0.00822	U	0.00822 U		0.0103 U		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U				
Isopropylbenzene	4890	**mg/L**	0.0321	U	0.00803	U	0.000161	U	0.000161	U	0.0123	U	0.0123 U		0.0153 U		0.000371	J	0.000241	U	0.000241	U	0.000241	U	0.000161	U				
Tetrachloroethylene	4470	**mg/L**	0.1	U	0.025	U	0.0005	U	0.000500	U	0.016	U	0.016 U		0.02 U		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U				
Trichloroethylene	8490	**mg/L**	0.0848	U	0.0212	U	0.00804		0.00762		0.0158	U	0.0158 U		0.0198 U		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U				
Vinyl chloride	5760	**mg/L**	0.102	J	0.101		0.102		0.120		0.0739		0.053		0.0774		0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U				
Xylene (Total)	17700	**mg/L**	0.0383	U	0.00958	U	0.00033	U	0.000695	J	0.0248	U	0.0248 U		0.031 U		0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U				
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000267	U	0.000278	UF	0.000278	U	0.000278	UJL	0.000278	UJL	0.00111 U		0.000278 U		0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000278	U				

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{vw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area			**West Chem Wells**																											
			CAO wells																											
			MW-3																											
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22							
VOCs by 8260B:		**mg/L**																												
Dichloroethane, 1,2-	1030	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U				
Benzene	1470	**mg/L**	0.000214	U	0.000214	U	0.000533	U	0.000533	U	0.00046	U	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U				
Chlorobenzene	2190	**mg/L**	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.000185	U	0.00102		0.00129		0.001430		0.00089	J	0.00114		0.000159	U				
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000174	U	0.000174	U	0.000714	U	0.000714	U	0.000714	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U				
Ethylbenzene	5180	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.000411	U	0.000411	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U				
Isopropylbenzene	4890	**mg/L**	0.000161	U	0.000161	U	0.000613	U	0.000613	U	0.000613	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U				
Tetrachloroethylene	4470	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U				
Trichloroethylene	8490	**mg/L**	0.000424	U	0.000424	U	0.000791	U	0.000791	U	0.000791	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U				
Vinyl chloride	5760	**mg/L**	0.000234	U	0.000234	U	0.000638	U	0.000638	U	0.000638	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U				
Xylene (Total)	17700	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.00033	U	0.000330	U				
SVOCs by 8270C LL:		**Units**																												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U	0.000278	UJL	0.000278	UJL	0.000278	U	0.000278	U	0.000188	U	0.000180	U	0.000180	U	0.000188	U	0.00029	U	0.000278	U	0.000278	UJL				

Notes:
Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{Ing}GW_{Ing}$)
GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits
- - Not reported
NS - Not sampled
F - RPD exceeded lab control limits.
U - Indicates the analyte was analyzed for but not detected.
Bold Italic - Exceeds GWPS
NA - Not applicable
D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL
POE = Point of Exposure
AMP = Attenuation Monitoring Point
CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

| | | | CAO wells | | |

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP wells																						CAO wells			
			VMW-1																						VMW-2			
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		DUP-1	
Analytes	GWPS	**Units**	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 02-12-19			
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059 U		0.00059 U		0.00059 U		0.000116	U	0.000116	U		
Benzene	1470	**mg/L**	0.000176	U	0.000186	J	0.000176	U	0.000253	J	0.000214	U	0.000214	U	0.000214	U	0.000533 U		0.000533 U		0.00046 U		0.000186	J	0.000278	J		
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000255	J	0.000202	J	0.000159	U	0.000159	U	0.000159	U	0.00053 U		0.00053 U		0.00053 U		0.000185	U	0.000185	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0139		0.0309		0.00832		0.00501		0.00467		0.00608		0.00553		0.00682		0.0031		0.00684		0.000157	U	0.000157	U		
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411 U		0.000411 U		0.000411 U		0.000212	U	0.000212	U		
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613 U		0.000613 U		0.000613 U		0.0115		0.0128			
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801 U		0.000801 U		0.000801 U		0.000333	U	0.000333	U		
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000171	J	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791 U		0.000791 U		0.000791 U		0.000138	U	0.000138	U		
Vinyl chloride	5760	**mg/L**	0.00227		0.00416		0.00156	J	0.00204		0.00105	J	0.00185	J	0.00156	J	0.00225		0.000638 U		0.00151 J		0.000248	U	0.000248	U		
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U	0.00033	U	0.000330	U	0.00124 U		0.001240 U		0.00124 U		0.000366	U	0.000521	J		
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00018	U	0.000173	U	0.00360	U	0.000180	U	0.000278	U	0.000278	U *	0.000278	U	0.000278 UJL		0.000278 U		0.000278 U		0.000184	U	0.000173	U		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{Tw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			CAO wells																									
			VMW-2																									
GWPS Achieved?			Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2		Yes		DUP-2	
Analytes	GWPS	**Units**	Sampled 8-23-19		Sampled 02-12-19		Sampled 02-07-20		Sampled 02-07-20		Sampled 08-03-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 02-01-21		Sampled 08-13-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 01-12-22					
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.000285	U	0.000285	U	0.000285	U		
Benzene	1470	**mg/L**	0.000179	J	0.000377	J	0.000176	U	0.000176	U	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000214	U	0.000214	U	0.000214	U		
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U	0.000159	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U	0.000174	U	0.000174	U	0.000174	U	0.000174	U	0.000174	U		
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U	0.000146	U	0.000515	U	0.000515	U	0.000515	U	0.000515	U		
Isopropylbenzene	4890	**mg/L**	0.0183		0.0176		0.00749		0.00848		0.0183		0.0190		0.00955		0.00972		0.00852		0.0075		0.0203		0.0197			
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.000500	U	0.000500	U		
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000424	U	0.000424	U	0.000424	U		
Vinyl chloride	5760	**mg/L**	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000234	U	0.000234	U	0.000234	U		
Xylene (Total)	17700	**mg/L**	0.000792	J	0.000366	U	0.000366	U	0.000366	U	0.000498	J	0.000366	U	0.000192	U	0.000192	U	0.00033	U	0.00033	U	0.000330	U	0.000669	J		
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000188	U	0.00018	U	0.00018	U	0.00018	U	0.000180	U	0.000180	U	0.000278	U	0.000278	UF	0.000278	U *	0.000278	U *	0.000278	UJL	0.000278	UJL		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			CAO wells										AMP wells															
			VMW-2										VMW-3															
GWPS Achieved?			Yes		DUP-2		Yes		DUP-2		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-02-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 02-24-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.00059	U	0.00059	U	0.00059	U	0.00059	U	0.00059	U	0.0195	J	0.025		0.0231		0.0256		0.0285	U	0.0143	U	0.000285	U	0.0118	U
Benzene	1470	**mg/L**	0.000533	U	0.000533	U	0.00053	U	0.00053	U	0.00046	U	3.37		7.3		4.93		4.96		4.21		4.42		3.90		4.43	
Chlorobenzene	2190	**mg/L**	0.00053	U	0.00053	U	0.00053	U	0.00053	U	0.00053	U	0.0168	J	0.012	J	0.0134	J	0.00927	J	0.0159	U	0.0257	J	0.00952		0.0146	J
Dichloroethene, cis-1,2-	14200	**mg/L**	0.000714	U	0.000714	U	0.00071	U	0.00071	U	0.000714	UJ	0.183		0.144		0.152		0.125		0.134		0.153		0.0882		0.108	
Ethylbenzene	5180	**mg/L**	0.000411	U	0.000411	U	0.00041	U	0.00041	U	0.000411	U	0.172		0.357		0.294		0.214		0.269		0.286		0.186		0.109	
Isopropylbenzene	4890	**mg/L**	0.0299		0.0312		0.0164		0.0128		0.011		0.0242		0.0328		0.03		0.0320		0.035	J	0.0435	J	0.0399		0.0276	
Tetrachloroethylene	4470	**mg/L**	0.000801	U	0.000801	U	0.000801	U	0.000801	U	0.000801	U	0.00666	U	0.00666	U	0.00666	U	0.00333	U	0.05	U	0.025	U	0.000500	U	0.016	U
Trichloroethylene	8490	**mg/L**	0.000791	U	0.000791	U	0.00079	U	0.00079	U	0.000791	U	0.00276	U	0.00276	U	0.00276	U	0.00138	U	0.0424	U	0.0212	U	0.000424	U	0.0158	U
Vinyl chloride	5760	**mg/L**	0.000638	U	0.000638	U	0.00064	U	0.00064	U	0.000638	U	0.0207	J	0.0116	J	0.0169	J	0.0153	J	0.0234	U	0.0117	U	0.000234	U	0.0128	J
Xylene (Total)	17700	**mg/L**	0.00124	U	0.00124	U	0.001240	U	0.00124	U	0.00124	U	0.0168	J	0.0379		0.0167	J	0.0185		0.0192	U	0.0165	U	0.0131		0.0248	U
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U	0.000278	U	0.00028	U	0.00028	U	0.000278	U	0.00180	U	0.000180	U	0.00180	U	0.00360	U	0.000278	U	0.00028	U *	0.00278	UJL	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP Wells		CAO wells																	
			VMW-3		VMW-4																	
GWPS Achieved?			Product in Well	Product in Well	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	Yes
Analytes	GWPS	**Units**	Not Sampled 02-24-23	Sampled 08-15-23	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:		**mg/L**																				
Dichloroethane, 1,2-	1030	**mg/L**	NS	NS	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059 U	0.00059 U
Benzene	1470	**mg/L**	NS	NS	0.00147		0.000797	J	0.000176	U	0.000176	U	0.000214	U	0.000214	U	0.000214	U	0.000533	U	0.000533 U	0.00046 U
Chlorobenzene	2190	**mg/L**	NS	NS	0.0113		0.012		0.00286		0.00515		0.00282		0.00318		0.00228		0.00401		0.0022	0.00317
Dichloroethene, cis-1,2-	14200	**mg/L**	NS	NS	0.0079		0.00864		0.00257		0.00381		0.00232		0.0024		0.00219		0.00189		0.00153	0.00398
Ethylbenzene	5180	**mg/L**	NS	NS	0.000802	J	0.000722	J	0.000212	U	0.000248	J	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.000411 U	0.000411 U
Isopropylbenzene	4890	**mg/L**	NS	NS	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613	U	0.000613 U	0.000613 U
Tetrachloroethylene	4470	**mg/L**	NS	NS	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801	U	0.000801 U	0.000801 U
Trichloroethylene	8490	**mg/L**	NS	NS	0.000138	U	0.000179	J	0.000138	U	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.000791 U	0.000791 U
Vinyl chloride	5760	**mg/L**	NS	NS	0.000248	U	0.000248	U	0.000248	U	0.000248	U	0.000234	U	0.000234	U	0.000234	U	0.000638	U	0.000638 U	0.000638 U
Xylene (Total)	17700	**mg/L**	NS	NS	0.00198		0.00215		0.000366	U	0.000610	J	0.000192	U	0.000330	U	0.000330	U	0.00124	U	0.001240 U	0.00124 U
SVOCs by 8270C LL:		**Units**																				
Bis(2-Chloroethyl)ether	110	**mg/L**	NS	NS	0.00018	U	0.00018	U	0.00018	U	0.000180	U	0.000278	U	0.000278	U *	0.000278	UJL	0.000278	UJL	0.000278 U	0.000278 UJL

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP wells																									
			VMW-6																				VMW-7					
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23	Sampled 08-15-23	Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.0116	U	0.0116	U	0.0211	J	0.0199	J	0.0285	U	0.0143	U	0.000285	U	0.0118	U	0.0295 U	0.0295 U	0.00232	U	0.000116	U	0.001230	J
Benzene	1470	**mg/L**	3.95		5.72		5.81		4.87		5.08		4.87		4.67		5.34		4.81	3.67	0.204		0.212		0.17	
Chlorobenzene	2190	**mg/L**	1.41		0.945		1.08		0.772		0.845		1.09		0.877		0.817		1.58	0.825	0.00458	J	0.000185	U	0.000925	U
Dichloroethene, cis-1,2-	14200	**mg/L**	2.7		2.55		2.21		1.71		1.76		1.92		1.81		1.77		2.17	0.746	0.0613		0.000157	U	0.0352	
Ethylbenzene	5180	**mg/L**	0.458		0.453		0.527		0.333		0.539		0.446		0.600		0.578		0.496	0.538	0.00424	U	0.000212	U	0.00106	U
Isopropylbenzene	4890	**mg/L**	0.0241	U	0.0241	U	0.0241	U	0.0121	U	0.023	J	0.018	J	0.0246		0.0167	J	0.0307 U	0.0307 U *	0.00482	U	0.000241	U *	0.00121	U
Tetrachloroethylene	4470	**mg/L**	0.0333	U	0.0333	U	0.0333	U	0.0167	U	0.05	U	0.025	U	0.000500	U	0.016	U	0.0401 U	0.0401 U	0.00666	U	0.000333	U	0.00167	U
Trichloroethylene	8490	**mg/L**	0.0138	U	0.0138	U	0.0138	U	0.00690	U	0.0424	U	0.02120	U	0.000424	U	0.0158	U	0.0396 U	0.0396 U	0.00276	U	0.000138	U	0.00069	U
Vinyl chloride	5760	**mg/L**	0.444		0.468		0.405		0.331		0.293		0.358		0.288		0.302		0.281	0.14	0.0594		0.000674	J	0.0365	
Xylene (Total)	17700	**mg/L**	0.0366	U	0.0366	U	0.0366	U	0.0235	J	0.021	J	0.0165	U	0.0274		0.0248	U	0.062 U	0.062 U	0.00732	U	0.000366	U	0.00183	U
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00018	U	0.00018	U	0.00180	U	0.00360	U	0.000278	U	0.000278	U *	0.000278	U	0.000278	U	0.00278 U	0.062 U	0.000180	U	0.001800	U	0.001800	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			AMP wells																CAO wells									
			VMW-7																VMW-9									
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes		Yes		Yes		DUP-2		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	Sampled 08-03-20		Sampled 02-01-21		Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-15-23		Sampled 02-12-19		Sampled 8-23-19		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.00147		0.000285	U	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.00097	J	0.000116	U	0.000116	U	0.000369	J	0.00101		0.000285	U
Benzene	1470	**mg/L**	0.125		0.103		0.119		0.0608		0.118		0.0964		0.0743		0.0882		0.000323	J	0.00128		0.0797		0.0852		0.0549	
Chlorobenzene	2190	**mg/L**	0.000185	U	0.000159	U	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.00053	U	0.000872	J	0.00143		0.00367		0.00237		0.00204	
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0261		0.0178		0.0153		0.00787		0.0156		0.0137		0.0111		0.0111		0.00897		0.0183		0.0299		0.0346		0.0217	
Ethylbenzene	5180	**mg/L**	0.000212	U	0.000146	U	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.00041	U	0.000411	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	4890	**mg/L**	0.000241	U	0.000161	U	0.000161	U	0.000161	U	0.000613	U	0.00061	U	0.00061	U	0.000613	U	0.000241	U	0.000241	U	0.000241	U	0.000241	U	0.000161	U
Tetrachloroethylene	4470	**mg/L**	0.000333	U	0.0005	U	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.0008	U	0.000801	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.000138	U	0.000424	U	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.00079	U	0.000791	U	0.000355	J	0.000526	J	0.0015		0.00153		0.00094	J
Vinyl chloride	5760	**mg/L**	0.0462		0.0162		0.0166		0.00718		0.0180		0.0109		0.0105		0.0109		0.00109	J	0.000248	U	0.00541		0.00859		0.00358	
Xylene (Total)	17700	**mg/L**	0.000366	U	0.000192	U	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.00124	U	0.000366	U	0.000366	U	0.000366	U	0.000366	U	0.000192	U
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.00360	U	0.000278	U	0.00028	U *	0.000278	U	0.000278	UJL	0.00028	U	0.00028	U	0.000278	U	0.000173	U	0.000180	U	0.000180	U	0.000196	U	0.000278	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

			CAO wells												Recovery wells													
			VMW-9												MW-39													
GWPS Achieved?			Yes		Yes		Yes		Yes		Yes				Yes		Yes		Yes		Yes		No		Yes	
Analytes	GWPS	**Units**	Sampled 08-13-21		Sampled 01-12-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23	TRRP GW PCL	Units		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																								
Dichloroethane, 1,2-	1030	**mg/L**	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059 U	0.005	mg/L		0.000261	J	0.000116	U	0.000116	U	0.000116	U	0.000133	J	0.000285	U
Benzene	1470	**mg/L**	0.0536		0.0429		0.0189		0.0568		0.0111	0.005	mg/L		0.00249		0.00227		0.000176	U	0.00382		***0.00688***		0.00348	
Chlorobenzene	2190	**mg/L**	0.00228		0.00251		0.00408		0.00311		0.00268	0.1	mg/L		0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.0205		0.0208		0.0247		0.0269		0.0173	0.07	mg/L		0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U
Ethylbenzene	5180	**mg/L**	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411 U	0.7	mg/L		0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	4890	**mg/L**	0.000161	U	0.000161	U	0.000613	U	0.00061	U	0.000613 U	7.3	mg/L		0.000899	J	0.0011		0.00152		0.000629	J	0.000241	U	0.00031	J
Tetrachloroethylene	4470	**mg/L**	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801 U	0.005	mg/L		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.0011	J	0.00117	J	0.000975	J	0.00153	J	0.000791 U	0.005	mg/L		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	5760	**mg/L**	0.00406		0.00392		0.00451		0.00366		0.00251	0.002	mg/L		0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	17700	**mg/L**	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124 U	10	mg/L		0.000366	U	0.000541	J	0.00128		0.000528	J	0.000465	J	0.000192	U
SVOCs by 8270C LL:		**Units**																								
Bis(2-Chloroethyl)ether	110	**mg/L**	0.000278	U *	0.000278	UJL	0.000278	U	0.00028	U	0.000278 U	0.0019	mg/L		0.000578	J H	0.000342	J	0.000180	U	0.000605	J	0.000265	J	0.000538	JF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{-vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

					Recovery wells																							
					MW-39											OB-1													
GWPS Achieved?					Yes		No		No		No		Yes			Yes		Yes		Yes		Yes		Yes		Yes			
Analytes	GWPS	**Units**	TRRP GW PCL	Units	Sampled 02-01-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 01-14-22		Sampled 08-15-23			Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21			
VOCs by 8260B:		**mg/L**																										
Dichloroethane, 1,2-	1030	**mg/L**	0.005	mg/L	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U		0.00058	U	0.000129	J	0.000116	U	0.000116	U	0.000116	U	0.000285	U		
Benzene	1470	**mg/L**	0.005	mg/L	0.00409		***0.00869***		***0.0116***		***0.0067***		0.00462			0.00088	U	0.000257	J	0.000205	J	0.000276	J	0.000582	J	0.000214	U		
Chlorobenzene	2190	**mg/L**	0.1	mg/L	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U		0.000925	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U		
Dichloroethene, cis-1,2-	14200	**mg/L**	0.07	mg/L	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714	U		0.000785	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U		
Ethylbenzene	5180	**mg/L**	0.7	mg/L	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411	U		0.00106	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U		
Isopropylbenzene	4890	**mg/L**	7.3	mg/L	0.000276	J	0.000161	U	0.000613	U	0.00061	U	0.000613	U		0.154		0.0586		0.0876		0.0221		0.01550		0.018			
Tetrachloroethylene	4470	**mg/L**	0.005	mg/L	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U		0.00167	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U		
Trichloroethylene	8490	**mg/L**	0.005	mg/L	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791	U		0.00069	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U		
Vinyl chloride	5760	**mg/L**	0.002	mg/L	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638	U		0.00124	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U		
Xylene (Total)	17700	**mg/L**	10	mg/L	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U		0.00183	U	0.000748	J	0.000366	U	0.000419	J	0.000366	U	0.000192	U		
SVOCs by 8270C LL:		**Units**																										
Bis(2-Chloroethyl)ether	110	**mg/L**	0.0019	mg/L	0.000278	U *	0.000278	UJL	0.000278	UJL	0.0004	J	***0.00278***	U		0.000180	UH	0.000196	U	0.000180	U	0.000180	U	0.000173	U	0.000278	U		

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{sw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

					Recovery Wells																					
					OB-1												OB-3									
GWPS Achieved?					Yes		Yes		Yes		Yes		Yes		Yes		No		No		No		No		No	
Analytes	GWPS	**Units**	TRRP GW PCL	Units	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																								
Dichloroethane, 1,2-	1030	**mg/L**	0.005	mg/L	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U
Benzene	1470	**mg/L**	0.005	mg/L	0.00022	J	0.000214	U	0.000533	U	0.000533	U	0.00046	U	0.00116		***0.113***		***0.0746***		***0.00786***		***0.01030***		***0.0159***	
Chlorobenzene	2190	**mg/L**	0.1	mg/L	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000185	U	0.000159	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.07	mg/L	0.000174	U	0.000174	U	0.000714	U	0.000714	U	0.000714	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U
Ethylbenzene	5180	**mg/L**	0.7	mg/L	0.000515	U	0.000515	U	0.000411	U	0.000411	U	0.000411	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	4890	**mg/L**	7.3	mg/L	0.0263		0.0101		0.0207		0.0196		0.00706		0.000263	J	0.000605	J *	0.000395	J	0.000423	J	0.000241	U	0.00051	J
Tetrachloroethylene	4470	**mg/L**	0.005	mg/L	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.005	mg/L	0.000424	U	0.000424	U	0.000791	U	0.000791	U	0.000791	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	5760	**mg/L**	0.002	mg/L	0.000234	U	0.000234	U	0.000638	U	0.000638	U	0.000638	U	0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	17700	**mg/L**	10	mg/L	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.000366	U	0.000766	J	0.000399	J	0.000567	J	0.000570	J	0.00063	J
SVOCs by 8270C LL:		**Units**																								
Bis(2-Chloroethyl)ether	110	**mg/L**	0.0019	mg/L	0.000278	U *	0.000278	UJL	0.000278	UJL	0.000278	U	0.000278	U	0.000173	UH	0.000180	U	0.000180	U	0.000180	U	0.000173	U	0.000267	UF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

					Recovery wells																					
					OB-3										RW-01											
GWPS Achieved?					No		No		No		No		No		Yes		Yes		Yes		Yes		Yes		No	
Analytes	GWPS	**Units**	TRRP GW PCL	Units	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																								
Dichloroethane, 1,2-	1030	**mg/L**	0.005	mg/L	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U	0.00058	U	0.000116	U	0.000618	J	0.000116	U	0.000116	U	0.000285	U
Benzene	1470	**mg/L**	0.005	mg/L	***0.0147***		***0.0182***		***0.0294***		***0.0104***		***0.00925***		0.00088	U	0.000879	J	0.000176	U	0.000269	J	0.000292	J	***0.00603***	
Chlorobenzene	2190	**mg/L**	0.1	mg/L	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U	0.000925	U	0.000207	J	0.000232	J	0.000348	J	0.000457	J	0.00063	J
Dichloroethene, cis-1,2-	14200	**mg/L**	0.07	mg/L	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714	U	0.000785	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.00075	J
Ethylbenzene	5180	**mg/L**	0.7	mg/L	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411	U	0.00106	U	0.000212	U	0.000212	U	0.000212	U	0.000212	U	0.00148	
Isopropylbenzene	4890	**mg/L**	7.3	mg/L	0.000451	J	0.000477	J	0.000613	U	0.00061	U	0.000613	U	0.145		0.163		0.172		0.218		0.174		0.139	
Tetrachloroethylene	4470	**mg/L**	0.005	mg/L	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U	0.00167	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.005	mg/L	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791	U	0.00069	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	5760	**mg/L**	0.002	mg/L	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638	U	0.00124	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	17700	**mg/L**	10	mg/L	0.000330	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U	0.00183	U	0.000513	J	0.000366	U	0.000419	J	0.000390	J	0.00045	J
SVOCs by 8270C LL:		**Units**																								
Bis(2-Chloroethyl)ether	110	**mg/L**	0.0019	mg/L	0.000278	U *	0.000278	UJL	0.000278	UJL	0.00028	U	***0.00278***	U	0.000180	UH	0.000196	U	0.000180	U	0.000180	U	0.000173	U	0.000278	UF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{tw}GW_{ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

					Recovery wells																			
					RW-01										RW-25R									
GWPS Achieved?					Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	TRRP GW PCL	Units	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23		Sampled 08-23-17		Sampled 02-07-18		Sampled 08-02-18		Sampled 02-07-20		Sampled 08-03-20		Sampled 02-01-21	
VOCs by 8260B:		**mg/L**																						
Dichloroethane, 1,2-	1030	**mg/L**	0.005	mg/L	0.002850	U	0.000285	U	0.00059	U	0.00059	U	0.00059 U		0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000116	U	0.000285	U
Benzene	1470	**mg/L**	0.005	mg/L	0.00214	U	0.000214	U	0.000533	U	0.00053	U	0.00046 U		0.000743	J	0.00108		0.000893	J	0.00124		0.000769	J	0.0005	J
Chlorobenzene	2190	**mg/L**	0.1	mg/L	0.00159	U	0.000159	U	0.000866	J	0.00104		0.00127		0.000212	J	0.000279	J	0.000185	U	0.000185	U	0.000185	U	0.000159	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.07	mg/L	0.00174	U	0.000174	U	0.000714	U	0.00071	U	0.000714 U		0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000157	U	0.000174	U
Ethylbenzene	5180	**mg/L**	0.7	mg/L	0.00515	U	0.000515	U	0.000411	U	0.00041	U	0.000411 U		0.000212	U	0.000252	J	0.000212	U	0.000212	U	0.000212	U	0.000146	U
Isopropylbenzene	4890	**mg/L**	7.3	mg/L	0.19		0.128		0.089		0.0524		0.0342		0.0203		0.018		0.0209		0.00936		0.008570		0.0108	
Tetrachloroethylene	4470	**mg/L**	0.005	mg/L	0.005	U	0.000500	U	0.000801	U	0.000801	U	0.000801 U		0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.000333	U	0.0005	U
Trichloroethylene	8490	**mg/L**	0.005	mg/L	0.00424	U	0.000424	U	0.000791	U	0.00079	U	0.000791 U		0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000138	U	0.000424	U
Vinyl chloride	5760	**mg/L**	0.002	mg/L	***0.00234***	U	0.000234	U	0.000638	U	0.00064	U	0.000638 U		0.000248	U	0.000248	U	0.000248	U *	0.000248	U	0.000248	U	0.000234	U
Xylene (Total)	17700	**mg/L**	10	mg/L	0.003300	U	0.000330	U	0.00124	U	0.001240	U	0.00124 U		0.000366	U	0.000828	J	0.000366	U	0.000366	U	0.000366	U	0.000192	U
SVOCs by 8270C LL:		**Units**																						
Bis(2-Chloroethyl)ether	110	**mg/L**	0.0019	mg/L	0.000278	U *	0.000278	UJL	0.000278	UJL	0.00028	U	0.000278 U		0.000512	J H	0.000322	J	0.000180	U	0.000579	J	***0.00346***	U	0.000278	UF

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{3vw}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

ANALYTICAL DATA 2014 - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Plant Area

					Recovery Wells									
					RW-25R									
GWPS Achieved?					Yes		Yes		Yes		Yes		Yes	
Analytes	GWPS	**Units**	TRRP GW PCL	Units	Sampled 08-13-21		Sampled 01-14-22		Sampled 08-02-22		Sampled 02-24-23		Sampled 08-15-23	
VOCs by 8260B:		**mg/L**												
Dichloroethane, 1,2-	1030	**mg/L**	0.005	mg/L	0.000285	U	0.000285	U	0.00059	U	0.00059	U	0.00059	U
Benzene	1470	**mg/L**	0.005	mg/L	0.000491	J	0.000477	J	0.000533	U	0.00053	U	0.00046	U
Chlorobenzene	2190	**mg/L**	0.1	mg/L	0.000159	U	0.000159	U	0.00053	U	0.00053	U	0.00053	U
Dichloroethene, cis-1,2-	14200	**mg/L**	0.07	mg/L	0.000174	U	0.000174	U	0.000714	U	0.00071	U	0.000714	UJ
Ethylbenzene	5180	**mg/L**	0.7	mg/L	0.000515	U	0.000515	U	0.000411	U	0.00041	U	0.000411	U
Isopropylbenzene	4890	**mg/L**	7.3	mg/L	0.0115		0.0102		0.0106		0.0076		0.00712	
Tetrachloroethylene	4470	**mg/L**	0.005	mg/L	0.0005	U	0.000500	U	0.000801	U	0.000801	U	0.000801	U
Trichloroethylene	8490	**mg/L**	0.005	mg/L	0.000424	U	0.000424	U	0.000791	U	0.00079	U	0.000791	U
Vinyl chloride	5760	**mg/L**	0.002	mg/L	0.000234	U	0.000234	U	0.000638	U	0.00064	U	0.000638	U
Xylene (Total)	17700	**mg/L**	10	mg/L	0.00033	U	0.000330	U	0.00124	U	0.001240	U	0.00124	U
SVOCs by 8270C LL:		**Units**												
Bis(2-Chloroethyl)ether	110	**mg/L**	0.0019	mg/L	0.000278	U *	0.000278	UJL	0.000278	UJL	0.00028	U	***0.00278***	U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Appendix B

GROUNDWATER ANALYTICAL DATA SUMMARY

TCI

KM Liquids Terminals LLC

Galena Park Terminal

Well ID	Date	Analyte						Below PCL?
		Benzene	Ethylbenzene	Toluene	Xylene	Styrene	Arsenic	
Tier 1 Groundwater PCL		0.005	0.7	1	10	0.1	0.01	
AMP-1	10/2/2008	**50.34 J**	---	---	---	---	---	No
	11/20/2009	**72.71**	---	---	---	---	---	No
	12/2/2010	**54.35**	**3.206**	0.4579	---	---	---	No
	9/21/2012	**11.6**	**2.75**	0.499	---	<0.00280	---	No
AMP-2	10/2/2008	**106 J**	**0.76 J**	**2.49 J**	---	<0.001 J	0.007	No
	11/20/2009	**113.9**	---	---	---	---	---	No
	3/16/2010	**56.58**	---	---	---	---	---	No
	12/1/2010	**69.56**	**0.7244**	**1.775**	---	---	---	No
	9/21/2012	**108**	**0.949**	**1.86**	---	<0.00700	**0.0142**	No
	2/14/2020	**84.8**	0.593	**1.83**	0.629	< 8.75	**0.0107**	No
	2/26/2021	**58.8 D**	0.490	**1.01**	0.452	< 0.000162	**0.0202**	No
	2/24/2022	**52.1**	0.437	0.996	0.387	< 6.23	**0.0126 U b**	No
	2/23/2023	**91.7**	**0.463**	**1.24**	**0.477 J**	<0.0655 U	**0.0236**	No
AMP-2-2	11/23/2009	**310**	---	---	---	---	---	No
	3/16/2010	**43.15**	---	---	---	---	---	No
	3/16/2010 **	**67.08**	---	---	---	---	---	No
	12/2/2010	**123.3**	0.0817	**5.975**	---	---	---	No
	12/2/2010 **	**133.9**	0.0852	**6.755**	---	---	---	No
	2/28/2012	**162**	---	---	---	---	---	No
	2/28/2012 **	**155**	---	---	---	---	---	No
MW-03 TCI	11/18/2009	<0.0005	---	---	---	---	---	Yes
	12/2/2010	**0.0287**	<0.0005	0.0009 J	---	---	---	No
	9/21/2012	0.00493	0.000518 J	0.000319 J	---	<0.0000700	---	Yes
MW-04 TCI	10/2/2008	**6.468 J**	---	---	---	---	---	No
	11/18/2009	**0.109**	---	---	---	---	---	No
	12/2/2010	**65.87**	0.247	**10.34**	---	---	---	No
	9/21/2012	**27.6**	<0.00550	**2.69**	---	<0.00350	---	No
	2/25/2021	**1.79 DX**	0.00662	0.00186	0.006	< 0.000162	**0.100**	No
	2/24/2022	**0.182**	0.00132	0.00166	0.00509 J	< 0.623	**0.102 b**	No
	2/23/2023	**0.156**	<0.000822 U	**0.00138 J**	<0.00248 U	<0.00131 U	**0.0894**	No
MW-05 TCI	11/18/2009	**0.0191**	---	---	---	---	---	No
	12/2/2010	**0.0653**	0.0006 J	0.0074	---	---	---	No
	9/21/2012	**0.264**	<0.000110 J	0.000543 JL	---	<0.0000700 J	---	No
	12/12/2013	**0.334**	---	---	---	---	---	No
MW-06 TCI	10/2/2008	**0.198 J**	<0.001 J	<0.001 J	---	<0.001 J	0.002	No
	11/20/2009	0.0013	---	---	---	---	---	Yes
	12/1/2010	**0.0056**	<0.0005	<0.0005	---	---	---	No
	9/21/2012	<0.0000800	<0.000110	<0.000150	---	<0.0000700	0.00886 J	Yes
MW-09 TCI	11/20/2009	<0.0005	---	---	---	---	---	Yes
	12/2/2010	**0.0389**	<0.0005	0.0011	---	---	---	No
	9/20/2012	<0.0000800	<0.000110	<0.000150	---	<0.0000700	---	Yes

Appendix B

GROUNDWATER ANALYTICAL DATA SUMMARY

TCI

KM Liquids Terminals LLC

Galena Park Terminal

Well ID	Date	Analyte						Below PCL?
		Benzene	Ethylbenzene	Toluene	Xylene	Styrene	Arsenic	
Tier 1 Groundwater PCL		0.005	0.7	1	10	0.1	0.01	
MW-10 TCI	10/2/2008	**316 J**	0.613 J	**58.1 J**	---	**0.988 J**	**0.013**	No
	10/2/2008 **	**301 J**	0.684 J	**54.6 J**	---	**1.1 J**	**0.014**	No
	11/23/2009	**194.7**	---	---	---	---	---	No
	3/16/2010	**214.2**	---	---	---	---	---	No
	12/2/2010	**213.1**	0.233	**30.57**	---	---	---	No
	6/21/2011	**213**	---	---	---	---	---	No
	7/2/2011	**227**	---	---	---	---	---	No
	7/8/2011	**207**	---	---	---	---	---	No
	7/14/2011	**215**	---	---	---	---	---	No
	7/22/2011	**247**	---	---	---	---	---	No
	9/21/2012	**354**	0.612	0.0281	---	**0.887**	**0.0196**	No
	2/14/2020	**256**	0.395	**32.9**	0.972	**538**	**0.0218**	No
	2/26/2021	**154 D**	0.172 J	**8.41**	0.328 J	**0.172 J**	**0.0286**	No
	2/25/2022	**209**	0.420	**8.04**	0.422	< 6.23	**0.0193 Ub**	No
	2/23/2023	**216**	**0.388**	**4.38**	**0.382 J**	<0.0655 U	**0.0180**	No
MW-12 TCI	10/2/2008	**138 J**	0.193 J	**50.3 J**	---	**0.511 J**	**0.018**	No
	9/14/2009	**206**	---	---	---	---	---	No
	10/7/2009	**178.5**	---	---	---	---	---	No
	11/23/2009	**8.181**	---	---	---	---	---	No
	3/16/2010	**32.21**	---	---	---	---	---	No
	12/2/2010	**1.752**	<0.005	0.9731	---	---	---	No
	2/28/2012	**345**	---	---	---	---	---	No
	9/21/2012	**363**	0.338	**126**	---	**0.828**	**0.0296**	No
	9/21/2012 **	**315**	0.337	**95.8**	---	**0.699**	**0.0311**	No
	2/14/2020	**87**	0.119	**22.4**	0.238	**164**	0.009 J	No
	2/26/2021	**79.7 D**	0.188	**25.2 D**	0.48	**0.318**	< 0.00550	No
	2/25/2022	**144**	0.466	**19.5**	0.503	**105**	< 0.00550	No
	2/23/2023	**67.7**	**0.231**	**11.6**	**0.335 J**	**0.0914 J**	**0.00936 J**	No
MW-13 TCI	11/20/2009	<0.0005	---	---	---	---	---	Yes
	12/2/2010	0.0007 J	<0.0005	<0.0005	---	---	---	Yes
	9/21/2012	<0.0000800	<0.000110 J	<0.000150 JL	---	<0.0000700 J	---	Yes
MW-14 TCI	1/21/2009	**0.0461**	---	---	---	---	---	No
	4/8/2009	**1.623**	---	---	---	---	---	No
	9/14/2009	**1.46**	---	---	---	---	---	No
	10/7/2009	**0.05**	---	---	---	---	---	No
	11/18/2009	**0.4698**	---	---	---	---	---	No
	3/16/2010	<0.0005	---	---	---	---	---	Yes
	12/2/2010	<0.0005	<0.0005	<0.0005	---	---	---	Yes
	9/21/2012	**0.790**	0.00542 JH	0.00921	---	0.000160 JH	---	No
	12/12/2013	**0.0443**	---	---	---	---	---	No
	12/12/2013 **	**0.0338**	---	---	---	---	---	No
MW-15 TCI	11/18/2009	NS	NS	NS	---	NS	NS	
MW-16 TCI	11/18/2009	<0.0005	---	---	---	---	---	Yes
	12/2/2010	<0.0005	<0.0005	<0.0005	---	---	---	Yes
	9/21/2012	**0.00882**	<0.000110	<0.000150	---	<0.0000700	---	No
	12/12/2013	<0.0000800	---	---	---	---	---	Yes
MW-17 TCI	11/18/2009	**0.3674**	---	---	---	---	---	No
	12/2/2010	**0.2058**	0.004	0.0128	---	---	---	No
	9/21/2012	**0.211**	0.00308	0.00911	---	0.000239 J	---	No

Appendix B

GROUNDWATER ANALYTICAL DATA SUMMARY

TCI

KM Liquids Terminals LLC

Galena Park Terminal

Well ID	Date	Analyte						Below PCL?
		Benzene	Ethylbenzene	Toluene	Xylene	Styrene	Arsenic	
Tier 1 Groundwater PCL		0.005	0.7	1	10	0.1	0.01	
MW-18 TCI	2/13/2013	0.000675 J	<0.000110	<0.000150	---	<0.0000700	---	Yes
	11/2/2017	<0.00088	---	---	---	---	---	Yes
	2/28/2020	<0.000176	<0.000212	<0.000198	<0.000366	<0.175	0.00890 J	No
	2/26/2021	< 0.000214	< 0.000146	< 0.000500	< 0.000192	< 0.000162	**0.0139 J**	No
	2/25/2022	< 0.000214	< 0.000515	< 0.000500	< 0.000330	< 0.623	< 0.00550	No
	2/23/2023	<0.000533 U	<0.000411 U	<0.000475 U	<0.00124 U	<0.000655 U	<0.00805 U	Yes
MW-19 TCI	2/13/2013	0.000365 J	<0.000110	<0.000150	---	<0.0000700	---	Yes
	12/12/2013	**0.00530**	---	---	---	---	---	No
	11/2/2017	< 0.00088	---	---	---	---	---	Yes
	2/28/2020	<0.000176	<0.000212	<0.000198	<0.000366	<0.175	**0.011**	No
	2/26/2021	0.00307	< 0.000146	< 0.000500	0.000350 J	< 0.000162	**0.0166**	No
	2/25/2022	**0.0106**	< 0.000515	< 0.000500	< 0.000330	< 0.623	< 0.00550	No
	2/23/2023	<0.000533 U	<0.000411 U	<0.000475 U	<0.00124 U	<0.000655 U	**0.00997 J**	Yes
MW-20 TCI	2/13/2013	<0.000400	<0.000550	<0.000750	---	<0.000350	---	Yes
POE-1	10/2/2008	**116.6 J**	---	---	---	---	---	No
	1/21/2009	**11.63**	---	---	---	---	---	No
	4/8/2009	**6.558**	---	---	---	---	---	No
	9/14/2009	**29.29**	---	---	---	---	---	No
	10/7/2009	**32.78**	---	---	---	---	---	No
	11/23/2009	**1.526**	---	---	---	---	---	No
	11/23/2009 **	**1.37**	---	---	---	---	---	No
	3/16/2010	**2.543**	---	---	---	---	---	No
	12/2/2010	**86**	0.0918	0.0118	---	---	---	No
	2/28/2012	**96.7**	---	---	---	---	---	No
	9/20/2012	**164**	0.0223 J	0.0485 J	---	<0.00700	---	No
POE-3	10/2/2008	**0.266 J**	<0.001 J	<0.001 J	---	<0.001 J	**0.018**	No
	11/20/2009	**0.2496**	---	---	---	---	---	No
	12/2/2010	**0.2002**	<0.0005	0.0021	---	---	---	No
	2/28/2012	**0.869**	---	---	---	---	---	No
	9/20/2012	**0.302**	<0.000110 JH	<0.000150	---	0.000166 JH	---	No
RI-1-10	10/3/2008	---	---	---	---	---	**0.017**	No
	11/18/2009	**0.0413**	---	---	---	---	---	No
	12/1/2010	<0.0005	<0.0005	<0.0005	---	---	---	Yes
	9/21/2012	<0.0000800	<0.000110	<0.000150	---	<0.0000700	**0.0239**	No
RI-1-13	10/2/2008	**3.92 J**	0.022 J	0.016 J	---	<0.001 J	0.004	No
	11/18/2009	**1.026**	---	---	---	---	---	No
	3/16/2010	**2.768**	---	---	---	---	---	No
	12/1/2010	**0.8818**	0.0073	0.0066	---	---	---	No
	9/20/2012	**0.840**	0.0137 J	0.00409 JL	---	<0.0000700 J	0.00344 J	No

Appendix B

GROUNDWATER ANALYTICAL DATA SUMMARY

TCI

KM Liquids Terminals LLC

Galena Park Terminal

Well ID	Date	Analyte						Below PCL?
		Benzene	Ethylbenzene	Toluene	Xylene	Styrene	Arsenic	
Tier 1 Groundwater PCL		0.005	0.7	1	10	0.1	0.01	
RW-1	2/28/2012	**63.9**	---	---	---	---	---	No
	9/20/2012	**17.8**	0.0119 J	0.239	---	<0.00350	---	No
RW-2	2/28/2012	**18.7**	---	---	---	---	---	No
	9/20/2012	**67.2**	0.0624 J	0.142	---	<0.00700	---	No
RW-3	2/28/2012	**268**	---	---	---	---	---	No
	9/20/2012	**248**	0.305	**4.57**	---	<0.0140	---	No
	2/14/2020	**116**	---	---	---	---	---	No
	2/25/2021	**14.9 D**	< 0.00146	< 0.00500	0.00300 J	< 0.00162	< 0.00550	No
	2/24/2022	**4.07**	< 0.00515	< 0.00500	0.00725 J	< 6.23	< 0.00550	No
	2/23/2023	**1.61**	<0.0206 U	<0.0238 U	<0.0620 U	<0.0328 U	**0.00943 J**	No
RW-4	2/28/2012	**0.661**	---	---	---	---	---	No
	9/20/2012	**1.39 JL**	0.00133 J	<0.000750	---	<0.000350	---	No
RW-5	2/28/2012	**1.39**	---	---	---	---	---	No
	9/20/2012	**2.75**	0.0502	0.0205	---	0.00229 J	---	No
	2/14/2020	**1.46**	0.00536	0.00621	0.0146	< 0.875	**0.128**	No
Duplicate	2/14/2020	**1.49**	0.00503	0.00593	0.0139	< 0.875	**0.0563**	No
	2/26/2021	**0.00886**	< 0.000146	< 0.000500	0.000530 J	< 0.000162	**0.0764**	No
Duplicate	2/26/2021	**0.00884**	< 0.000146	< 0.000500	0.000600 J	< 0.000162	**0.0724**	No
	2/25/2022	**0.530**	0.000743 J	0.00264	0.00431 J	< 0.623	**0.0501 J**	No
Duplicate	2/25/2022	**0.595**	0.000701 J	0.00259	0.00383 J	< 0.623	**0.0770 J**	No
	2/23/2023	**0.356**	<0.00206 U	**0.00400 J**	**0.0165 J**	<0.00328 U	**0.0423 J**	No
Duplicate	2/23/2023	**0.355**	<0.00206 U	**0.00403 J**	**0.0170 J**	<0.00328 U	**0.0752 J**	No
RW-9	2/13/2013	**0.0184 J**	<0.0110	<0.0150	---	<0.00700	---	No
MW-21	12/16/2013	**46.7**	---	---	---	---	---	No

Notes:

PCL - Protective Concentration Level

Concentrations exceed the TCEQ TRRP Tier 1 $^{GW}GW_{Ing}$ PCL

Sample Detection Limit is above PCL

Sampling as Specified in the 2018 RAP.

All concentrations are reported in milligrams per liter (mg/L)

--- Not analyzed

NS - Not sampled

< - Not detected above method detection limit

J - Estimated concentration

H - Bias in sample result is likely to be high.

L - Bias in sample result is likely to be low.

D - The result is from a diluted sample

Appendix B

Historical Groundwater Concentration Summary

Old Pump House No. 5 AOC

KM Liquids Terminals LLC

Galena Park Terminal

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-1	07/31/15	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
(8-foot Sump)	02/25/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	06/16/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/14/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NS	NS	NS	NS	NS	NS	NS
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-2	07/31/15	**0.00415**	**0.000378 J**	**0.000568 J**	**0.0055**	**0.00514**	**0.000196 J**	0.0000777 U
	02/25/16	**0.124**	**0.0145**	**0.00145**	**0.0168**	**0.0298**	**0.0203**	**0.062**
	06/16/16	**0.0974**	**0.00826**	**0.00103**	**0.0164**	**0.127**	**0.128**	**0.355**
	09/09/16	**0.0846**	**0.00866**	**0.00114**	**0.0173**	**0.0387**	**0.0352**	**0.079**
	01/24/18	**0.0163**	**0.00236**	**0.000411 J**	**0.00833**	0.000190 U	0.000140 U	0.000160 U
	08/30/18	**0.0777**	**0.0495**	**0.00208**	**0.0469**	0.000189 U	0.000135 U	**0.000551 J**
	03/01/19	**0.0409**	**0.0205**	**0.00116**	**0.0145**	**0.00989**	**0.00931**	0.000160 U
	08/29/19	**0.0522**	**0.00790**	**0.00137**	**0.0161**	**0.0683**	**0.0629**	**0.0743**
	02/14/20	**0.0515**	**0.00416**	**0.00112**	**0.0143**	**0.0161 J**	**0.0130 J**	**0.0159 J**
	07/27/20	**0.0420**	**0.00225**	**0.000692 J**	**0.0104**	**0.0137 J**	**0.00946 J**	**0.00275 J**
	01/20/21	0.0438	0.0033	0.00086 J	0.0112	0.0116	0.0098	0.0052
	07/01/21	**0.0277**	**0.000943 J**	**0.00075 J**	**0.012**	**0.00868**	**0.00674**	**0.00126**
	01/13/22	**0.0731**	**0.0640**	**0.00270**	**0.0455**	**0.0458 JL**	**0.0628 JL**	**0.561 J**
	07/28/22	**0.0460**	**0.00144**	**0.00111**	**0.0174**	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.0109	0.00183	0.000735 J	0.0124	0.0238	0.00244 *	0.0468
OPHMW-2	07/21/23	0.0111	0.0196	0.00113	0.0170	0.0872 J	0.0715 J	1.31 J
OPHMW-3	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	09/09/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	08/30/18	0.000176 U	**0.000602 J**	0.000198 U	**0.000488 J**	0.000183 U	0.000135 U	**0.000299 J**
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	**0.000562 J**
	08/29/19	0.000176 U	0.000212 U	**0.000536 J**	0.000366 U	0.000190 U	0.000140 U	0.000284 J
	02/14/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	**0.000321 J**	**0.000239 J**
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	**0.000368 J**	0.000480 U	**0.000442 J**
	01/30/23	0.000551 U	0.00124 U	0.000533 U	0.000411 U	0.000333 U	0.00048 U *	0.000423 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-4	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	**0.0233**	**0.0526**	**0.0266**
	09/09/16	0.000176 U	**0.000272 J**	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/28/19	0.000176 U	0.000212 U	**0.000534 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 U
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	**0.00076 J**

Appendix B

Historical Groundwater Concentration Summary

Old Pump House No. 5 AOC

KM Liquids Terminals LLC

Galena Park Terminal

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-4	01/30/23	0.000475 U	0.000551 U	0.000411 U	0.00124 U	0.000333 U	0.000423 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-5	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	09/09/16	**0.000305 J**	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	**0.000413 J**	**0.000766 J**	**0.00297**
	08/30/18	**0.000272 J**	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/28/19	0.000176 U	0.000212 U	**0.000535 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	07/27/20	**0.000733 J**	0.000212 U	0.000198 U	**0.000655 J**	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.00071 J	0.00036 J	0.0005 U	0.00078 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 U
	07/28/22	0.000533	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.00124 U	0.000533 U	0.000551 U	0.000475 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-6	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	**0.000231 J**	**0.00033 J**	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	09/09/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	**0.00312**	**0.00159**	**0.000277 J**	**0.00158 J**	**0.000451 J**	**0.000715 J**	**0.00140 J**
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	08/29/19	0.000176 U	0.000212 U	**0.000523 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/14/20	0.000176 U	0.000212 U	0.000198 U	**0.000382 J**	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.00054 J	0.00024 J	0.0005 U	0.00077 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	**0.000358 J**	0.000333 UJL	0.000480 UJL	0.000423 UJL
OPHMW-6	07/28/22	0.000533 U	0.000411 U	0.000475 U	**0.00131 J**	0.000333 U	0.000480 U	**0.000625 J**
	01/30/23	0.000475 U	0.00124 U	0.000533 U	0.00124 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-7	07/31/15	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/25/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	06/16/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	**2.20**	**1.81**	**0.101 J**	**2.74**	**0.096**	**0.117**	**0.305**
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/13/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-8	02/25/16	**8.75**	**3.26**	**0.145**	**2.51**	**0.103**	**0.156**	**0.707**
	06/16/16	**12**	**4.57**	**0.167 J**	**4.57**	**0.108 J**	**0.204**	**1.13**
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/13/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL

Appendix B

Historical Groundwater Concentration Summary

Old Pump House No. 5 AOC

KM Liquids Terminals LLC

Galena Park Terminal

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-8	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-9	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000183 U	0.0000135 U	0.0000154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	08/29/19	0.000176 U	0.000212 U	**0.000443 J**	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	02/14/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.000475 U	0.000533 U	0.000551 U	0.00124 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-10	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00183 U	0.00135 U	0.00154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	**0.000570 J**
	08/28/19	0.000176 U	0.000212 U	**0.000484 J**	**0.000633 J**	0.00183 U	0.00135 U	0.00154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00190 U	0.00140 U	0.00160 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00190 U	0.00140 U	0.00160 U
	01/20/21	0.00031 J	0.0002 J	0.0005 U	0.00066 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	**0.000362 J**	**0.000671 J**	**0.000555 J**
	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000423 U	0.000333 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-11	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000183 U	0.0000135 U	0.0000154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	08/28/19	0.000176 U	0.000212 U	**0.000499 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	01/20/21	0.000214 U	0.0005 U	0.000192 U	0.000146 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.0005 U	0.00033 U	0.000333 U	0.00048 U	0.0008 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	**0.000598 J**
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.00048 UJL	0.000423 UJL
	01/30/23	0.000411 U	0.000533 U	0.000475 U	0.000551 U	0.000333 U	0.000423 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U

Notes:

GWPS - Groundwater Protection Standard

Concentrations in **Bold** exceed the SDL

Acronyms

J - Estimated concentration between the SDL and the MQL

U - Not detected at the SDL

SDL - Sample Detection Limit

NAPL - Non-aqueous phase liquid

L – Bias in sample result is likely low

* - LCS or LCSD is outside acceptance limits.

Appendix B
Summary of Groundwater Analytical Results
East Plant - Gate 6 Area
KM Liquids Terminals LLC
Galena Park Terminal
Galena Park, Harris County, Texas

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Xylenes, Total (mg/L)	TPH C6 - C12 (mg/L)	TPH >C12 - C28 (mg/L)	TPH >C28 - C35 (mg/L)	Total TPH 1005 (mg/L)
$^{GW}GW_{Ing}$	*Comm/Ind*	***0.005***	***1***	***0.7***	***10***	***10***	***10***	***2.9***	***2.9***	***2.9***	***NE***
	Res.	***0.005***	***1***	***0.7***	***10***	***10***	***10***	***0.98***	***0.98***	***0.98***	***NE***
$^{Air}GW_{Inh-V}$	*Tier II*	***6,310***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NE***
	Res.	***180***	***64,000***	***30,000***	***9,400***	***760,000***	***10,000***	***1,800***	***7,500***	***7,500***	***NE***
EPMW-1	**10/6/10**	0.0005 (U)	0.0005 (U)	0.0005 (U)	0.001 (U)	0.0005 (U)	-	0.768 (U)	0.768 (U)	0.836 (U)	(U)
	7/29/11	0.00026 (U)	0.000492 (U)	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.841 (U)	0.841 (U)	0.841 (U)	(U)
	11/18/11	0.00026 (U)	0.000492 (U)	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.813 (U)	0.813 (U)	0.813 (U)	(U)
	2/23/12	0.00008 (U)	0.00015 (U)	0.00011 (U)	0.00017 (U)	0.00012 (U)	-	0.676 (U)	0.829 (U)	1.42 (U)	(U)
	5/25/12	0.0000800 (U)	0.000150 (U)	0.000110 (U)	0.170 (U)	0.120 (U)	-	0.815 (U)	0.942 (U)	0.942 (U)	1.53 (U)
	4/11/13	0.0000800 (U)	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.822 (U)	0.950 (U)	0.950 (U)	1.54 (U)
	10/8/13	**0.000698 (J)**	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.807 (U)	0.933 (U)	0.933 (U)	1.52 (U)
	5/14/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.680 (U)	0.787 (U)	0.787 (U)	0.680 (U)
	11/18/15	**0.000558 (J)**	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.689 (U)	0.797 (U)	0.797 (U)	0.689 (U)
	5/26/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.678 (U)	0.784 (U)	0.784 (U)	0.678 (U)
	11/17/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	**0.000255 (J)**	0.000192 (U)	0.000366 (U)	0.679 (U)	0.785 (U)	0.785 (U)	0.679 (U)
	5/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	**27.4**	**37.9**	0.771 (U)	**65.3**
	6/19/17	-	-	-	-	-	-	0.671 (U)	0.766 (U)	0.766 (U)	0.671 (U)
	8/1/17	0.000321 (J)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.678 (U)	0.785 (U)	0.785 (U)	0.678 (U)
	11/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.686 (U)	0.793 (U)	0.793 (U)	0.686 (U)
	5/17/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/15/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000424 (J)	0.000192 (U)	0.000424 (J)	NA	NA	NA	NA
	5/14/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	11/16/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
DUPLICATE	**11/16/21**	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/12/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
DUPLICATE	**5/12/22**	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
EPMW-2	**10/6/10**	0.0005 (U)	0.0005 (U)	0.00050 (U)	0.001 (U)	0.0005 (U)	-	0.779 (U)	0.779 (U)	0.848 (U)	(U)
	7/29/11	0.00026 (U)	0.000492 (U)	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.815 (U)	0.815 (U)	0.815 (U)	(U)
	11/18/11	0.00026 (U)	0.000492 (U)	**0.000363 (J)**	0.000474 (U)	0.00031 (U)	-	0.821 (U)	0.821 (U)	0.821 (U)	(U)
	2/23/12	0.00008 (U)	0.00015 (U)	0.00011 (U)	0.00017 (U)	0.00012 (U)	-	0.677 (U)	0.830 (U)	1.41 (U)	(U)
	5/25/12	**0.000671 (J)**	0.000150 (U)	0.000110 (U)	0.170 (U)	0.120 (U)	-	0.806 (U)	0.933 (U)	0.933 (U)	1.52 (U)
	5/22/13	0.0000800 (U)	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.807 (U)	0.934 (U)	0.934 (U)	1.52 (U)
	10/8/13	0.0000800 (U)	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.799 (U)	0.924 (U)	0.924 (U)	1.50 (U)
	5/14/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.692 (U)	0.800 (U)	0.800 (U)	0.692 (U)
	11/18/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.685 (U)	0.793 (U)	0.793 (U)	0.685 (U)
DUPLICATE	**11/18/15**	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.679 (U)	0.786 (U)	0.786 (U)	0.679 (U)

AECOM

TABLE 2
Summary of Groundwater Analytical Results
East Plant - Gate 6 Area
KM Liquids Terminals LLC
Galena Park Terminal
Galena Park, Harris County, Texas

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Xylenes, Total (mg/L)	TPH C6 - C12 (mg/L)	TPH >C12 - C28 (mg/L)	TPH >C28 - C35 (mg/L)	Total TPH 1005 (mg/L)
$^{GW}GW_{Ing}$	*Comm/Ind*	*0.005*	*1*	*0.7*	*10*	*10*	*10*	*2.9*	*2.9*	*2.9*	*NE*
	Res.	*0.005*	*1*	*0.7*	*10*	*10*	*10*	*0.98*	*0.98*	*0.98*	*NE*
$^{Air}GW_{Inh-V}$	*Tier II*	*6,310*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NE*
	Res.	*180*	*64,000*	*30,000*	*9,400*	*760,000*	*10,000*	*1,800*	*7,500*	*7,500*	*NE*
	5/26/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.672 (U)	0.778 (U)	0.778 (U)	0.672 (U)
DUPLICATE	**5/26/16**	**0.000272 (J)**	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.680 (U)	0.786 (U)	0.786 (U)	0.680 (U)
	11/17/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	**0.000239 (J)**	0.000192 (U)	0.000366 (U)	0.678 (U)	0.784 (U)	0.784 (U)	0.678 (U)
	5/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.671 (U)	0.776 (U)	0.776 (U)	0.671 (U)
	8/1/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.680 (U)	0.787 (U)	0.787 (U)	0.680 (U)
	11/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.686 (U)	0.793 (U)	0.793 (U)	0.686 (U)
	5/17/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
DUPLICATE	**5/17/18**	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/15/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
DUPLICATE	**11/15/19**	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
DUPLICATE	**5/14/21**	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	11/16/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/12/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
EPMW-3	**10/6/10**	**3.097**	**0.0999**	**0.1842**	**0.1506**	**0.0356**	**0.1862**	**6.03**	0.77 (U)	0.839 (U)	**6.03**
	7/29/11	**0.109 (J)**	0.000492 (U)	**0.00949 (J)**	**0.00057 (J)**	**0.000393 (J)**	**-**	0.823 (U)	0.823 (U)	0.823 (U)	(U)
	11/18/11	**0.317**	**0.00319**	**0.018**	**0.00363**	**0.00137**	**0.005**	0.819 (U)	0.819 (U)	0.819 (U)	(U)
	2/23/12	**1.85**	**0.0255**	**0.0775**	**0.0416**	**0.0102**	**0.0518**	**1.84**	0.834 (U)	**1.42 (U)**	**1.84**
	5/25/12	**0.716**	**0.00661**	**0.0369**	**6.58**	**2.29**	**8.87**	0.805 (U)	0.931 (U)	0.931 (U)	**1.51 (U)**
DUPLICATE	**5/25/12**	**0.737**	**0.00672**	**0.0371**	**6.63**	**2.31**	**8.94**	0.813 (U)	0.941 (U)	0.941 (U)	**1.53 (U)**
	5/22/13	**1.19**	**0.00874**	**0.033**	**-**	**-**	**0.00406**	**2.04 (J)**	**3.86 (J)**	0.935 (U)	**5.89**
	10/8/13	**0.0274**	0.000150 (U)	**0.000200 (J)**	**-**	**-**	0.00260 (U)	0.808 U	0.934 (U)	0.934 (U)	**1.52 (U)**
	5/14/15	**0.344**	**0.00379**	**0.110**	**-**	**-**	**0.00427**	0.680 (U)	0.786 (U)	0.786 (U)	0.680 (U)
DUPLICATE	**5/14/15**	**0.396**	**0.00411**	**0.0121**	**-**	**-**	**0.00455**	0.692 (U)	0.800 (U)	0.800 (U)	0.692 (U)
	11/18/15	**2.03**	**0.0250**	**0.0313**	**0.0307**	**0.00489**	**0.0356**	0.685 (U)	0.792 (U)	0.792 (U)	0.685 (U)
	5/26/16	**0.929**	**0.00791**	**0.0177**	-	-	**0.00684**	0.673 (U)	0.778 (U)	0.778 (U)	0.673 (U)
	11/17/16	**1.35**	**0.0157**	**0.0114**	**0.016**	**0.00156**	**0.0176**	0.673 (U)	0.778 (U)	0.778 (U)	0.673 (U)
DUPLICATE	**11/17/16**	**1.21**	**0.013**	**0.00975**	**0.0134**	**0.00144**	**0.0148**	0.678 (U)	0.784 (U)	0.784 (U)	0.678 (U)
	5/16/17	**0.132**	**0.00104**	**0.00121**	**0.000368 (J)**	0.000192 (U)	**0.000368 (J)**	0.670 (U)	0.775 (U)	0.775 (U)	0.670 (U)
DUPLICATE	**5/16/17**	**0.135**	**0.00121**	**0.00133**	**0.000420 (J)**	0.000192 (U)	**0.000420 (J)**	0.677 (U)	0.783 (U)	0.783 (U)	0.677 (U)
	8/1/17	**0.812**	**0.00453**	**0.00326**	**0.002**	0.000192 (J)	**0.00219**	0.678 (U)	0.785 (U)	0.785 (U)	0.678 (U)
DUPLICATE	**8/1/17**	**0.263**	**0.00188**	**0.00102**	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.682 (U)	0.789 (U)	0.789 (U)	0.682 (U)

AECOM

TABLE 2
Summary of Groundwater Analytical Results
East Plant - Gate 6 Area
KM Liquids Terminals LLC
Galena Park Terminal
Galena Park, Harris County, Texas

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Xylenes, Total (mg/L)	TPH C6 - C12 (mg/L)	TPH >C12 - C28 (mg/L)	TPH >C28 - C35 (mg/L)	Total TPH 1005 (mg/L)
$^{GW}GW_{Ing}$	*Comm/Ind*	*0.005*	*1*	*0.7*	*10*	*10*	*10*	*2.9*	*2.9*	*2.9*	*NE*
	Res.	*0.005*	*1*	*0.7*	*10*	*10*	*10*	*0.98*	*0.98*	*0.98*	*NE*
$^{Air}GW_{Inh-V}$	*Tier II*	*6,310*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NE*
	Res.	*180*	*64,000*	*30,000*	*9,400*	*760,000*	*10,000*	*1,800*	*7,500*	*7,500*	*NE*
	11/16/17	**0.587 (b)**	**0.00625**	**0.00239**	**0.00542**	**0.000689 (J)**	**0.00611**	0.684 (U)	0.791 (U)	0.791 (U)	0.684 (U)
	5/17/18	**0.13**	**0.00113**	**0.00168**	**0.000445 (J)**	**0.000792 (U)**	**0.000445 (J)**	NA	NA	NA	NA
	11/19/18	**1.02**	**0.00858**	**0.0027**	**0.0055**	**0.000649 J**	**0.00615**	NA	NA	NA	NA
	5/17/19	**0.155**	**0.000848 (J)**	**0.00128**	**0.000910 (J)**	0.000192 (U)	**0.000910 (J)**	NA	NA	NA	NA
	11/15/19	**0.835**	**0.00611**	**0.00129**	**0.00354**	0.000192 (U)	**0.00354**	NA	NA	NA	NA
	5/14/20	**0.0813**	**0.000501 (J)**	**0.000949 (J)**	**0.000633 (J)**	0.000192 (U)	**0.000633 (J)**	NA	NA	NA	NA
	11/19/20	**0.98**	**0.00642**	**0.00167**	**0.00394**	**0.000531 (J)**	**0.00447**	NA	NA	NA	NA
	5/14/21	**0.272**	**0.00345**	**0.006**	**0.00243 (J)**	**0.000506 (J)**	**0.00294 (J)**	NA	NA	NA	NA
	11/16/21	**0.384**	**0.00254**	**0.000889 (J)**	**0.00188 (J)**	**0.00270 (J)**	**0.00215 (J)**	NA	NA	NA	NA
	5/12/22	**0.24**	**0.00147**	**0.00291**	**0.000724 (J)**	0.000192 (U)	**0.000724 (J)**	NA	NA	NA	NA
EPMW-4	**10/6/10**	0.0005 (U)	0.0005 (U)	0.0005 (U)	0.001 (U)	0.0005 (U)	-	0.766 (U)	0.766 (U)	0.834 (U)	(U)
	7/29/11	0.00026 (U)	0.000492 (U)	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.811 (U)	0.811 (U)	0.811 (U)	(U)
	11/18/11	0.00026 (U)	0.00209	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.826 (U)	0.826 (U)	0.826 (U)	(U)
	2/23/12	0.00008 (U)	0.00015 (U)	0.00011 (U)	**0.000218 (J)**	0.00012 (U)	-	0.678 (U)	0.831 (U)	**1.41 (U)**	(U)
	5/25/12	0.000212 (J)	0.000409 (J)	0.000110 (U)	**0.256 (J)**	**0.123 (J)**	-	0.0810 (U)	0.937 (U)	0.937 (U)	**1.52 (U)**
	4/11/13	0.0000800 (U)	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.189 (U)	0.948 (U)	0.948 (U)	**1.54 (U)**
	10/8/13	**0.000713 (J)**	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.850 (U)	0.931 (U)	0.931 (U)	**1.51 (U)**
Well Plugged and abandoned May 8, 2015											
EPMW-5	**10/6/10**	**0.0025**	0.0005 (U)	**0.0011**	0.001 (U)	0.0005 (U)	-	0.772 (U)	0.772 (U)	0.84 (U)	(U)
	7/29/11	0.00026 (U)	0.000492 (U)	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.84 (U)	0.84 (U)	0.84 (U)	(U)
	11/18/11	0.00026 (U)	0.000492 (U)	0.000198 (U)	0.000474 (U)	0.00031 (U)	-	0.827 (U)	0.827 (U)	0.827 (U)	(U)
	2/23/12	**0.00596**	0.00015 (U)	0.00011 (U)	**0.000205 (J)**	0.00012 (U)	-	0.680 (U)	0.833 (U)	**1.42 (U)**	(U)
	5/25/12	**0.000157 (J)**	0.000150 (U)	0.000110 (U)	0.170 (U)	0.120(U)	-	0.809 (U)	0.936 (U)	0.936 (U)	**1.52 (U)**
	4/11/13	**0.000892 (J)**	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.823 (U)	0.952 (U)	0.952 (U)	**1.55 (U)**
Duplicate	**4/11/13**	**0.000993 (J)**	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.823 (U)	0.952 (U)	0.952 (U)	**1.55 (U)**
	10/8/13	**0.000840 (J)**	0.000150 (U)	0.000110 (U)	-	-	0.000260 (U)	0.821 (U)	0.939 (U)	0.939 (U)	**1.53 (U)**
Well Plugged and abandoned October 2013.											
EPMW-6	**4/11/13**	**742**	**2.03**	**0.398 (J)**	-	-	**0.955 (J)**	**238**	**4.74 (U)**	**4.74 (U)**	**238**
	10/8/13	**628**	**2.40**	**0.305**	-	-	**0.710**	**6.39 J**	**2.80 (U)**	**2.80 (U)**	**6.39 J**
Well destroyed 2014											
EPMW-6R	**5/14/15**	**9.97**	**0.0492**	**0.0227**	-	-	**0.0216**	0.692 (U)	0.800 (U)	0.800 (U)	0.692 (U)
	11/18/15	**11.6**	**0.00245**	**0.0271**	**0.00195**	**0.000922 (J)**	**0.00287**	**6.21**	0.789 (U)	0.789 (U)	**6.21**
	5/26/16	**0.531**	**0.00155**	**0.000868 (J)**	-	-	**0.00548**	0.678 (U)	0.784 (U)	0.784 (U)	0.678 (U)
	11/17/16	**0.0153**	**0.000335 (J)**	**0.000571 (J)**	**0.00161**	**0.000446 (J)**	**0.00206**	0.673 (U)	0.778 (U)	0.778 (U)	0.673 (U)
	5/16/17	**0.000727 (J)**	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.672 (U)	0.778 (U)	0.778 (U)	0.672 (U)
	8/1/17	**0.000335 (J)**	**0.000433 (J)**	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.678 (U)	0.785 (U)	0.785 (U)	0.678 (U)

AECOM

TABLE 2
Summary of Groundwater Analytical Results
East Plant - Gate 6 Area
KM Liquids Terminals LLC
Galena Park Terminal
Galena Park, Harris County, Texas

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Xylenes, Total (mg/L)	TPH C6 - C12 (mg/L)	TPH >C12 - C28 (mg/L)	TPH >C28 - C35 (mg/L)	Total TPH 1005 (mg/L)
$^{GW}GW_{Ing}$	*Comm/Ind*	*0.005*	*1*	*0.7*	*10*	*10*	*10*	*2.9*	*2.9*	*2.9*	*NE*
	Res.	*0.005*	*1*	*0.7*	*10*	*10*	*10*	*0.98*	*0.98*	*0.98*	*NE*
$^{Air}GW_{Inh-V}$	*Tier II*	*6,310*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NC*	*NE*
	Res.	*180*	*64,000*	*30,000*	*9,400*	*760,000*	*10,000*	*1,800*	*7,500*	*7,500*	*NE*
	11/16/17	**0.00346**	0.000198 (U)	**0.000317 (J)**	**0.000308 (J)**	0.000192 (U)	0.000366 (U)	0.694 (U)	0.802 (U)	0.802 (U)	0.694 (U)
	5/18/18	**0.0186**	**0.0154**	**0.0182**	**0.0169**	**0.00515**	**0.0221**	NA	NA	NA	NA
	11/19/18	**0.00555**	**0.000198 (J)**	**0.000379 (J)**	**0.000578 (J)**	0.000192 (U)	**0.000578 (J)**	NA	NA	NA	NA
DUPLICATE	**11/19/18**	**0.00108**	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	**0.0062**	**0.000207 (J)**	**0.00479**	**0.00563**	**0.0015**	**0.00713**	NA	NA	NA	NA
	11/15/19	**0.00841**	0.000198 (U)	0.000212 (U)	**0.000226 (J)**	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/20	**0.00486**	**0.000469 (J)**	**0.000372 (J)**	**0.000469 (J)**	0.000192 (U)	**0.000469 (J)**	NA	NA	NA	NA
	11/19/20	**0.000244 (J)**	0.000198 (U)	0.000212 (U)	**0.000330 (J)**	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
DUPLICATE	**11/19/20**	**0.000198 (J)**	0.000198 (U)	0.000212 (U)	**0.000324 (J)**	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/21	**0.000959 (J)**	0.000500 (U)	**0.000745 (J)**	**0.000571 (J)**	0.000192 (U)	**0.000571 (J)**	NA	NA	NA	NA
	11/16/21	**0.00111**	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/13/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
EPMW-7	**2/24/17**	**369 (b)**	**0.680**	**0.424**	**0.491**	**0.154**	**0.645**	**45.5**	0.824 (U)	0.824 (U)	**45.5**
	5/16/17	**206**	**0.511**	**0.178 (J)**	**0.258**	**0.0942 (J)**	**0.352**	**89.9**	**1.54 (U)**	**1.54 (U)**	**89.9**
	8/1/17	**267**	**0.440**	**0.215**	**0.109**	**0.0615**	**0.171**	0.678 (U)	0.785 (U)	0.785 (U)	0.678 (U)
	11/16/17	**231 (b)**	**1.53**	**0.328**	**0.300**	**0.377**	**0.637**	**77.6**	**1.20 (J)**	0.789 (U)	**77.6**
DUPLICATE	**11/16/17**	**238 (b)**	**1.29**	**0.217**	**0.189**	**0.181**	**0.370**	**68.3**	0.791 (U)	0.791 (U)	**68.3**
	5/18/18	**238**	**0.309**	**0.154 (J)**	**0.0716 (J)**	**0.0482 (J)**	**0.120 (J)**	NA	NA	NA	NA
	11/19/18	**123**	**0.957**	**0.116 (J)**	0.103 (U)	**0.107 (J)**	0.183 (U)	NA	NA	NA	NA
	5/17/19	**137**	**0.601**	0.106 (U)	0.103 (U)	0.0960 (U)	0.183 (U)	NA	NA	NA	NA
DUPLICATE	**5/17/19**	**139**	**0.599**	**0.0648**	**0.066**	**0.0513**	**0.0117**	NA	NA	NA	NA
	11/15/19	**82.7**	**0.129 J**	0.0424 (U)	**0.0517 J**	0.0384 (U)	0.0732 (U)	NA	NA	NA	NA
	5/14/20	**118**	**0.196 (J)**	0.106 (U)	0.103 (U)	0.0960 (U)	0.183 (U)	NA	NA	NA	NA
DUPLICATE	**5/14/20**	**106**	**0.210 (J)**	0.106 (U)	0.103 (U)	0.0960 (U)	0.183 (U)	NA	NA	NA	NA
	11/19/20	**57.5**	**0.395**	**0.0515 (J)**	**0.0815 (J)**	0.0384 (U)	**0.0815 (J)**	NA	NA	NA	NA
	5/14/21	**110**	**0.037**	**0.0829**	**0.0276 (J)**	0.00479 (U)	**0.0276 (J)**	NA	NA	NA	NA
	11/16/21	**108**	**0.0056**	**0.0648**	**0.020**	**0.00164**	**0.0218**	NA	NA	NA	NA
	5/13/22	**9.41**	0.00500 (U)	**0.0265**	**0.0177 (J)**	0.00192 (U)	**0.0177 (J)**	NA	NA	NA	NA
EPMW-8	**2/24/17**	**0.0202 (b)**	**0.000198 (J)**	**0.000541 (J)**	**0.000905 (J)**	**0.000541 (J)**	**0.00145**	0.716 (U)	0.828 (U)	0.828 (U)	0.828 (U)
	5/16/17	**0.00144**	0.000198 (U)	**0.000429 (J)**	0.000205 (U)	**0.000287 (J)**	0.000366 (U)	0.670 (U)	0.774 (U)	0.774 (U)	0.670 (U)
	8/1/17	0.000176 (U)	**0.000566 (J)**	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.677 (U)	0.783 (U)	0.783 (U)	0.677 (U)
	11/16/17	**0.000185 (J)**	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.680 (U)	0.787 (U)	0.787 (U)	0.680 (U)
	5/18/18	**0.000426 (J)**	**0.00932**	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/18	0.000176 (U)	**0.000206 (J)**	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/15/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA

AECOM

TABLE 2
Summary of Groundwater Analytical Results
East Plant - Gate 6 Area
KM Liquids Terminals LLC
Galena Park Terminal
Galena Park, Harris County, Texas

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Xylenes, Total (mg/L)	TPH C6 - C12 (mg/L)	TPH >C12 - C28 (mg/L)	TPH >C28 - C35 (mg/L)	Total TPH 1005 (mg/L)
$^{GW}GW_{Ing}$	*Comm/Ind*	***0.005***	***1***	***0.7***	***10***	***10***	***10***	***2.9***	***2.9***	***2.9***	***NE***
	Res.	***0.005***	***1***	***0.7***	***10***	***10***	***10***	***0.98***	***0.98***	***0.98***	***NE***
$^{Air}GW_{Inh-V}$	*Tier II*	***6,310***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NE***
	Res.	***180***	***64,000***	***30,000***	***9,400***	***760,000***	***10,000***	***1,800***	***7,500***	***7,500***	***NE***
	5/14/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	**0.000315 (J)**	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	11/16/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/12/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
Field Blank	**5/25/12**	0.0000800 (U)	0.000110 (U)	0.000150 (U)	0.170 (U)	0.120 (U)	-	0.812 (U)	0.939 (U)	0.939 (U)	1.53 (U)
	5/14/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.678 (U)	0.785 (U)	0.785 (U)	0.678 (U)
	11/18/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.684 (U)	0.791 (U)	0.791 (U)	0.684 (U)
	5/26/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.681 (U)	0.788 (U)	0.788 (U)	0.681 (U)
	11/17/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.673 (U)	0.778 (U)	0.778 (U)	0.673 (U)
	5/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.682 (U)	0.789 (U)	0.789 (U)	0.682 (U)
	8/1/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.677 (U)	0.783 (U)	0.783 (U)	0.677 (U)
	11/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.684 (U)	0.791 (U)	0.791 (U)	0.684 (U)
	5/17/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/15/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	11/16/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/13/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
Trip Blank	**5/25/12**	0.0000800 (U)	0.000110 (U)	0.000150 (U)	0.170 (U)	0.120 (U)	-	-	-	-	-
	4/11/13	**0.000223 (J)**	0.000110 (U)	0.000150 (U)	-	-	0.000260 (U)	0.798 (U)	0.923 (U)	0.923 (U)	1.50 (U)
	5/14/15	**0.000358 (J)**	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.687 (U)	0.794 (U)	0.794 (U)	0.687 (U)
	11/18/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/26/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000355 (U)	0.677 (U)	0.783 (U)	0.783 (U)	0.677 (U)
	11/17/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000221 (J)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	2/24/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	8/1/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	8/16/17	0.000176 9U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/15/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA

TABLE 2
Summary of Groundwater Analytical Results
East Plant - Gate 6 Area
KM Liquids Terminals LLC
Galena Park Terminal
Galena Park, Harris County, Texas

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Xylenes, Total (mg/L)	TPH C6 - C12 (mg/L)	TPH >C12 - C28 (mg/L)	TPH >C28 - C35 (mg/L)	Total TPH 1005 (mg/L)
$^{GW}GW_{Ing}$	***Comm/Ind***	***0.005***	***1***	***0.7***	***10***	***10***	***10***	***2.9***	***2.9***	***2.9***	***NE***
	Res.	***0.005***	***1***	***0.7***	***10***	***10***	***10***	***0.98***	***0.98***	***0.98***	***NE***
$^{Air}GW_{Inh-V}$	***Tier II***	***6,310***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NC***	***NE***
	Res.	***180***	***64,000***	***30,000***	***9,400***	***760,000***	***10,000***	***1,800***	***7,500***	***7,500***	***NE***
	11/19/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	11/16/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/13/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
Eq. Blank	**5/14/15**	**0.0116**	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.690 (U)	0.794 (U)	0.794 (U)	0.690 (U)
	11/18/15	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.682 (U)	0.788 (U)	0.788 (U)	0.682 (U)
	5/26/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	-	-	0.000366 (U)	0.674 (U)	0.779 (U)	0.779 (U)	0.674 (U)
	11/17/16	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.671 (U)	0.776 (U)	0.776 (U)	0.671 (U)
	11/16/17	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	0.680 (U)	0.787 (U)	0.787 (U)	0.680 (U)
	5/17/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/18	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/17/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/15/19	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	11/19/20	0.000176 (U)	0.000198 (U)	0.000212 (U)	0.000205 (U)	0.000192 (U)	0.000366 (U)	NA	NA	NA	NA
	5/14/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	11/16/21	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA	NA	NA
	5/13/22	0.000214 (U)	0.000500 (U)	0.000515 (U)	0.000330 (U)	0.000192 (U)	0.000330 (U)	NA	NA		

Notes:

- PCL listed is the lowest applicable TRRP Tier 1 groundwater PCL
- TRRP Tier 1 PCLs listed are from the TRRP Tables dated March 31, 2017
- Concentrations in **bold** exceed the SDL

"-" - Not Analyzed

- Concentrations in **red bold** exceed the Tier 1 residential PCL for BTEX or Tier II Residential PCL for TPH
- Concentrations in **red bold** and shaded exceed the Tier I commercial/industrial PCL for BTEX or Tier II commercial/industrial PCL for TPH

Acronyms

(U)	Not detected above the Sample Detection Limit
(J)	Estimated value
(b)	Found in blank and sample
TRRP	Texas Risk Reduction Program
PCL	Protective Concentration Level
NC	Not calculated
NE	Not established
NA	Not Analyzed

Appendix C

Compliance Plan Activities Schedule (CP Table VIII)

ATTACHMENT

Compliance Plan Activities Schedule

Compliance Plan Activities Schedule
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
Hazardous Waste Permit No. 50054

Field Tasks

Facility Unit(s) and Basic Elements	Activitiy	Frequency	Scheduled Date	Compliance Plan Section
Southeast Holding Basin (NOR 017)				
Monitoring and Recovery Wells	Top of Casing Elevation Accuracy Verification	Every Five Years	May 2024	Compliance Plan Attachment C
Monitoring and Recovery Wells	Groundwater Sampling	Semiannually	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.a-c
Monitoring wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Total Depth and Silt Build Up 5) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(5)
Recovery Wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(3) and (5)
Recovery Wells	Measure Total Depth and Silt Build Up	When groundwater production decreases by 25% from the initial production	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.F.3.d.(4)
Recovery Well Counter Readings and Flow Rates	Record	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.a
Recovery System Piping and Ancillary Equipment	Inspect for Deterioration and leaks	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	Leak Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	System Shutdown Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.c
CAMU (North Holding Basin) (NOR 004)				
Monitoring and Recovery Wells	Top of Casing Elevation Accuracy Verification	Every Five Years	May 2024	Compliance Plan Attachment C
Monitoring and Recovery Wells	Groundwater Sampling	Semiannually	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.a-c

Compliance Plan Activities Schedule
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
Hazardous Waste Permit No. 50054

Field Tasks

Facility Unit(s) and Basic Elements	Activitiy	Frequency	Scheduled Date	Compliance Plan Section
Monitoring wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Total Depth and Silt Build Up 5) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(5)
Recovery Wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(3) and (5)
Recovery Wells	Measure Total Depth and Silt Build Up	When groundwater production decreases by 25% from the initial production	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.F.3.d.(4)
Recovery Well Counter Readings and Flow Rates	Record	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.a
Recovery System Piping and Ancillary Equipment	Inspect for Deterioration and leaks	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	Leak Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	System Shutdown Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.c
SWMU Group W3 (West Plant WMA PMZ)/West Chemcial AOC				
Monitoring and Recovery Wells	Top of Casing Elevation Accuracy Verification	Every Five Years	November 2024 (Five years from issuance of CP Modification dated 11/8/19)	Compliance Plan Attachment C
Monitoring Wells	Groundwater Sampling	Semiannually	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.a-c
Monitoring wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Total Depth and Silt Build Up 5) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(5)

Compliance Plan Activities Schedule
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
Hazardous Waste Permit No. 50054

Field Tasks

Facility Unit(s) and Basic Elements	Activitiy	Frequency	Scheduled Date	Compliance Plan Section
Recovery Wells	Measure Total Depth and Silt Build Up	When groundwater production decreases by 25% from the initial production	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.F.3.d.(4)
Recovery Well Counter Readings and Flow Rates	Record	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.a
Recovery System Piping and Ancillary Equipment	Inspect for Deterioration and leaks	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	Leak Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	System Shutdown Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.c
Texmark Chemical (TCI) Group				
Monitoring and Recovery Wells	Top of Casing Elevation Accuracy Verification	Every Five Years	November 2024 (Five years from issuance of CP Modification dated 11/8/19)	Compliance Plan Attachment C
Monitoring and Recovery Wells	Groundwater Sampling	Annually	First 60 Days of 1st Quarter	HW-50054-000 Provision XI.F.3.a-c
Monitoring wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Total Depth and Silt Build Up 5) Well Inspections	Annually - during sampling events	First 60 Days of 1st Quarter	HW-50054-000 Provision XI.F.3.d.(1)-(5)
Recovery Wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Well Inspections	Annually - during sampling events	First 60 Days of 1st Quarter	HW-50054-000 Provision XI.F.3.d.(1)-(3) and (5)
Recovery Wells	Measure Total Depth and Silt Build Up	When groundwater production decreases by 25% from the initial production	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.F.3.d.(4)
Recovery Well Counter Readings and Flow Rates	Record	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.a

Compliance Plan Activities Schedule
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
Hazardous Waste Permit No. 50054

Field Tasks

Facility Unit(s) and Basic Elements	Activitiy	Frequency	Scheduled Date	Compliance Plan Section
Recovery System Piping and Ancillary Equipment	Inspect for Deterioration and leaks	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	Leak Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	System Shutdown Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.c
Old Pump House No. 5 AOC				
Monitoring Wells	Top of Casing Elevation Accuracy Verification	Every Five Years	November 2024 (Five years from issuance of CP Modification dated 11/8/19)	Compliance Plan Attachment C
Monitoring Wells	Groundwater Sampling	Semiannually	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.a-c
Monitoring wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Total Depth and Silt Build Up 5) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(5)
LNAPL Recovery System (i.e. wall drain) Flow Rates	Record	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.a
LNAPL Recovery System Piping and Ancillary Equipment	Inspect for Deterioration and leaks	Weekly	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	Leak Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.b
Recovery System	System Shutdown Reporting	As needed	Starting with Issuance of CP Modification (11/8/19)	HW-50054-000 Provision XI.B.10.c
Central Plant WMA - PMZ				
Monitoring Wells	Top of Casing Elevation Accuracy Verification	Every Five Years	November 2024 (Five years from issuance of CP Modification dated 11/8/19)	Compliance Plan Attachment C

Compliance Plan Activities Schedule
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
Hazardous Waste Permit No. 50054

Field Tasks

Facility Unit(s) and Basic Elements	Activitiy	Frequency	Scheduled Date	Compliance Plan Section
Monitoring Wells	Groundwater Sampling	Semiannually	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.a-c
Monitoring wells	1) Water Level Measurement 2) Field Determination of pH, EC, Temperature, and Turbidity 3) Field Observatinos of Groundwater 4) Total Depth and Silt Build Up 5) Well Inspections	Semiannually - during sampling events	First 60 Days of 1st and 3rd Quarters	HW-50054-000 Provision XI.F.3.d.(1)-(5)

Program Reporting Tasks

Corrective Action Program Report	Reporting	Annually	By March 1st of each year	HW-50054-000 Provision XI.G.3; CP Table VII
Data Validation	Reporting	Semiannual	Within 60 days of collection of last sample for each regularly scheduled sampling event for each area	HW-50054-000 Provision XI.F.4

Appendix D

Notification of Uncompleted Weekly Compliance Activities, dated January 2, 2024

From: [redacted]
To: [redacted]
Cc: [redacted] Activities
Date: Tuesday, January 2, 2024 2:10:00 PM
Attachments: KM Letter to TCEQ Weekly Inpections.pdf
image002.png

Maureen,

Per our conversation this afternoon, attached please find Kinder Morgan's written notification of uncompleted Compliance Activities at the Galena Park Terminal for the week of December 24 – 29, 2023.

Johnny

Johnny Kennedy, P.G.

KINDER MORGAN

1500 Clinton Drive
Galena Park, TX 77547
☎ Office: (713) 654-6035
☎ Cell: (713) 204-5280

"Do the Right Thing Every Day"

Core Principles
1. Safety Will Not Be Compromised
2. Environmentally Compliant and Responsible Operator
3. Ethics and Integrity
4. Commitment to Employees and Resources
5. Customer Service and Fiscal Responsibility
6. Quality Focus

KINDER MORGAN

January 2, 2024

Ms. Maureen Hatfield, P.G., Project Manager
Texas Commission on Environmental Quality
Team 1, VCP/CA Section
Mail Code MC-127
12100 Park 35 Circle
Austin, TX 78753

Re: Notice of Uncompleted Weekly Compliance Activities
KM Liquids Terminals LLC
Galena Park, Texas Facility
TCEQ SWR No. 30573
Hazardous Waste Permit/Compliance Plan No. 50054
EPA I.D. No. TXD026481523; CN 601545940; RN 100237452

Dear Ms. Hatfield:

Per my verbal notification this afternoon, this letter is to provide formal written notification to the Texas Commission on Environmental Quality (TCEQ) that Kinder Morgan failed to complete the weekly Compliance Plan activities at the Galena Park Terminal for the week of December 24 – 29, 2023 per the Compliance Schedule approved by the TCEQ by letter dated March 5, 2020. The primary field technician responsible for conducting the weekly activities was out on vacation and his scheduled replacement had a medical issue that required treatment and a stay in the hospital. Kinder Morgan did not become aware of the issue until the morning of January 2, 2024.

If you have any further questions regarding this information, please do not hesitate to contact me at (713) 654-6035.

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Manager

cc: Ashley Holmes, Project Manager – AECOM, Houston, Texas

From: [redacted] Activities
Date: Tuesday, January 2, 2024 4:59:56 PM
Attachments: image002.png

[This email message was received from the Internet and came from outside of Kinder Morgan.]

WARNING: EXTERNAL EMAIL: PROCEED WITH CAUTION.

Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Johnny: Thank you for the notification. Please let me know when the compliance activities will resume.

Regards,
Maureen Hatfield, P.G.
Project Manager
VCP- CA Section Mc127
TCEQ Remediation Division

From: Kennedy, Johnny [redacted]
Sent: Tuesday, January 2, 2024 2:10 PM
To: Maureen Hatfield [redacted]
Cc: Holmes, Ashley [redacted]
Subject: Notification of Uncompleted Weekly Compliance Activities

Maureen,

Per our conversation this afternoon, attached please find Kinder Morgan's written notification of uncompleted Compliance Activities at the Galena Park Terminal for the week of December 24 – 29, 2023.

Johnny

Johnny Kennedy, P.G.

KINDER MORGAN

1500 Clinton Drive
Galena Park, TX 77547
☎ Office: (713) 654-6035
☎ Cell: (713) 204-5280

"Do the Right Thing Every Day"

Core Principles

1. Safety Will Not Be Compromised
2. Environmentally Compliant and Responsible Operator
3. Ethics and Integrity
4. Commitment to Employees and Resources
5. Customer Service and Fiscal Responsibility
6. Quality Focus

From: [redacted] Activities
Date: Thursday, January 4, 2024 11:25:00 AM
Attachments: image002.png

Maureen,

Weekly Compliance Plan activities resumed on Tuesday, January 2, 2024 and will continue on a weekly basis. The only period not covered was the week of December 25 – 29, 2023.

Johnny

Johnny Kennedy, P.G.

KINDER MORGAN

1500 Clinton Drive
Galena Park, TX 77547
☎ Office: (713) 654-6035
☎ Cell: (713) 204-5280

"Do the Right Thing Every Day"

Core Principles
1. Safety Will Not Be Compromised
2. Environmentally Compliant and Responsible Operator
3. Ethics and Integrity
4. Commitment to Employees and Resources
5. Customer Service and Fiscal Responsibility
6. Quality Focus

From: Maureen Hatfield [redacted]
Sent: Tuesday, January 2, 2024 5:00 PM
To: Kennedy, Johnny [redacted]
Cc: Holmes, Ashley [redacted]
Subject: RE: Notification of Uncompleted Weekly Compliance Activities

[This email message was received from the Internet and came from outside of Kinder Morgan.]

WARNING: EXTERNAL EMAIL: PROCEED WITH CAUTION.

Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Johnny: Thank you for the notification. Please let me know when the compliance activities will resume.

Regards,
Maureen Hatfield, P.G.
Project Manager
VCP- CA Section Mc127
TCEQ Remediation Division

From: Kennedy, Johnny [redacted]
Sent: Tuesday, January 2, 2024 2:10 PM
To: Maureen Hatfield [redacted]
Cc: Holmes, Ashley [redacted]
Subject: Notification of Uncompleted Weekly Compliance Activities

Maureen,

Per our conversation this afternoon, attached please find Kinder Morgan's written notification of uncompleted Compliance Activities at the Galena Park Terminal for the week of December 24 – 29, 2023.

Johnny

Johnny Kennedy, P.G.

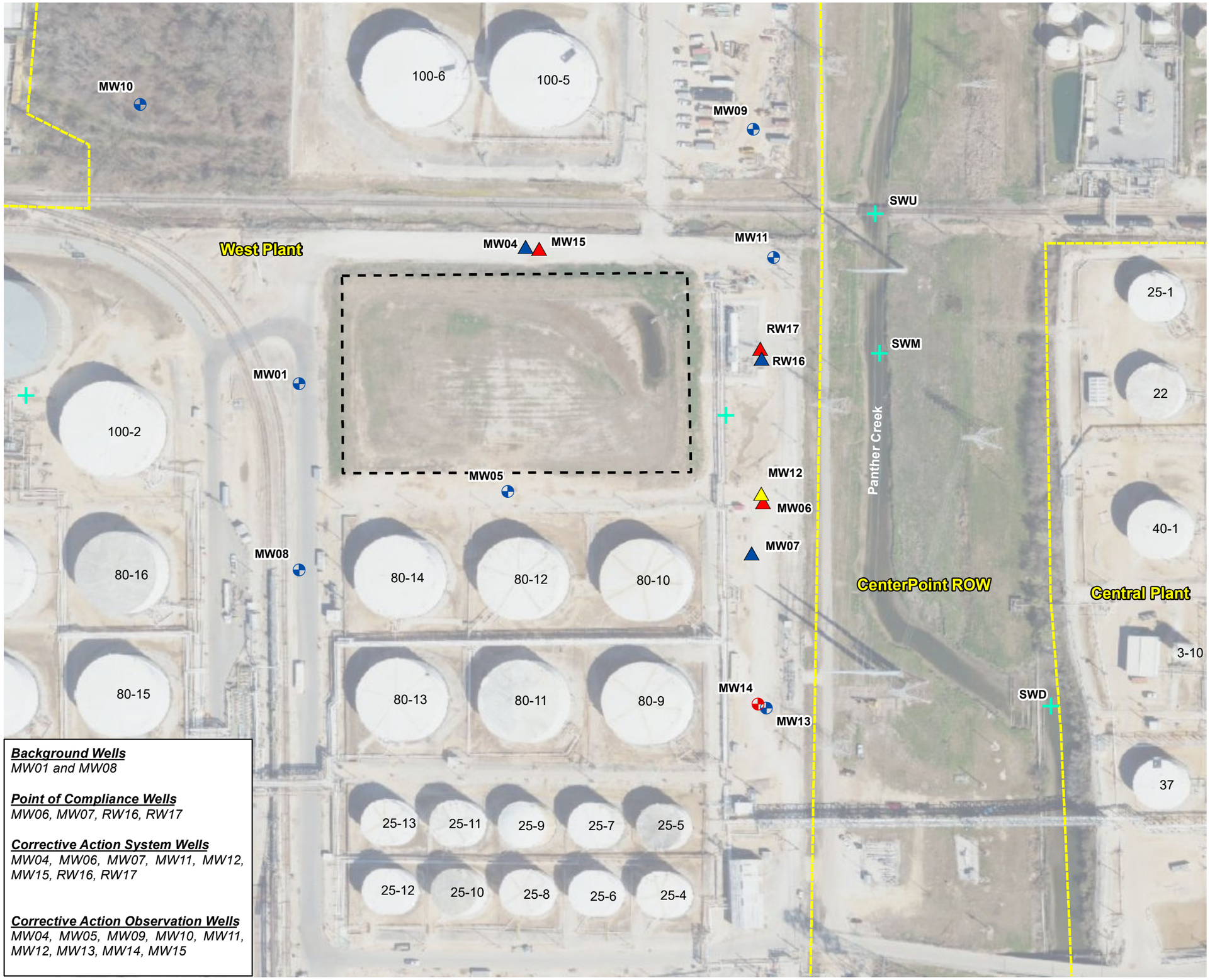
KINDER MORGAN

1500 Clinton Drive
Galena Park, TX 77547
☎ Office: (713) 654-6035
☎ Cell: (713) 204-5280

"Do the Right Thing Every Day"

Core Principles
1. Safety Will Not Be Compromised
2. Environmentally Compliant and Responsible Operator
3. Ethics and Integrity
4. Commitment to Employees and Resources
5. Customer Service and Fiscal Responsibility
6. Quality Focus

Figures



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample
- Approximate North Holding Basin Boundary
- KMLT Property Line

Image: Texas Google Imagery
Date: November 16, 2020

N

0 140 280 Feet

Approximate Scale

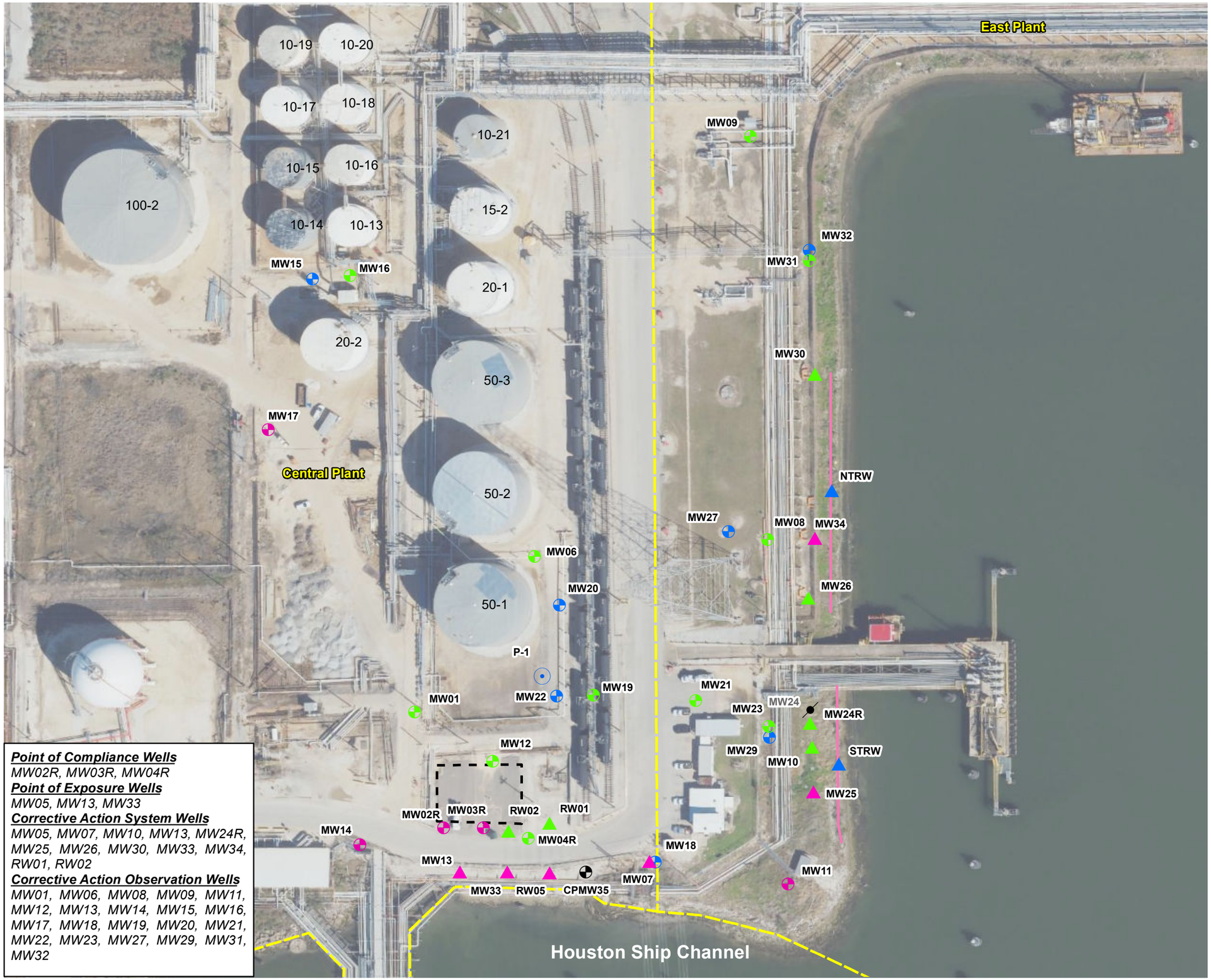
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Site Map (North Holding Basin)**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	3/21/2023	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	WG	3/21/2023	60699810	1_SiteMap_NHB.mxd	1

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\1_SiteMap_NHB.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Image: Texas Google Imagery
Date: November 16, 2020

0 100 200 Feet
Approximate Scale

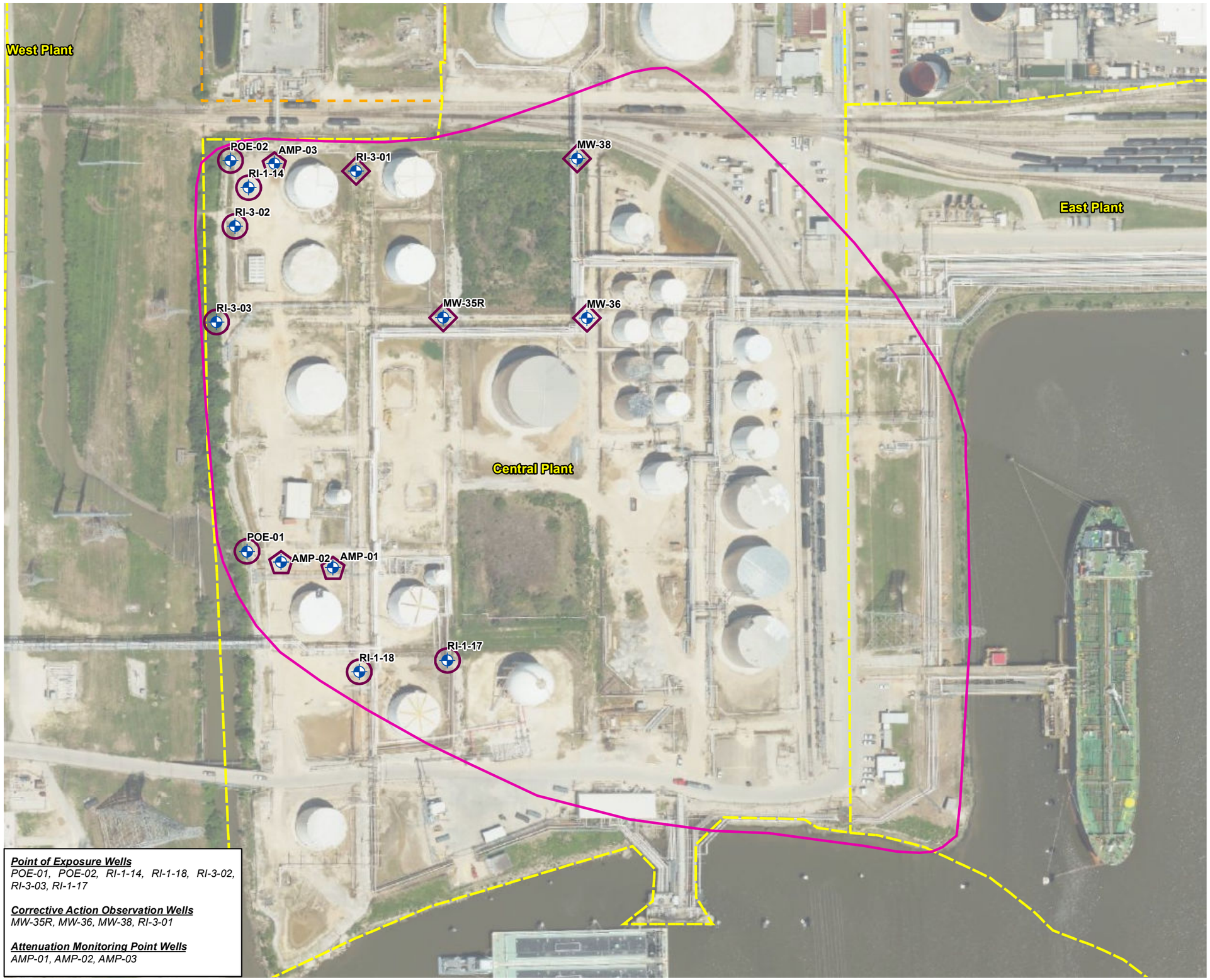
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Site Map (Southeast Holding Basin)**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/21/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/21/2023	Project No: 60699810 / File Name: 2_SiteMap_SEHB.mxd / Figure: 2

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\2_SiteMap_SEHB.mxd



Point of Exposure Wells
POE-01, POE-02, RI-1-14, RI-1-18, RI-3-02, RI-3-03, RI-1-17

Corrective Action Observation Wells
MW-35R, MW-36, MW-38, RI-3-01

Attenuation Monitoring Point Wells
AMP-01, AMP-02, AMP-03

Legend

Monitoring Wells

PMZ Well Designation

Point of Exposure (POE) Well

Attenuation Monitoring Point (AMP) Well

Corrective Action Observation Well

Plume Management Zone

KMLT Property Line

Texmark_Boundary

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 160 320
Feet

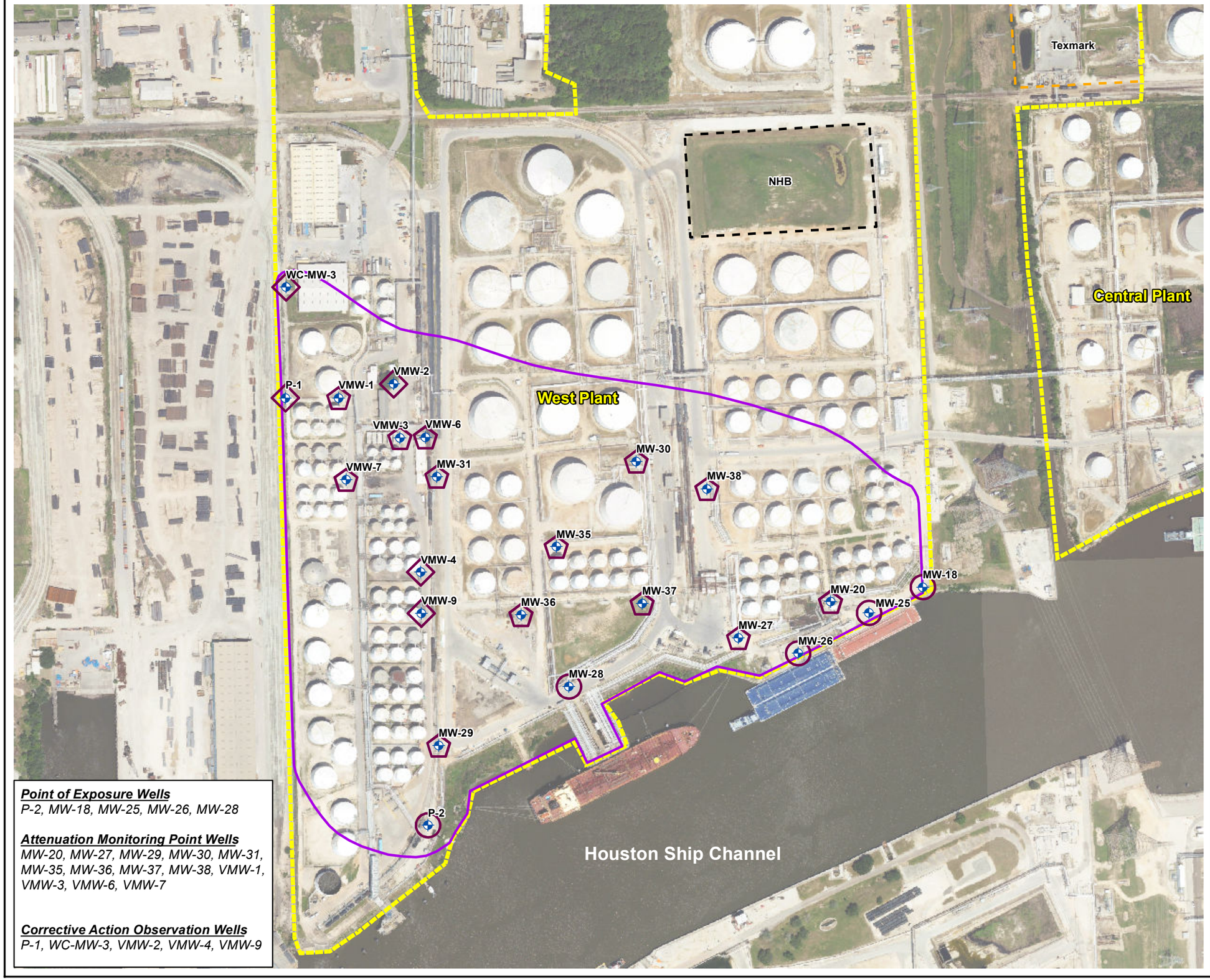
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Site Map (Central Plant PMZ)**

Project: **Kinder Morgan Liquids Terminals LLC Central Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 2/27/2024	Project No: 60699810 / File Name: 3_SiteMap_CentralPlant.mxd / Figure: 3

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Central Plant\MXD\3_SiteMap_CentralPlant.mxd



Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Plume Management Zone
- KM Liquids Terminal LLC Property Boundary
- Texmark Boundary
- Approximate North Holding Basin Boundary

Image: Texas Google Imagery
Date: April 16, 2023

0 300 600
Feet

N

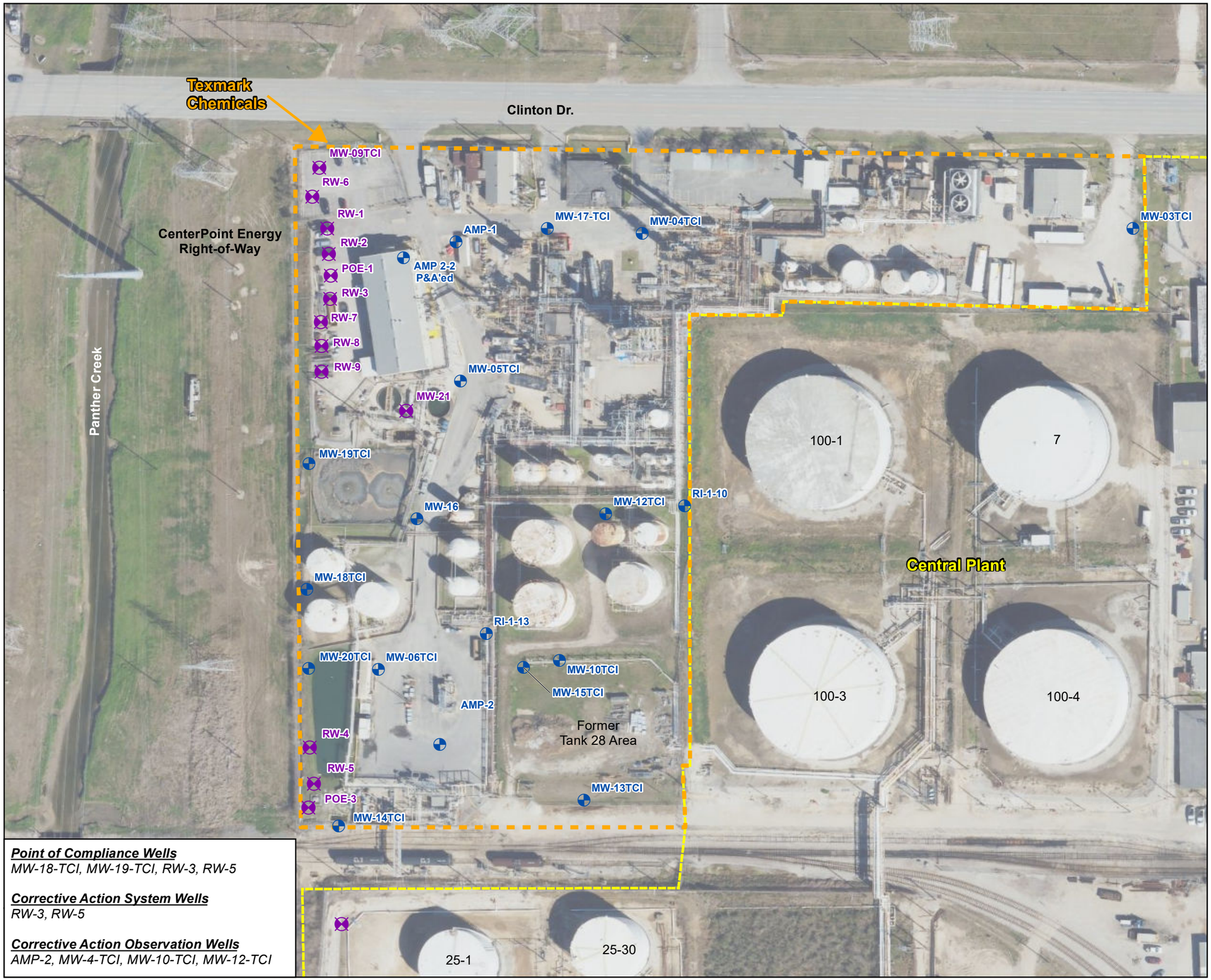
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Site Map (West Plant and Westt Chem Plant)**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/27/2024	60699810 / 4_SiteMap_WestPlant / 4

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\4_SiteMap_WestPlant.mxd



Point of Compliance Wells
MW-18-TCI, MW-19-TCI, RW-3, RW-5

Corrective Action System Wells
RW-3, RW-5

Corrective Action Observation Wells
AMP-2, MW-4-TCI, MW-10-TCI, MW-12-TCI

Legend

- Monitor Well
- Recovery Well
- Texmark Property Line
- KMLT Property Line

Notes:
1. AMP-1 was not accessible

Image: Texas Google Imagery
Date: November 16, 2020

N

0 100 200 Feet

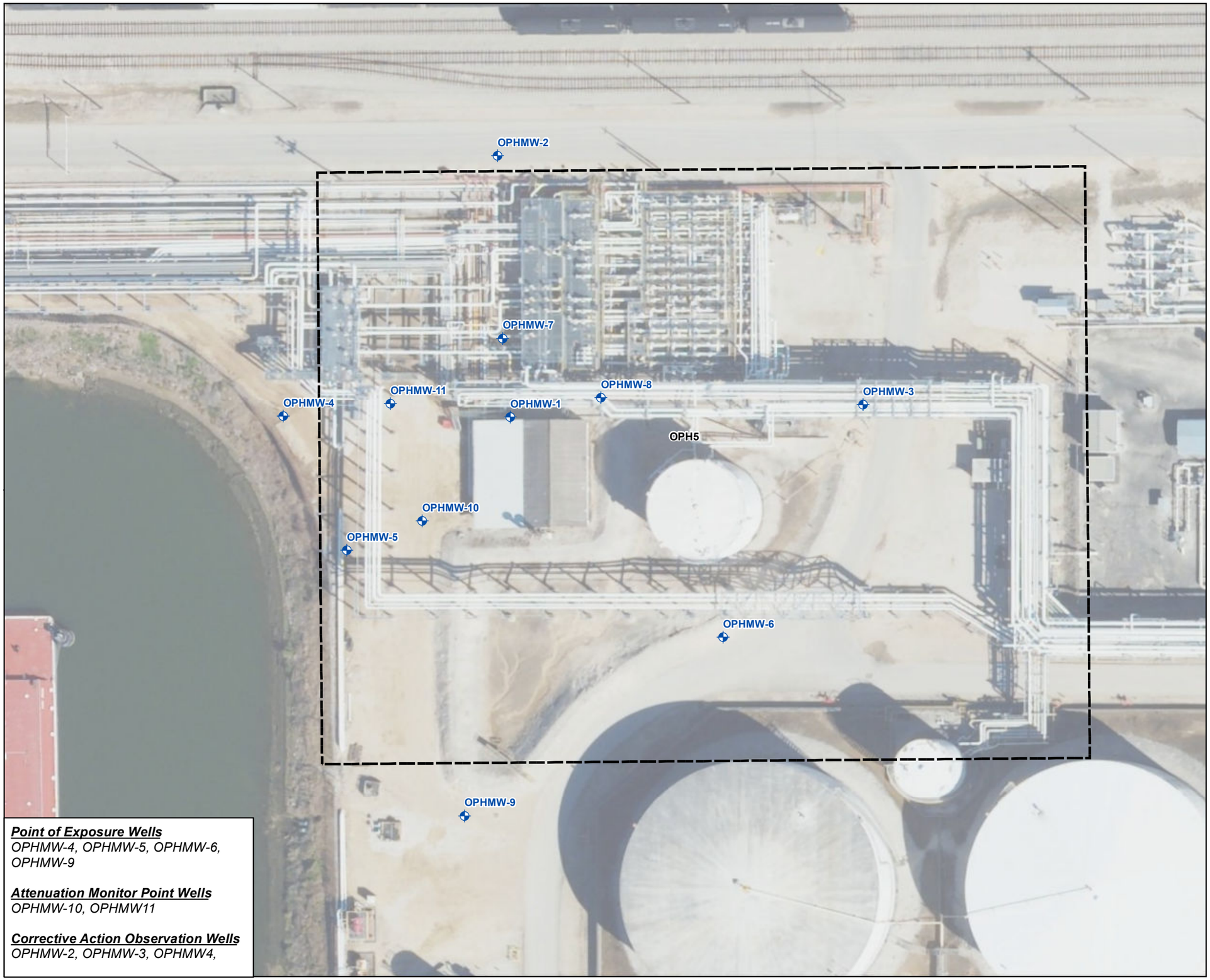
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Site Map (Texmark)**

Project: **Kinder Morgan Liquids Terminals LLC Texmark Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/23/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/23/2023	60699810 / Figure5_SiteMap_Texmark.mxd / 5

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Texmark\MXD\5_SiteMap_Texmark.mxd



Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

Legend

- Monitor Well Location
- Approximate OPH5 Boundary

Image: TNRIS Imagery Service
Date: November 16, 2020

0 50 100 Feet

Approximate Scale

N

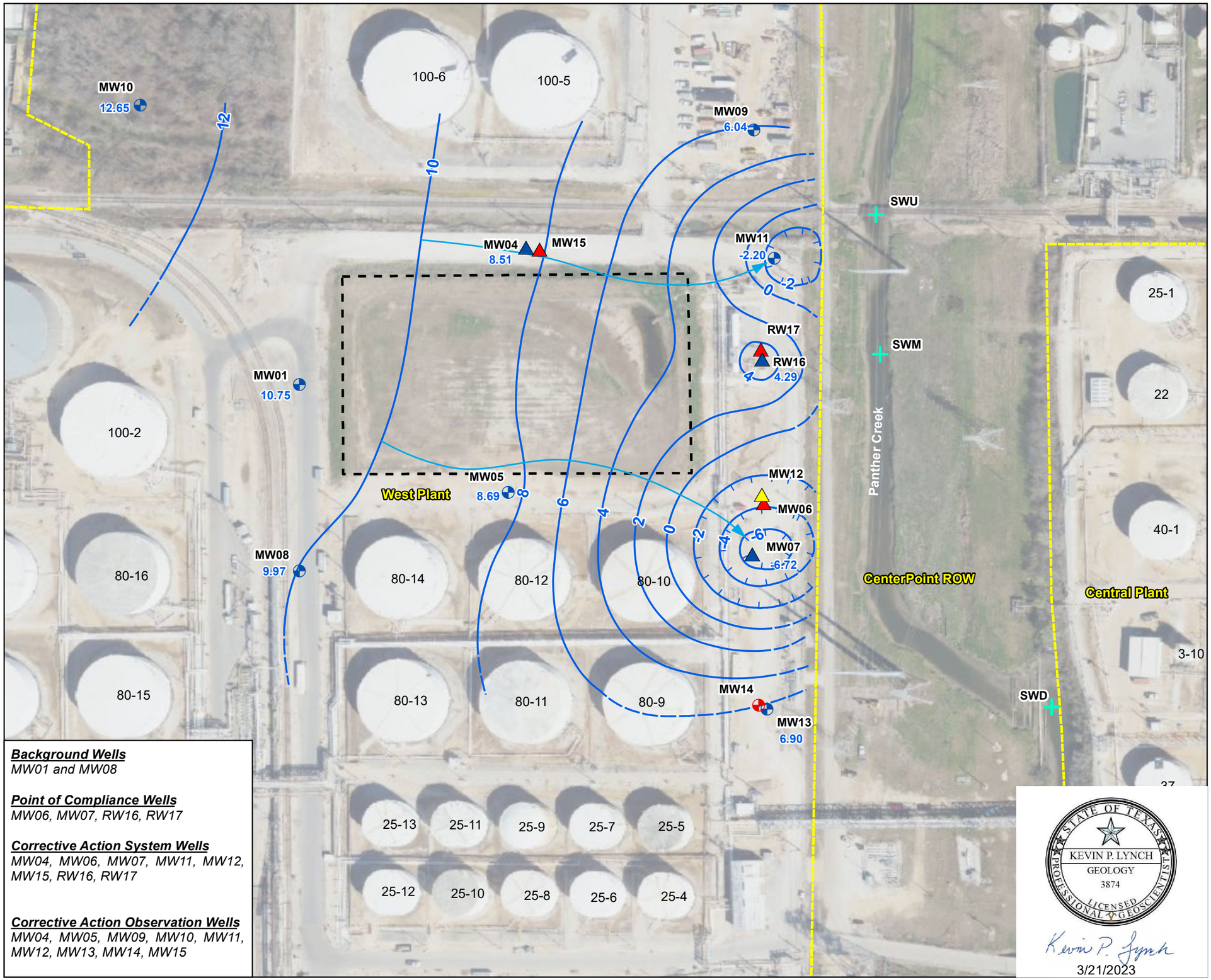
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Site Map - OPH5**

Project: **Kinder Morgan Liquids Terminals LLC**
Old Pump House No. 5
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/24/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/24/2023	60699810 / Figure6_SiteMap_OPH5.mxd / 6

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\6_SiteMap_OPH5.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Feet, Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction

Image: TNRIS Texas Imagery Service
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

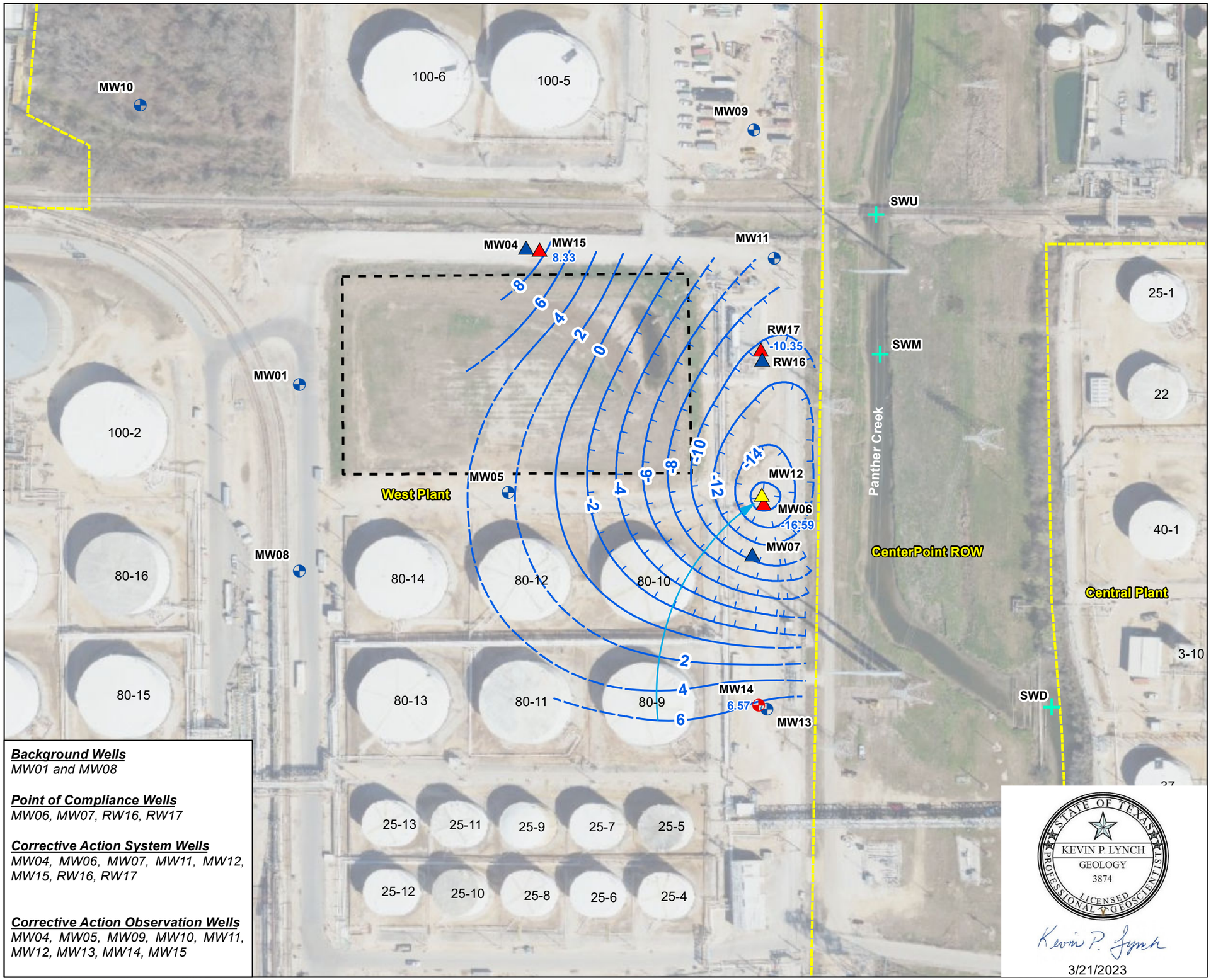
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/21/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/21/2023	60699810 / Figure7a_GW_NHB_Zone3_Jan2023 / 7a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7a_GW_NHB_Zone3_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Feet, Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction

Image: TNRIS Texas Imagery Service
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

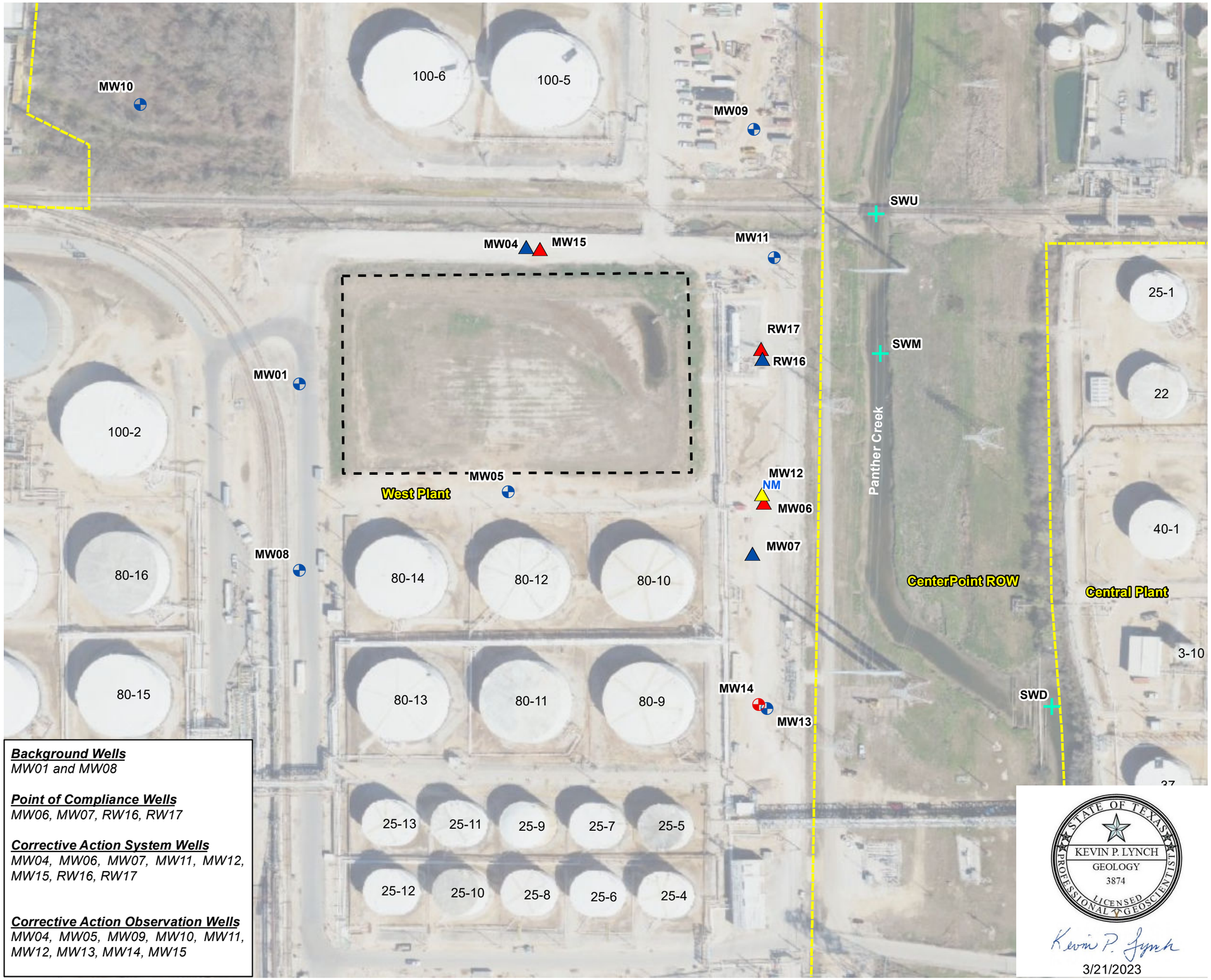
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/21/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/21/2023	60699810 / 7b_GW_NHB_Zone4_Jan2023 / 7b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7b_GW_NHB_Zone4_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

NM Not Measured

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

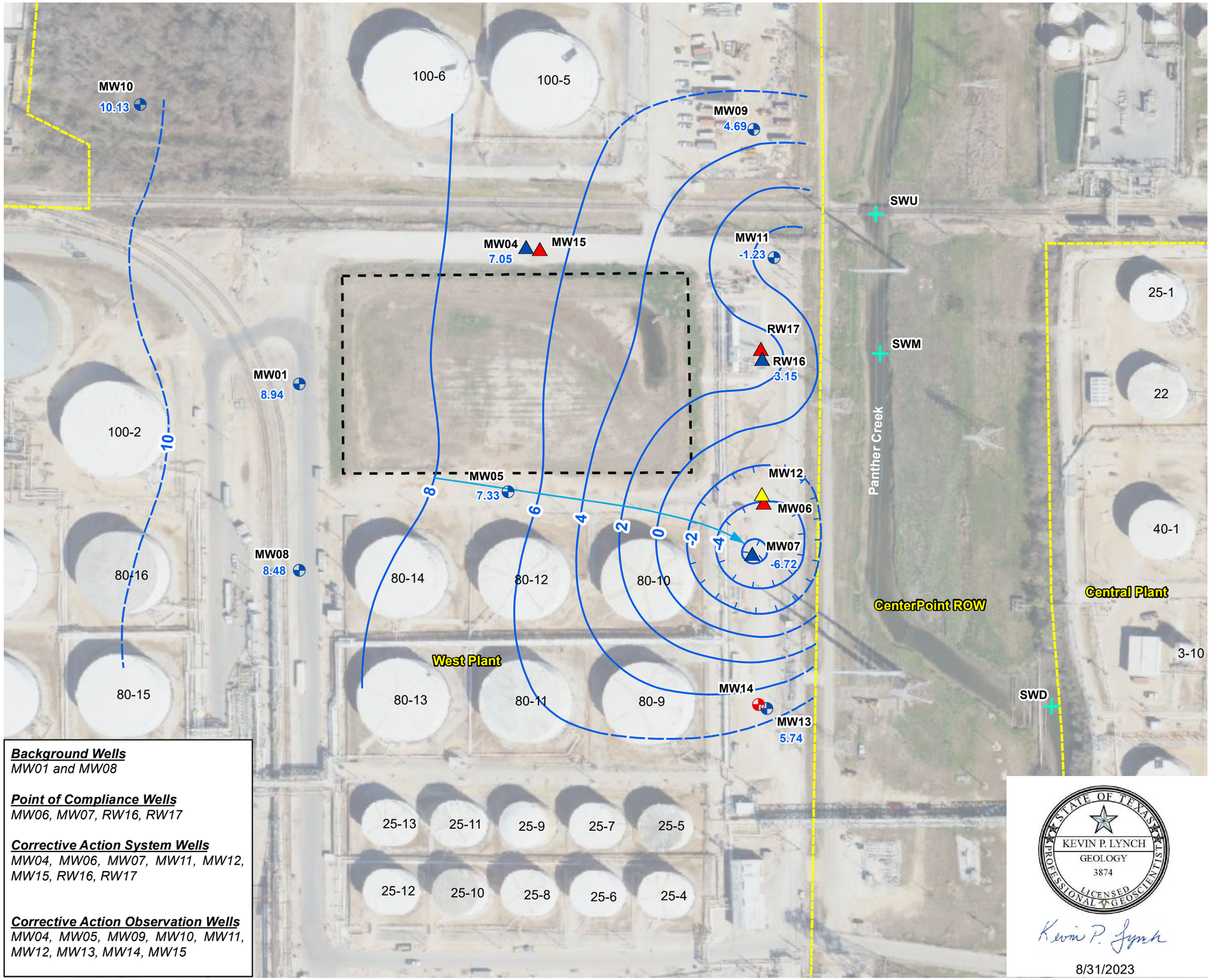
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/7/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/7/2023	60699810 / Figure7c_GW_NHB_Zone5_Jan2023 / 7c

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7c_GW_NHB_Zone5_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- 10' Groundwater Contour with Elevation (Feet, Mean Sea Level) Dashed Where Inferred
- Contour Interval - 2 ft.
- Groundwater Flow Direction

NM = Not Measured

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
8/31/2023

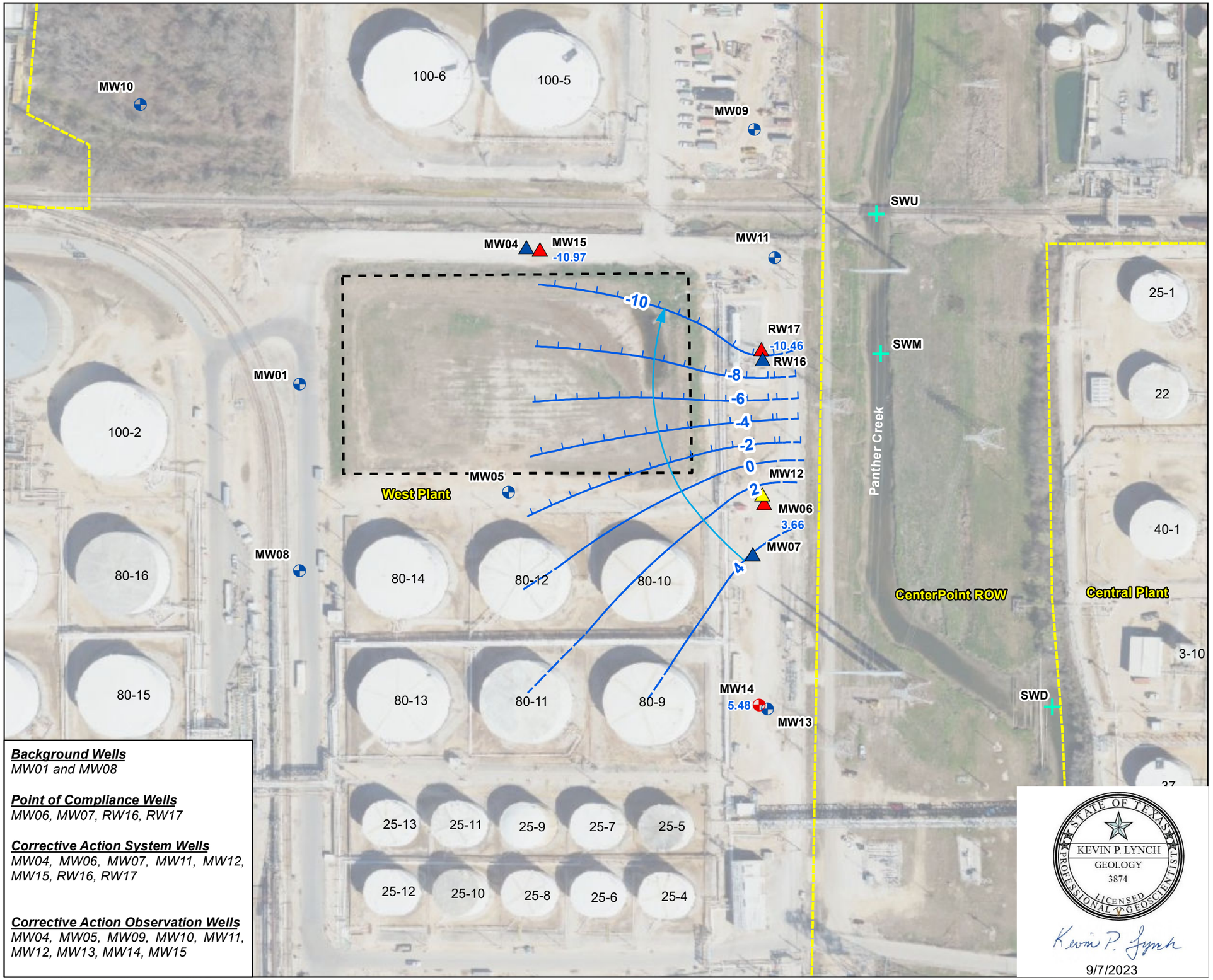
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map July 21, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	8/31/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 8/31/2023	Project No: 60699810 / File Name: Figure7d_GW_NHB_Zone3_Jul2021 / Figure: 7d

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7d_GW_NHB_Zone3_Jul2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Feet, Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
9/7/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

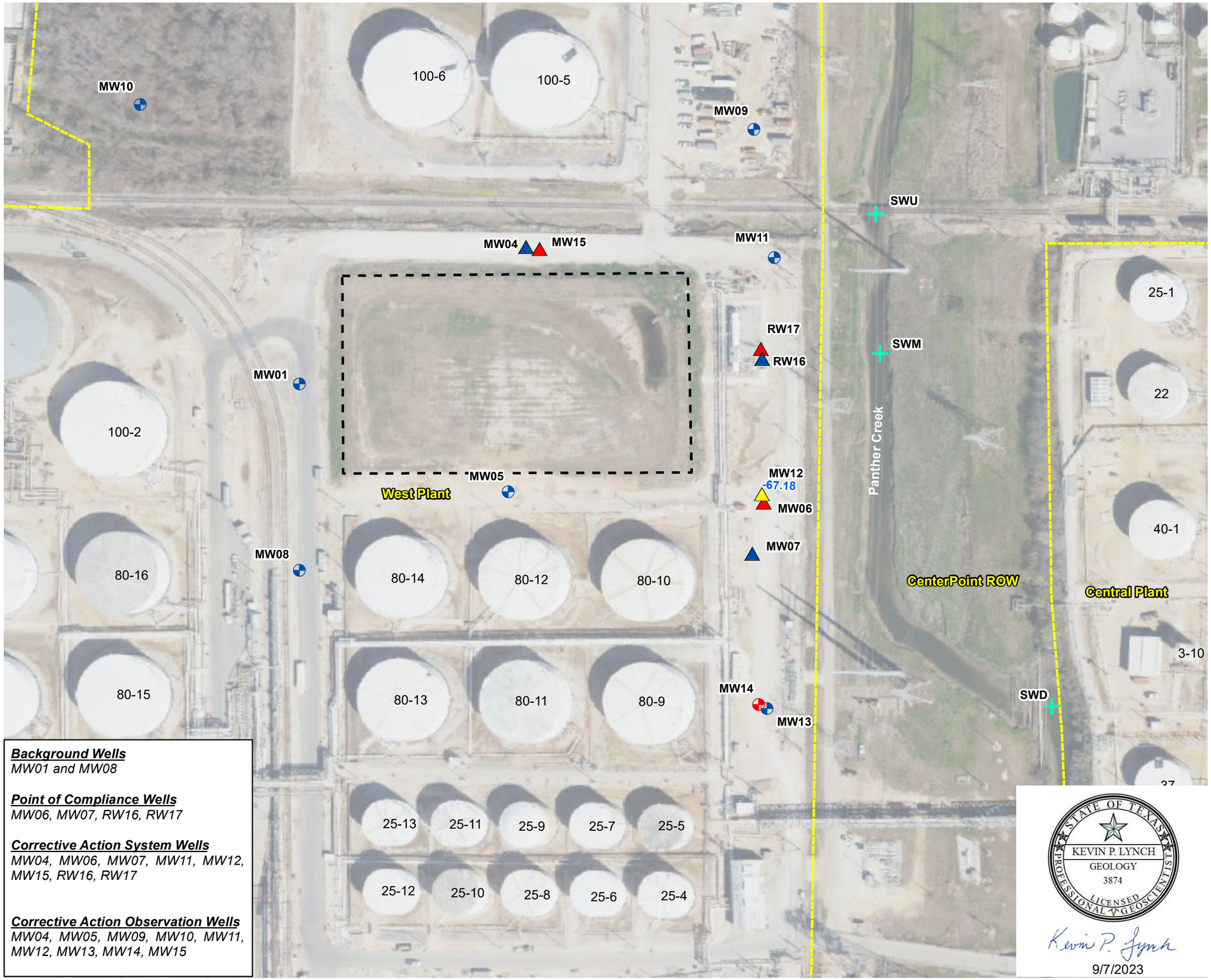
Title: **Groundwater Elevation Map July 21, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	9/7/2023	60680986	Figure7e_GW_NHB_Zone4_Jul2022	7e
	Chk'd By: WG	Date: 9/7/2023			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\7e_GW_NHB_Zone4_Jul2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

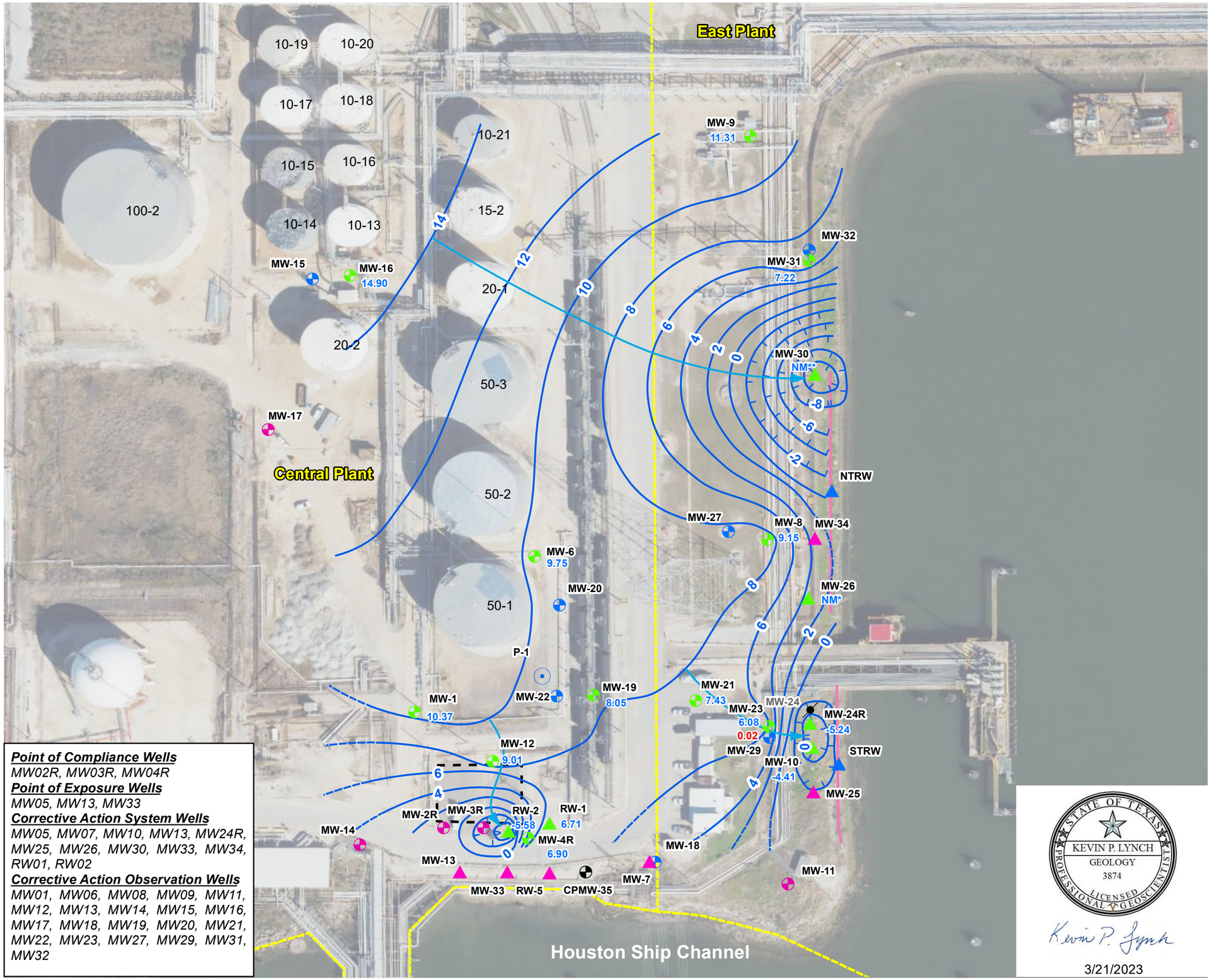
Kevin P. Lynch
9/7/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map July 21, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/7/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/7/2023	60699810 / Figure7f_GW_NHB_Zone5_Jul2023 / 7f



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction
- 0.06 Product Thickness (ft.)
- NM* Well inaccessible
- NM** Groundwater elevation greater than pump assembly, elevation estimated.

Notes:
Only data from wells completed in UNTU are shown.

0 100 200 Feet
Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/21/2023

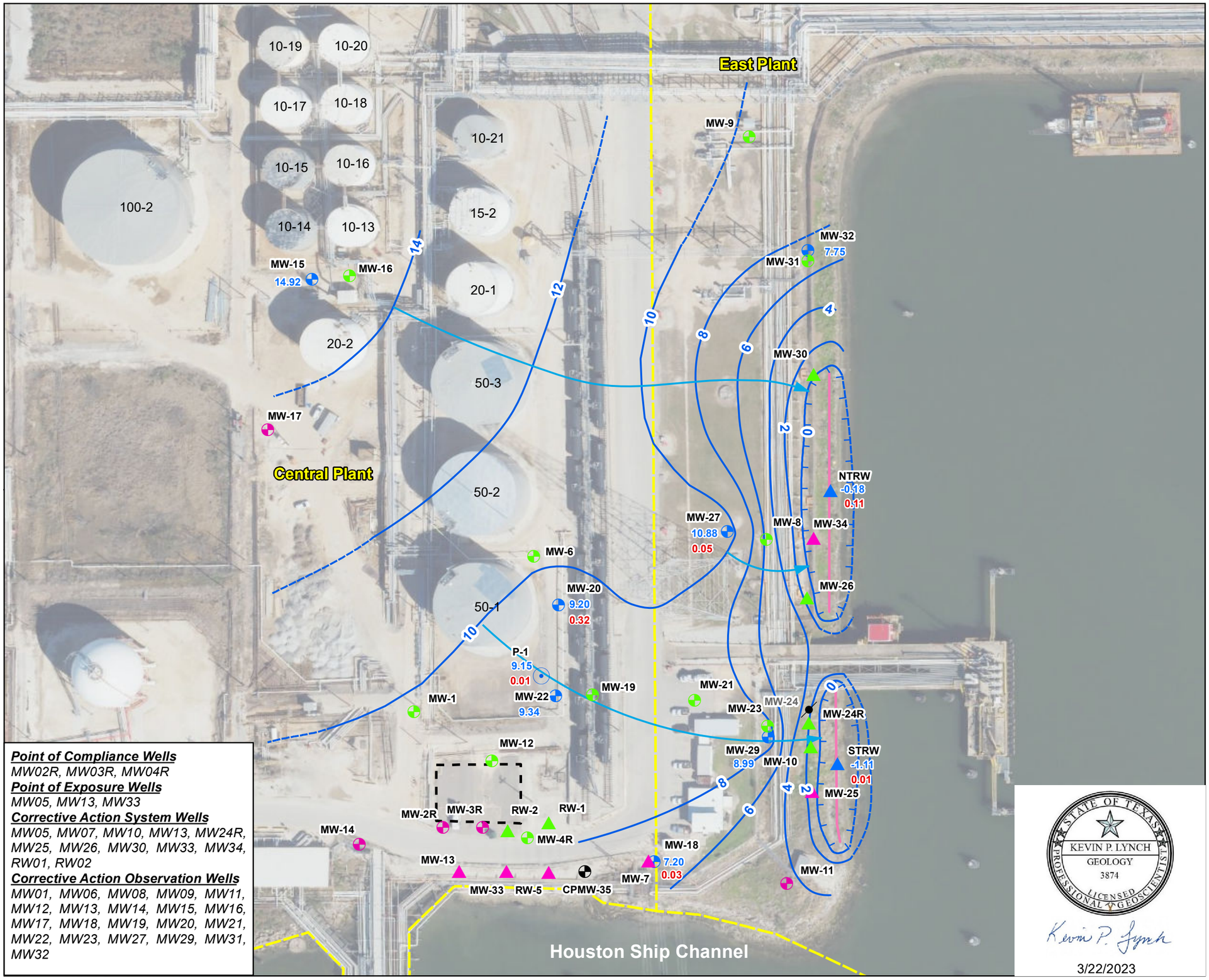
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 30, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/22/2023	Project No: 60699810 / File Name: 8a_GW_SEHB_UNTU_Jan2023 / Figure: 8a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\8a_GW_SEHB_UNTU_Jan2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Inferred Groundwater Contour
- Groundwater Depression
- Inferred Groundwater Depression
- Groundwater Flow Direction
- 0.03 Product Thickness (ft.)

Notes:
Only data from wells completed in SCF are shown.

0 100 200 Feet
Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

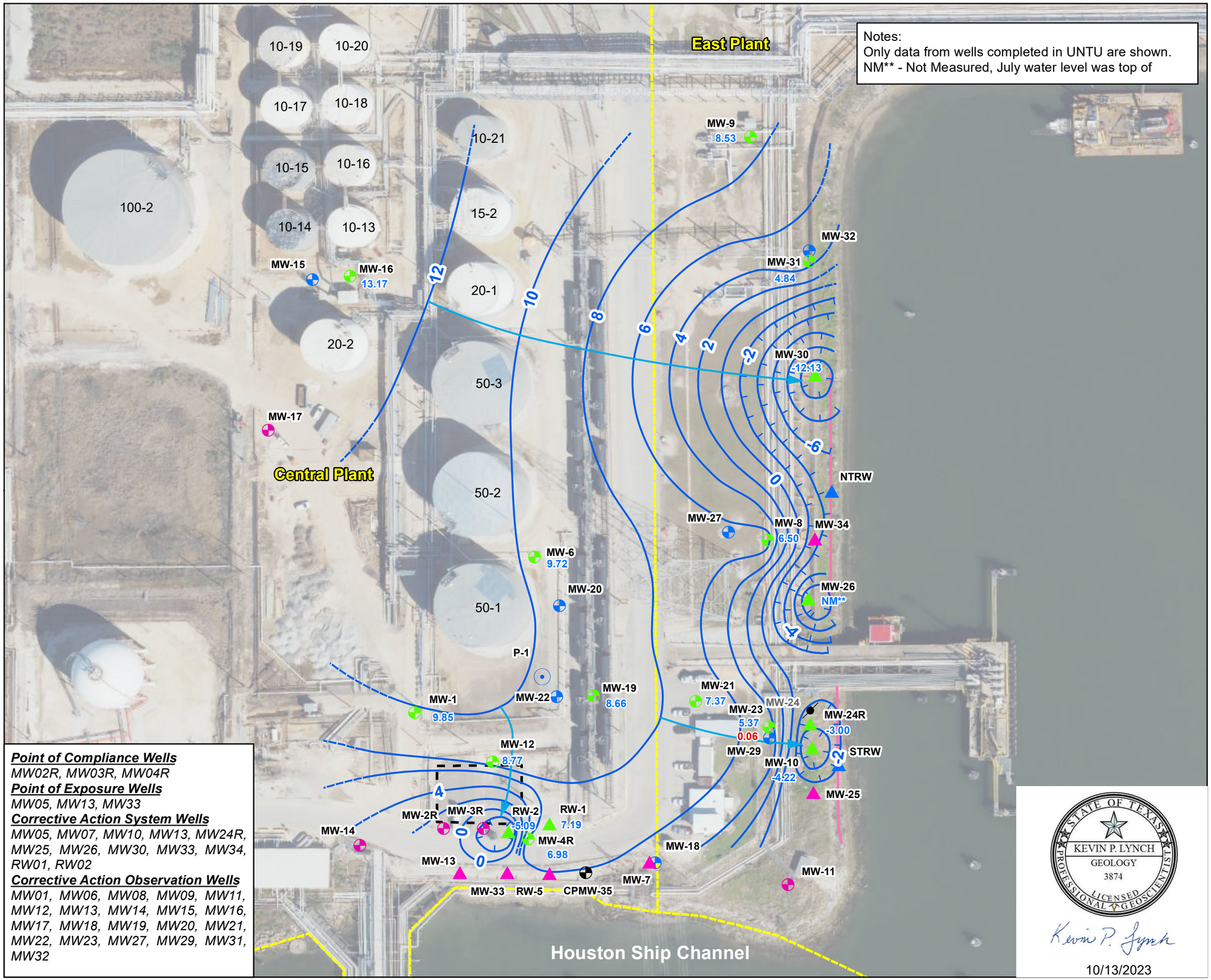
Kevin P. Lynch
3/22/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 30, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/23/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/23/2023	60699810 / 8b_GW_SEHB_SCF_Jan2023 / 8b



Notes:
Only data from wells completed in UNTU are shown.
NM** - Not Measured, July water level was top of

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 10' — Groundwater Contour with Elevation (Mean Sea Level) Dashed Where Inferred
- Contour Interval - 2 ft.
- 0.01 — Product Thickness (ft.)
- [5.31] — Not Used in Contouring
- Groundwater Flow Direction

0 100 200 Feet

Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch

10/13/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

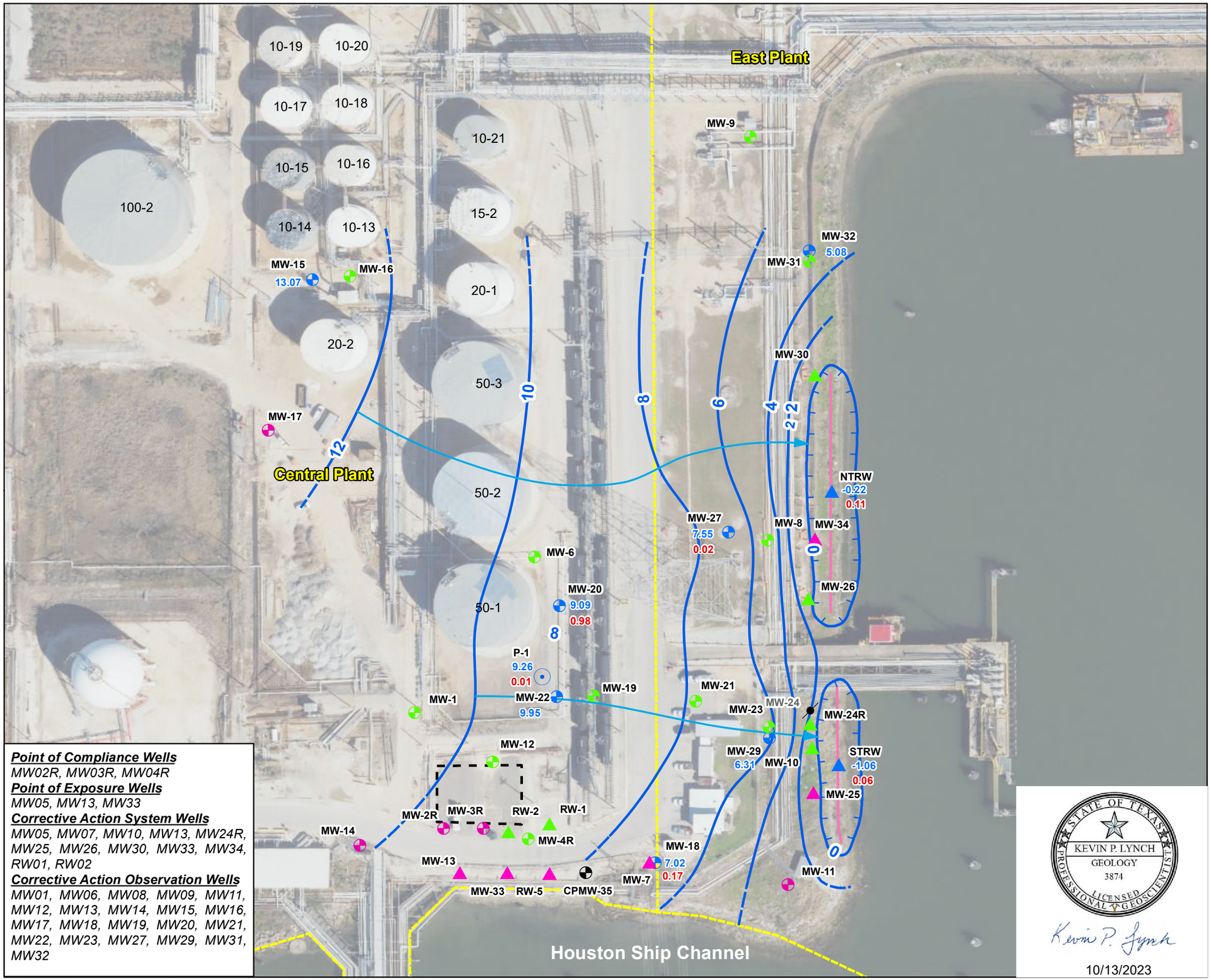
Title: **Groundwater Elevation Map July 20, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	10/13/2023	60699810	Figure8c_GW_SEHB_UNTU_Jul2023	8c
	Chk'd By: AH	Date: 10/13/2023			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\8c_GW_SEHB_UNTU_Jul2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 10' — Groundwater Contour with Elevation (Mean Sea Level) Dashed Where Inferred
- Contour Interval - 2 ft.
- 0.13 — Product Thickness (ft.)
- Groundwater Flow Direction

Notes:
Only data from wells completed in SCF are shown.

0 100 200 Feet

Approximate Scale

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch

10/13/2023

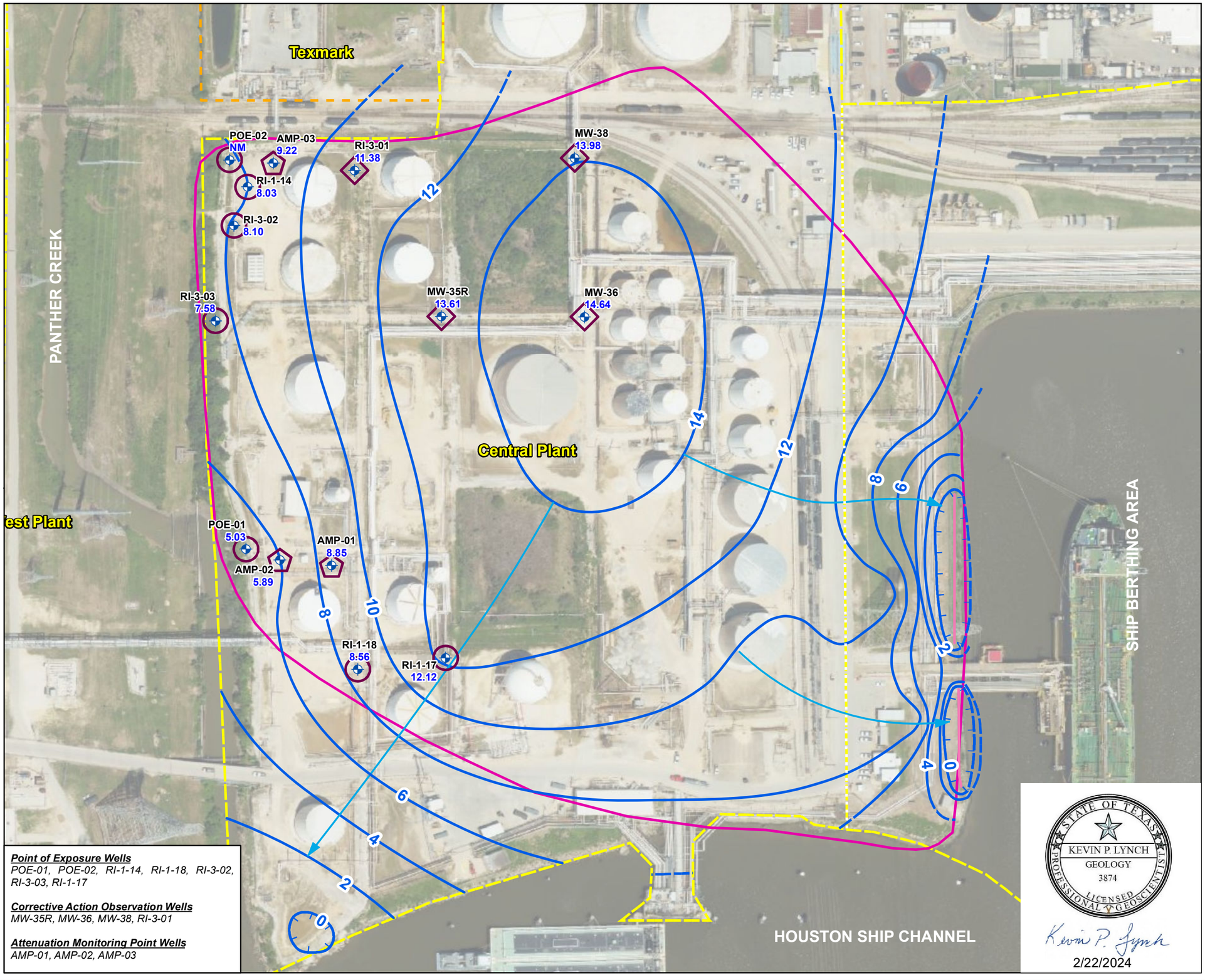
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map July 20, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	10/13/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 10/13/2023	Project No: 60699810
			File Name: Figure8d_GW_SEHB_SCF_Jul2023
			Figure: 8d

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\8d_GW_SEHB_SCF_Jul2023.mxd



Point of Exposure Wells
POE-01, POE-02, RI-1-14, RI-1-18, RI-3-02, RI-3-03, RI-1-17

Corrective Action Observation Wells
MW-35R, MW-36, MW-38, RI-3-01

Attenuation Monitoring Point Wells
AMP-01, AMP-02, AMP-03

Legend

- Monitor Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Recovery Trench
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Groundwater Depression
- Inferred Groundwater Contour
- Inferred Groundwater Depression
- Groundwater Flow Direction
- Approximate Plume Management Zone (PMZ)
- Kinder Morgan Property Line
- Texmark Property Line

NM - Not Measured

Image: TxGIS Texas Imagery Service
Date: April 16, 2023

N

0 80 160 320
Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

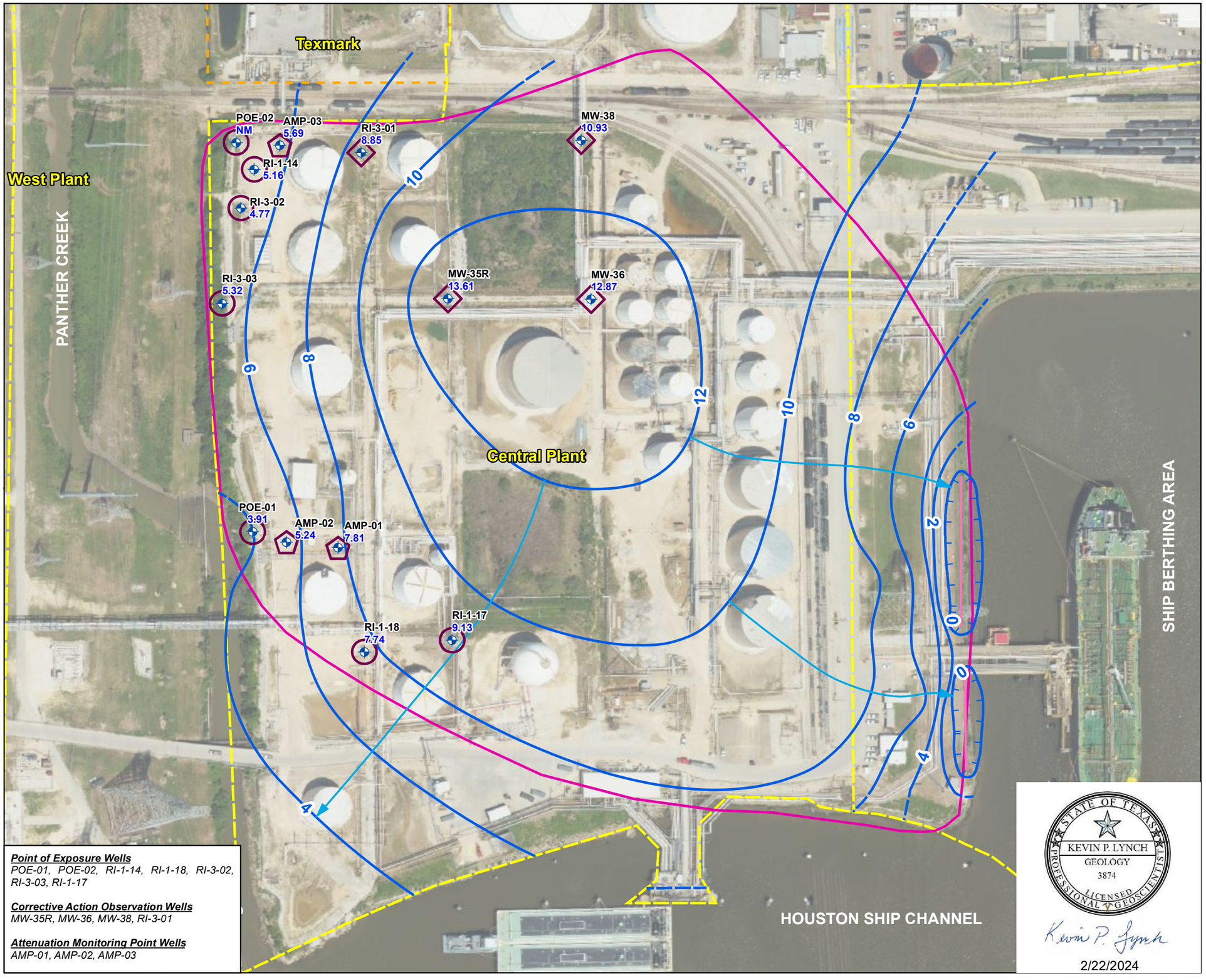
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Groundwater Elevation Map January 31, 2023 Central Plant PMZ**

Project: **Kinder Morgan Liquids Terminals LLC Central Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/22/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/22/2024	60699810 / 9a_GWElev_CP_Jan2023 / 9a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Central Plant\MXD\9a_GWElev_CP_Jan2023.mxd



Point of Exposure Wells
POE-01, POE-02, RI-1-14, RI-1-18, RI-3-02, RI-3-03, RI-1-17

Corrective Action Observation Wells
MW-35R, MW-36, MW-38, RI-3-01

Attenuation Monitoring Point Wells
AMP-01, AMP-02, AMP-03

Legend

- Monitor Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Recovery Trench
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Groundwater Depression
- Inferred Groundwater Contour
- Groundwater Flow Direction
- Approximate Plume Management Zone (PMZ)
- Kinder Morgan Property Line
- Texmark Property Line

NM - Not Measured

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 80 160 320
Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

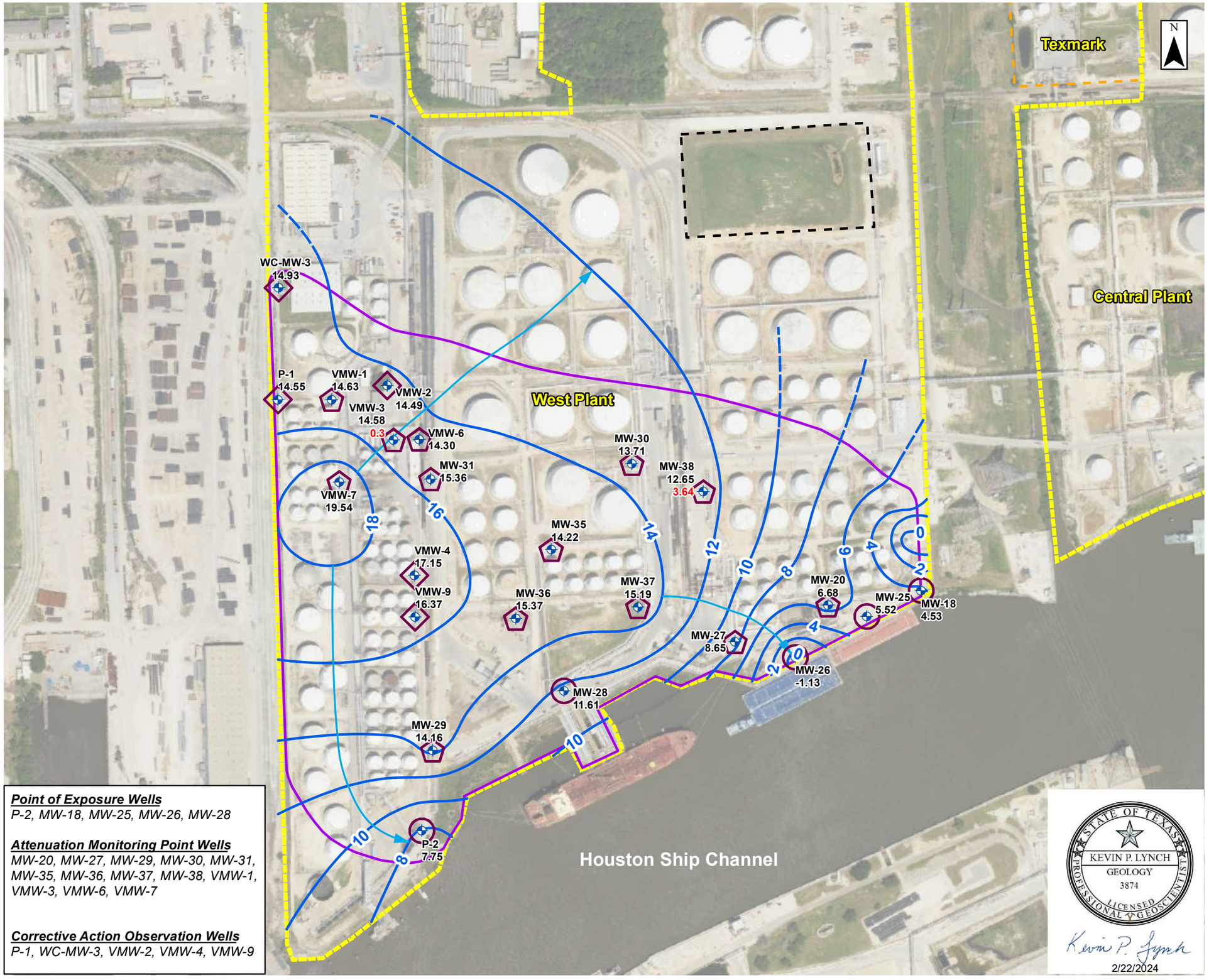
Title:
Groundwater Elevation Map
July 21, 2023
Central Plant PMZ

Project:
Kinder Morgan Liquids Terminals LLC
Central Plant
Galena Park, Texas

Client:
KM LIQUIDS TERMINALS LLC

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/22/2024	60699810	9b_GWElev_CP_Jul2023	9b
	Chk'd By: AH	Date: 2/22/2024			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Central Plant\MXD\9b_GWElev_CP_Jul2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Groundwater Contour, 2ft. Contour Interval, Dashed where inferred
- 13.71 Groundwater Elevation (MSL)
- 2.26 Product Thickness (ft.)
- Groundwater Flow Direction
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:

1. Does not include compliance (CAMU) wells.

2. NM - Not Measured

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

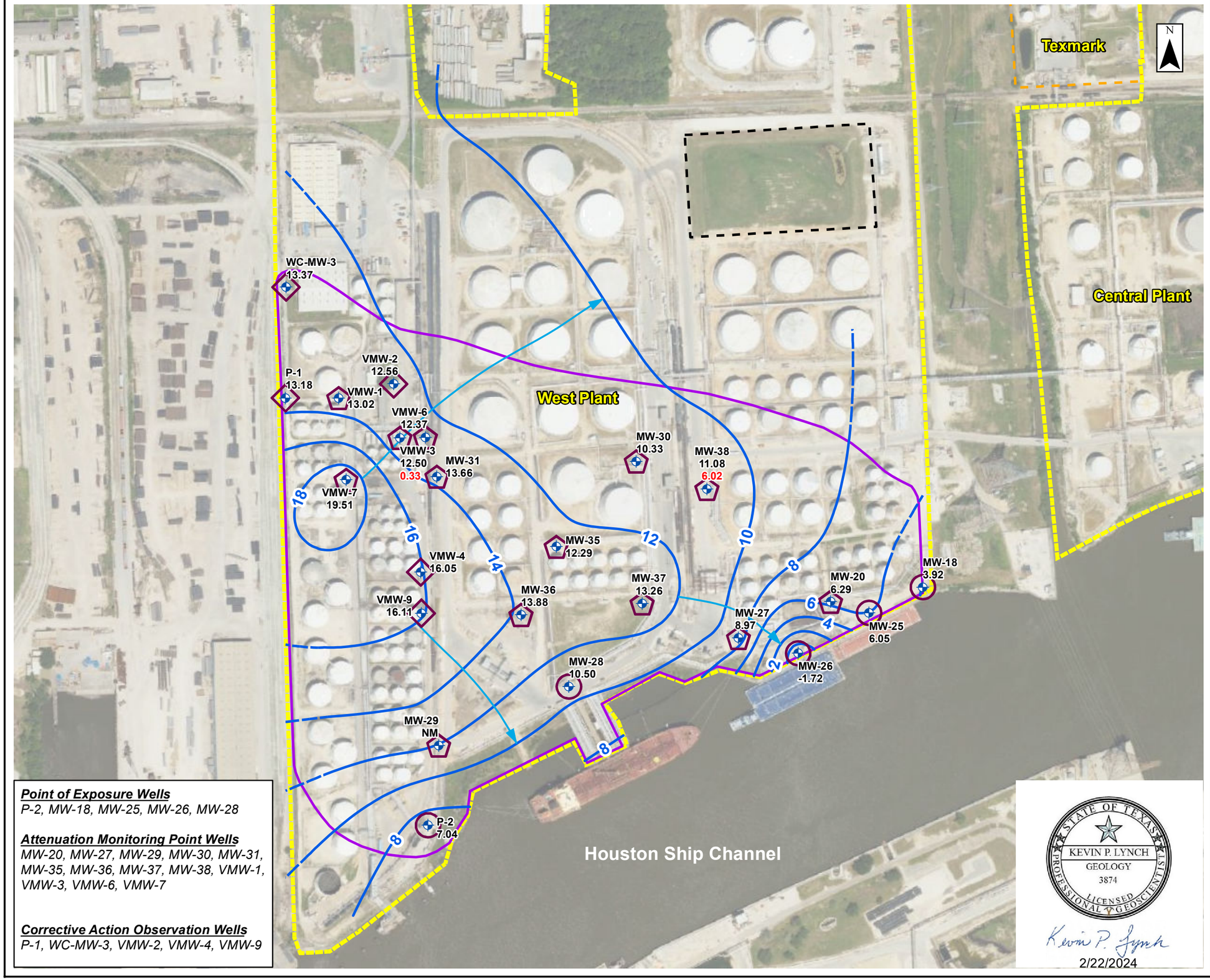
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
February 24, 2023
West Plant/WestChem

Project:
Kinder Morgan Liquids Terminals LLC
West Plant
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	2/27/2024	60699810 / 10a_WP_GW_Feb2023 / **10a**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\10a_WP_GW_Feb2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Groundwater Contour, 2ft. Contour Interval, Dashed where inferred
- 14.92 Groundwater Elevation (MSL)
- 3.01 Product Thickness (ft.)
- Groundwater Flow Direction
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:
1. Does not include compliance (CAMU) wells.
2. NM - Not Measured
3. 17.83* - Groundwater elevation not contoured.

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

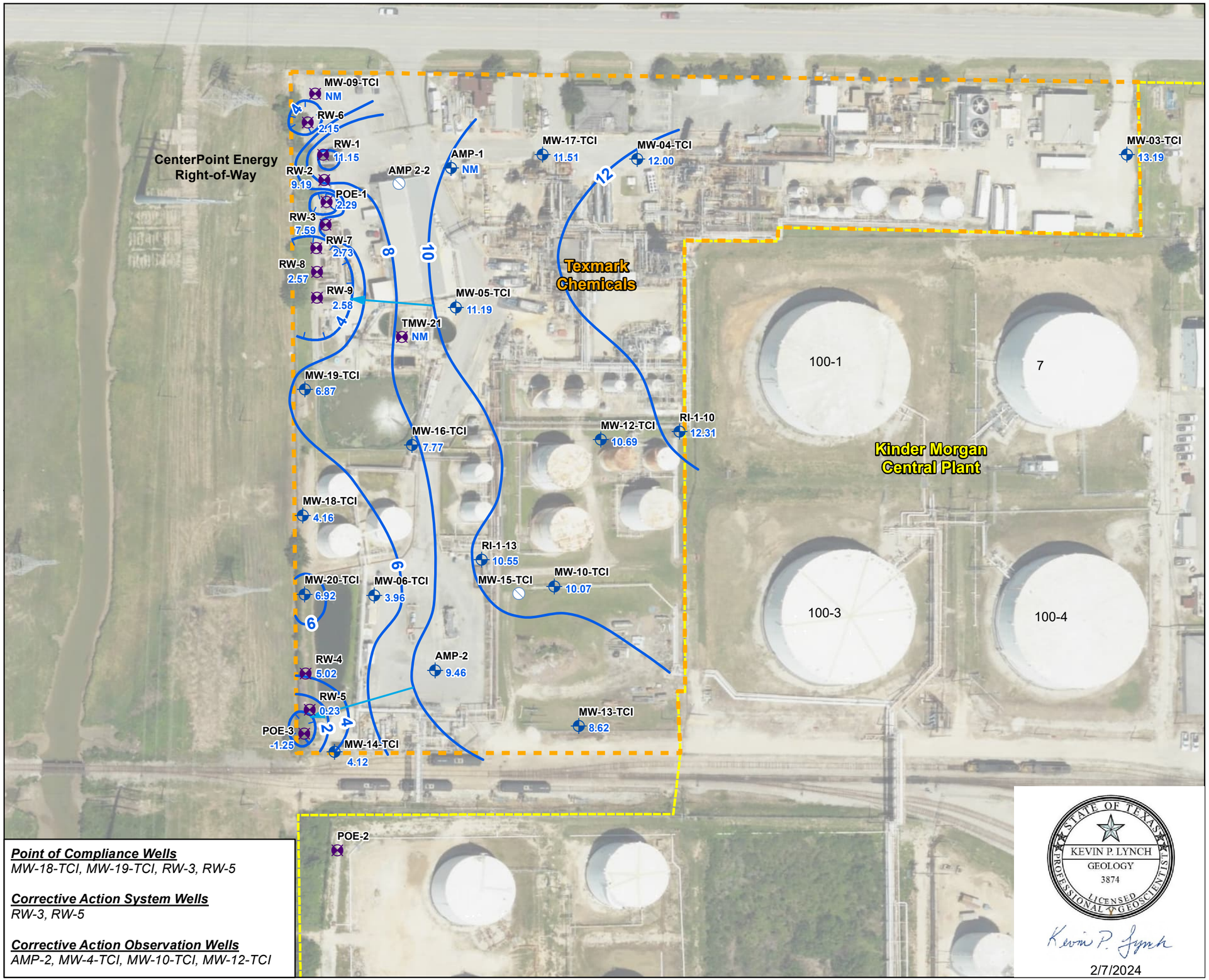
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
August 15, 2023
West Plant/WestChem

Project:
Kinder Morgan Liquids Terminals LLC
West Plant
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/27/2024	60699810 / 10b_WP_GW_Aug2023 / 10b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\10b_WP_GW_Aug2023.mxd



Legend

- Monitor Well
- Recovery Well
- Plugged Well
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Groundwater Depression
- Groundwater Flow Direction
- Texmark Property Line
- KMLT Property Line

Notes:
1. AMP-1 was not accessible
2. NM - not measured

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 50 100 200
Feet

Point of Compliance Wells
MW-18-TCI, MW-19-TCI, RW-3, RW-5

Corrective Action System Wells
RW-3, RW-5

Corrective Action Observation Wells
AMP-2, MW-4-TCI, MW-10-TCI, MW-12-TCI

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/7/2024

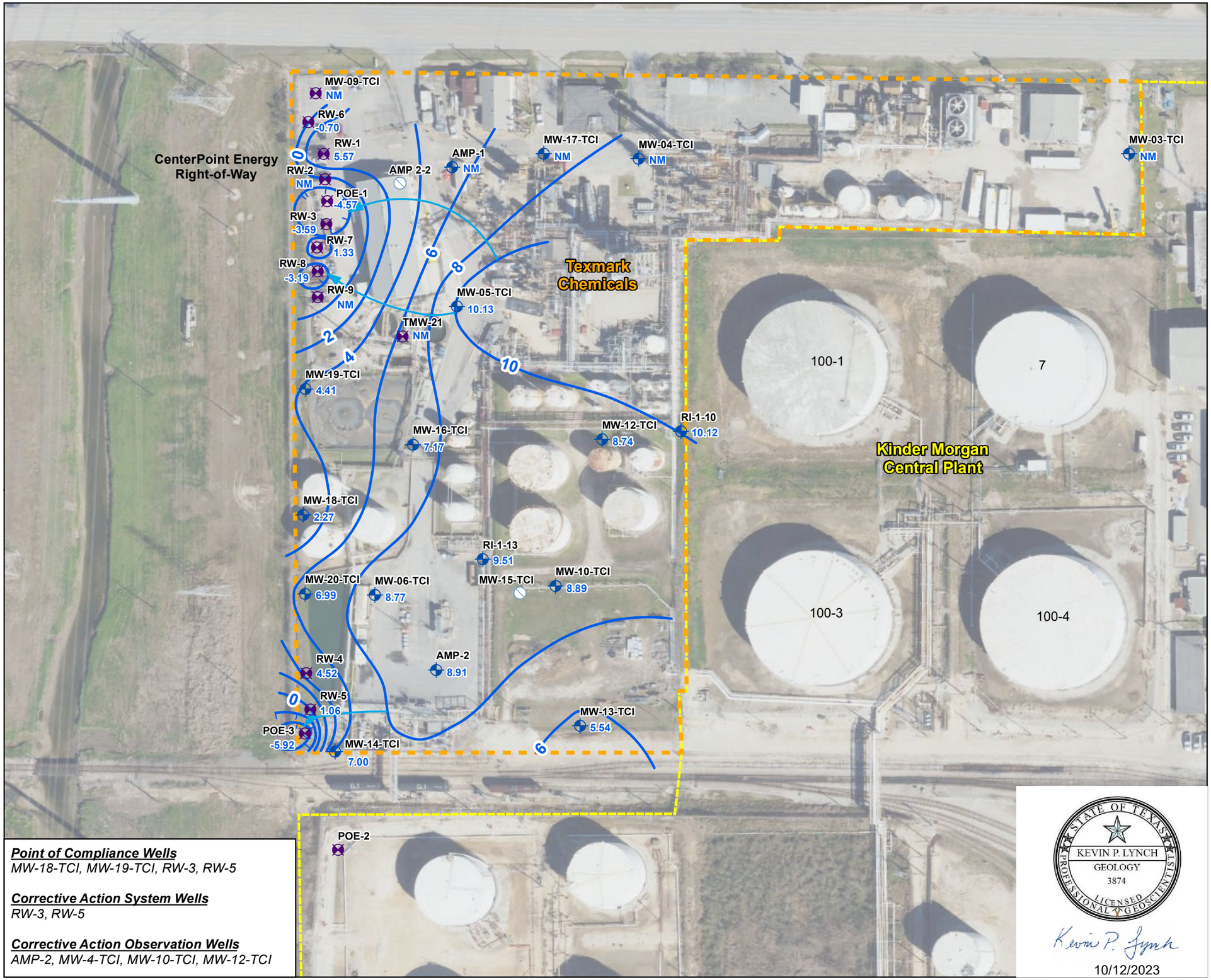
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
February 23, 2023
Texmark

Project:
Kinder Morgan Liquids Terminals LLC
Texmark Chemicals, Inc.
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/8/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 2/8/2024	Project No: 60699810 / File Name: 11a_GWE_Mar2023_Texmark / Figure: 11a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Texmark\MXD\11a_GWE_Mar2023_Texmark.mxd



Point of Compliance Wells
MW-18-TCI, MW-19-TCI, RW-3, RW-5

Corrective Action System Wells
RW-3, RW-5

Corrective Action Observation Wells
AMP-2, MW-4-TCI, MW-10-TCI, MW-12-TCI

Legend

- Monitor Well
- Recovery Well
- Plugged Well
- Groundwater Contour with Elevation (Mean Sea Level) Contour Interval - 2 ft.
- Groundwater Depression
- Groundwater Flow Direction
- Texmark Property Line
- KMLT Property Line

Notes:
1. MW-09-TCI and RI-1-10 were not accessible
2. NM - not measured

Image: TNRIS Texas Imagery Service
Date: November 16, 2020

N

0 50 100 200
Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
10/12/2023

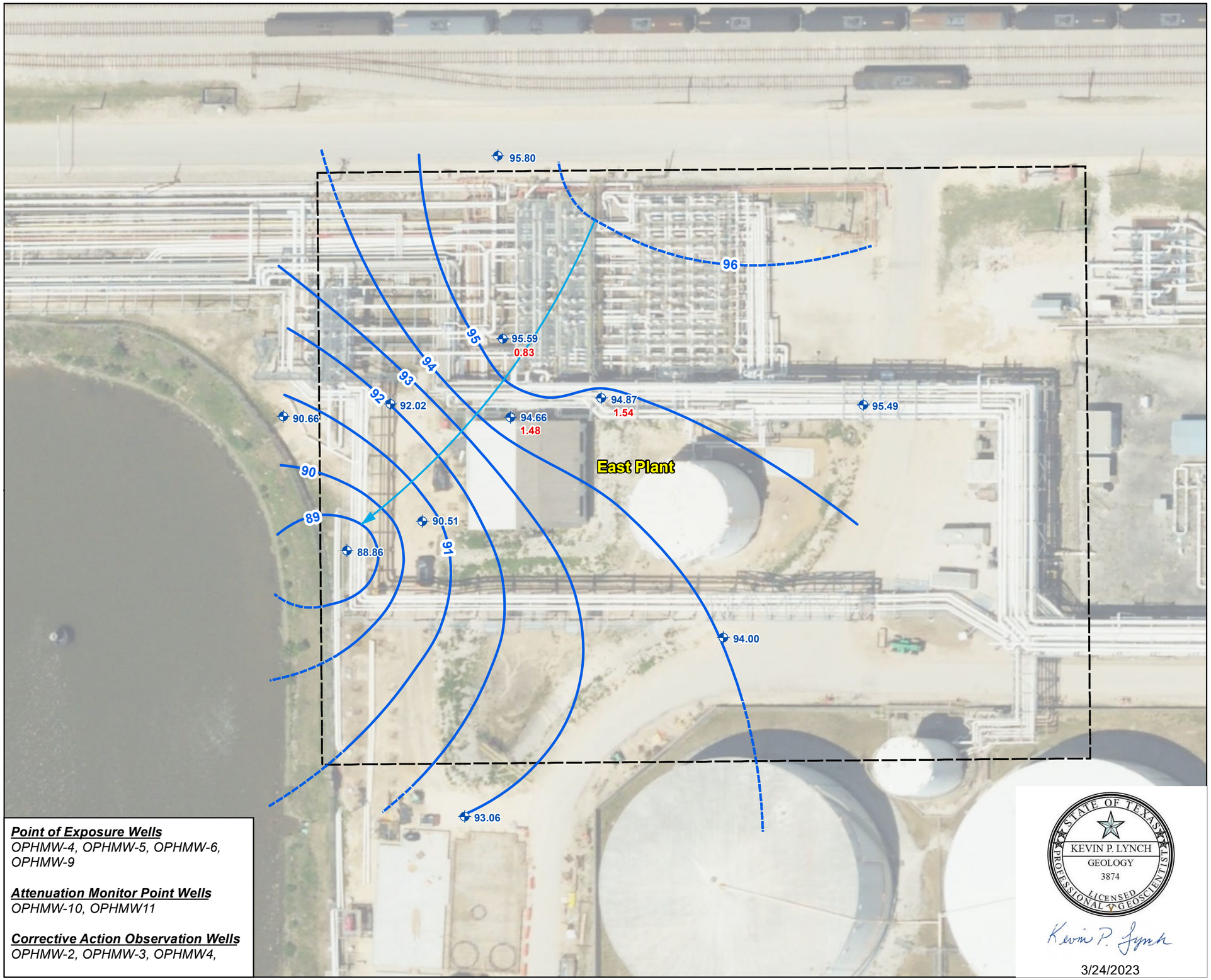
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
August 30, 2023
Texmark

Project:
Kinder Morgan Liquids Terminals LLC
Texmark Chemicals, Inc.
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	10/12/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 10/12/2023	Project No: 60680986 / File Name: 11b_GWE_Aug2023_Texmark / Figure: 11b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Texmark\MXD\11b_GWE_Aug2023_Texmark.mxd



Legend

- Monitor Well Location
- Groundwater Contour Based on January 30, 2023 Gauging Event (contour interval - 1 foot)
- Inferred Groundwater Contour
- Direction of Groundwater Flow
- Approximate OPH5 Boundary
- 1.54 Product Thickness (ft.)

Notes:
Elevations are based on an assumed elevation datum.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 50 100 Feet

Approximate Scale

N

Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/24/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

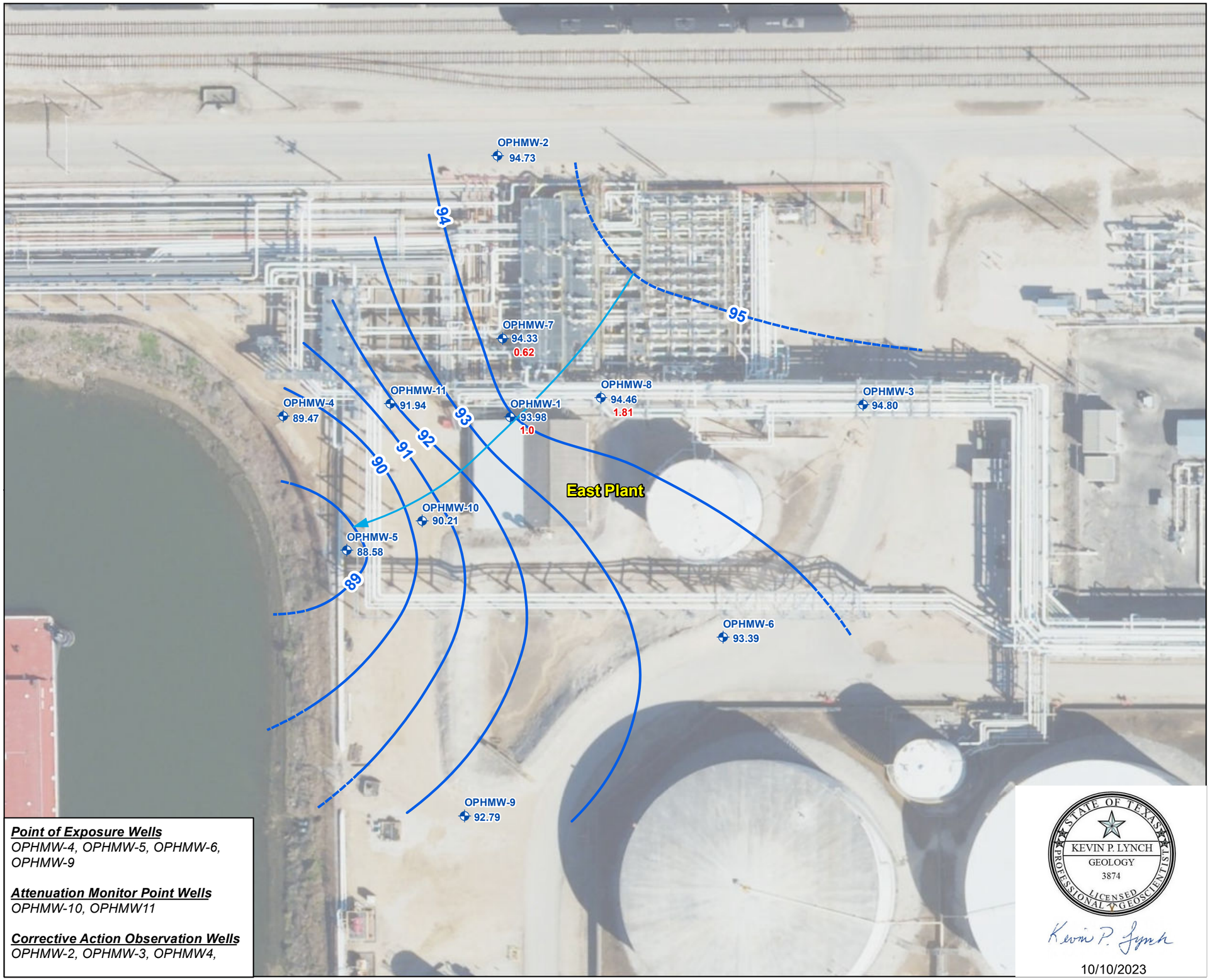
Title: **Groundwater Elevation Map January 30, 2023 OPH5**

Project: **Kinder Morgan Liquids Terminals LLC Old Pump House No. 5 Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/21/2024	60699810	12a_GW_OPH5_Jan2023	12a
	Chk'd By: AH	Date: 2/21/2024			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\12a_GW_OPH5_Jan2023.mxd



Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

Legend

- Monitor Well Location
- Groundwater Contour Based on July 21, 2023 Gauging Event (contour interval - 1 foot)
- Inferred Groundwater Contour
- Direction of Groundwater Flow
- 1.81 Product Thickness (ft.)

Notes:
Elevations are based on an assumed elevation datum.

Image: TxGIO Texas Imagery Service
Date: November 16, 2020

0 50 100 Feet
Approximate Scale

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
10/10/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
July 21, 2023
OPH5

Project:
Kinder Morgan Liquids Terminals LLC
Old Pump House No. 5
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	10/10/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	10/10/2023	60699810 / Figure12b_GW_OPH5_Jul2023 / 12b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\12b_GW_OPH5_Jul2023.mxd

Figure 13
Instantaneous Flow Rates - July 1 - December 31, 2023
Semiannual Corrective Action Program Report
Hazardous Waste Permit No. CP-50054
KM Liquids Terminals LLC
Galena Park Terminal

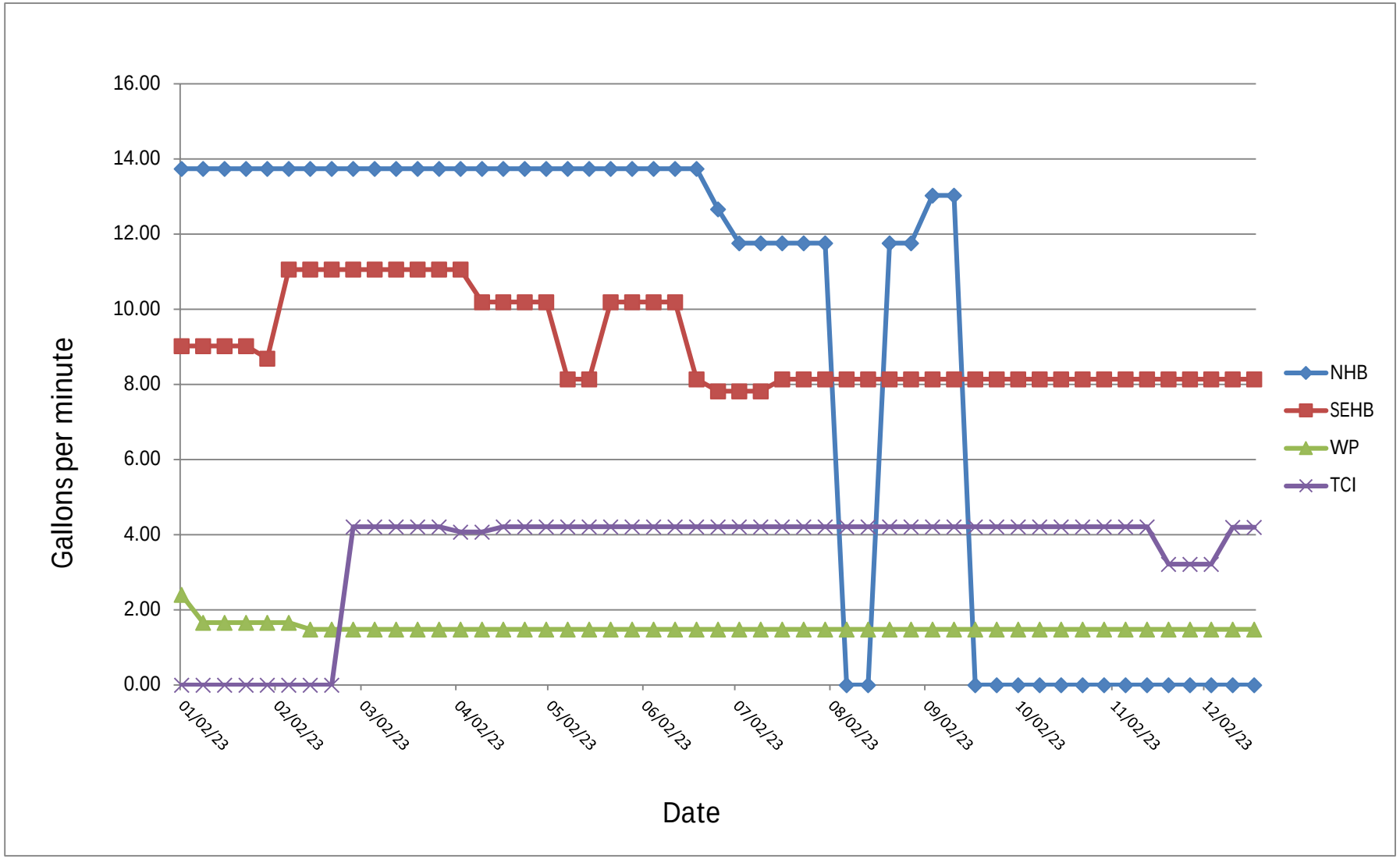
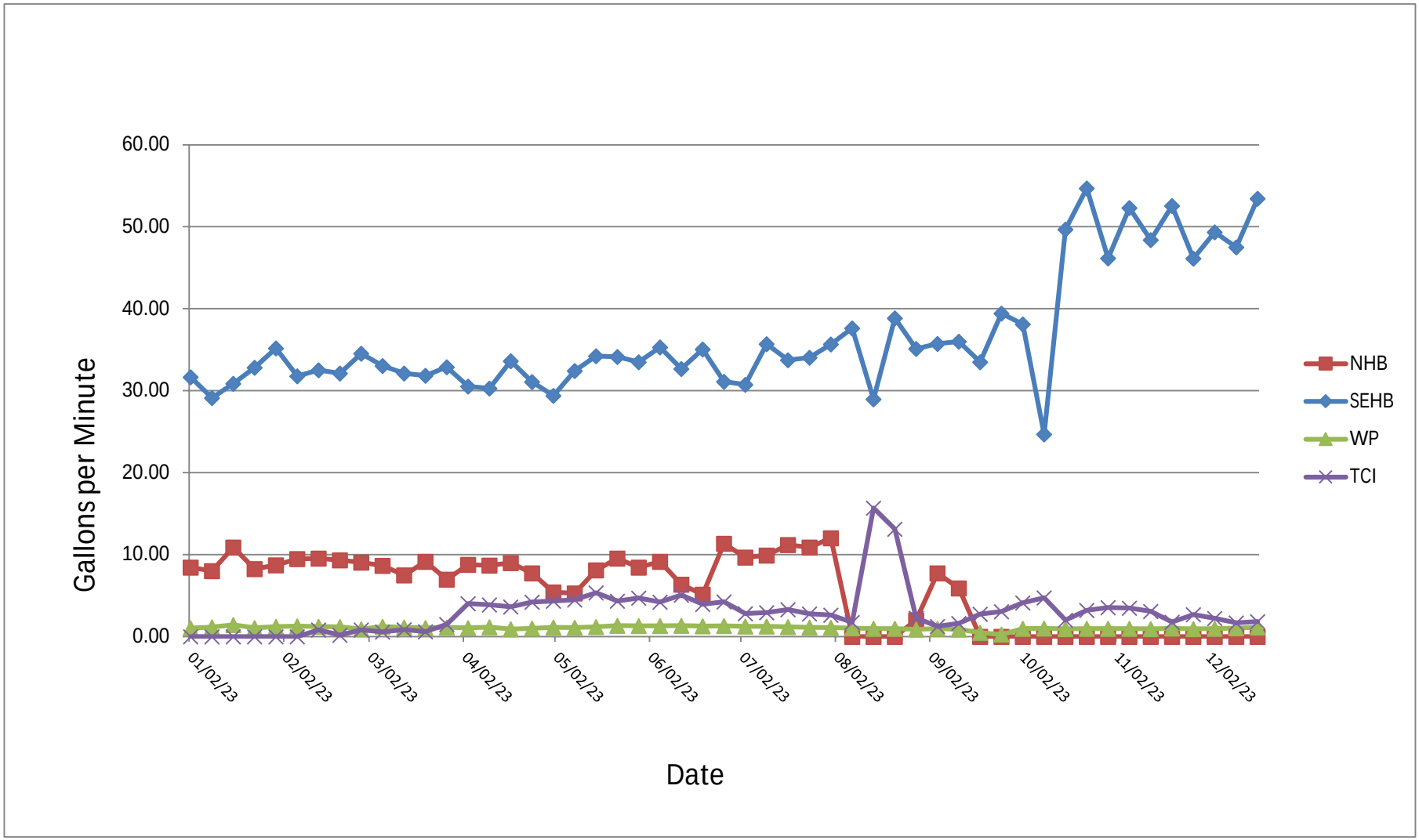
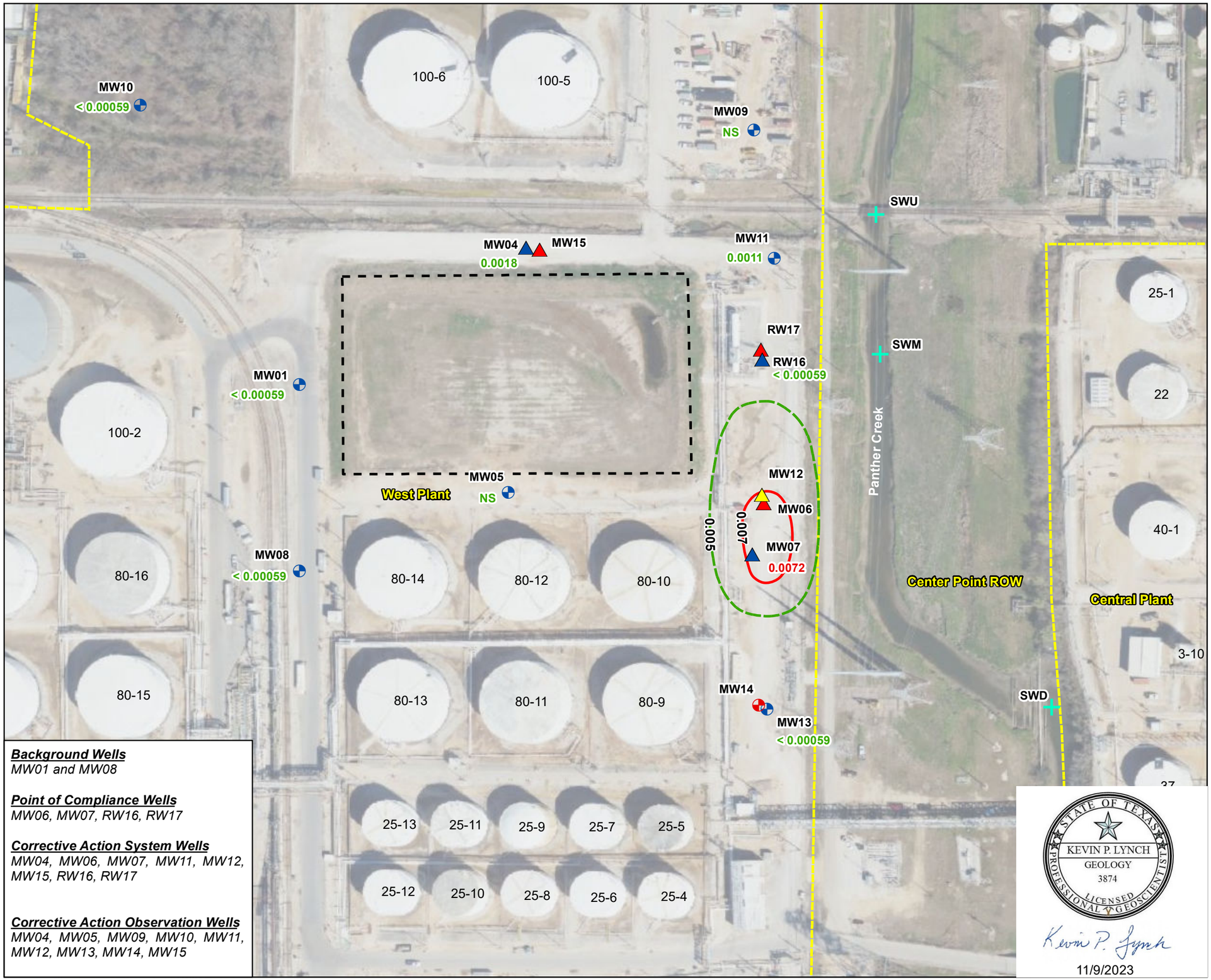


Figure 14
Average Flow Rates - July 1 - December 31, 2023
Semiannual Corrective Action Program Report
Hazardous Waste Permit No. CP-50054
KM Liquids Terminals LLC
Galena Park Terminal





Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
11/9/2023

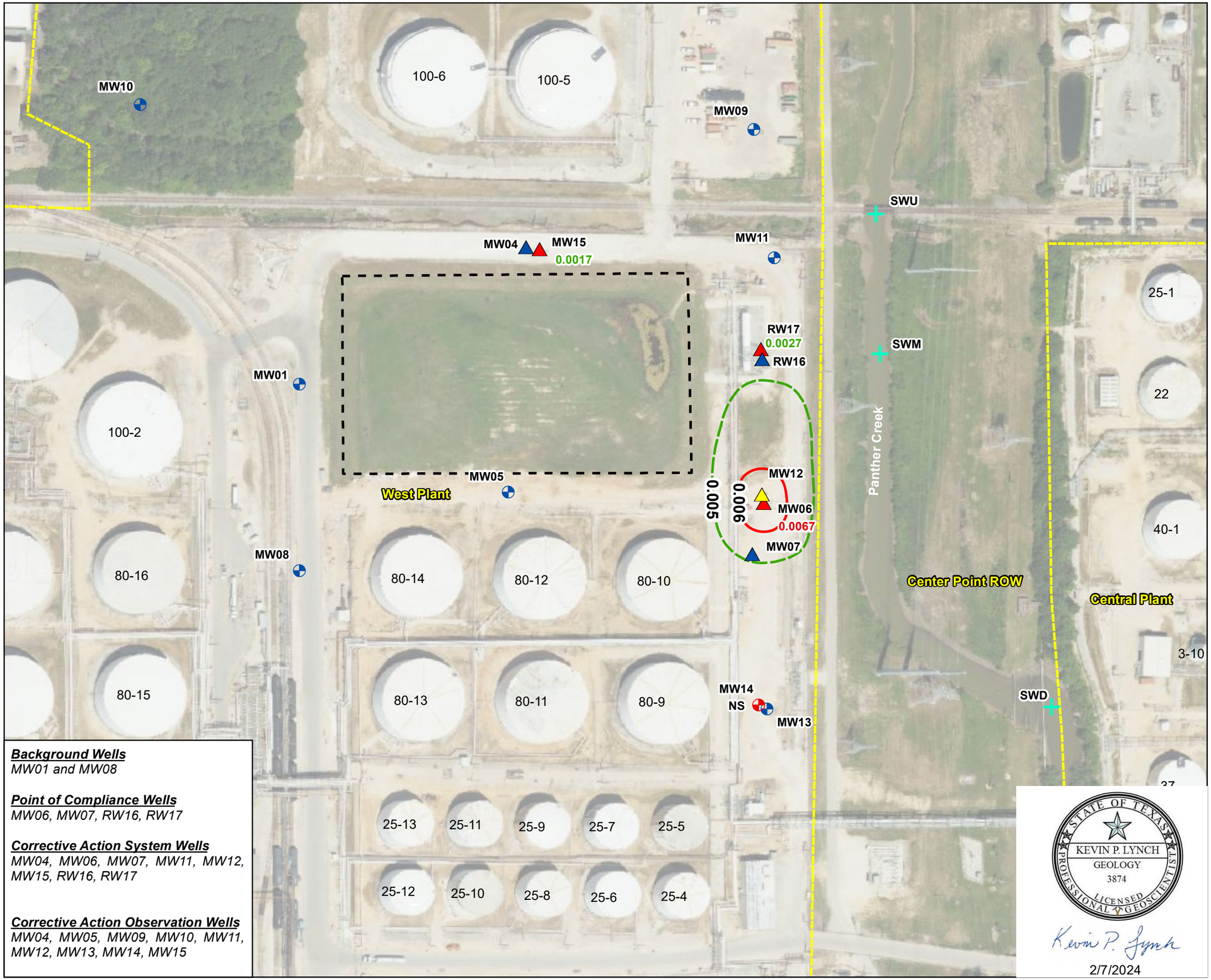
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane January 31, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/9/2023	60699810 / Figure15a_DCA_NHB_Zone3_Jan2023 / 15a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\15a_DCA_NHB_Zone3_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/7/2024

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

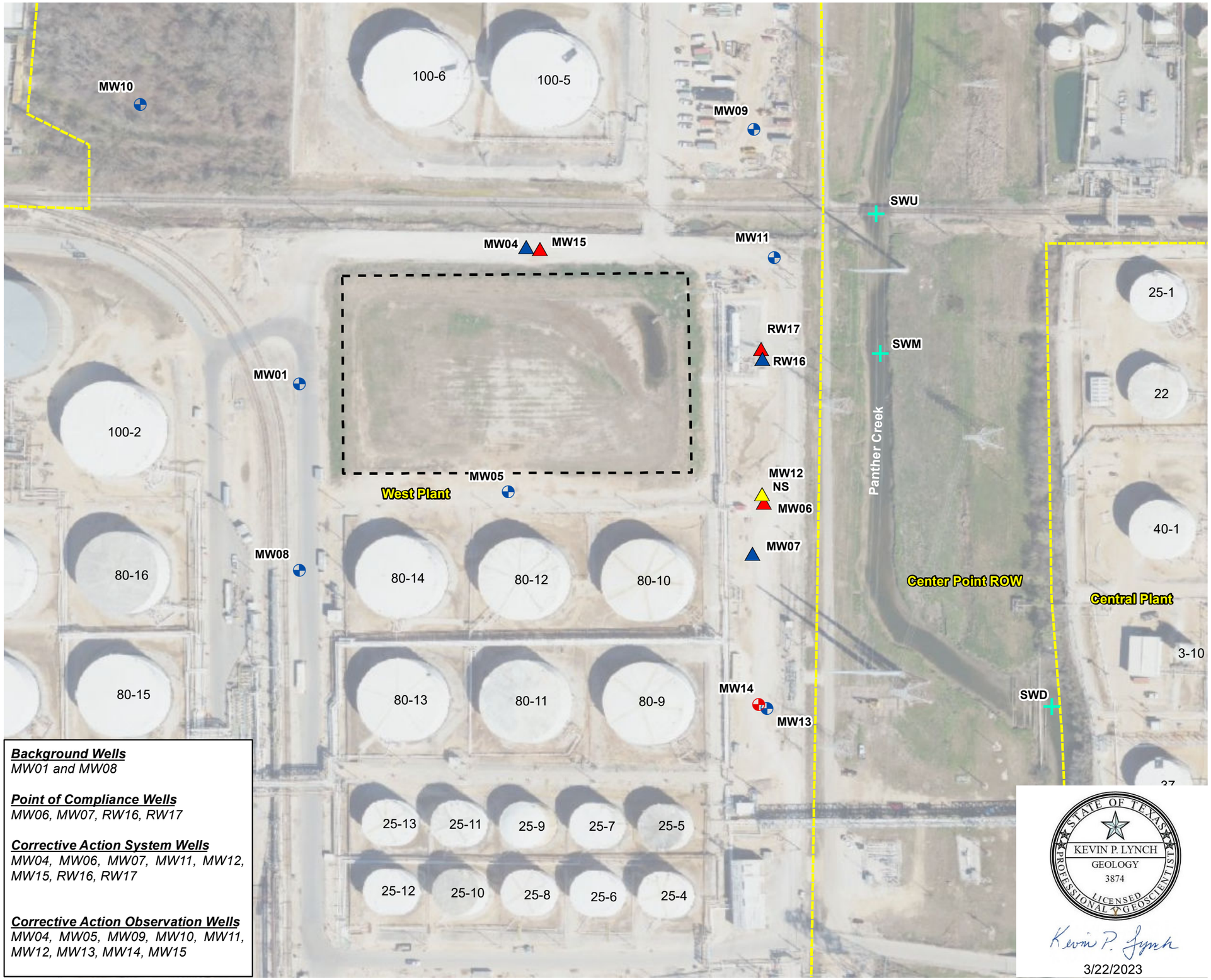
Title: **Contaminant Isopleth Map 1,2 Dichloroethane January 31, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/7/2024	60699810	Figure15b_DCA_NHB_Zone4_Jan2023	15b
	Chk'd By: AH	Date: 2/7/2024			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\15b_DCA_NHB_Zone4_Jan2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Groundwater protection standard for 1,2-Dichloroethane is 0.005 mg/L.

NS = Not Sampled per TCEQ concurrence (May 16, 2011)

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

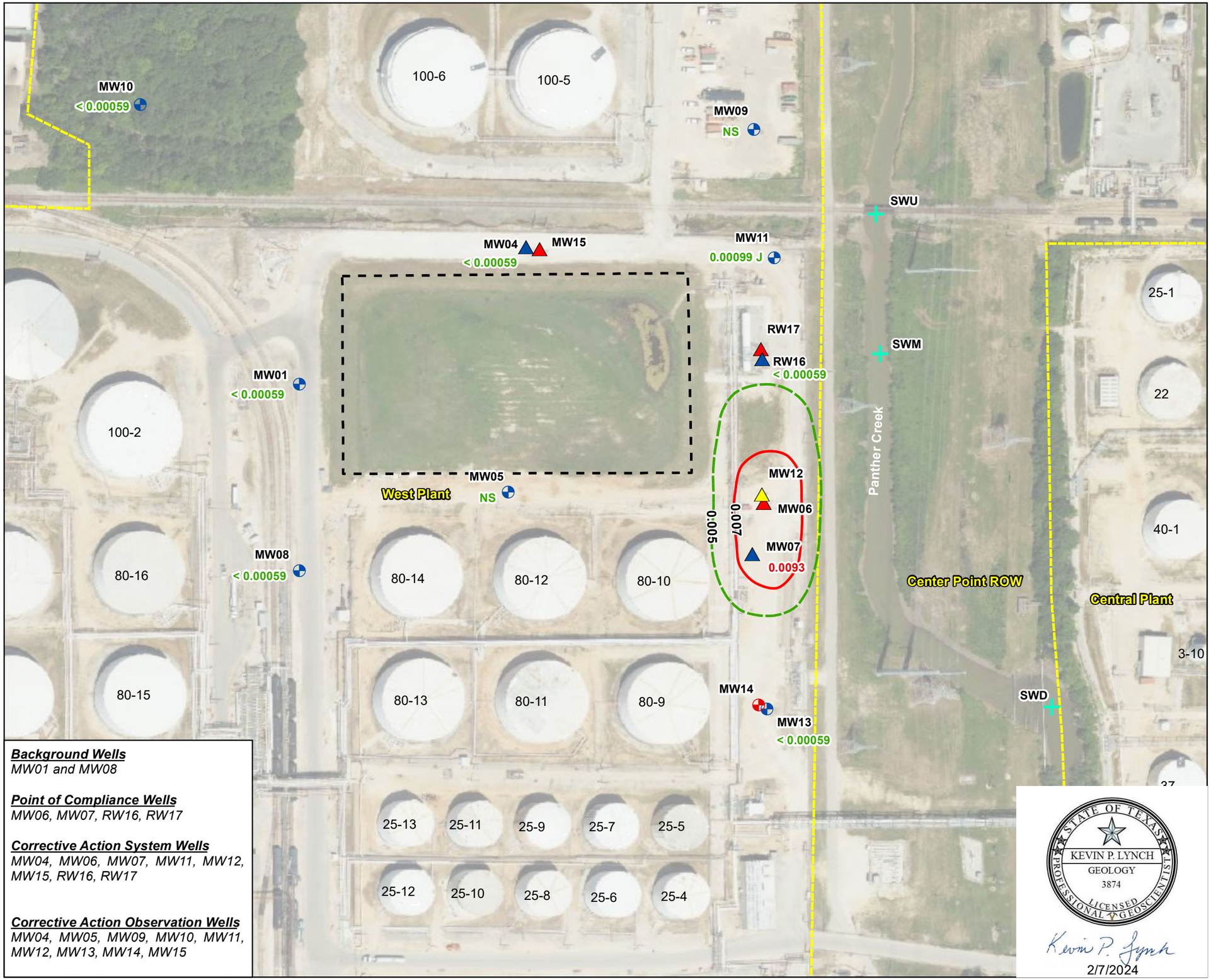
Kevin P. Lynch
3/22/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane January 31, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/22/2023	60699810 / Figure15c_DCA_NHB_Zone5_Jan2023 / 15c



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/7/2024

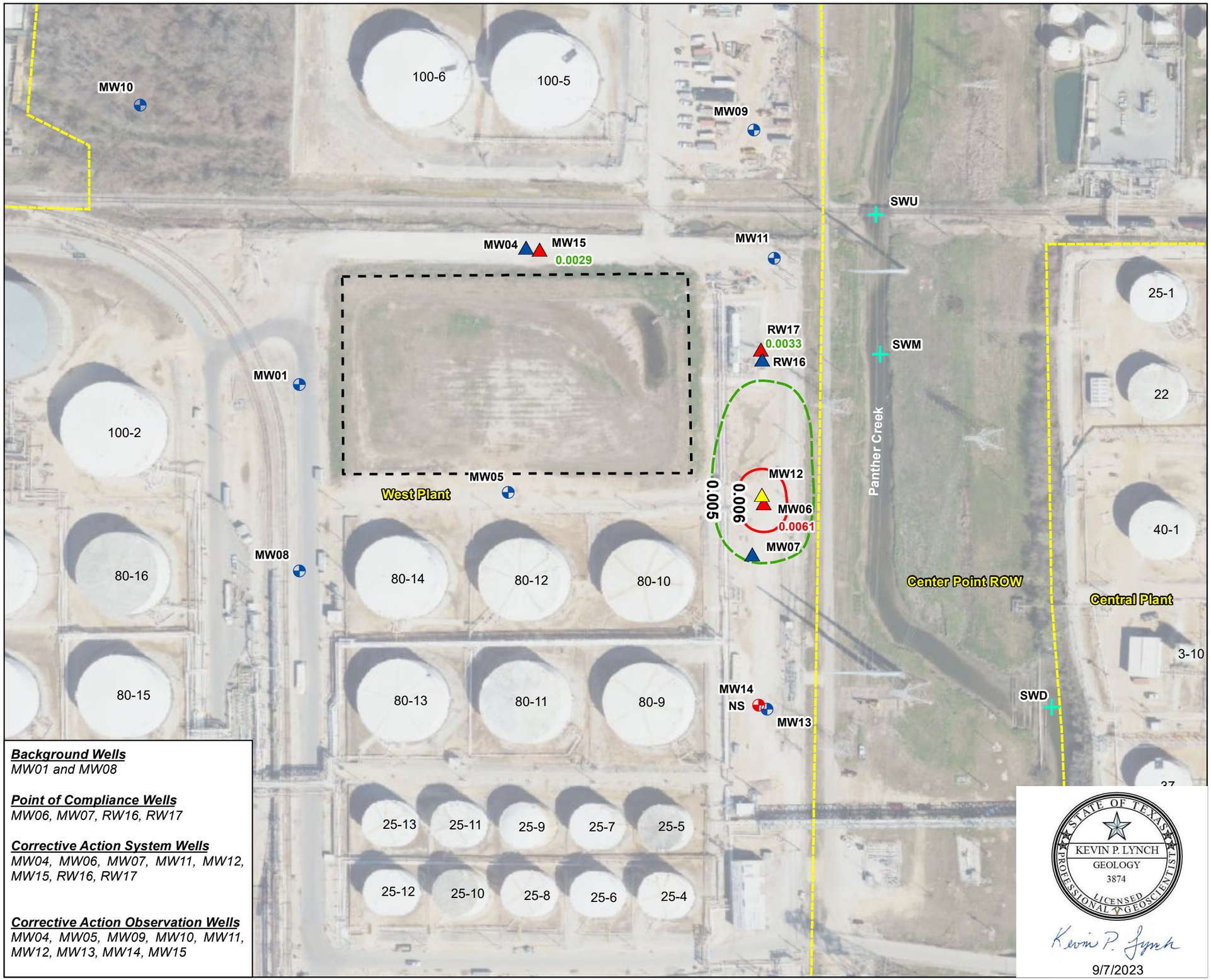
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane July 21, 2023 North Holding Basin - Zone III**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/7/2024	60699810	Figure15d_DCA_NHB_Zone3_Jul2023	15d
	Chk'd By: AH	Date: 2/7/2024			



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)
- Surface Water Sample (Panther Creek)
- Isopleth Contours
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Concentrations in red exceed the groundwater protection standard of 0.005 mg/L for 1,2 Dichloroethane

Isoconcentration Contour Interval = 0.005 mg/L

NS = Not Sampled

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
9/7/2023

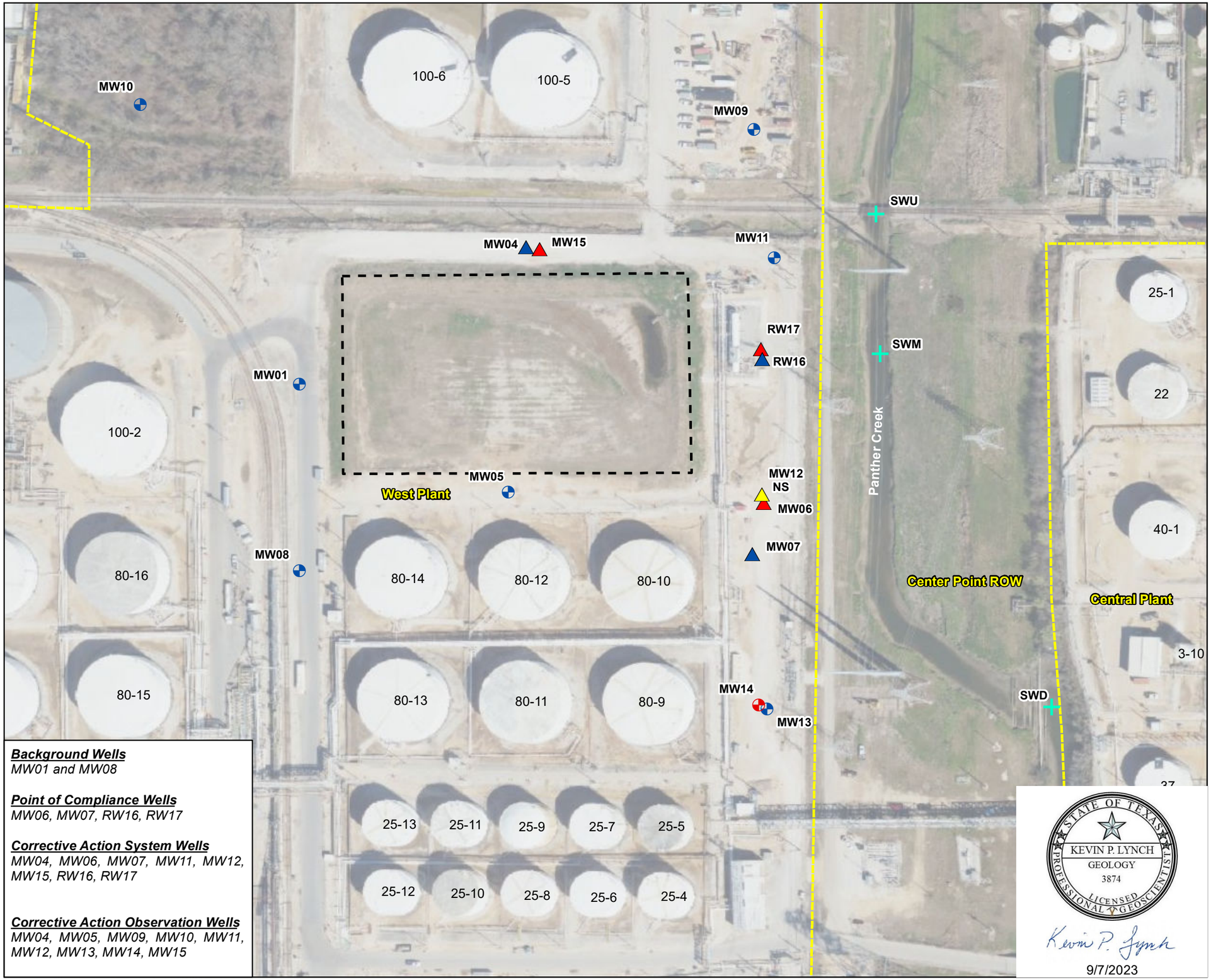
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane July 21, 2023 North Holding Basin - Zone IV**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	9/7/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 9/7/2023	Project No: 60680986 / File Name: Figure15e_DCA_NHB_Zone4_Jul2023 / Figure: 15e

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\NHB\MXD\15e_DCA_NHB_Zone4_Jul2023.mxd



Background Wells
MW01 and MW08

Point of Compliance Wells
MW06, MW07, RW16, RW17

Corrective Action System Wells
MW04, MW06, MW07, MW11, MW12, MW15, RW16, RW17

Corrective Action Observation Wells
MW04, MW05, MW09, MW10, MW11, MW12, MW13, MW14, MW15

Legend

Zone III Wells
- Monitoring Well (Zone III)
- Recovery Well (Zone III)

Zone IV Wells
- Monitoring Well (Zone IV)
- Recovery Well (Zone IV)

Zone V Wells
- Recovery Well (Zone V)

- Surface Water Sample (Panther Creek)
- Approximate North Holding Basin Boundary
- KMLT Property Line

Notes:

Groundwater protection standard for 1,2-Dichloroethane is 0.005 mg/L.

NS = Not Sampled per TCEQ concurrence (May 16, 2011)

Image: Texas Google Imagery
Date: November 16, 2020

0 140 280 Feet

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
9/7/2023

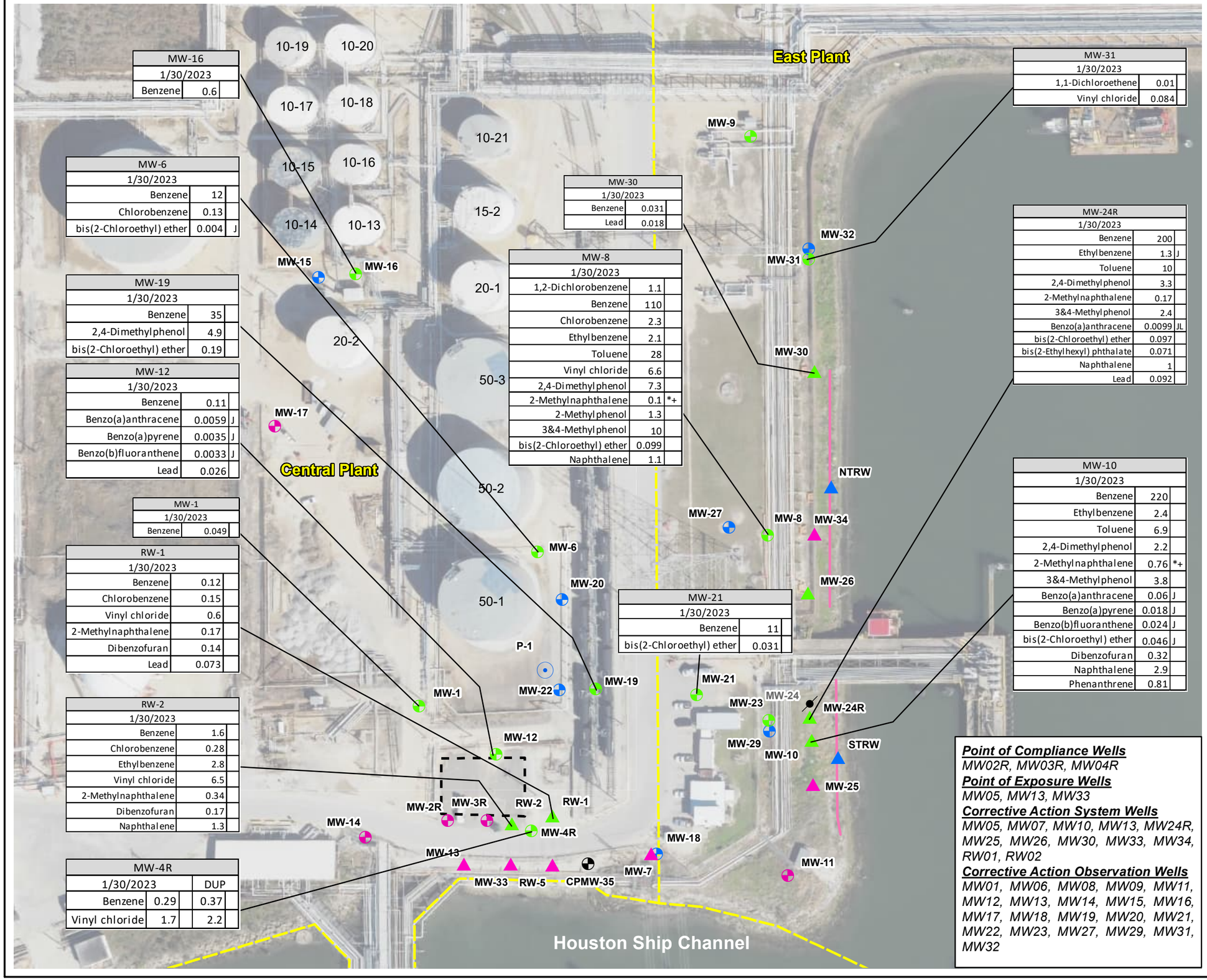
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Isopleth Map 1,2 Dichloroethane July 21, 2023 North Holding Basin - Zone V**

Project: **Kinder Morgan Liquids Terminals LLC North Holding Basin Galena Park, Texas**

Client: **KM LIQUIDS TERMINALS LLC**

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	9/7/2023	60699810	Figure15f_DCA_NHB_Zone5_Jul2023	15f
	Chk'd By: AH	Date: 9/7/2023			



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. L - Bias in sample result is likely low.
3. *+ - LCS and/or LCSD is outside acceptance limits, high biased.
4. Values presented in mg/L
5. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

0 100 200 Feet
Approximate Scale

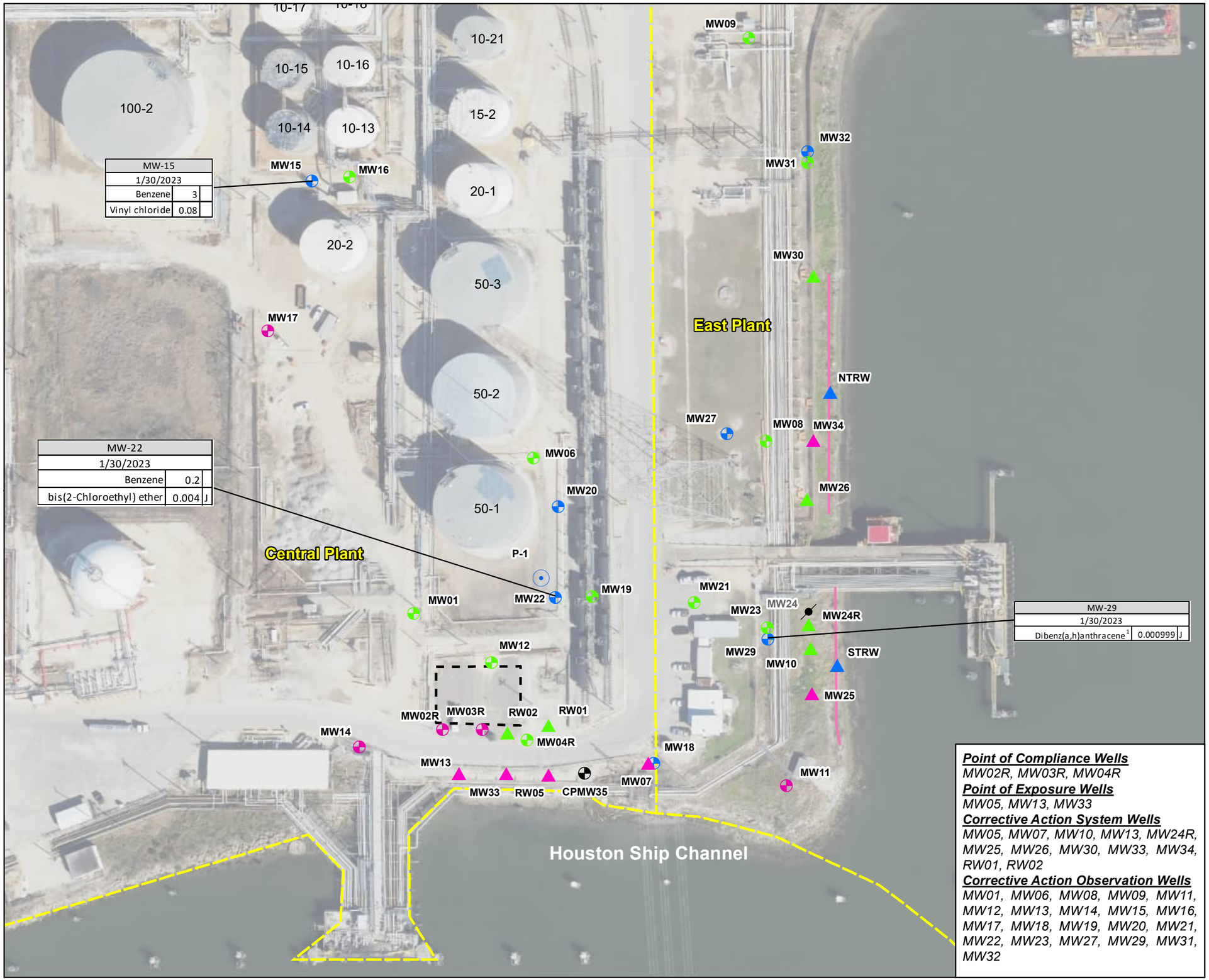
N

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 11/9/2023	Project No: 60699810
			File Name: 16a_COC_SEHB_UNTU_Jan2023
			Figure: 16a



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. Values presented in mg/L
3. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

0 100 200 Feet
Approximate Scale

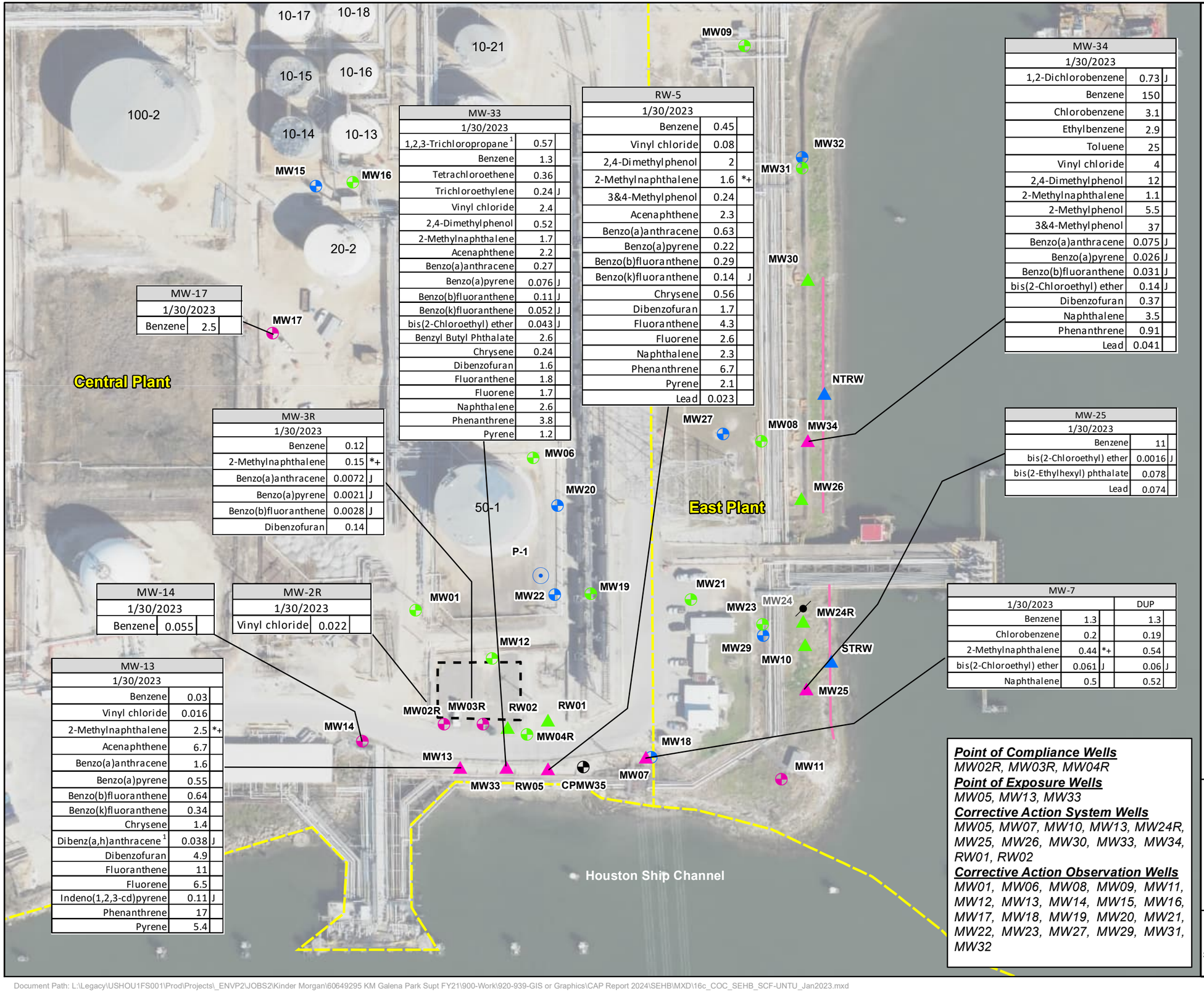
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/22/2023	Project No: 60699810 / File Name: 16b_COC_SEHB_SCF_Jan2023 / Figure: 16b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\16b_COC_SEHB_SCF_Jan2023.mxd



MW-17		
1/30/2023		
Benzene	2.5	

MW-33		
1/30/2023		
1,2,3-Trichloropropane [1]	0.57	
Benzene	1.3	
Tetrachloroethene	0.36	
Trichloroethylene	0.24	J
Vinyl chloride	2.4	
2,4-Dimethylphenol	0.52	
2-Methylnaphthalene	1.7	
Acenaphthene	2.2	
Benzo(a)anthracene	0.27	
Benzo(a)pyrene	0.076	J
Benzo(b)fluoranthene	0.11	J
Benzo(k)fluoranthene	0.052	J
bis(2-Chloroethyl) ether	0.043	J
Benzyl Butyl Phthalate	2.6	
Chrysene	0.24	
Dibenzofuran	1.6	
Fluoranthene	1.8	
Fluorene	1.7	
Naphthalene	2.6	
Phenanthrene	3.8	
Pyrene	1.2	

RW-5		
1/30/2023		
Benzene	0.45	
Vinyl chloride	0.08	
2,4-Dimethylphenol	2	
2-Methylnaphthalene	1.6	*+
3&4-Methylphenol	0.24	
Acenaphthene	2.3	
Benzo(a)anthracene	0.63	
Benzo(a)pyrene	0.22	
Benzo(b)fluoranthene	0.29	
Benzo(k)fluoranthene	0.14	J
Chrysene	0.56	
Dibenzofuran	1.7	
Fluoranthene	4.3	
Fluorene	2.6	
Naphthalene	2.3	
Phenanthrene	6.7	
Pyrene	2.1	
Lead	0.023	

MW-34		
1/30/2023		
1,2-Dichlorobenzene	0.73	J
Benzene	150	
Chlorobenzene	3.1	
Ethylbenzene	2.9	
Toluene	25	
Vinyl chloride	4	
2,4-Dimethylphenol	12	
2-Methylnaphthalene	1.1	
2-Methylphenol	5.5	
3&4-Methylphenol	37	
Benzo(a)anthracene	0.075	J
Benzo(a)pyrene	0.026	J
Benzo(b)fluoranthene	0.031	J
bis(2-Chloroethyl) ether	0.14	J
Dibenzofuran	0.37	
Naphthalene	3.5	
Phenanthrene	0.91	
Lead	0.041	

MW-25		
1/30/2023		
Benzene	11	
bis(2-Chloroethyl) ether	0.0016	J
bis(2-Ethylhexyl) phthalate	0.078	
Lead	0.074	

MW-3R		
1/30/2023		
Benzene	0.12	
2-Methylnaphthalene	0.15	*+
Benzo(a)anthracene	0.0072	J
Benzo(a)pyrene	0.0021	J
Benzo(b)fluoranthene	0.0028	J
Dibenzofuran	0.14	

MW-14		
1/30/2023		
Benzene	0.055	

MW-2R		
1/30/2023		
Vinyl chloride	0.022	

MW-7			
1/30/2023			DUP
Benzene	1.3		1.3
Chlorobenzene	0.2		0.19
2-Methylnaphthalene	0.44	*+	0.54
bis(2-Chloroethyl) ether	0.061	J	0.06 J
Naphthalene	0.5		0.52

MW-13		
1/30/2023		
Benzene	0.03	
Vinyl chloride	0.016	
2-Methylnaphthalene	2.5	*+
Acenaphthene	6.7	
Benzo(a)anthracene	1.6	
Benzo(a)pyrene	0.55	
Benzo(b)fluoranthene	0.64	
Benzo(k)fluoranthene	0.34	
Chrysene	1.4	
Dibenz(a,h)anthracene [1]	0.038	J
Dibenzofuran	4.9	
Fluoranthene	11	
Fluorene	6.5	
Indeno(1,2,3-cd)pyrene	0.11	J
Phenanthrene	17	
Pyrene	5.4	

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. *+ - LCS and/or LCSD is outside acceptance limits, high biased.
3. Values presented in mg/L
4. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

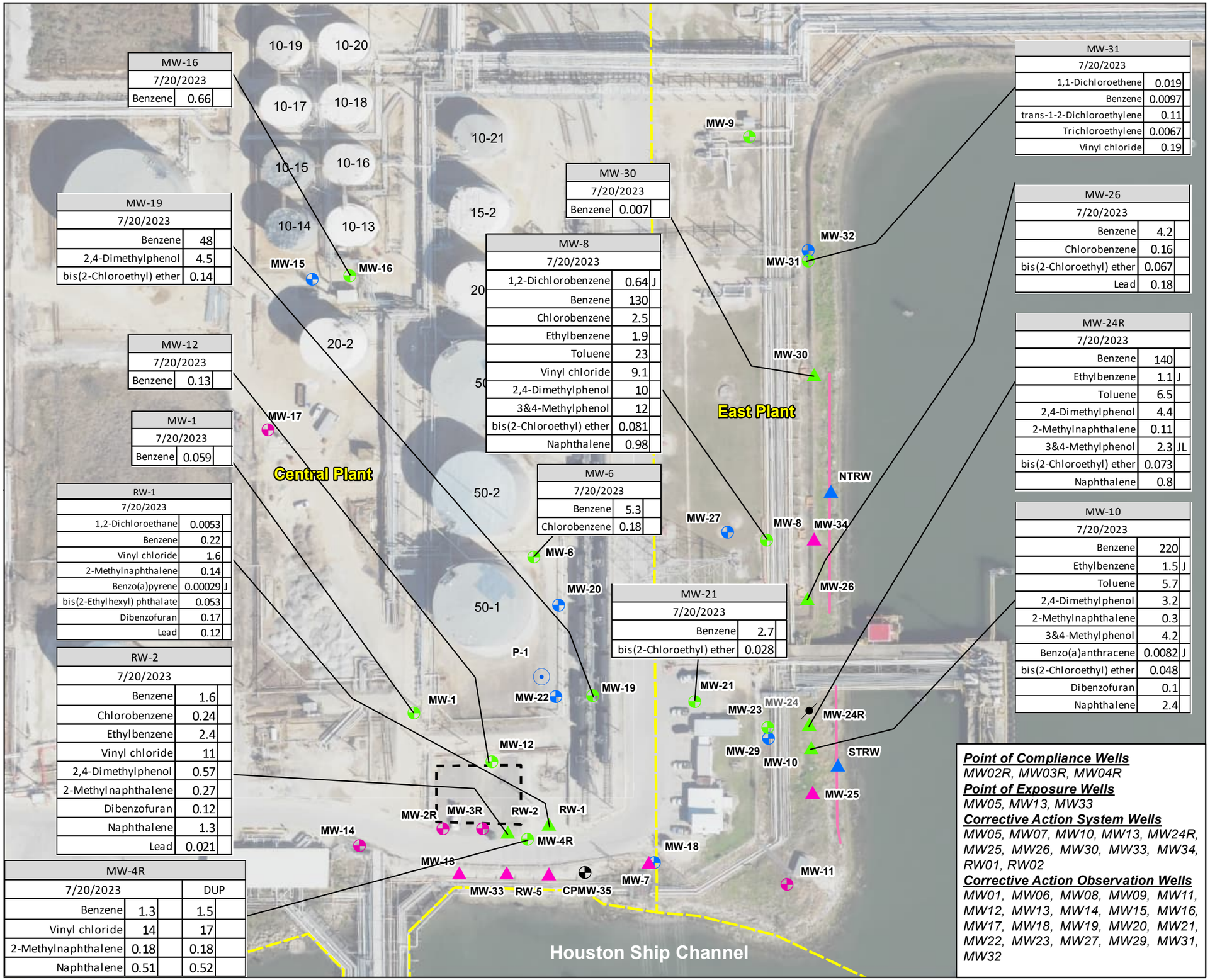
0 100 200 Feet
Approximate Scale

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map January 30, 2023 Southeast Holding Basin - SCF/UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: WG	Date: 3/22/2023	Project No: 60699810 / File Name: 16c_COC_SEHB_SCF/UNTU_Jan2023 / Figure: 16c



MW-16		
7/20/2023		
Benzene	0.66	

MW-19		
7/20/2023		
Benzene	48	
2,4-Dimethylphenol	4.5	
bis(2-Chloroethyl) ether	0.14	

MW-12		
7/20/2023		
Benzene	0.13	

MW-1		
7/20/2023		
Benzene	0.059	

RW-1		
7/20/2023		
1,2-Dichloroethane	0.0053	
Benzene	0.22	
Vinyl chloride	1.6	
2-Methylnaphthalene	0.14	
Benzo(a)pyrene	0.00029	J
bis(2-Ethylhexyl) phthalate	0.053	
Dibenzofuran	0.17	
Lead	0.12	

RW-2		
7/20/2023		
Benzene	1.6	
Chlorobenzene	0.24	
Ethylbenzene	2.4	
Vinyl chloride	11	
2,4-Dimethylphenol	0.57	
2-Methylnaphthalene	0.27	
Dibenzofuran	0.12	
Naphthalene	1.3	
Lead	0.021	

MW-4R			DUP	
7/20/2023				
Benzene	1.3		1.5	
Vinyl chloride	14		17	
2-Methylnaphthalene	0.18		0.18	
Naphthalene	0.51		0.52	

MW-30		
7/20/2023		
Benzene	0.007	

MW-8		
7/20/2023		
1,2-Dichlorobenzene	0.64	J
Benzene	130	
Chlorobenzene	2.5	
Ethylbenzene	1.9	
Toluene	23	
Vinyl chloride	9.1	
2,4-Dimethylphenol	10	
3&4-Methylphenol	12	
bis(2-Chloroethyl) ether	0.081	
Naphthalene	0.98	

MW-6		
7/20/2023		
Benzene	5.3	
Chlorobenzene	0.18	

MW-21		
7/20/2023		
Benzene	2.7	
bis(2-Chloroethyl) ether	0.028	

MW-31		
7/20/2023		
1,1-Dichloroethene	0.019	
Benzene	0.0097	
trans-1-2-Dichloroethylene	0.11	
Trichloroethylene	0.0067	
Vinyl chloride	0.19	

MW-26		
7/20/2023		
Benzene	4.2	
Chlorobenzene	0.16	
bis(2-Chloroethyl) ether	0.067	
Lead	0.18	

MW-24R		
7/20/2023		
Benzene	140	
Ethylbenzene	1.1	J
Toluene	6.5	
2,4-Dimethylphenol	4.4	
2-Methylnaphthalene	0.11	
3&4-Methylphenol	2.3	JL
bis(2-Chloroethyl) ether	0.073	
Naphthalene	0.8	

MW-10		
7/20/2023		
Benzene	220	
Ethylbenzene	1.5	J
Toluene	5.7	
2,4-Dimethylphenol	3.2	
2-Methylnaphthalene	0.3	
3&4-Methylphenol	4.2	
Benzo(a)anthracene	0.0082	J
bis(2-Chloroethyl) ether	0.048	
Dibenzofuran	0.1	
Naphthalene	2.4	

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. L - Estimate is biased low
3. Values presented in mg/L
4. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.

0 100 200 Feet
Approximate Scale

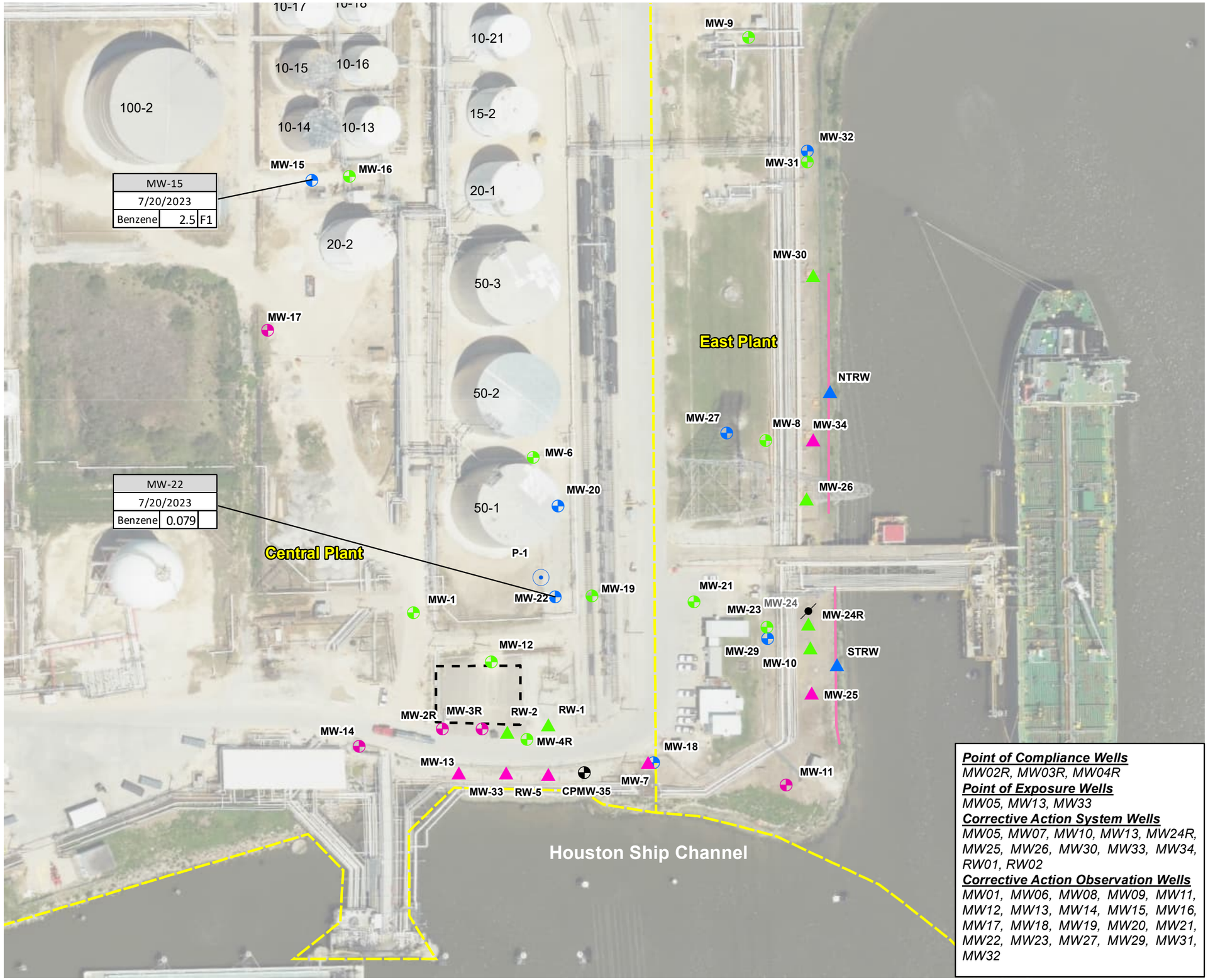
N

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	11/9/2023	60699810	Figure16d_COC_SEHB_UNTU_Jul2023	16d



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. Values presented in mg/L
3. Only chemicals whose concentrations exceed their applicable GWPS (mg/L) are shown.
4. F1 - MS and/or MSD recovery exceeds control limits.

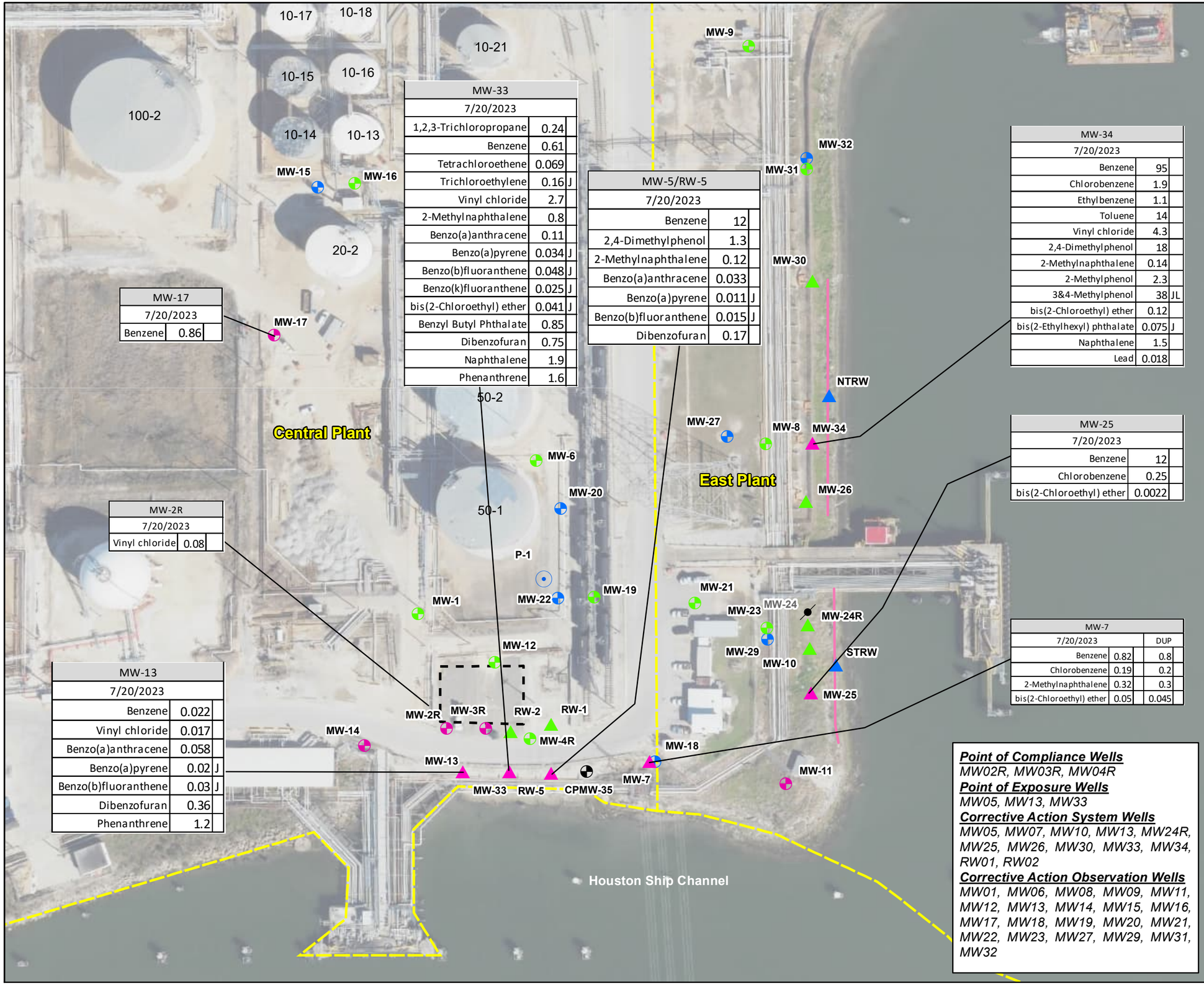
0 100 200 Feet
Approximate Scale

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin - SCF**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/21/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/21/2024	60680986	Figure16e_COC_SEHB_SCF_Jul2023	16e



MW-33	
7/20/2023	
1,2,3-Trichloropropane	0.24
Benzene	0.61
Tetrachloroethene	0.069
Trichloroethylene	0.16 J
Vinyl chloride	2.7
2-Methylnaphthalene	0.8
Benzo(a)anthracene	0.11
Benzo(a)pyrene	0.034 J
Benzo(b)fluoranthene	0.048 J
Benzo(k)fluoranthene	0.025 J
bis(2-Chloroethyl) ether	0.041 J
Benzyl Butyl Phthalate	0.85
Dibenzofuran	0.75
Naphthalene	1.9
Phenanthrene	1.6

MW-5/RW-5	
7/20/2023	
Benzene	12
2,4-Dimethylphenol	1.3
2-Methylnaphthalene	0.12
Benzo(a)anthracene	0.033
Benzo(a)pyrene	0.011 J
Benzo(b)fluoranthene	0.015 J
Dibenzofuran	0.17

MW-34	
7/20/2023	
Benzene	95
Chlorobenzene	1.9
Ethylbenzene	1.1
Toluene	14
Vinyl chloride	4.3
2,4-Dimethylphenol	18
2-Methylnaphthalene	0.14
2-Methylphenol	2.3
3&4-Methylphenol	38 JL
bis(2-Chloroethyl) ether	0.12
bis(2-Ethylhexyl) phthalate	0.075 J
Naphthalene	1.5
Lead	0.018

MW-25	
7/20/2023	
Benzene	12
Chlorobenzene	0.25
bis(2-Chloroethyl) ether	0.0022

MW-7		
7/20/2023		DUP
Benzene	0.82	0.8
Chlorobenzene	0.19	0.2
2-Methylnaphthalene	0.32	0.3
bis(2-Chloroethyl) ether	0.05	0.045

MW-2R	
7/20/2023	
Vinyl chloride	0.08

MW-13	
7/20/2023	
Benzene	0.022
Vinyl chloride	0.017
Benzo(a)anthracene	0.058
Benzo(a)pyrene	0.02 J
Benzo(b)fluoranthene	0.03 J
Dibenzofuran	0.36
Phenanthrene	1.2

MW-17		
7/20/2023		
Benzene	0.86	

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)

- Approximate Southeast Holding Basin Boundary
- KMLT Property Line

Notes:
1. J - Concentration is an estimate
2. L - Estimate biased Low
3. Values presented in mg/L
4. Only chemicals whose concentrations exceeding their applicable GWPS (mg/L) are shown.

0 100 200 Feet

Approximate Scale

Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

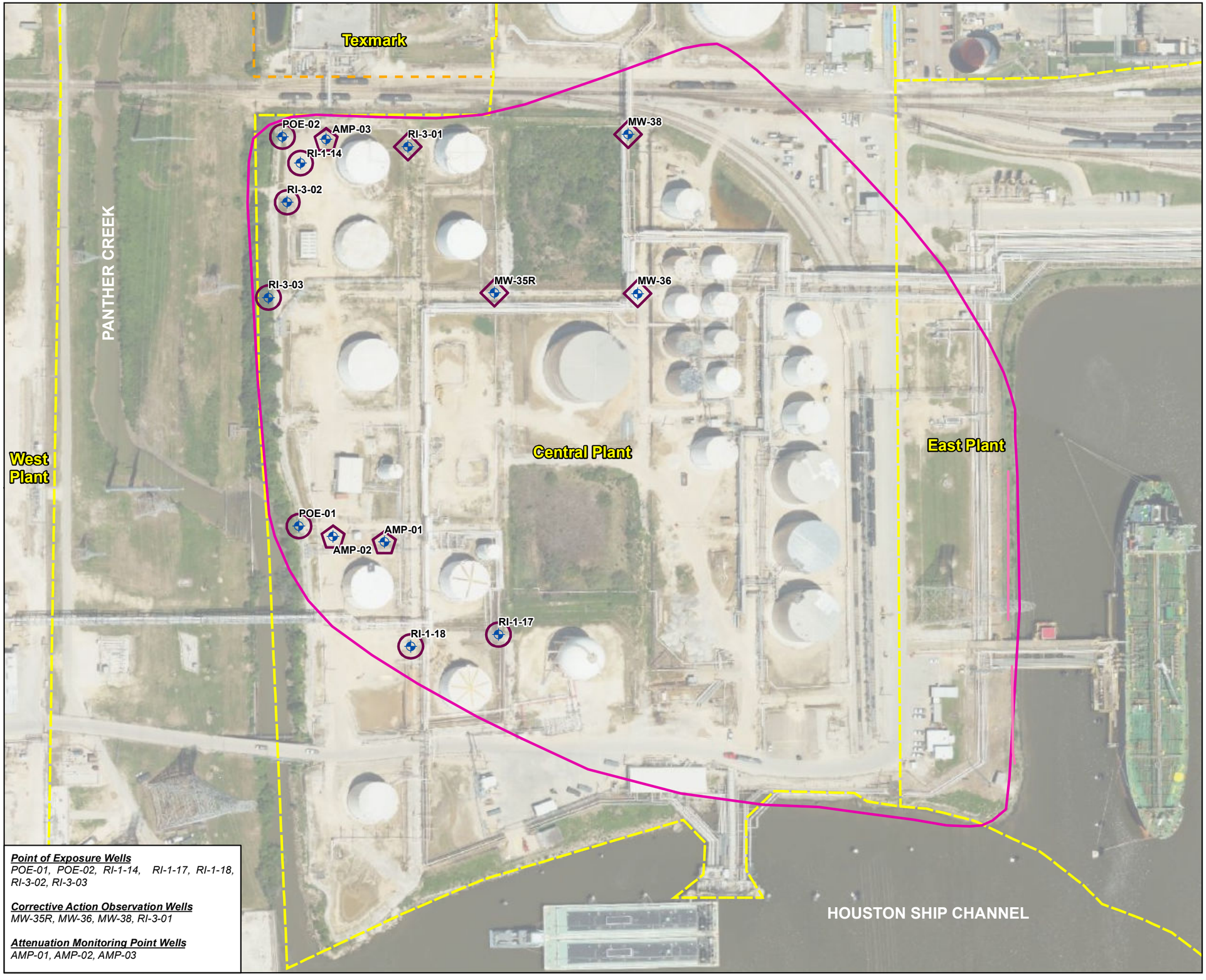
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map July 20, 2023 Southeast Holding Basin - SCF/UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/9/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 11/9/2023	Project No: 60699810 / File Name: Figure16f_COC_SEHB_SCF/UNTU_Jul2023 / Figure: 16f

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\16f_COC_SEHB_SCF-UNTU_Jul2023.mxd



Point of Exposure Wells
POE-01, POE-02, RI-1-14, RI-1-17, RI-1-18, RI-3-02, RI-3-03

Corrective Action Observation Wells
MW-35R, MW-36, MW-38, RI-3-01

Attenuation Monitoring Point Wells
AMP-01, AMP-02, AMP-03

Legend

- Monitor Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Recovery Trench
- Approximate Plume Management Zone (PMZ)
- KM Liquids Terminal Property Line
- Texmark Property Line

Notes:

1. No COCs exceeded their applicable groundwater protection standards.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 80 160 320

Feet

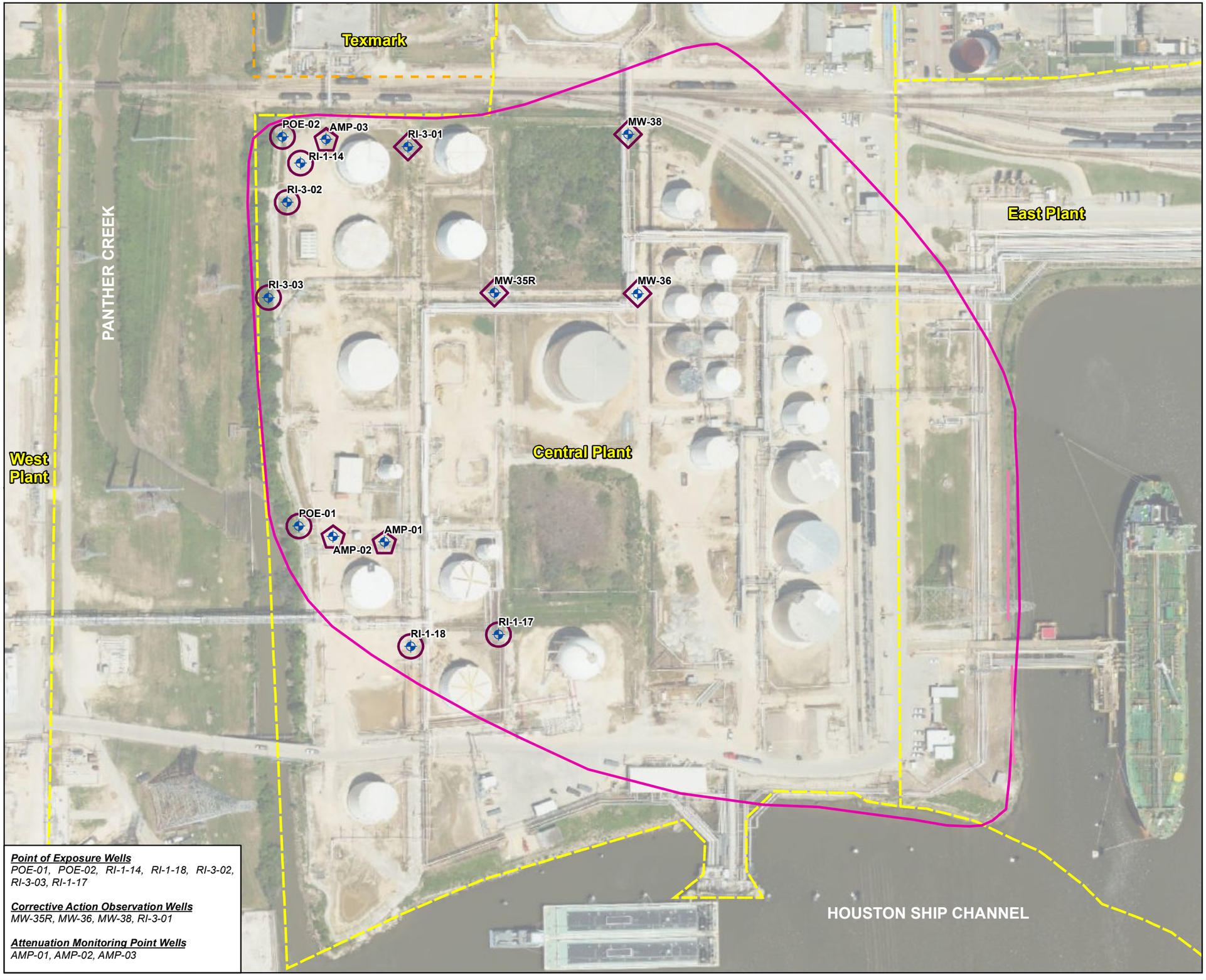
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map January 31, 2023 Central Plant PMZ Zone SCF/UNTU

Project:
Kinder Morgan Liquids Terminals LLC Central Plant Galena Park, Texas

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/27/2024	60699810	17a_COC_CP_Jan2023	17a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\Central Plant\MXD\17a_COC_CP_Jan2023.mxd



Point of Exposure Wells
POE-01, POE-02, RI-1-14, RI-1-18, RI-3-02, RI-3-03, RI-1-17

Corrective Action Observation Wells
MW-35R, MW-36, MW-38, RI-3-01

Attenuation Monitoring Point Wells
AMP-01, AMP-02, AMP-03

Legend

- Monitor Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Recovery Trench
- Approximate Plume Management Zone (PMZ)
- Kinder Morgan Property Line
- Texmark Property Line

Notes:

1. No COCs exceeded their applicable groundwater protection standards.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 80 160 320

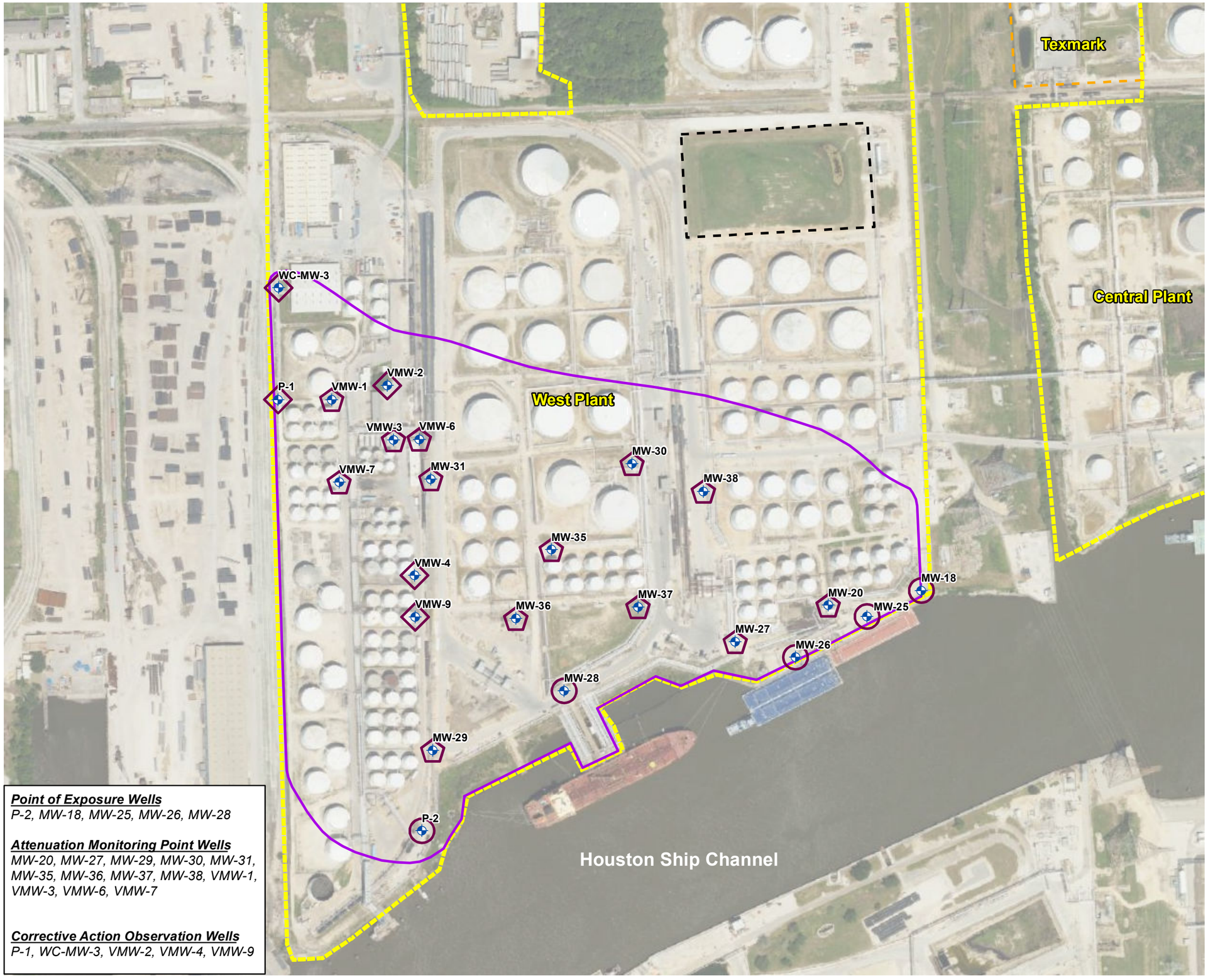
Feet

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map
July 21, 2023
Central Plant PMZ Zone SCF/UNTU

Project:
Kinder Morgan Liquids Terminals LLC
Central Plant
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/27/2024	60649295 / 17b_COC_CP_Jul2023 / **17b**



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:
No COCs exceeded their applicable groundwater protection standards.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

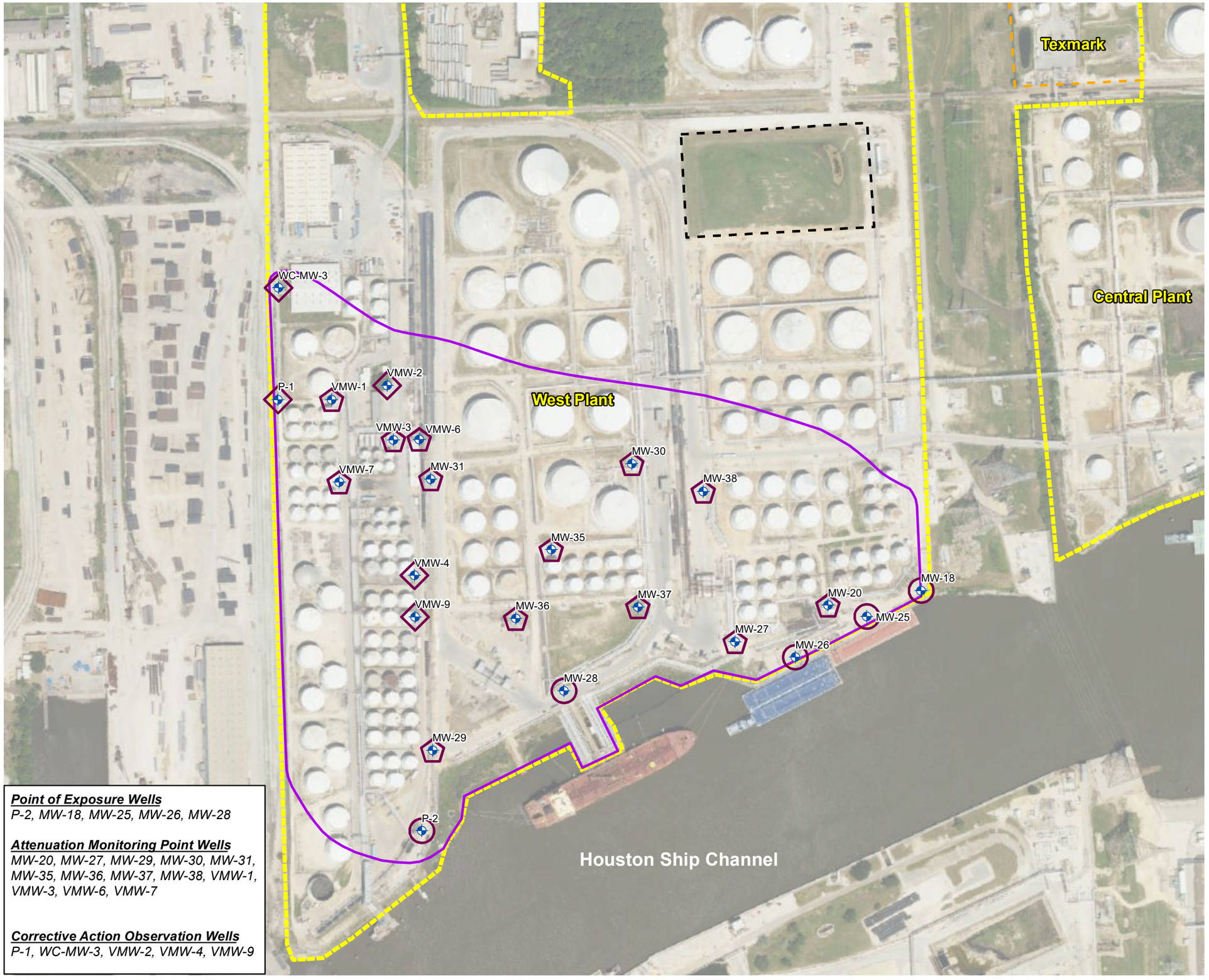
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map February 24, 2023 West Plant/WestChem

Project:
Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/27/2024	60699810	18a_WP_COC_Feb2023	18a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\18a_WP_COC_Feb2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Plume Management Zone
- Approximate North Holding Basin Boundary
- KM Liquids Terminal LLC Property Boundary

Notes:
No COCs exceeded their applicable groundwater protection standards.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

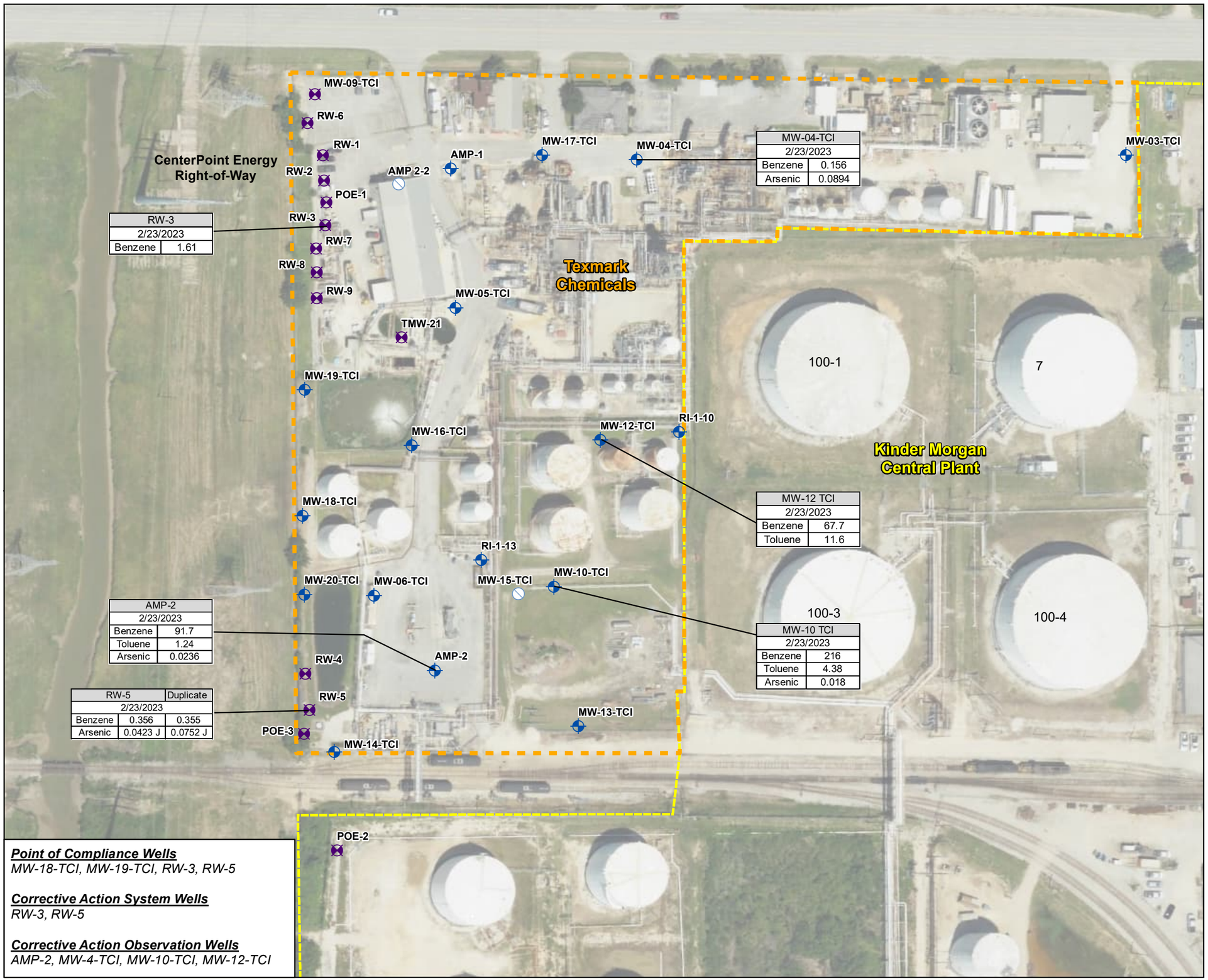
Title:
Contaminant Concentration Exceedances Map August 15, 2023 West Plant/WestChem

Project:
Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas

Client:
KM LIQUIDS TERMINALS LLC

Scale:	Drawn By:	Date:	Project No:	File Name:	Figure:
As Shown	KPL	2/27/2024	60699810	18b_WP_COC_Aug2023	18b
	Chk'd By: AH	Date: 2/27/2024			

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\18b_WP_COC_Aug2023.mxd



MW-04-TCI	
2/23/2023	
Benzene	0.156
Arsenic	0.0894

RW-3	
2/23/2023	
Benzene	1.61

MW-12 TCI	
2/23/2023	
Benzene	67.7
Toluene	11.6

MW-10 TCI	
2/23/2023	
Benzene	216
Toluene	4.38
Arsenic	0.018

AMP-2	
2/23/2023	
Benzene	91.7
Toluene	1.24
Arsenic	0.0236

RW-5		Duplicate
2/23/2023		
Benzene	0.356	0.355
Arsenic	0.0423 J	0.0752 J

Point of Compliance Wells
MW-18-TCI, MW-19-TCI, RW-3, RW-5

Corrective Action System Wells
RW-3, RW-5

Corrective Action Observation Wells
AMP-2, MW-4-TCI, MW-10-TCI, MW-12-TCI

Legend

- Monitor Well
- Recovery Well
- Plugged Well
- Texmark Property Line
- KMLT Property Line

Notes:
1. Results in Milligrams per liter (mg/L)
2. Only chemicals whose concentrations exceeding their applicable GWPS (mg/L) are shown.
3. J - concentration is an estimate.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

N

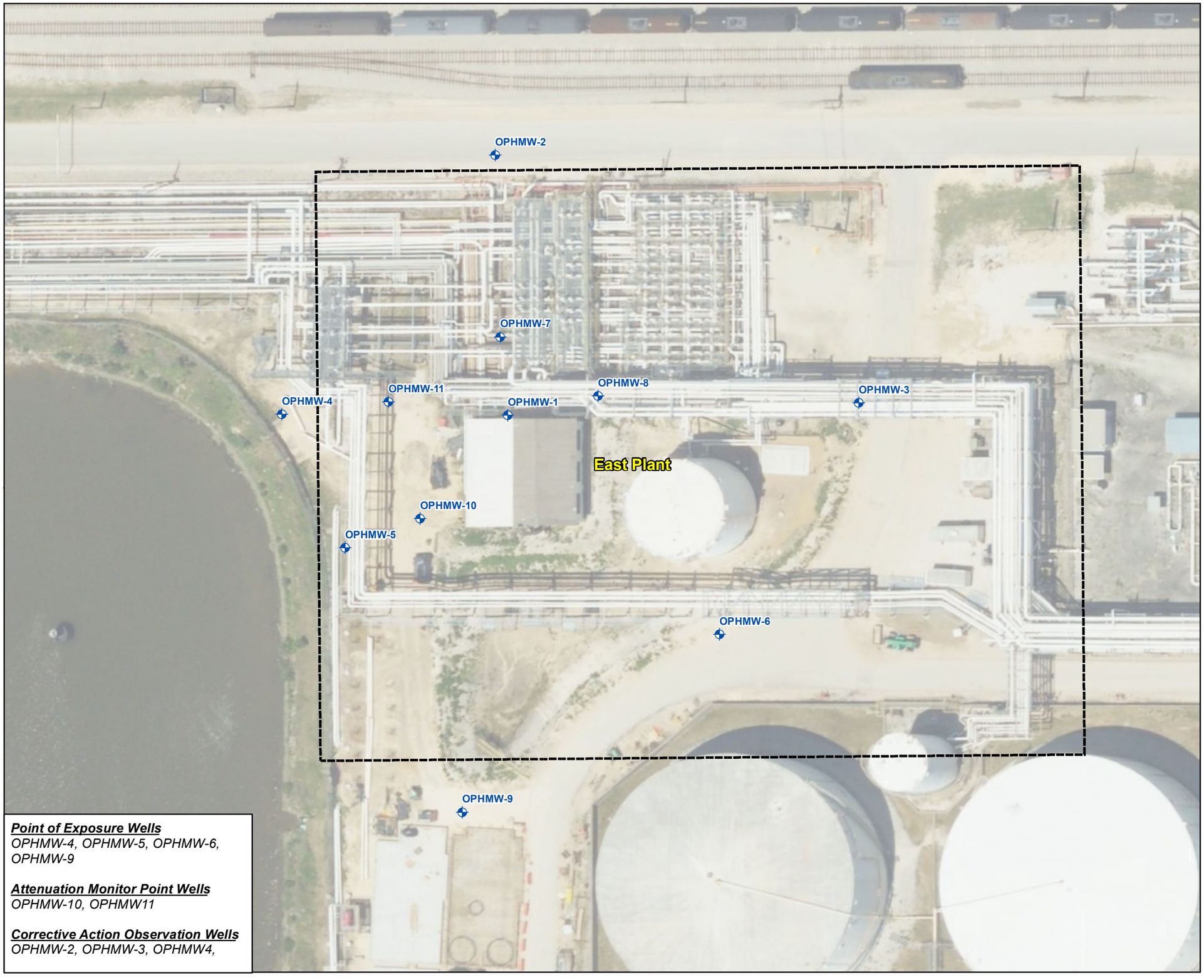
0 50 100 200
Feet

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Contaminant Concentration Exceedances Map February 23, 2023 Texmark**

Project: **Kinder Morgan Liquids Terminals LLC Texmark Chemicals, Inc. Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/8/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 2/8/2024	Project No: 60699810 / File Name: 19_COC_Mar2023_Texmark / Figure: 19



Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

Legend

- Monitor Well Location
- Approximate OPH5 Boundary

Notes:
1. No COCs exceeded their applicable groundwater protection standards

Image: TxGIO Texas Imagery Service
Date:April 16, 2023

0 50 100 Feet

Approximate Scale

N

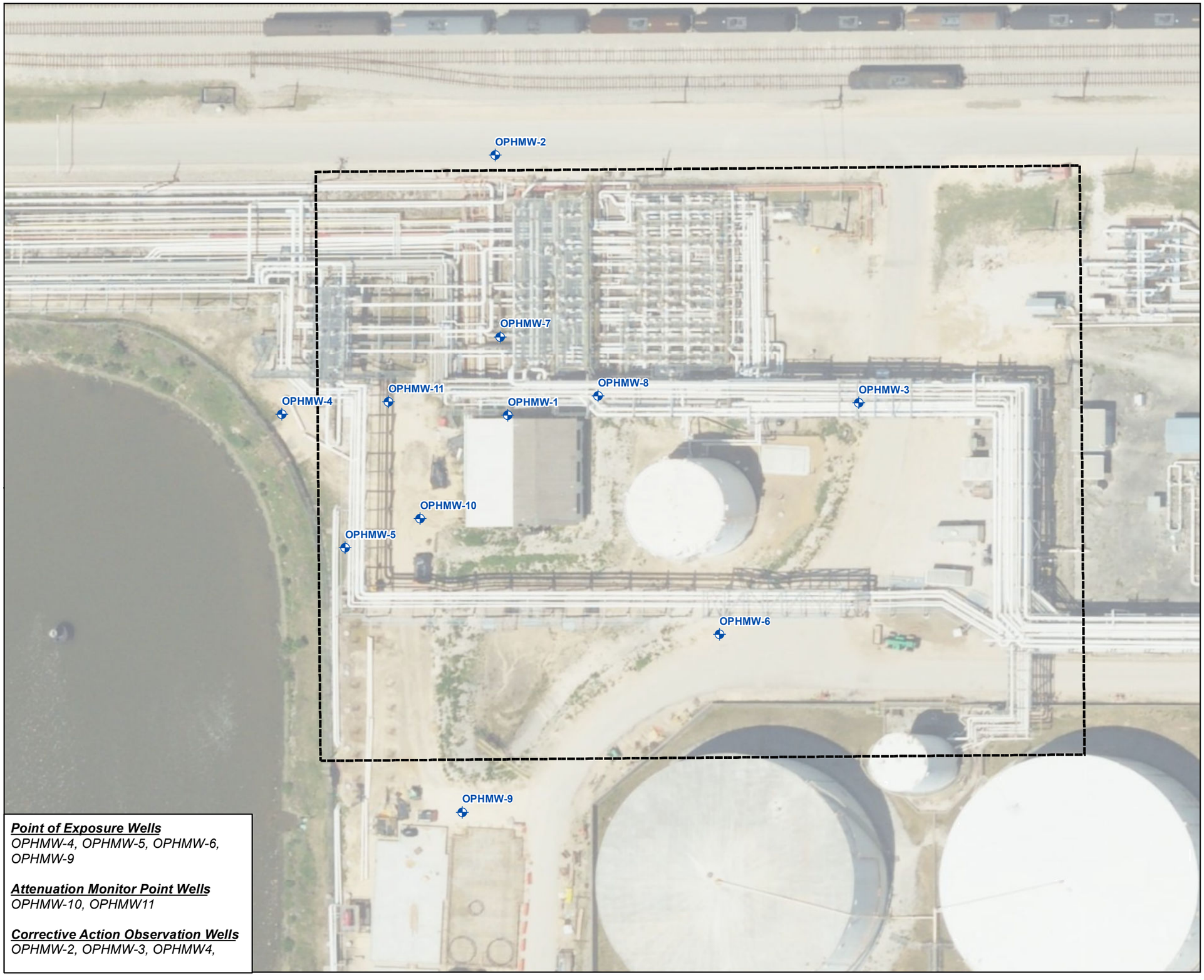
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map January 30, 2023 OPH5

Project:
Kinder Morgan Liquids Terminals LLC Old Pump House No. 5 Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/21/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/21/2024	60699810 / 20a_COC _OPH5_Jan2023 / **20a**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\20a_COC_OPH5_Jan2023.mxd



Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

Legend

- Monitor Well Location
- Approximate OPH5 Boundary

Notes:
1. No COCs exceeded their applicable groundwater protection standards

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 50 100 Feet

Approximate Scale

N

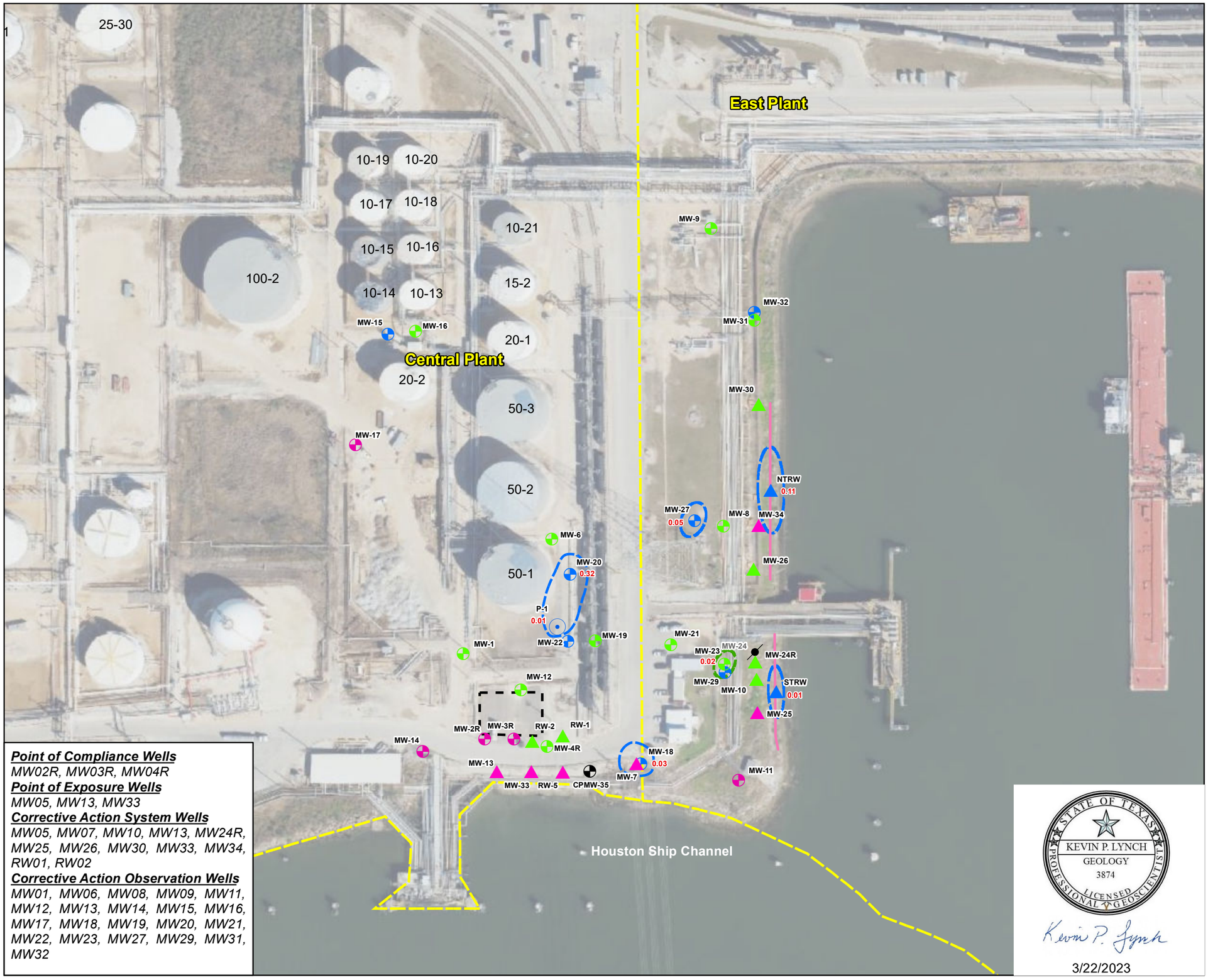
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map July 21, 2023 OPH5

Project:
Kinder Morgan Liquids Terminals LLC Old Pump House No. 5 Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/21/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/21/2024	60699810 / Figure20b_COC_OPH5_Jul2023 / **20b**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\20b_COC_OPH5_July2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 1.13 - LNAPL Thickness (ft)
- Approximate Extent of LNAPL in SCF
- Approximate Extent of LNAPL in UNTU

0 100 200 Feet
Approximate Scale

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/22/2023

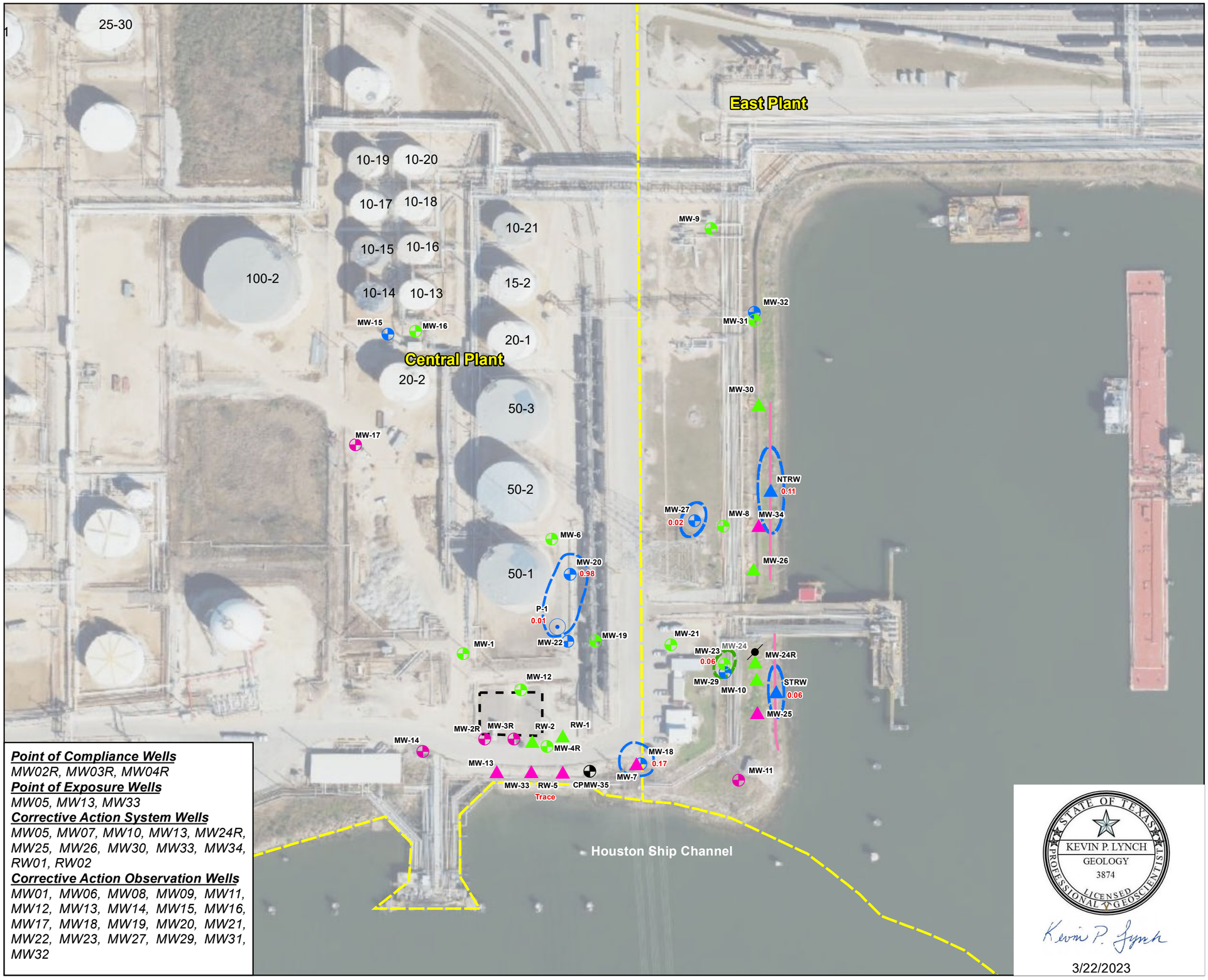
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map January 30, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	3/22/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	3/22/2023	60699810 / 21a_LNAPL_SEHB_Jan2023 / 21a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\21a_LNAPL_SEHB_Jan2023.mxd



Point of Compliance Wells
MW02R, MW03R, MW04R
Point of Exposure Wells
MW05, MW13, MW33
Corrective Action System Wells
MW05, MW07, MW10, MW13, MW24R, MW25, MW26, MW30, MW33, MW34, RW01, RW02
Corrective Action Observation Wells
MW01, MW06, MW08, MW09, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW18, MW19, MW20, MW21, MW22, MW23, MW27, MW29, MW31, MW32

Legend

- Observation Well
- Plugged and Abandoned

Uppermost Natural Transmission Unit (UNTU) Wells

- Monitoring Well (UNTU)
- Recovery Well (UNTU)

Sandy Channel Fill (SCF) Wells

- Monitoring Well (SCF)
- Piezometer (SCF)
- Recovery Well (SCF)
- Recovery Trench (SCF)

UNTU/SCF Wells

- Monitoring Well (SCF/UNTU)
- Recovery Well (SCF/UNTU)
- Approximate Southeast Holding Basin Boundary
- KMLT Property Line
- 1.13 - LNAPL Thickness (ft)
- Approximate Extent of LNAPL in SCF
- Approximate Extent of LNAPL in UNTU

0 100 200 Feet
Approximate Scale

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
3/22/2023

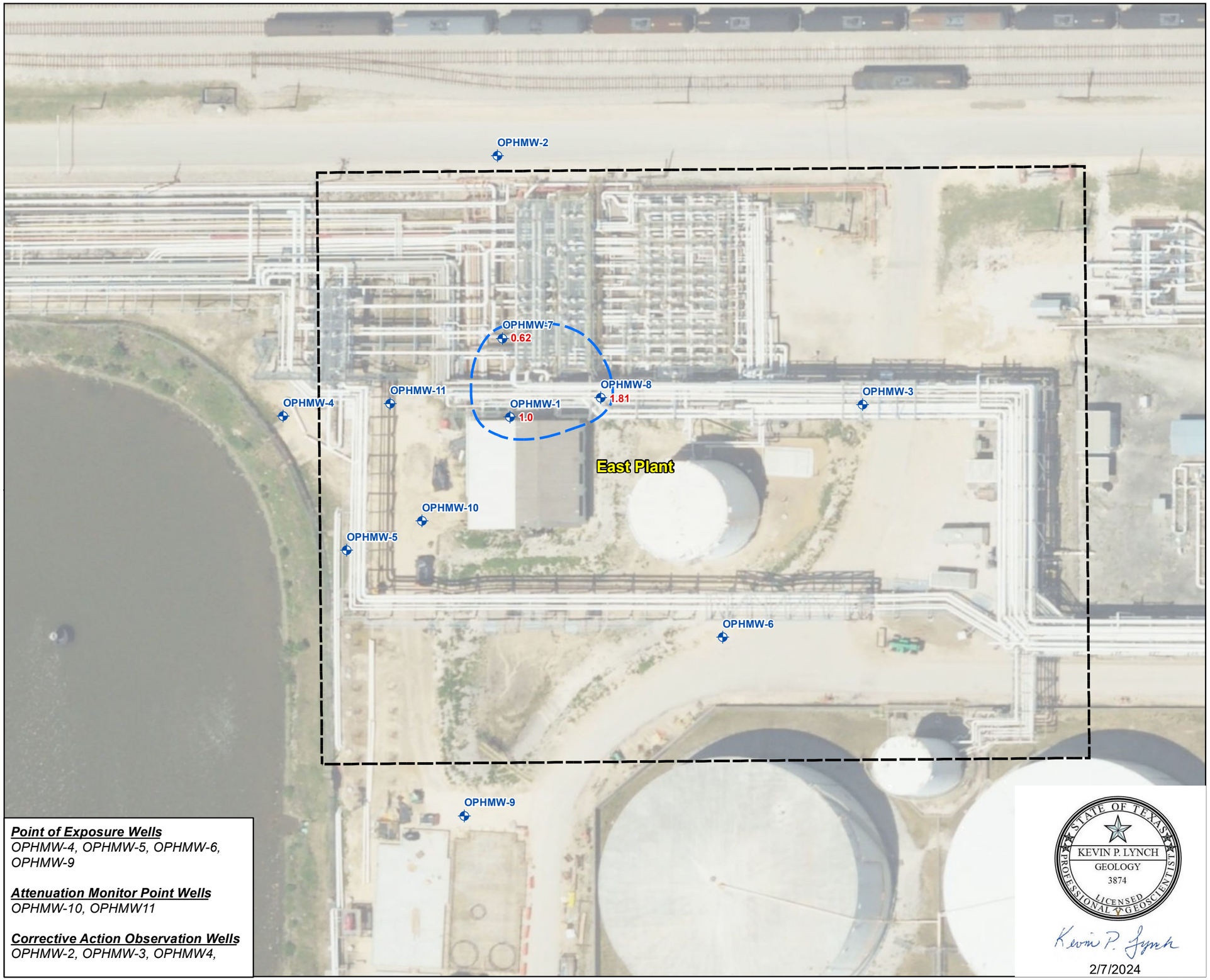
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map July 20, 2023 Southeast Holding Basin - UNTU**

Project: **Kinder Morgan Liquids Terminals LLC Southeast Holding Basin Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	11/6/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	WG	11/6/2023	60699810 / 21a_LNAPL_SEHB_Jan2023 / **21b**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\SEHB\MXD\21b_LNAPL_SEHB_Jul2023.mxd



Legend

- Monitor Well Location
- Approximate Extent of LNAPL
- Approximate OPH5 Boundary
- 1.54 Product Thickness (ft.)

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 50 100 Feet

Approximate Scale

Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/7/2024

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map January 30, 2023 OPH5**

Project: **Kinder Morgan Liquids Terminals LLC Old Pump House No. 5 Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/7/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 2/7/2024	Project No: 60649295 / File Name: 22a_LNAPL _OPH5_Jan2022 / Figure: 22a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\22a_LNAPL_OPH5_Jan2023.mxd



Legend

- Monitor Well Location
- Approximate Extent of LNAPL

1.81 Product Thickness (ft.)

Image: TxGIO Texas Imagery Service
Date: November 16, 2020

0 50 100 Feet

Approximate Scale

N

Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
10/10/2023

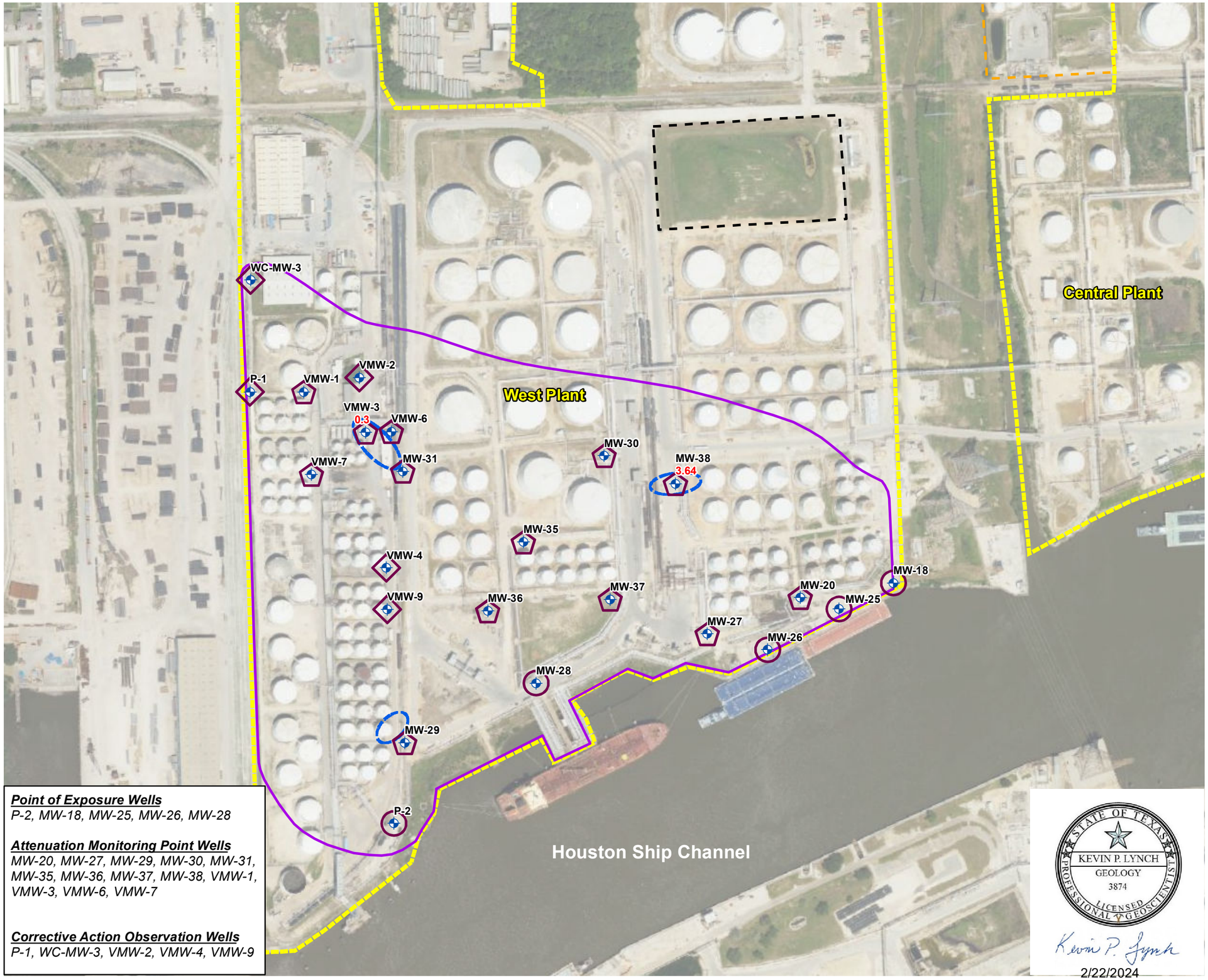
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Extent of LNAPL Map
July 21, 2023
OPH5

Project:
Kinder Morgan Liquids Terminals LLC
Old Pump House No. 5
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	10/10/2023	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	10/10/2023	60699810	Figure22b_LNAPL_OPH5_Jul2023	22b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\22b_LNAPL_OPH5_Jul2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Approximate Extent of LNAPL
- Plume Management Zone
- KM Liquids Terminal LLC Property Boundary
- Texmark Boundary
- 2.26 Product Thickness (ft.)

Notes:

1. Does not include compliance (CAMU) wells.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
2/22/2024

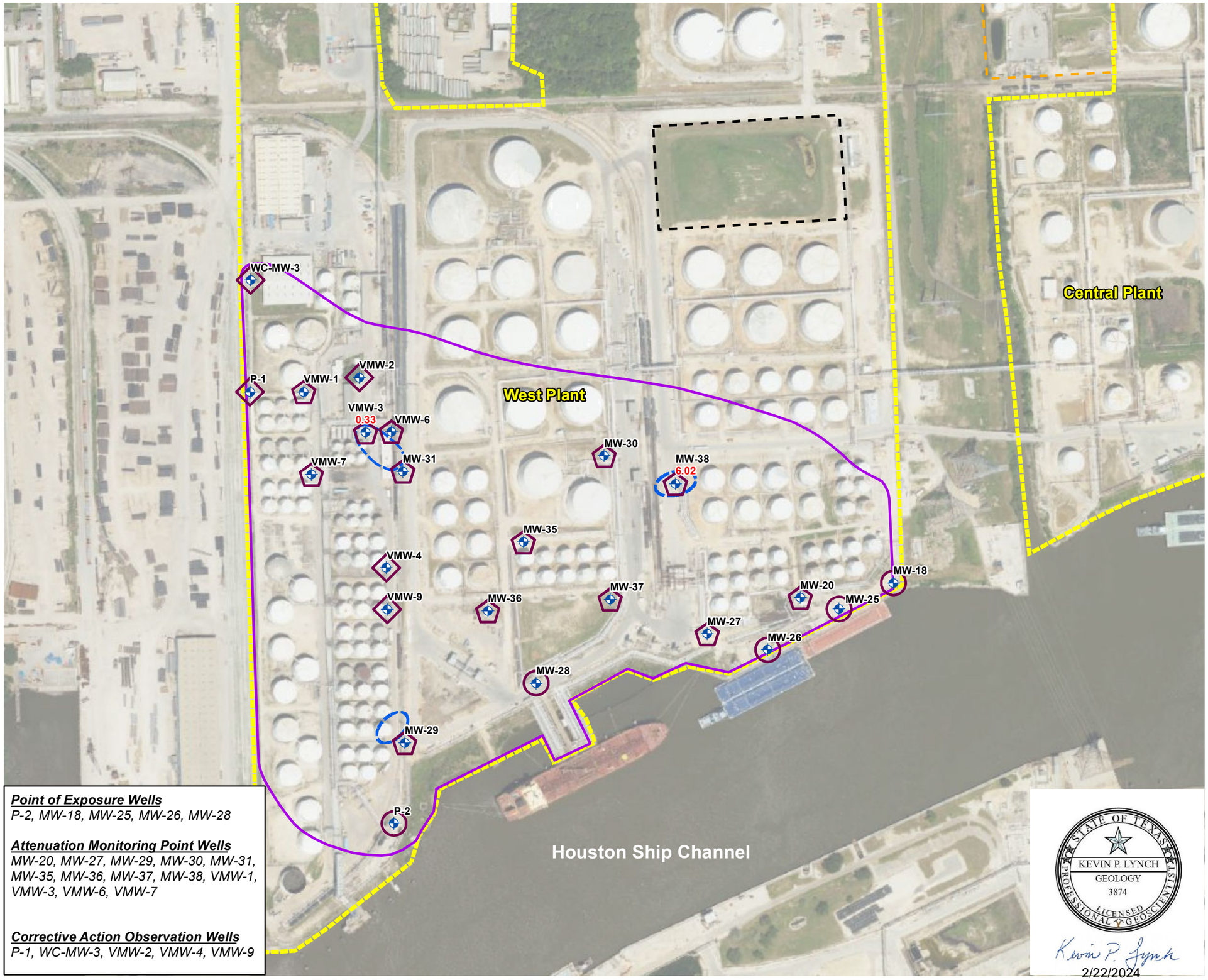
AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map February 24, 2023 West Plant/WestChem**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:		
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC		
	Chk'd By:	Date:	Project No:	File Name:	Figure:
	AH	2/27/2024	60699810	23a_WP_LNAPL_Feb2023	23a

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\23a_WP_LNAPL_Feb2023.mxd



Legend

- Well Location

PMZ Well Designation

- Point of Exposure (POE) Well
- Attenuation Monitoring Point (AMP) Well
- Corrective Action Observation Well
- Approximate Extent of LNAPL
- Plume Management Zone
- KM Liquids Terminal LLC Property Boundary
- Texmark Boundary

6.02 Product Thickness (ft.)

Notes:

1. Does not include compliance (CAMU) wells.

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 300 600
Feet

Point of Exposure Wells
P-2, MW-18, MW-25, MW-26, MW-28

Attenuation Monitoring Point Wells
MW-20, MW-27, MW-29, MW-30, MW-31, MW-35, MW-36, MW-37, MW-38, VMW-1, VMW-3, VMW-6, VMW-7

Corrective Action Observation Wells
P-1, WC-MW-3, VMW-2, VMW-4, VMW-9

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED PROFESSIONAL GEOSCIENTIST

2/22/2024

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title: **Extent of LNAPL Map August 15, 2023 West Plant/WestChem**

Project: **Kinder Morgan Liquids Terminals LLC West Plant Galena Park, Texas**

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/27/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By: AH	Date: 2/27/2024	Project No: 60699810 / File Name: 23b_WP_LNAPL_Aug2023 / Figure: 23b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\West Plant\MXD\23b_WP_LNAPL_Aug2023.mxd

Tables

Table 1

GROUNDWATER ELEVATION DATA
2023

North Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

North Holding Basin								
Monitor Well	**Date Measured**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)***	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
MW-1	31-Jan-23	Zone III	15.33	4.58	--	0.00	10.75	40.70
	21-Jul-23		15.33	6.39	--	0.00	8.94	40.70
MW-4	31-Jan-23	Zone III	10.59	2.08	--	0.00	8.51	NM (RW)
	21-Jul-23		10.59	3.54	--	0.00	7.05	NM (RW)
MW-5 **	31-Jan-23	Zone III	20.25	11.56	--	0.00	8.69	40.28
	21-Jul-23		20.25	12.92	--	0.00	7.33	40.28
MW-6	31-Jan-23	Zone IV	8.92	25.51	--	0.00	-16.59	NM (RW)
	21-Jul-23		8.92	5.26	--	0.00	3.66	NM (RW)
MW-7	31-Jan-23	Zone III	10.40	17.12	--	0.00	-6.72	NM (RW)
	21-Jul-23		10.40	17.12	--	0.00	-6.72	NM (RW)
MW-8	31-Jan-23	Zone III	16.67	6.70	--	0.00	9.97	36.12
	21-Jul-23		16.67	8.19	--	0.00	8.48	36.23
MW-9	31-Jan-23	Zone III	12.59	6.55	--	0.00	6.04	31.53
	21-Jul-23		12.59	7.90	--	0.00	4.69	31.53
MW-10	31-Jan-23	Zone III	19.75	7.10	--	0.00	12.65	30.08
	21-Jul-23		19.75	9.62	--	0.00	10.13	30.08
MW-11	31-Jan-23	Zone III	11.74	13.94	--	0.00	-2.20	NM (RW)
	21-Jul-23		11.74	12.97	--	0.00	-1.23	NM (RW)
MW-12	31-Jan-23	Zone V	9.59	> 75.51	--	0.00	***	NM
	21-Jul-23		9.59	76.77	--	0.00	-67.18	NM
MW-13	31-Jan-23	Zone III	13.47	6.57	--	0.00	6.90	32.53
	21-Jul-23		13.47	7.73	--	0.00	5.74	32.53
MW-14	31-Jan-23	Zone IV	14.00	7.43	--	0.00	6.57	60.64
	21-Jul-23		14.00	8.52	--	0.00	5.48	60.64
MW-15	31-Jan-23	Zone IV	10.41	2.08	--	0.00	8.33	NM (RW)
	21-Jul-23		10.41	21.38	--	0.00	-10.97	NM (RW)
RW-16	31-Jan-23	Zone III	9.26	4.97	--	0.00	4.29	NM (RW)
	21-Jul-23		9.26	6.11	--	0.00	3.15	NM (RW)
RW-17	31-Jan-23	Zone IV	8.57	18.92	--	0.00	-10.35	NM (RW)
	21-Jul-23		8.57	19.03	--	0.00	-10.46	NM (RW)

Notes:
MSL - Mean Sea Level
TOC - Top-of-casing
NAPL - Non-aqueous phase liquid
-- - NAPL not observed
ft. - Feet
* - May 2019 well Survey
Corrected Groundwater Elevation = (NAPL Thickness X 0.87) + Depth to Groundwater
NM (RW) - not measured, recovery wells are only measured when the pump is removed for maintenance
** - The MW-5 well pad was reconstructed on July 2, 2019. To accommodate the new well pad, 6.65" (0.55') of the top of the well casing was removed yielding an approximate new TOC measurement of 20.88'-0.55' = 20.25'. 20.25' is the assumed TOC until surveyed again.
*** - the groundwater level was below the pump assembly, making it inaccessible to be measured.

Table 2

GROUNDWATER ELEVATION DATA
2023
Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Southeast Holding Basin								
Monitor Well	**Date**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)**	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
P-1	30-Jan-23	SCF	20.55	11.41	11.40	0.01	9.15	17.72
	20-Jul-23		20.55	11.30	11.29	0.01	9.26	17.72
MW-1	30-Jan-23	UNTU	21.49	11.12	- -	0.00	10.37	28.55
	20-Jul-23		21.49	11.64	- -	0.00	9.85	28.55
MW-2R	30-Jan-23	SCF/UNTU	11.89	3.94	- -	0.00	7.95	21.78
	20-Jul-23		11.89	4.11	- -	0.00	7.78	21.78
MW-3R	30-Jan-23	SCF/UNTU	12.08	5.93	- -	0.00	6.15	26.34
	20-Jul-23		12.08	5.22	- -	0.00	6.86	26.34
MW-4R	30-Jan-23	UNTU	12.51	5.61	- -	0.00	6.90	25.60
	20-Jul-23		12.51	5.53	- -	0.00	6.98	25.60
RW-5 Former (MW-5) *	30-Jan-23	SCF/UNTU	10.59	3.09	- -	0.00	7.50	NM (RW)
	20-Jul-23		10.59	4.38	- -	trace	6.21	NM (RW)
MW-6 **	30-Jan-23	UNTU	24.06	14.31	- -	0.00	9.75	17.42
	20-Jul-23		24.06	14.34	- -	0.00	9.72	17.42
MW-7	30-Jan-23	SCF/UNTU	13.98	17.72	- -	0.00	-3.74	NM (RW)
	20-Jul-23		13.98	17.63	- -	0.00	-3.65	NM (RW)
MW-8	30-Jan-23	UNTU	15.37	6.22	- -	0.00	9.15	28.20
	20-Jul-23		15.37	8.87	- -	0.00	6.50	28.20
MW-9	30-Jan-23	UNTU	14.26	2.95	- -	0.00	11.31	35.34
	20-Jul-23		14.26	5.73	- -	0.00	8.53	35.34
MW-10	30-Jan-23	UNTU	13.61	18.02	- -	0.00	-4.41	NM (RW)
	20-Jul-23		13.61	17.83	- -	0.00	-4.22	NM (RW)
MW-11	30-Jan-23	SCF/UNTU	18.58	15.43	- -	0.00	3.15	32.40
	20-Jul-23		18.58	15.59	- -	0.00	2.99	32.40
MW-12	30-Jan-23	UNTU	19.89	10.88	- -	0.00	9.01	33.87
	20-Jul-23		19.89	11.12	- -	0.00	8.77	33.87
MW-13	30-Jan-23	SCF/UNTU	10.03	17.70	- -	0.00	-7.67	NM (RW)
	20-Jul-23		17.82	17.70	- -	0.00	0.12	NM (RW)
MW-14	30-Jan-23	SCF/UNTU	10.50	2.31	- -	0.00	8.19	25.85
	20-Jul-23		10.50	3.03	- -	0.00	7.47	25.85
MW-15	30-Jan-23	SCF	20.85	5.93	- -	0.00	14.92	19.25
	20-Jul-23		20.85	7.78	- -	0.00	13.07	19.25
MW-16	30-Jan-23	UNTU	19.99	5.09	- -	0.00	14.90	32.25
	20-Jul-23		19.99	6.82	- -	0.00	13.17	32.25
MW-17	30-Jan-23	SCF/UNTU	18.69	4.94	- -	0.00	13.75	21.10
	20-Jul-23		18.69	7.10	- -	0.00	11.59	21.10
MW-18	30-Jan-23	SCF	13.89	6.72	6.69	0.03	7.20	9.41
	20-Jul-23		13.89	7.02	6.85	0.17	7.02	9.41
MW-19	30-Jan-23	UNTU	19.41	11.36	- -	0.00	8.05	32.30
	20-Jul-23		19.41	10.75	- -	0.00	8.66	32.30
MW-20	30-Jan-23	SCF	22.08	13.16	12.84	0.32	9.20	17.13
	20-Jul-23		22.08	13.84	12.86	0.98	9.09	17.13
MW-21	30-Jan-23	UNTU	14.92	7.49	- -	0.00	7.43	31.32
	20-Jul-23		14.92	7.55	- -	0.00	7.37	31.22
MW-22	30-Jan-23	SCF	21.42	12.08	- -	0.00	9.34	16.58
	20-Jul-23		21.42	11.47	- -	0.00	9.95	16.58
MW-23	30-Jan-23	UNTU	16.05	9.99	9.97	0.02	6.08	32.13
	20-Jul-23		16.05	10.73	10.67	0.06	5.37	32.13
MW-24R	30-Jan-23	UNTU	12.70	17.94	- -	0.00	-5.24	NM (RW)
	20-Jul-23		12.70	15.70	- -	0.00	-3.00	NM (RW)
MW-25	30-Jan-23	SCF/UNTU	8.40	0.00	- -	0.00	8.40	NM (RW)
	20-Jul-23		8.40	4.48	- -	0.00	3.92	NM (RW)
MW-26***	30-Jan-23	UNTU	8.91	NM	- -	0.00	NM	NM (RW)
	20-Jul-23		8.91	> 17.60	- -	0.00	****	NM (RW)
MW-27 **	30-Jan-23	SCF	15.00	4.16	4.11	0.05	10.88	13.02
	20-Jul-23		15.00	7.47	7.45	0.02	7.55	13.02

Table 2

GROUNDWATER ELEVATION DATA
2023
Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Southeast Holding Basin								
Monitor Well	**Date**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)**	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
MW-29	30-Jan-23	SCF	15.39	6.40	- -	0.00	8.99	13.83
	20-Jul-23		15.39	9.08	- -	0.00	6.31	13.83
MW-30	30-Jan-23	UNTU	9.24	> 20.93	- -	0.00	****	NM (RW)
	20-Jul-23		9.24	21.37	- -	0.00	-12.13	NM (RW)
MW-31	30-Jan-23	UNTU	13.47	6.25	- -	0.00	7.22	33.55
	20-Jul-23		13.47	8.63	- -	0.00	4.84	33.55
MW-32	30-Jan-23	SCF	13.40	5.65	- -	0.00	7.75	17.16
	20-Jul-23		13.40	8.32	- -	0.00	5.08	17.16
MW-33	30-Jan-23	SCF/UNTU	10.28	16.39	- -	0.00	-6.11	NM (RW)
	20-Jul-23		10.28	15.93	- -	0.00	-5.65	NM (RW)
MW-34	30-Jan-23	SCF/UNTU	8.47	16.54	- -	0.00	-8.07	NM (RW)
	20-Jul-23		8.47	28.12	- -	0.00	-19.65	NM (RW)
RW-1	30-Jan-23	UNTU	13.13	6.42	- -	0.00	6.71	NM (RW)
	20-Jul-23		13.13	5.94	- -	0.00	7.19	NM (RW)
RW-2	30-Jan-23	UNTU	12.34	17.92	- -	0.00	-5.58	NM (RW)
	20-Jul-23		12.34	17.43	- -	0.00	-5.09	NM (RW)
N. Trench	30-Jan-23	SCF	8.59	8.87	8.76	0.11	-0.18	NM
	20-Jul-23		8.59	8.91	8.80	0.11	-0.22	NM
S. Trench	30-Jan-23	SCF	8.79	9.91	9.90	0.01	-1.11	NM
	20-Jul-23		8.79	9.90	9.84	0.06	-1.06	NM

Notes:
MSL - Mean Sea Level
TOC - Top-of-casing
NAPL - Non-aqueous phase liquid
-- - NAPL not observed
NM- Not measured
ft. - Feet
Corrected Groundwater Elevation = (NAPL Thickness X 0.87) + Depth to Groundwater
NM (RW) - not measured, recovery wells are only measured when the pump is removed for maintenance
* - May 2019 well Survey
** - December 2021 well survey
*** - well not gauged January 2023 - no access. July water level was top of pump.
**** - the groundwater level was below the pump assembly, making it inaccessible to be measured.

Table 3

GROUNDWATER ELEVATION DATA
2023
Central Plant PMZ
KM Liquids Terminals LLC
Galena Park Terminal

Central Plant								
Monitor Well	**Date**	**Unit Monitored**	**Top of Casing Elevation (MSL, ft.)**	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
Monitor Wells								
AMP-01	31-Jan-23	SCF/UNTU	15.54	6.69	- -	0.00	8.85	17.90
	21-Jul-23		15.54	7.73	- -	0.00	7.81	17.90
AMP-02	31-Jan-23	SCF/UNTU	15.85	9.96	- -	0.00	5.89	21.58
	21-Jul-23		15.85	10.61	- -	0.00	5.24	21.58
AMP-03	31-Jan-23	SCF/UNTU	16.67	7.45	- -	0.00	9.22	36.20
	21-Jul-23		16.67	10.98	- -	0.00	5.69	36.20
POE-01	31-Jan-23	SCF/UNTU	18.21	13.18	- -	0.00	5.03	21.42
	21-Jul-23		18.21	14.30	- -	0.00	3.91	21.42
MW-35 **	31-Jan-23	SCF/UNTU	17.46	3.85	- -	0.00	13.61	37.18
	21-Jul-23		17.46	6.29	- -	0.00	11.17	37.18
MW-36	31-Jan-23	SCF/UNTU	19.80	5.16	- -	0.00	14.64	37.18
	21-Jul-23		19.8	6.93	- -	0.00	12.87	37.18
MW-37	31-Jan-23	SCF/UNTU	16.92	8.12	- -	0.00	8.80	40.00
	21-Jul-23		16.92	9.35	- -	0.00	7.57	40.00
MW-38	31-Jan-23	SCF/UNTU	22.05	8.07	- -	0.00	13.98	43.10
	21-Jul-23		22.05	11.12	- -	0.00	10.93	43.10
RI-1-14	31-Jan-23	SCF/UNTU	18.12	10.09	- -	0.00	8.03	18.85
	21-Jul-23		18.12	12.96	- -	0.00	5.16	18.85
RI-1-17 **	31-Jan-23	SCF/UNTU	17.91	5.79	- -	0.00	12.12	20.36
	21-Jul-23		17.91	8.78	- -	0.00	9.13	20.36
RI-1-18	31-Jan-23	SCF/UNTU	17.77	9.21	- -	0.00	8.56	22.89
	21-Jul-23		17.77	10.03	- -	0.00	7.74	22.89
RI-3-01	31-Jan-23	SCF/UNTU	16.48	5.10	- -	0.00	11.38	18.21
	21-Jul-23		16.48	7.63	- -	0.00	8.85	18.21
RI-3-02	31-Jan-23	SCF/UNTU	16.98	8.88	- -	0.00	8.10	24.30
	21-Jul-23		16.98	12.21	- -	0.00	4.77	24.30
RI-3-03	31-Jan-23	SCF/UNTU	15.36	7.78	- -	0.00	7.58	19.55
	21-Jul-23		15.36	10.04	- -	0.00	5.32	19.55
Recovery Well								
POE-02 *	31-Jan-23	SCF/UNTU	16.72	NM	- -	NM	NM	40.73
	21-Jul-23		16.72	NM	- -	NM	NM	40.73
Gauge-Only Wells								
RI-1-09	31-Jan-23	SCF/UNTU	6.06	6.43	- -	0.00	-0.37	27.09
	21-Jul-23		6.06	3.81	- -	0.00	2.25	27.09
MW-40	31-Jan-23	SCF/UNTU	19.52	7.91	- -	0.00	11.61	37.97
	21-Jul-23		19.52	8.55	- -	0.00	10.97	37.97
MW-41	31-Jan-23	SCF/UNTU	22.02	Well destroyed				
	21-Jul-23		22.02	Well destroyed				

Notes:
MSL - Mean Sea Level
TOC - Top-of-casing
NAPL - Non-aqueous phase liquid
-- - NAPL not observed
NM- Not measured
ft. - Feet
Corrected Groundwater Elevation = (NAPL Thickness X 0.87) + Depth to Groundwater
NM (RW) - not measured, recovery wells are only measured when the pump is removed for maintenance
* - POE-2 is a 2-inch recovery well, with the casing space occluded with recovery hoses, etc., prohibiting passage of gauging probe; therefore DTW/DTP could not be measured
** - December 2021 well survey

Table 4

GROUNDWATER ELEVATION DATA - 2023

West Plant/West Chem

KM Liquids Terminals LLC

Galena Park Terminal

Well ID	Date Measured	TOC Elevation (ft msl [1])	Depth to LNAPL (from TOC)	Groundwater level (from TOC)	LNAPL Thickness	Corrected GW elevation (msl)	Measured Total Well Depth (msl)
MW-10	2/24/2023	19.75		8.25		11.50	30.08
	8/15/2023	19.75		10.29		9.46	30.08
MW-18	2/24/2023	15.33		10.80		4.53	24.05
	8/15/2023	15.33		11.41		3.92	24.05
MW-19	2/24/2023	19.70		NM		NM	NM
	8/15/2023	19.70		NM		NM	NM
MW-20	2/24/2023	19.25		12.57		6.68	30.45
	8/15/2023	19.25		12.96		6.29	30.45
MW-22	2/24/2023	18.45		NM		NM	NM
	8/15/2023	18.45		NM		NM	NM
MW-23	2/24/2023	15.93	RW	15.29		0.64	NM
	8/15/2023	15.93		NM		NM	NM
MW-24	2/24/2023	15.93		NM		NM	NM
	8/15/2023	15.93		NM		NM	NM
MW-25	2/24/2023	12.21		6.69		5.52	34.38
	8/15/2023	12.21		6.16		6.05	34.38
MW-26	2/24/2023	10.86		11.99		-1.13	24.26
	8/15/2023	10.86		12.58		-1.72	24.26
MW-27*	2/24/2023	23.58		14.93		8.65	24.05
	8/15/2023	23.58		14.61		8.97	24.05
MW-28	2/24/2023	20.63		9.02		11.61	19.55
	8/15/2023	20.63		10.13		10.50	19.55
MW-29	2/24/2023	25.49	RW	11.33		14.16	23.40
	8/15/2023	25.49		NM		NM	NM
MW-30	2/24/2023	22.04		8.33		13.71	23.13
	8/15/2023	22.04		11.71		10.33	23.13
MW-31	2/24/2023	24.14		8.78		15.36	33.32
	8/15/2023	24.14		10.48		13.66	33.32
MW-32	2/24/2023	24.11		NM		NM	NM
	8/15/2023	24.11		NM		NM	NM
MW-33	2/24/2023	26.08		NM		NM	NM
	8/15/2023	26.08		NM		NM	NM
MW-34	2/24/2023	26.33		NM		NM	NM
	8/15/2023	26.33		NM		NM	NM
MW-35	2/24/2023	24.97		10.75		14.22	28.75
	8/15/2023	24.97		12.68		12.29	28.75
MW-36	2/24/2023	25.12		9.75		15.37	20.70
	8/15/2023	25.12		11.24		13.88	20.70
MW-37	2/24/2023	24.55		9.36		15.19	15.41
	8/15/2023	24.55		11.29		13.26	15.41
MW-38	2/24/2023	22.18	9.06	12.70	3.64	12.65	20.83
	8/15/2023	22.18	10.32	16.34	6.02	11.08	20.83
MW-39	2/22/2023	22.26	RW	22.15		0.11	NM
	8/15/2023	22.26		NM		NM	NM
MW-40	2/24/2023	NS		NM		NM	NM
	8/15/2023	NS		NM		NM	NM
OB-01	2/22/2023	21.90	RW	15.61		6.29	NM
	8/15/2023	21.90		NM		NM	NM
OB-02	2/24/2023	20.43		NM		NM	NM
	8/15/2023	20.43		NM		NM	NM
OB-03	2/24/2023	17.74	RW	15.79		1.95	NM
	8/15/2023	17.74		NM		NM	NM
RW-01	2/22/2023	21.53	RW	16.25		5.28	NM

Table 4

GROUNDWATER ELEVATION DATA - 2023

West Plant/West Chem
KM Liquids Terminals LLC
Galena Park Terminal

Well ID	Date Measured	TOC Elevation (ft msl [1])	Depth to LNAPL (from TOC)	Groundwater level (from TOC)	LNAPL Thickness	Corrected GW elevation (msl)	Measured Total Well Depth (msl)
	8/15/2023	21.53		NM		NM	NM
RW-02	2/24/2023	20.55		NM		NM	NM
	8/15/2023	20.55		NM		NM	NM
RW-25R	2/22/2023	22.86	RW	21.65		1.21	NM
	8/15/2023	22.86		NM		NM	NM
WC-MW-2	2/24/2023	21.12		9.03		12.09	24.64
	8/15/2023	21.12		10.99		10.13	26.64
WC-MW-3	2/24/2023	24.61		9.68		14.93	21.58
	8/15/2023	24.61		11.24		13.37	21.58
WC-MW-4	2/24/2023	23.25		9.48		13.77	24.62
	8/15/2023	23.25		5.42		17.83	24.62
WC-MW-6	2/24/2023	21.40		NM		NM	NM
	8/15/2023	21.40		NM		NM	NM
P-1	2/24/2023	27.81		13.26		14.55	25.54
	8/15/2023	27.81		14.63		13.18	25.54
P-2	2/24/2023	20.54		12.79		7.75	22.63
	8/15/2023	20.54		13.50		7.04	22.63
P-3	2/24/2023	19.90		9.87		10.03	20.15
	8/15/2023	19.90		10.71		9.19	20.15
VMW-1	2/24/2023	27.64		13.01		14.63	27.16
	8/15/2023	27.64		14.62		13.02	27.16
VMW-2	2/24/2023	22.54		8.05		14.49	21.38
	8/15/2023	22.54		9.98		12.56	21.38
VMW-3	2/24/2023	21.93	7.31	7.61	0.30	14.58	24.21
	8/15/2023	21.93	9.10	9.43	0.33	12.50	24.21
VMW-4	2/24/2023	21.47		4.32		17.15	15.62
	8/15/2023	21.47		5.42		16.05	15.62
VMW-6	2/24/2023	21.98		7.68		14.30	23.10
	8/15/2023	21.98		9.61		12.37	23.10
VMW-7	2/24/2023	25.99		6.45		19.54	17.37
	8/15/2023	25.99		6.48		19.51	17.37
VMW-8	2/24/2023	22.20	7.01	9.27	2.26	14.90	22.80
	8/15/2023	22.20	8.86	12.17	3.31	12.91	22.80
VMW-9	2/24/2023	21.10		4.73		16.37	15.04
	8/15/2023	21.10		4.99		16.11	15.04
VMW-10	2/24/2023	18.58	4.28	5.39	1.11	14.16	15.20
	8/15/2023	18.58	5.28	6.31	1.03	13.17	15.20

* The MW-27 well pad was reconstructed during July 2, 2019. It was resurveyed in December 2021.
NM = not measured
TOC = top of casing
ft = foot/feet
LNAPL = light non-aqueous pahse liquid
RW = recovery well
[1] msl = mean sea level

Table 5

GROUNDWATER ELEVATION DATA

2023

Texmark

KM Liquids Terminals LLC

Galena Park Terminal

Well ID	Date	Ground Elevation (msl)	TOC Elevation (msl)	Depth to Water (TOC)	Depth to Water (msl)	Total Depth
AMP-1	3/6/2023	20.80	20.43	NM	NM	NM
	8/30/2023	20.80	20.43	NM	NM	NM
AMP-2	3/6/2023	12.60	12.35	2.89	9.46	20.98
	8/30/2023	12.60	12.35	3.44	8.91	20.97
AMP-2-2	3/6/2023	20.00	20.00	P&A		
	8/30/2023	20.00	20.00	P&A		
MW-03-TCI	3/6/2023	23.41	25.70	12.51	13.19	26.15
	8/30/2023	23.41	25.70	NM	NM	NM
MW-04-TCI	3/6/2023	23.46	23.02	11.02	12.00	25.25
	8/30/2023	23.46	23.02	NM	NM	NM
MW-05-TCI	3/6/2023	17.85	19.65	8.46	11.19	26.82
	8/30/2023	17.85	19.65	9.52	10.13	26.75
MW-06-TCI	3/6/2023	12.10	11.78	7.82	3.96	22.75
	8/30/2023	12.10	11.78	3.01	8.77	22.79
MW-07-TCI	2/23/2023	5.51	8.64	NM	NM	NM
	8/30/2023	5.51	8.64	NM	NM	NM
MW-08-TCI	3/6/2023	4.01	6.06	NM	NM	NM
	8/30/2023	4.01	6.06	NM	NM	NM
MW-09-TCI	3/6/2023	17.11	19.20	NM	NM	NM
	8/30/2023	17.11	19.20	NM	NM	NM
MW-10-TCI	3/6/2023	14.52	17.36	7.29	10.07	20.74
	8/30/2023	14.52	17.36	NM	NM	NM
MW-12-TCI	3/6/2023	17.23	16.64	5.95	10.69	20.23
	8/30/2023	17.23	16.64	NM	NM	NM
MW-13-TCI	3/6/2023	13.17	12.83	4.21	8.62	21.40
	8/30/2023	13.17	12.83	NM	NM	NM
MW-14-TCI	3/6/2023	10.21	10.14	6.02	4.12	18.20
	8/30/2023	10.21	10.14	NM	NM	NM
MW-15-TCI	3/6/2023	14.61	17.76	NM	NM	NM
	8/30/2023	14.61	17.76	NM	NM	NM
MW-16-TCI	3/6/2023	15.61	13.78	6.01	7.77	42.67
	8/30/2023	15.61	13.78	6.61	7.17	42.60
MW-17-TCI	3/6/2023	23.26	23.11	11.60	11.51	22.26
	8/30/2023	23.26	23.11	NM	NM	NM
MW-18-TCI	3/6/2023	10.96	14.01	9.85	4.16	25.23
	8/30/2023	10.96	14.01	11.74	2.27	25.18
MW-19-TCI	3/6/2023	13.94	13.70	6.83	6.87	23.30
	8/30/2023	13.94	13.70	9.29	4.41	23.28
MW-20-TCI	3/6/2023	12.29	12.12	5.20	6.92	20.28
	8/30/2023	12.29	12.12	5.13	6.99	20.10
POE-1	3/6/2023	18.90	18.66	16.37	2.29	24.69
	8/30/2023	18.90	18.66	23.23	-4.57	24.61
POE-3	3/6/2023	9.91	13.10	14.35	-1.25	22.24
	8/30/2023	9.91	13.10	19.02	-5.92	22.40
RW-1	3/6/2023	19.20	18.66	7.51	11.15	23.02
	8/30/2023	19.20	18.66	13.09	5.57	23.05
RW-2	3/6/2023	18.90	18.40	9.21	9.19	23.43
	8/30/2023	18.90	18.40	NM	NM	NM
RW-3	3/6/2023	18.60	18.07	10.48	7.59	25.08

Table 5

GROUNDWATER ELEVATION DATA

2023

Texmark

KM Liquids Terminals LLC

Galena Park Terminal

	8/30/2023	18.60	18.07	21.66	-3.59	25.09
RW-4	3/6/2023	12.81	12.12	7.10	5.02	24.67
	8/30/2023	12.81	12.12	7.60	4.52	24.67
RW-5	3/6/2023	12.91	12.26	12.03	0.23	23.85
	8/30/2023	12.91	12.26	11.20	1.06	23.79
RW-6	3/6/2023	17.70	16.85	14.70	2.15	23.01
	8/30/2023	17.70	16.85	17.55	-0.70	23.13
RW-7	3/6/2023	17.91	17.13	14.40	2.73	24.79
	8/30/2023	17.91	17.13	15.80	1.33	21.70
RW-8	3/6/2023	17.61	16.72	14.15	2.57	24.09
	8/30/2023	17.61	16.72	19.91	-3.19	22.68
RW-9	3/6/2023	17.21	16.18	13.60	2.58	24.15
	8/30/2023	17.21	16.18	NM	NM	NM
RI-1-10	3/6/2023	22.90	22.52	10.21	12.31	20.00
	8/30/2023	22.90	22.52	12.40	10.12	19.87
RI-1-13	3/6/2023	12.70	15.55	5.00	10.55	16.09
	8/30/2023	12.70	15.55	6.04	9.51	16.08
RI-1-14	3/6/2023	unk	unk	NM	NM	NM
	8/30/2023	unk	unk	NM	NM	NM
MW-9	3/6/2023	unk	17.89	10.31	7.58	24.79
	8/30/2023	unk	17.89	NM	NM	NM
TMW-21	3/6/2023	unk	unk	7.30	unk	unk
	8/30/2023	unk	unk	11.00	unk	unk

Notes:
unk = unknown
TOC = top of casing
msl = mean sea level
NM = not measured
P&A = plugged and abandonned

Table 6

GROUNDWATER ELEVATION DATA
2023
Old Pumphouse 5
KM Liquids Terminals LLC
Galena Park Terminal

Old Pumphouse 5								
Monitor Well	**Date Measured**	**Unit Monitored**	**Top of Casing Elevation (RSD, ft.)**	**Depth to Groundwater (TOC, ft.)**	**Depth to NAPL (TOC, ft.)**	**NAPL Thickness (ft.)**	**Corrected Groundwater Elevation (MSL, ft.)**	**Total Depth (TOC, ft.)**
OPHMW-1	30-Jan-23	SCF/UNTU	101.83	8.46	6.98	1.48	94.66	11.92
	21-Jul-23		101.83	8.72	7.72	1.00	93.98	11.92
OPHMW-2	30-Jan-23	SCF/UNTU	98.98	3.18	--	0.00	95.80	15.10
	21-Jul-23		98.98	4.25	--	0.00	94.73	15.10
OPHMW-3	30-Jan-23	SCF/UNTU	98.94	3.45	--	0.00	95.49	15.02
	21-Jul-23		98.94	4.14	--	0.00	94.80	15.02
OPHMW-4	30-Jan-23	SCF/UNTU	99.06	8.40	--	0.00	90.66	18.43
	21-Jul-23		99.06	9.59	--	0.00	89.47	18.43
OPHMW-5	30-Jan-23	SCF/UNTU	99.42	10.56	--	0.00	88.86	22.96
	21-Jul-23		99.42	10.84	--	0.00	88.58	22.96
OPHMW-6	30-Jan-23	SCF/UNTU	99.38	5.38	--	0.00	94.00	15.07
	21-Jul-23		99.38	5.99	--	0.00	93.39	15.07
OPHMW-7	30-Jan-23	SCF/UNTU	100.78	5.91	5.08	0.83	95.59	13.65
	21-Jul-23		100.78	6.99	6.37	0.62	94.33	13.65
OPHMW-8	30-Jan-23	SCF/UNTU	98.48	4.95	3.41	1.54	94.87	15.10
	21-Jul-23		98.48	5.59	3.78	1.81	94.46	15.10
OPHMW-9	30-Jan-23	SCF/UNTU	97.54	4.48	--	0.00	93.06	15.00
	21-Jul-23		97.54	4.75	--	0.00	92.79	15.00
OPHMW-10	30-Jan-23	SCF/UNTU	96.94	6.43	--	0.00	90.51	14.70
	21-Jul-23		96.94	6.73	--	0.00	90.21	14.70
OPHMW-11	30-Jan-23	SCF/UNTU	96.36	4.34	--	0.00	92.02	14.23
	21-Jul-23		96.36	4.42	--	0.00	91.94	14.23

Notes:
MSL - Mean Sea Level
TOC - Top-of-casing
NAPL - Non-aqueous phase liquid
-- - NAPL not observed
ft. - Feet
RSD = Relative Survey Datum (wells referenced to arbitrary 100-ft datum on site)
Corrected Groundwater Elevation = (NAPL Thickness X 0.87) + Depth to Groundwater

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
1/11/2023	CP MW-12	-	12.19	0	0
1/17/2023	CP MW-12	-	12.2	0	0
1/25/2023	CP MW-12	-	12.21	0	0
2/2/2023	CP MW-12	-	12.21	0	0
2/8/2023	CP MW-12	-	12.22	0	0
2/15/2023	CP MW-12	-	12.2	0	0
2/22/2022	CP MW-12	-	12.19	0	0
2/28/2023	CP MW-12	-	12.2	0	0
3/8/2023	CP MW-12	-	12.21	0	0
3/14/2023	CP MW-12	-	12.2	0	0
3/29/2023	CP MW-12	-	12.18	0	0
4/5/2023	CP MW-12	-	12.2	0	0
4/12/2023	CP MW-12	-	12.21	0	0
4/18/2023	CP MW-12	-	12.2	0	0
4/25/2023	CP MW-12	-	12.18	0	0
5/3/2023	CP MW-12	-	12.2	0	0
5/10/2023	CP MW-12	-	12.18	0	0
5/17/2023	CP MW-12	-	12.18	0	0
5/24/2023	CP MW-12	-	12.2	0	0
5/31/2023	CP MW-12	-	12.21	0	0
6/14/2023	CP MW-12	-	12.22	0	0
6/20/2023	CP MW-12	-	12.23	0	0
6/28/2023	CP MW-12	-	12.25	0	0
7/19/2023	CP MW-12	-	12.29	0	0
7/26/2023	CP MW-12	-	12.3	0	0
8/2/2023	CP MW-12	-	12.31	0	0
12/1/2023	CP MW-12	-	12.01	0	0
12/13/2023	CP MW-12	-	10.55	0	0
12/20/2023	CP MW-12	-	10.59	0	0
Average/TOTAL REMOVED				0.00	0.00
1/11/2023	CP MW-18	7.2	7.24	0.04	0.1
1/17/2023	CP MW-18	7.21	7.25	0.04	0.1
1/25/2023	CP MW-18	7.21	7.24	0.03	0.1
2/2/2023	CP MW-18	7.22	7.25	0.03	0.1
2/8/2023	CP MW-18	7.23	7.26	0.03	0.2
2/15/2023	CP MW-18	7.24	7.27	0.03	0.2
2/22/2023	CP MW-18	7.25	7.27	0.02	0.2
2/28/2023	CP MW-18	7.26	7.29	0.03	0.2
3/8/2023	CP MW-18	7.27	7.29	0.02	0.1
3/14/2023	CP MW-18	7.28	7.3	0.02	0.2
3/29/2023	CP MW-18	7.27	7.31	0.04	0.2

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
4/7/2023	CP MW-18	7.28	7.3	0.02	0.1
4/12/2023	CP MW-18	7.27	7.32	0.05	0.1
4/18/2023	CP MW-18	7.25	7.3	0.05	0.1
4/25/2023	CP MW-18	7.26	7.29	0.03	0.1
5/2/2023	CP MW-18	7.25	7.28	0.03	0.1
5/10/2023	CP MW-18	7.24	7.27	0.03	0.1
5/17/2023	CP MW-18	7.23	7.27	0.04	0.1
5/24/2023	CP MW-18	7.23	7.28	0.05	0.2
5/31/2023	CP MW-18	7.25	7.29	0.04	0.1
6/14/2023	CP MW-18	7.26	7.3	0.04	0.1
6/20/2023	CP MW-18	7.27	7.31	0.04	0.1
6/28/2023	CP MW-18	7.28	7.31	0.03	0.1
7/20/2023	CP MW-18	7.27	7.32	0.05	0.2
7/26/2023	CP MW-18	7.3	7.33	0.03	0.1
8/2/2023	CP MW-18	7.31	7.33	0.02	0.1
12/1/2023	CP MW-18	7.25	7.35	0.1	0.2
12/13/2023	CP MW-18	7.12	7.16	0.04	0.2
12/20/2023	CP MW-18	7.13	7.15	0.02	0.1
Average/TOTAL REMOVED				0.04	3.90
1/11/2023	CP MW-20	11.8	11.82	0.02	0.1
1/17/2023	CP MW-20	11.81	11.83	0.02	0.1
1/25/2023	CP MW-20	11.78	11.81	0.03	0.1
2/2/2023	CP MW-20	11.76	11.79	0.03	0.1
2/8/2023	CP MW-20	11.76	11.79	0.03	0.1
2/15/2023	CP MW-20	11.77	11.79	0.02	0.1
2/22/2023	CP MW-20	11.78	11.8	0.02	0.1
2/28/2023	CP MW-20	11.77	11.8	0.03	0.1
3/8/2023	CP MW-20	11.77	11.8	0.03	0.1
3/14/2023	CP MW-20	11.76	11.8	0.04	0.1
3/29/2023	CP MW-20	11.75	11.78	0.03	0.1
4/5/2023	CP MW-20	11.74	11.79	0.05	0.1
4/12/2023	CP MW-20	11.75	11.78	0.03	0.1
4/18/2023	CP MW-20	11.73	11.76	0.03	0.1
4/25/2023	CP MW-20	11.72	11.75	0.03	0.1
5/2/2023	CP MW-20	11.71	11.74	0.03	0.1
5/10/2023	CP MW-20	11.69	11.72	0.03	0.1
5/17/2023	CP MW-20	11.68	11.71	0.03	0.1
5/24/2023	CP MW-20	11.68	11.72	0.04	0.1
5/31/2023	CP MW-20	11.69	11.73	0.04	0.1
6/14/2023	CP MW-20	11.71	11.75	0.04	0.1
6/20/2023	CP MW-20	11.72	11.76	0.04	0.1

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
6/28/2023	CP MW-20	11.71	11.75	0.04	0.1
7/20/2023	CP MW-20	11.73	11.77	0.04	0.1
7/27/2023	CP MW-20	11.75	11.78	0.03	0.1
8/2/2023	CP MW-20	11.76	11.79	0.03	0.1
12/1/2023	CP MW-20	11.71	11.78	0.07	0.2
12/13/2023	CP MW-20	11.51	11.55	0.04	0.1
12/20/2023	CP MW-20	11.51	11.55	0.04	0.1
Average/TOTAL REMOVED				0.03	3.00
1/11/2023	CP MW-23	10.65	10.69	0.04	0.1
1/17/2023	CP MW-23	10.66	10.7	0.04	0.1
1/25/2023	CP MW-23	10.64	10.68	0.04	0.1
2/2/2023	CP MW-23	10.63	10.67	0.04	0.1
2/8/2023	CP MW-23	10.62	10.67	0.05	0.1
2/15/2023	CP MW-23	10.63	10.67	0.04	0.1
2/22/2023	CP MW-23	10.64	10.66	0.02	0.1
2/28/2023	CP MW-23	10.65	10.68	0.03	0.1
3/8/2023	CP MW-23	10.66	10.69	0.03	0.1
3/14/2023	CP MW-23	10.67	10.69	0.02	0.1
3/29/2023	CP MW-23	10.66	10.69	0.03	0.1
4/5/2023	CP MW-23	10.66	10.68	0.02	0.1
4/12/2023	CP MW-23	10.67	10.69	0.02	0.1
4/18/2023	CP MW-23	10.65	10.68	0.03	0.1
4/25/2023	CP MW-23	10.63	10.66	0.03	0.1
5/2/2023	CP MW-23	10.63	10.67	0.04	0.1
5/10/2023	CP MW-23	10.62	10.65	0.03	0.1
5/17/2023	CP MW-23	10.62	10.66	0.04	0.1
5/24/2023	CP MW-23	10.63	10.67	0.04	0.1
5/31/2023	CP MW-23	10.64	10.68	0.04	0.1
6/14/2023	CP MW-23	10.66	10.7	0.04	0.1
6/20/2023	CP MW-23	10.68	10.72	0.04	0.1
6/28/2023	CP MW-23	10.69	10.72	0.03	0.1
7/20/2023	CP MW-23	10.71	10.74	0.03	0.2
7/28/2023	CP MW-23	10.73	10.76	0.03	0.1
8/2/2023	CP MW-23	10.75	10.77	0.02	0.1
12/1/2023	CP MW-23	10.69	10.74	0.05	0.2
12/13/2023	CP MW-23	10.31	10.4	0.09	0.2
12/20/2023	CP MW-23	10.36	10.41	0.05	0.1
Average/TOTAL REMOVED				0.04	3.20
1/11/2023	CP MW-27	--	7.12	0	0
1/17/2023	CP MW-27	--	7.12	0	0
1/25/2023	CP MW-27	--	7.1	0	0

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
2/2/2023	CP MW-27	--	7.12	0	0
2/8/2023	CP MW-27	--	7.13	0	0
2/15/2023	CP MW-27	--	7.14	0	0
2/22/2023	CP MW-27	--	7.15	0	0
2/28/2023	CP MW-27	--	7.17	0	0
3/8/2023	CP MW-27	--	7.17	0	0
3/14/2023	CP MW-27	--	7.16	0	0
3/29/2023	CP MW-27	--	7.18	0	0
4/5/2023	CP MW-27	--	7.17	0	0
4/12/2023	CP MW-27	--	7.17	0	0
4/18/2023	CP MW-27	--	NM	NM	NM
4/25/2023	CP MW-27	--	7.17	0	0
5/2/2023	CP MW-27	--	7.18	0	0
5/10/2023	CP MW-27	--	7.15	0	0
5/17/2023	CP MW-27	--	7.17	0	0
5/24/2023	CP MW-27	--	7.18	0	0
5/31/2023	CP MW-27	--	7.2	0	0
6/14/2023	CP MW-27	--	7.21	0	0
6/20/2023	CP MW-27	--	7.23	0	0
6/28/2023	CP MW-27	--	7.25	0	0
7/20/2023	CP MW-27	--	7.28	0	0
7/26/2023	CP MW-27	--	7.3	0	0
8/2/2023	CP MW-27	--	7.31	0	0
12/1/2023	CP MW-27	--	6.89	0	0
12/13/2023	CP MW-27	--	6.27	0	0
12/20/2023	CP MW-27	--	6.29	0	0
Average/TOTAL REMOVED				0.00	0.00
1/11/2023	CP P-1	--	8.69	0	0
1/17/2023	CP P-1	--	8.7	0	0
1/25/2023	CP P-1	--	8.68	0	0
2/2/2023	CP P-1	--	8.69	0	0
2/8/2023	CP P-1	--	8.7	0	0
2/15/2023	CP P-1	--	8.71	0	0
2/22/2023	CP P-1	--	8.71	0	0
2/28/2023	CP P-1	--	8.7	0	0
3/8/2023	CP P-1	--	8.71	0	0
3/14/2023	CP P-1	--	8.7	0	0
3/29/2023	CP P-1	--	8.71	0	0
4/5/2023	CP P-1	--	8.7	0	0
4/12/2023	CP P-1	--	8.7	0	0
4/18/2023	CP P-1	--	NM	NM	NM
4/25/2023	CP P-1	--	8.7	0	0
5/2/2023	CP P-1	--	8.7	0	0

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
5/10/2023	CP P-1	--	8.68	0	0
5/17/2023	CP P-1	--	8.69	0	0
5/24/2023	CP P-1	--	8.7	0	0
5/31/2023	CP P-1	--	8.72	0	0
6/14/2023	CP P-1	--	8.73	0	0
6/20/2023	CP P-1	--	8.75	0	0
6/28/2023	CP P-1	--	8.77	0	0
7/20/2023	CP P-1	--	8.79	0	0
7/26/2023	CP P-1	--	8.81	0	0
8/2/2023	CP P-1	--	8.82	0	0
12/1/2023	CP P-1	--	8.4	0	0
12/13/2023	CP P-1	--	8	0	0
12/20/2023	CP P-1	--	8.03	0	0
Average/TOTAL REMOVED				0.00	0.00
1/11/2023	WP MW-38	9.8	9.83	0.03	0.1
1/17/2023	WP MW-38	9.8	9.84	0.04	0.1
1/25/2023	WP MW-38	9.79	9.82	0.03	0.1
2/2/2023	WP MW-38	9.79	9.83	0.04	0.1
2/8/2023	WP MW-38	9.78	9.82	0.04	0.1
2/15/2023	WP MW-38	9.79	9.82	0.03	0.1
2/22/2023	WP MW-38	9.8	9.83	0.03	0.1
2/28/2023	WP MW-38	9.79	9.83	0.04	0.1
3/8/2023	WP MW-38	9.8	9.83	0.03	0.1
3/14/2023	WP MW-38	9.81	9.84	0.03	0.1
3/29/2023	WP MW-38	9.82	9.84	0.02	0.1
4/5/2023	WP MW-38	9.8	9.84	0.04	0.1
4/12/2023	WP MW-38	9.81	9.84	0.03	0.1
4/18/2023	WP MW-38	9.8	9.84	0.04	0.1
4/25/2023	WP MW-38	9.8	9.85	0.05	0.1
5/2/2023	WP MW-38	9.82	9.85	0.03	0.1
5/10/2023	WP MW-38	9.79	9.83	0.04	0.1
5/17/2023	WP MW-38	9.8	9.83	0.03	0.1
5/24/2023	WP MW-38	9.79	9.82	0.03	0.1
5/31/2023	WP MW-38	9.8	9.83	0.03	0.1
6/14/2023	WP MW-38	9.8	9.84	0.04	0.1
6/20/2023	WP MW-38	9.81	9.85	0.04	0.1
6/28/2023	WP MW-38	9.81	9.84	0.03	0.1
7/20/2023	WP MW-38	9.82	9.85	0.03	0.1
7/26/2023	WP MW-38	9.83	9.86	0.03	0.1
8/2/2023	WP MW-38	9.84	9.87	0.03	0.1
12/1/2023	WP MW-38	9.76	9.83	0.07	0.2
12/13/2023	WP MW-38	9.54	9.6	0.06	0.1

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
12/20/2023	WP MW-38	9.57	9.61	0.04	0.2
Average/TOTAL REMOVED				0.04	3.10
1/11/2023	VMW-8	6.87	6.9	0.03	0.1
1/17/2023	VMW-8	6.88	6.91	0.03	0.1
1/25/2023	VMW-8	6.86	6.89	0.03	0.1
2/3/2023	VMW-8	6.87	6.9	0.03	0.1
2/8/2023	VMW-8	6.88	6.91	0.03	0.1
2/15/2023	VMW-8	6.89	6.91	0.02	0.1
2/22/2023	VMW-8	NM	NM	NM	NM
2/28/2023	VMW-8	6.89	6.92	0.03	0.1
3/8/2023	VMW-8	6.9	6.92	0.02	0.1
3/14/2023	VMW-8	6.9	6.93	0.03	0.1
3/29/2023	VMW-8	6.9	6.92	0.02	0.1
4/5/2023	VMW-8	6.9	6.93	0.03	0.1
4/12/2023	VMW-8	6.91	6.93	0.02	0.1
4/18/2023	VMW-8	6.9	6.93	0.03	0.1
4/25/2023	VMW-8	6.9	6.92	0.02	0.1
5/2/2023	VMW-8	6.9	6.93	0.03	0.1
5/10/2023	VMW-8	6.88	6.91	0.03	0.1
5/17/2023	VMW-8	6.89	6.92	0.03	0.1
5/24/2023	VMW-8	6.88	6.91	0.03	0.1
5/31/2023	VMW-8	6.88	6.92	0.04	0.1
6/14/2023	VMW-8	6.89	6.93	0.04	0.1
6/20/2023	VMW-8	NM	NM	NM	NM
6/28/2023	VMW-8	NM	NM	NM	NM
7/20/2023	VMW-8	NM	NM	NM	NM
7/26/2023	VMW-8	6.91	6.95	0.04	0.2
8/2/2023	VMW-8	6.92	6.96	0.04	0.1
12/1/2023	VMW-8	NM	NM	NM	NM
12/13/2023	VMW-8	7.25	7.3	0.05	0.2
12/20/2023	VMW-8	7.26	7.31	0.05	0.1
Average/TOTAL REMOVED				0.03	2.60
1/11/2023	VMW-10	7.22	7.25	0.03	0.1
1/17/2023	VMW-10	7.23	7.25	0.02	0.1
1/25/2023	VMW-10	7.21	7.23	0.02	0.1
2/2/2023	VMW-10	7.2	7.23	0.03	0.1
2/8/2023	VMW-10	7.21	7.23	0.02	0.1
2/15/2023	VMW-10	7.22	7.25	0.03	0.1
2/22/2023	VMW-10	NM	NM	NM	NM
2/28/2023	VMW-10	7.22	7.26	0.04	0.1
3/8/2023	VMW-10	7.23	7.26	0.03	0.1
3/14/2023	VMW-10	7.24	7.27	0.03	0.1

Table 7

MEASURED LNAPL THICKNESS
AND REMOVAL - 2023
KM Liquids Terminals LLC
Galena Park Terminal

Date	Well	DTP	DTW	LNAPL (feet)	Removed (Gallons)
3/29/2023	VMW-10	7.23	7.27	0.04	0.1
4/5/2023	VMW-10	7.24	7.28	0.04	0.1
4/12/2023	VMW-10	7.25	7.28	0.03	0.1
4/18/2023	VMW-10	7.24	7.29	0.05	0.1
4/25/2023	VMW-10	7.24	7.28	0.04	0.1
5/2/2023	VMW-10	7.24	7.29	0.05	0.1
5/10/2023	VMW-10	7.24	7.27	0.03	0.1
5/17/2023	VMW-10	7.25	7.29	0.04	0.1
5/24/2023	VMW-10	7.24	7.28	0.04	0.1
5/31/2023	VMW-10	7.25	7.29	0.04	0.1
6/14/2023	VMW-10	7.27	7.31	0.04	0.1
6/20/2023	VMW-10	NM	NM	NM	NM
6/28/2023	VMW-10	NM	NM	NM	NM
7/20/2023	VMW-10	NM	NM	NM	NM
7/26/2023	VMW-10	7.3	7.33	0.03	0.1
8/2/2023	VMW-10	7.31	7.34	0.03	0.1
12/1/2023	VMW-10	NM	NM	NM	NM
12/13/2023	VMW-10	6.89	6.91	0.02	0.1
12/20/2023	VMW-10	6.89	6.92	0.03	0.1
Average/TOTAL REMOVED				0.03	2.40

TOTAL FOR ALL	18.20
TOTAL FOR SEHB ONLY	10.10
TOTAL FOR WP/WC ONLY	8.10

Table 8

CORRECTIVE ACTION PROGRAM WELLS

SEHB and NHB
KM Liquids Terminals LLC
Galena Park Terminal

SEHB

Well ID	Designation	TCEQ Approval Date
MW-2R	POC	3/4/2008
MW-3R	POC	3/4/2008
MW-4R	POC	3/4/2008
MW-5	POE	3/4/2008
MW-13	POE	3/4/2008
MW-33	POE	3/4/2008
P-1	PSO	3/4/2008
RW-1	CAS	3/4/2008
RW-2	CAS	3/4/2008
MW-7	CAS	3/4/2008
MW-24R	CAS	3/4/2008
MW-25	CAS	3/4/2008
MW-26	CAS	3/4/2008
MW-30	CAS	3/4/2008
MW-34	CAS	3/4/2008
MW-1	CAO	3/4/2008
MW-6	CAO	3/4/2008
MW-8	CAO	3/4/2008
MW-9	CAO	3/4/2008
MW-10	CAO	3/4/2008
MW-11	CAO	3/4/2008
MW-12	CAO	3/4/2008
MW-14	CAO	3/4/2008
MW-15	CAO	3/4/2008
MW-16	CAO	3/4/2008
MW-17	CAO	3/4/2008
MW-18	CAO	3/4/2008
MW-19	CAO	3/4/2008
MW-20	CAO	3/4/2008
MW-21	CAO	3/4/2008
MW-22	CAO	3/4/2008
MW-23	CAO	3/4/2008
MW-27	CAO	3/4/2008
MW-29	CAO	3/4/2008
MW-31	CAO	3/4/2008
MW-32	CAO	3/4/2008

NHB

Well ID	Designation	TCEQ Approval Date
MW-7	POC	3/4/2008
RW-16	POC	3/4/2008
MW-6	POC	3/4/2008
RW-17	POC	3/4/2008
MW-1	BG	3/4/2008
MW-8	BG	3/4/2008
MW-4	CAS	3/4/2008
MW-12	CAS	3/4/2008
MW-15	CAS	3/4/2008
MW-5	CAO	3/4/2008
MW-9	CAO	3/4/2008
MW-10	CAO	3/4/2008
MW-11	CAO	3/4/2008
MW-13	CAO	3/4/2008
MW-14	CAO	3/4/2008

Acronyms:

'POC = *Point of Compliance Well*

'POE = *Point of Exposure Well*

'CAO = *Corrective Action Observation Well*

'PSO = *Potentiometric Surface Observation Well*

'BG = *Background Well*

'CAS = *Corrective Action System Well*

Table 8

CORRECTIVE ACTION PROGRAM WELLS

CP PMZ and WP/WC PMZ
KM Liquids Terminals LLC
Galena Park Terminal

CP PMZ

Well ID	Designation	TCEQ Approval Date
AMP-01	AMP	6/24/2014
AMP-02	AMP	6/24/2014
AMP-03	AMP	6/24/2014
POE-01	POE	6/24/2014
POE-02	POE	6/24/2014
MW-35	CAO	6/24/2014
MW-36	CAO	6/24/2014
MW-37	CAO	6/24/2014
MW-38	CAO	6/24/2014
RI-1-14	POE	6/24/2014
RI-1-18	POE	6/24/2014
RI-3-01	CAO	6/24/2014
RI-3-02	POE	6/24/2014
RI-3-03	POE	6/24/2014
RI-1-17	POE	6/24/2014
MW-41	CAO	6/24/2014

WP / WC PMZ

Well ID	Designation	TCEQ Approval Date
MW-18	POE	11/8/19
MW-20	AMP	11/8/19
MW-25	POE	11/8/19
MW-26	POE	11/8/19
MW-27	AMP	11/8/19
MW-29	AMP	11/8/19
MW-30	AMP	11/8/19
MW-31	AMP	11/8/19
MW-35	AMP	11/8/19
MW-36	AMP	11/8/19
MW-37	AMP	11/8/19
MW-38	AMP	11/8/19
WC-MW-3	CAO	11/8/19
P-2	POE	11/8/19
VMW-1	AMP	11/8/19
VMW-2	CAO	11/8/19
VMW-3	AMP	11/8/19
VMW-4	CAO	11/8/19
VMW-6	AMP	11/8/19
VMW-7	AMP	11/8/19
VMW-9	CAO	11/8/19

Acronyms:

POE = *Point of Exposure Well*
CAO = *Corrective Action Observation Well*
AMP = Attenuation Monitoring Point

Table 8

CORRECTIVE ACTION PROGRAM WELLS

TCI and OPH5
KM Liquids Terminals LLC
Galena Park Terminal

TCI

Well ID	Designation	TCEQ Approval Date
RW-3	POC	11/08/19
RW-5	POC	11/08/19
AMP-2	CAO	11/08/19
MW-04-TCI	CAO	11/08/19
MW-10R-TCI	CAO	11/08/19
MW-12-TCI	CAO	11/08/19
MW-18-TCI	POC	11/08/19
MW-19-TCI	POC	11/08/19

OPH-5

Well ID	Designation	TCEQ Approval Date
OPHMW-4	POE	11/8/2019
OPHMW-5	POE	11/8/2019
OPHMW-6	POE	11/8/2019
OPHMW-9	POE	11/8/2019
OPHMW-10	AMP	11/8/2019
OPHMW-11	AMP	11/8/2019
OPHMW-2	CAO	11/8/2019
OPHMW-3	CAO	11/8/2019
OPHMW-7	CAO	11/8/2019
OPHMW-8	CAO	11/8/2019

Acronyms:

POC = *Point of Compliance Well*

CAO = *Corrective Action Observation Well*

POE = *Point of Exposure Well*

AMP = Attenuation Monitoring Point

Table 9

2023 GROUNDWATER ANALYTICAL DATA SUMMARY

North Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Monitor Well	Unit Monitored	Sample Date	Temperature (Deg. C)	pH (Standard Units)	Specific Conductivity (µS/cm)	DO	ORP	Turbidity	Sample Observations	GWPS (mg/L)	1,2-Dichloroethane (mg/L)	GWPS Achieved?
MW-1	Zone III	31-Jan-23	18.3	6.97	1,439	0.8	202.4	5.3	clear	0.005	< 0.00059	Yes
		21-Jul-23	28.4	6.83	1,306	2.00	3.4	5.5	clear	0.005	< 0.00059	Yes
MW-4	Zone III	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.0018	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	< 0.00059	Yes
MW-5	Zone III	31-Jan-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
		21-Jul-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
MW-6	Zone IV	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	**0.0067**	No
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	**0.0061**	No
MW-7	Zone III	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	**0.0072**	No
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	**0.0093**	No
MW-8	Zone III	31-Jan-23	21.2	6.63	793	1.9	50.4	1.1	clear	0.005	< 0.00059	Yes
		21-Jul-23	26.8	6.84	800	1.6	97.0	1.0	clear	0.005	< 0.00059	Yes
MW-9	Zone III	31-Jan-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
		21-Jul-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
MW-10	Zone III	31-Jan-23	16.2	6.78	1,521	1.5	108.9	0.5	clear	0.005	< 0.00059	Yes
		21-Jul-23	26.6	6.95	1,846	2.3	118.00	0.5	clear	0.005	< 0.00059	Yes
MW-11	Zone III	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.0011	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.00099 J	Yes
MW-12	Zone V	31-Jan-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
		21-Jul-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
MW-13	Zone III	31-Jan-23	17.9	7.11	2,000	0.8	-125.8	3.9	clear	0.005	< 0.00059	Yes
		21-Jul-23	26.3	6.69	1,859	1.8	-113.7	6.2	clear	0.005	< 0.00059	Yes
MW-14	Zone IV	31-Jan-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
		21-Jul-23	NS	NS	NS	NS	NS	NS	NS	0.005	NS	Yes
MW-15	Zone IV	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.0017	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.0029	Yes
RW-16	Zone III	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	< 0.00059	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	< 0.00059	Yes
RW-17	Zone IV	31-Jan-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.0027	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	clear	0.005	0.0033	Yes
Trip Blank	-	31-Jan-23	NM	NM	NM	NM	NM	NM	NM	NA	< 0.00059	NA
		21-Jul-23	NM	NM	NM	NM	NM	NM	NM	NA	< 0.00059	NA

Table 9

2023 GROUNDWATER ANALYTICAL DATA SUMMARY

North Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Monitor Well	Unit Monitored	Sample Date	Temperature (Deg. C)	pH (Standard Units)	Specific Conductivity (µS/cm)	DO	ORP	Turbidity	Sample Observations	GWPS (mg/L)	1,2-Dichloroethane (mg/L)	GWPS Achieved?
Field Blank	-	31-Jan-23	NM	NM	NM	NM	NM	NM	NM	NA	< 0.00059	NA
		21-Jul-23	NM	NM	NM	NM	NM	NM	NM	NA	< 0.00059	NA
PC North (SWU)	Surface	31-Jan-23	NM	NM	NM	NM	NM	NM	NM	0.005	< 0.00059	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	NM	0.005	< 0.00059	Yes
PC Mid (SWM)	Surface	31-Jan-23	NM	NM	NM	NM	NM	NM	NM	0.005	< 0.00059	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	NM	0.005	< 0.00059	Yes
PC South (SWD)	Surface	31-Jan-23	NM	NM	NM	NM	NM	NM	NM	0.005	< 0.00059	Yes
		21-Jul-23	NM	NM	NM	NM	NM	NM	NM	0.005	< 0.00059	Yes

NOTES:
GWPS (Table IV - Corrective Action Program, Compliance Plan No. CP-50054) Ground-Water Protection Standards
(mg/L) - Milligrams per liter
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
NM - Not monitored
Bold - Exceeds GWPS limits
(Deg. C) - Degree Celsius
(µS/cm) - Microsiemens per centimeters
NS - Not Sampled

SWU -Upper Panther Creek surface sample
SWM - Middle Panther Creek surface sample
SWD - downgradient Panther Creek surface samp
PC - Panther Creek
NA - Nor applicable

Table 10

2023 GROUNDWATER ANALYTICAL DATA SUMMARY

Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Compliance Plan Table V Well Designation		CAO		CAS		CAS		POC		POC		POC				CAS/POE		CAO		CAS			
		MW-1	MW-1	RW-1	RW-1	RW-2	RW-2	MW-2R	MW-2R	MW-3R	MW-3R	MW-4R	MW-4R (DUP-1)	MW-4R	MW-4R (DUP-1)	MW-5/RW-5	MW-5/RW-5	MW-6	MW-6	MW-7	MW-7 (DUP-2)	MW-7	MW-7 (DUP-2)
GWPS Achieved?		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Analytes	**GWPS * (mg/L)**	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 07-20-23
VOCs by SW-846 8260:																							
1,1-Dichloroethene	**0.007**	0.00074 U	0.00074 U	***0.0074*** U	0.0037 U	***0.018*** U	***0.037*** U	0.00074 U	0.00074 U	0.0015 U	0.0037 U	***0.015*** U	***0.018*** U	***0.074*** U	***0.074*** U	0.0037 U	***0.074*** U	***0.074*** U	***0.037*** U	***0.0074*** U	***0.0074*** U	***0.0074*** U	***0.0074*** U
1,2,3-Trichloropropane	**0.00003**	***0.00049*** U	***0.00049*** U	***0.0049*** U	***0.0025*** U	***0.012*** U	***0.025*** U	***0.00049*** U	***0.00049*** U	***0.00098*** U	***0.0025*** U	***0.0098*** U	***0.012*** U	***0.049*** U	***0.049*** U	***0.0025*** U	***0.049*** U	***0.049*** U	***0.025*** U	***0.0049*** U	***0.0049*** U	***0.0049*** U	***0.0049*** U
1,2-Dichlorobenzene	**0.6**	0.00051 U	0.00051 U	0.0051 U	0.0025 U	0.03	0.025 U	0.00051 U	0.00051 U	0.008	0.009	0.01 U	0.013 U	0.051 U	0.051 U	0.0025 U	0.051 U	0.051 U	0.036 J	0.0051 U	0.0051 U	0.0051 U	0.0051 U
1,2-Dichloroethane	**0.005**	0.00059 U	0.00059 U	***0.0059*** U	***0.0053***	***0.015*** U	***0.03*** U	0.00059 U	0.00059 U	0.0012 U	0.003 U	***0.012*** U	***0.015*** U	***0.059*** U	***0.059*** U	0.003 U	***0.059*** U	***0.059*** U	***0.03*** U	***0.0059*** U	***0.0059*** U	***0.0059*** U	***0.0059*** U
1,2-Dichloropropane	**0.005**	0.00067 U	0.00067 U	***0.0067*** U	0.0033 U	***0.017*** U	***0.033*** U	0.00067 U	0.00067 U	0.0013 U	0.0033 U	***0.013*** U	***0.017*** U	***0.067*** U	***0.067*** U	0.0033 U	***0.067*** U	***0.067*** U	***0.033*** U	***0.0067*** U	***0.0067*** U	***0.0067*** U	***0.0067*** U
2-Butanone (Methyl Ethyl Ketone)	**15**	0.0083 U	0.0083 U	0.083 U	0.041 U	0.21 U	0.41 U	0.0083 U	0.0083 U	0.017 U	0.041 U	0.17 U	0.21 U	0.83 U	0.83 U	0.041 U	0.83 U	0.83 U	0.41 U	0.083 U	0.083 U	0.083 U	0.083 U
4-Methyl-2-pentanone (MIBK)	**2.0**	0.0075 U	0.0075 U	0.075 U	0.037 U	0.19 U	0.37 U	0.0075 U	0.0075 U	0.015 U	0.037 U	0.15 U	0.19 U	0.75 U	0.75 U	0.037 U	0.75 U	0.75 U	0.37 U	0.075 U	0.075 U	0.075 U	0.075 U
Acetone	**22**	0.0012 U	0.0012 U	0.012 U	0.006 U	0.03 U	0.06 U	0.0012 U	0.0012 U	0.0024 U	0.006 U	0.024 U	0.03 U	0.12 U	0.12 U	0.006 U	0.12 U	0.12 U	0.06 U	0.012 U	0.012 U	0.012 U	0.012 U
Benzene	**0.005**	***0.049***	***0.059***	***0.12***	***0.22***	***1.6***	***1.6***	0.0046	0.00063 J	***0.12***	***0.13***	***0.29***	***0.37***	***1.3***	***1.5***	***0.45***	***12***	***12***	***5.3***	***1.3***	***1.3***	***0.82***	***0.8***
Carbon disulfide	**2.4**	0.0019 U	0.0019 U	0.019 U	0.0095 U	0.048 U	0.095 U	0.0019 U	0.0019 U	0.0038 U	0.0095 U	0.038 U	0.048 U	0.19 U	0.19 U	0.0095 U	0.19 U	0.19 U	0.095 U	0.019 U	0.019 U	0.019 U	0.019 U
Chlorobenzene	**0.1**	0.03	0.036	***0.15***	0.033	***0.28***	***0.24***	0.0015	0.00053 U	0.052	0.069	0.035	0.043	0.053 U	0.088 J	0.0027 U	0.053 U	***0.13***	***0.18***	***0.2***	***0.19***	***0.19***	***0.2***
Chloroform	**0.24**	0.00064 U	0.00064 U	0.0064 U	0.0032 U	0.016 U	0.032 U	0.00064 U	0.00064 U	0.0057	0.0032 U	0.013 U	0.016 U	0.064 U	0.064 U	0.0032 U	0.064 U	0.064 U	0.032 U	0.0064 U	0.0064 U	0.0064 U	0.0064 U
Ethylbenzene	**0.7**	0.00041 U	0.0006 J	0.037	0.13	***2.8***	***2.4***	0.00041 U	0.00041 U	0.085	0.09	0.053	0.089	0.15	0.16	0.086	0.064 J	0.15	0.24	0.52	0.48	0.27	0.27
Hexane	**1.5**	0.0011 J	0.00094 J	0.0052 U	0.0026 U	0.013 U	0.026 U	0.00052 U	0.00052 U	0.019	0.0097 J	0.01 U	0.013 U	0.052 U	0.052 U	0.0026 U	0.052 U	0.052 U	0.026 U	0.0095 J	0.0093 J	0.0052 U	0.0052 U
Methylene chloride	**0.005**	0.0017 U	0.0017 U	***0.017*** U	***0.0086*** U	***0.043*** U	***0.086*** U	0.0017 U	0.0017 U	0.0035 U	***0.0086*** U	***0.035*** U	***0.043*** U	***0.17*** U	***0.17*** U	***0.0086*** U	***0.17*** U	***0.17*** U	***0.086*** U	***0.017*** U	***0.017*** U	***0.017*** U	***0.017*** U
Styrene	**0.1**	0.00066 U	0.00066 U	0.0066 U	0.0033 U	0.016 U	0.033 U	0.00066 U	0.00066 U	0.0013 U	0.0033 U	0.013 U	0.016 U	0.066 U	0.066 U	0.0033 U	0.066 U	0.066 U	0.033 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
Tetrachloroethene	**0.005**	0.0008 U	0.0008 U	***0.008*** U	0.004 U	***0.02*** U	***0.04*** U	0.0008 U	0.0008 U	0.0016 U	0.004 U	***0.016*** U	***0.02*** U	***0.08*** U	***0.08*** U	0.004 U	***0.08*** U	***0.08*** U	***0.04*** U	***0.008*** U	***0.008*** U	***0.008*** U	***0.008*** U
Toluene	**1**	0.0014	0.0021	0.018	0.03	0.37	0.33	0.00048 U	0.00048 U	0.012	0.017	0.049	0.077	0.23	0.21	0.091	0.38	0.051 J	0.034 J	0.17	0.16	0.033	0.032
trans-1-2-Dichloroethylene	**0.1**	0.00095 U	0.00095 U	0.0095 U	0.0047 U	0.024 J	0.047 U	0.00095 U	0.00095 U	0.0049	0.0055	0.019 U	0.024 U	0.095 U	0.095 U	0.0047 U	0.095 U	0.095 U	0.047 U	0.0095 U	0.0095 U	0.0095 U	0.0095 U
Trichloroethylene	**0.005**	0.00079 U	0.00079 U	***0.0079*** U	0.004 U	***0.02*** U	***0.04*** U	0.00079 U	0.00079 U	0.0016 U	0.004 U	***0.016*** U	***0.02*** U	***0.079*** U	***0.079*** U	0.004 U	***0.079*** U	***0.079*** U	***0.04*** U	***0.0079*** U	***0.0079*** U	***0.0079*** U	***0.0079*** U
Vinyl acetate	**24**	0.0021 U	0.0021 U	0.021 U	0.011 U	0.053 U	0.11 U	0.0021 U	0.0021 U	0.0043 U	0.011 U	0.043 U	0.053 U	0.21 U	0.21 U	0.011 U	0.21 U	0.21 U	0.11 U	0.021 U	0.021 U	0.021 U	0.021 U
Vinyl chloride	**0.002**	0.00064 U	0.00064 U	***0.6***	***1.6***	***6.5***	***11***	***0.022***	***0.08***	0.0013 U	***0.0037*** J	***1.7***	***2.2***	***14***	***17***	***0.08***	***0.064*** U	***0.064*** U	***0.032*** U	***0.0064*** U	***0.0064*** U	***0.0064*** U	***0.0064*** U
Xylenes (total)	**10**	0.005 J	0.006 J	0.043 J	0.057	1.1	0.83	0.0012 U	0.0012 U	0.085	0.1	0.061 J	0.12 J	0.12 U	0.12 U	0.1	0.12 U	0.15 J	0.31 J	0.91	0.81	0.38	0.36
SVOCs by EPA 8270C:																							
2,4,6-Trichlorophenol	**0.024**	0.0014 U	0.0014 U	0.0014 U	0.00014 U	0.0027 U	0.0014 U	0.00014 UJL	0.00014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0068 U	0.0014 U	0.0014 U
2,4-Dichlorophenol	**0.073**	0.0011 U	0.0011 U	0.0011 U	0.00011 U	0.0023 U	0.0011 U	0.00011 UJL	0.00011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.011 U	0.0011 U	0.0011 U	0.0011 U	0.0057 U	0.0057 U	0.0011 U	0.0011 U
2,4-Dimethylphenol	**0.49**	0.0015 U	0.0015 U	0.041	0.033	0.31	***0.57***	0.00015 UJL	0.00015 U	0.02	0.033	0.011 J	0.01 J	0.15	0.13	***2***	***1.3***	0.0088 J	0.036	0.077 J	0.074 J	0.075	0.068
2-Methylnaphthalene	**0.098**	0.0048 U *+	0.0048 U	***0.17***	***0.14***	***0.34***	***0.27***	0.00048 UJL *	0.0027 U	***0.15*** *+	***0.15***	0.02 *+	0.017 J	***0.18***	***0.18***	***1.6*** *+	***0.12***	0.024 *+	0.034	***0.44*** *+	***0.54***	***0.32***	***0.3***
2-Methylphenol	**1.2**	0.0016 U	0.0016 U	0.0016 U	0.0025	0.19	0.17	0.00016 UJL	0.00016 U	0.0016 U	0.0016 U	0.0016 U	0.0037 J	0.021	0.02	0.24	0.092	0.0016 U	0.0016 U	0.008 U	0.008 U	0.0016 U	0.0016 U
3&4-Methylphenol	**0.12**	0.0016 U	0.0016 U	0.0024 J	0.0022 JL	0.093	0.074 JL	0.00016 UJL	0.00016 U	0.0016 U	0.0016 U	0.0016 U	0.01 J	0.016 J	0.0093 JL	***0.24***	0.051	0.08	0.0098 J	0.0081 U	0.0081 UJL	0.016 J	0.0016 U
4-Bromophenyl phenyl ether [1]	**0.000061**	***0.0017*** U	***0.0017*** U	***0.0017*** U	***0.00017*** U	***0.0033*** U	***0.0017*** U	***0.00017*** UJL	***0.00017*** U	***0.0017*** U	***0.0017*** U	***0.0017*** U	***0.0017*** U	***0.0017*** U	***0.0017*** U	***0.017*** U	***0.0017*** U	***0.0017*** U	***0.0017*** U	***0.0084*** U	***0.0084*** U	***0.0017*** U	***0.0017*** U
Acenaphthene	**1.5**	0.063	0.082	0.23	0.25	0.29	0.21	0.0032	0.0055	0.25	0.29	0.039	0.038	0.12	0.1	***2.3***	0.22	0.012 J	0.014 J	0.15	0.19	0.12	0.11
Acenaphthylene	**1.5**	0.0021 U	0.0021 U	0.0021 U	0.00021 U	0.0043 U	0.0021 U	0.00021 UJL	0.00021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.021 U	0.014 J	0.0022 J	0.0021 U	0.011 U	0.011 U	0.0021 U	0.0021 U
Aniline	**0.16**	0.0031 U	0.0031 UJL	0.0031 U	0.0019 JL	0.0063 U	0.0043 JL	0.00031 UJL	0.00031 UJL	0.0031 U	0.0031 UJL	0.0031 U	0.0031 U	0.0031 UJL	0.0031 UJL	0.031 U	0.02 JL	0.017 J	0.013 JL	0.016 U	0.016 U	0.0031 UJL	0.0031 UJL
Anthracene	**7.3**	0.0045 J	0.0077 J	0.019 J	0.02	0.016 J	0.016 J	0.00056 JL	0.0006 J	0.027	0.025	0.0035 J	0.0034 J	0.0098 J	0.0077 J	1	0.077	0.0058 J	0.0015 U	0.024 J	0.044 J	0.017 J	0.01 J
Benzo(a)anthracene	**0.0013**	***0.0015*** U	***0.0015*** U	***0.0015*** U	0.0013 J	***0.003*** U	***0.0015*** U	0.00015 UJL	0.00015 U	***0.0072*** J	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.63***	***0.033***	***0.0015*** U	***0.0015*** U	***0.0075*** U	***0.0075*** U	***0.0015*** U	***0.0015*** U
Benzo(a)pyrene	**0.0002**	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.00029*** J	***0.003*** U	***0.0015*** U	0.00015 UJL	0.00015 U	***0.0021*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.22***	***0.011*** J	***0.0015*** U	***0.0015*** U	***0.0074*** U	***0.0074*** U	***0.0015*** U	***0.0015*** U
Benzo(b)fluoranthene	**0.0013**	***0.0021*** U	***0.0021*** U	***0.0021*** U	0.00021 U	***0.0042*** U	***0.0021*** U	0.00021 UJL	0.00021 U	***0.0028*** J	***0.0021*** U	***0.0021*** U	***0.0021*** U	***0.0021*** U	***0.0021*** U	***0.29***	***0.015*** J	***0.0021*** U	***0.0021*** U	***0.01*** U	***0.01*** U	***0.0021*** U	***0.0021*** U
Benzo(g,h,i)perylene	**0.73**	0.0014 U	0.0014 U	0.0014 U	0.00014 U	0.0029 U	0.0014 U	0.00014 UJL	0.00014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.052 J	0.0033 J	0.0014 U	0.0014 U	0.0071 U	0.0071 U	0.0014 U	0.0014 U
Benzo(k)fluoranthene	**0.013**	0.0017 U	0.0017 U	0.0017 U	0.00017 U	0.0033 U	0.0017 U	0.00017 UJL	0.00017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	***0.14*** J	0.0062 J	0.0017 U	0.0017 U	0.0083 U	0.0083 U	0.0017 U	0.0017 U
Benzyl Alcohol	**2.4**	0.045 U *+	0.045 U	0.045 U *+	0.0045 U	0.09 U *+	0.045 U	0.0045 UJL *	0.0045 U	0.045 U *+	0.045 U	0.045 U *+	0.045 U *+	0.045 U	0.045 U	0.45 U *+	0.064 J	0.045 U *+	0.045 U	0.23 U *+	0.23 U *+	0.045 U	0.045 U
bis(2-Chloroethyl) ether	**0.00083**	***0.0028*** U	***0.0028*** U	***0.0028*** U	0.00028 U	***0.0056*** U	***0.0028*** U	0.00028 UJL	0.00073 J	***0.02***	***0.038***	***0.0028*** U	***0.0028*** U	***0.0028*** U	***0.0028*** U	***0.028*** U	***0.0028*** U	***0.0044*** J	***0.0028*** U	***0.061*** J	***0.06*** J	***0.05***	***0.045***
bis(2-Ethylhexyl) phthalate	**0.006**	0.0022 U	0.0022 U	0.0022 U	***0.053***	0.0045 U	0.0022 U	0.00022 UJL	0.00022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	***0.022*** U	0.0022 U	0.0022 U	0.0022 U	***0.011*** U	***0.011*** U	0.0022 U	0.0022 U
Benzyl Butyl Phthalate	**0.48**	0.0015 U	0.0015 U	0.0015 U	0.0037	0.012 J	0.0015 U	0.00015 UJL	0.00015 U	0.017 J	0.0084 J	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.28	0.017 J	0.0015 U	0.0015 U	0.028 J	0.042 J	0.01 J	0.0092 J
Chrysene	**0.13**	0.0016 U	0.0016 U	0.0016 U	0.00098 J	0.0032 U	0.0016 U	0.00016 UJL	0.00016 U	0.0059 J	0.0024 J	0.0016 U	0.0016 U	0.0016 U	0.0016 U	***0.56***	0.031	0.0016 U	0.0016 U	0.008 U	0.008 U	0.0016 U	0.0024 J
Dibenz(a,h)anthracene [1]	**0.0002**	***0.0015*** U	***0.0015*** U	***0.0015*** U	0.00015 U	***0.003*** U	***0.0015*** U	0.00015 UJL	0.00015 U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.015*** U	***0.0015*** U	***0.0015*** U	***0.0015*** U	***0.0074*** U	***0.0074*** U	***0.0015*** U	***0.0015*** U
Dibenzofuran	**0.098**	0.015 J	0.017 J	***0.14***	***0.17***	***0.17***	***0.12***	0.00034 UJL	0.0028	***0.14***	***0.16***	0.02	0.019 J	0.082	0.07	***1.7***	***0.17***	0.0063 J	0.0077 J	0.064 J	0.087 J	0.041	0.034
Di-n-butyl phthalate	**2.4**	0.008 U *+	0.008 U	0.008 U	0.0055	0.016 U	0.008 U	0.0022 U	0.089	0.008 U *+	0.008 U	0.008 U *+	0.008 U	0.008 U	0.008 U	0.08 U *+	0.008 U	0.008 U *+	0.008 U	0.04 U *+	0.04 U	0.008 U	0.008 U
Di-n-octyl phthalate	**0.98**	0.0017 U	0.0017 U	0.0017 U	0.00017 U	0.0034 U	0.0017 U	0.00017 UJL	0.00017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.017 U	0.0017 U	0.0017 U	0.0017 U	0.0085 U	0.0085 U	0.0017 U	0.0017 U
Fluoranthene	**0.98**	0.01 J	0.011 J	0.02	0.013	0.011 J	0.012 J	0.0016 JL	0.0013 J	0.057	0.029	0.0043 J	0.0038 J	0.0072 J	0.0075 J	***4.3***	0.21	0.0015 U	0.0015 U	0.055 J	0.11	0.025	0.02
Fluorene	**0.98**	0.036	0.049	0.13	0.17	0.17	0.12	0.00021 UJL	0.0027	0.14	0.14	0.0097 J	0.0097 J	0.061	0.054	***2.6***	0.23	0.0075 J	0.0099 J	0.093 J	0.14	0.07	0.058
Indeno(1,2,3-cd)pyrene	**0.0013**	***0.0085*** U	***0.0085*** U	***0.0085*** U	0.00085 U	***0.017*** U	***0.0085*** U	0.00085 UJL	0.00085 U	***0.0085*** U	***0.0085*** U	***0.0085*** U	***0.0085*** U	***0.0085*** U	***0.0085*** U	***0.085*** U	***0.0085*** U	***0.0085*** U	***0.0085*** U	***0.043*** U	***0.043*** U	***0.0085*** U	***0.0085*** U
Naphthalene	**0.49**	0.0042 U	0.0042 U	0.14	0.1	***1.3***	***1.3***	0.00062 JL	0.012	0.47	***0.62***	0.092	0.083	***0.51***	***0.52***	***2.3***	0.23	0.28	0.41	***0.5***	***0.52***	0.37	0.35
Phenanthrene	**0.73**	0.022	0.026	0.11	0.13	0.13	0.081	0.00018 UJL	0.0026	0.18	0.13	0.01 J	0.0091 J	0.051	0.051	***6.7***	0.47	0.0062 J	0.0082 J	0.12	0.21	0.067	0.057
Phenol	**7.3**	0.002 U	0.002 UJL	0.002 JL	0.0015 JL	0.0095 JL	0.0062 JL	0.0002 UJL	0.0002 UJL	0.003 J	0.0076 JL	0.023 J	0.024 JL	0.0063 J	0.0068 JL	0.02 U	0.078 JL	0.055	0.011 JL	0.01 U	0.01 UJL	0.002 UJL	0.002 UJL
Pyrene	**0.73**	0.0052 J	0.0061 J	0.011 J	0.0076	0.0067 J	0.0071 J	0.0012 JL	0.0011 J	0.036	0.017 J	0.0027 J	0.0024 J	0.0047 J	0.0041 J	***2.1***	0.14	0.0016 U	0.0016 U	0.032 J	0.071 J	0.016 J	0.014 J
Pyridine	**0.024**	0.0072 UJL	0.0072 UJL	0.0072 UJL	0.00072 UJL *1	0.014 UJL	0.0072 UJL *	0.00072 UJL	0.00072 UJL	0.0072 UJL	0.0072 UJL	0.0072 UJL	0.0072 UJL	0.0072 UJL	0.0072 UJL *	***0.072*** UJL	0.0072 UJL	0.0072 UJL	0.0072 UJL	***0.036*** UJL	***0.036*** UJL	0.0072 UJL	0.0072 UJL *1
Herbicides by EPA 8151:																							
2,4-D	**0.070**	0.000029 U	0.00016 U *1	0.000029 U	0.00016 U	0.00012 JH	0.00016 U	0.000029 U	0.00016 U *1	0.000029 U	0.00016 U *1	0.000029 U	0.000029 UJL	0.00016 U *1	0.00015 U	0.000058 U	0.00016 U *1	0.000029 UJL	0.00015 U *1	0.000029 U	0.000029 U	0.00016 U *1	0.00016 U
Metals by EPA 6020:																							
Lead	**0.015**	0.0012 J	0.0057	***0.073***	***0.12***	0.0027	***0.021***	0.00011 U	0.00037 U	0.00026 J	0.0022	0.00042 J	0.00035 J	0.00063 J	0.00079 J	***0.023***	0.0062	0.0091	0.0083	0.00062 J	0.0018 J	0.00046 J	0.0022 J
Field Parameters:																							
pH (Standard Units)	NE	6.57	6.30	NM	NM	NM	NM	6.44	6.48	6.38	6.04	6.45	NM	6.30	NM	NM	NM	6.61	6.48	NM	NM	NM	NM
Temperature (Degrees C)	NE	18.9	25.2	NM	NM	NM	NM	19.9	26.6	21.6	28.70	16.5	NM	29.1	NM	NM	NM	14.5	28.8	NM	NM	NM	NM
Conductivity (µS/cm)	NE	738	794.00	NM	NM	NM	NM	1,318	1,985	1,261	1558.00	907	NM	1225	NM	NM	NM	1,010	752	NM	NM	NM	NM
Visual Discoloration	NE	No	No	No	No	No	No	No	No	No	No	No	NM	No	NM	No	Trace NAPL	No	Cloudy	No	NM	NM	NM
Odor Detected	NE	No	No	No	No	No	No	No	No	No	No	Yes	NM	Yes	NM	No	No	No	No	No	NM	NM	NM

Notes

* = GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

mg/L - Milligrams per Liter

X - In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries wereoutside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte found to be high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limit

NS - Not sampled

Bold Italic - Concentrations in bold italics exceed the Groundwater Protection Standard (GWPS) as listed in Table IV of the Compliance Plan No. CP-50054.

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

CAO - Corrective Action Observation

POC - Point of Compliance

NA- Not analyzed

N/A - Not applicable

NE – Not Evaluated

*- - LCS and/or LCSD is outside acceptance limits, low biased.

*1 - LCS/LCSD RPD exceeds control limits.

*+ - LCS and/or LCSD is outside acceptance limits, high biased.

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample

E - The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated

F - RPD exceeded lab control limits.

U - Analyte was not detected.

NR - Not Reported

CAS - Corrective Action System

POE - Point of Exposure

J - The target analyte was positively identified below the guantitation limit and above the detection limit.

K - Sample analysed outside of recommended hold time.

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H - The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

B - A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

PSO - Potentiometric Surface Observation

Table 10

2021 GROUNDWATER ANALYTICAL DATA SUMMARY

Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Compliance Plan Table V Well Designation		CAO		CAO		CAS		CAO		CAO		CAS/CAO/POE		CAO		CAO		CAO		CAO		CAO		CAO		CAO	
		MW-8	MW-8	MW-9	MW-9	MW-10	MW-10	MW-11	MW-11	MW-12	MW-12	MW-13	MW-13	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-17	MW-17	MW-18	MW-19	MW-19	
GWPS Achieved?		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Analytes	**GWPS * (mg/L)**	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Product in Well	Sampled 01-30-23	Sampled 07-20-23	
VOCs by SW-846 8260:																									
1,1-Dichloroethene	**0.007**	***0.74*** U	***0.74*** U	0.00074 U	0.00074 U	***1.5*** U	***1.5*** U	0.00074 U	0.00074 U	0.0015 U	0.00074 U	0.0015 U	0.0037 U	0.00074 U	0.00074 U	***0.018*** UJL	***0.018*** U *1	0.0037 U	***0.0074*** U	***0.018*** U	***0.0074*** U	NS	***0.37*** U	***0.37*** U	
1,2,3-Trichloropropane	**0.00003**	***0.49*** U	***0.49*** U	***0.00049*** U	***0.00049*** U	***0.98*** U	***0.98*** U	***0.00049*** U	***0.00049*** U	***0.00098*** U	***0.00049*** U	***0.00098*** U	***0.0025*** U	***0.00049*** U	***0.00049*** U	***0.012*** UJL	***0.012*** U *1	***0.0025*** U	***0.0049*** U	***0.012*** U	***0.0049*** U	NS	***0.25*** U	***0.25*** U	
1,2-Dichlorobenzene	**0.6**	***1.1***	***0.64*** J	0.00051 U	0.00051 U	***1*** U	***1*** U	0.00051 U	0.00051 U	0.0012 J	0.00094 J	0.0017 J	0.0025 U	0.00051 U	0.00051 U	0.013 UJL	0.013 U *1	0.0025 U	0.0051 U	0.013 U	0.0051 U	NS	0.25 U	0.25 U	
1,2-Dichloroethane	**0.005**	***0.59*** U	***0.59*** U	0.00059 U	0.00059 U	***1.2*** U	***1.2*** U	0.00059 U	0.00059 U	0.0012 U	0.00059 U	0.0012 U	0.003 U	0.00059 U	0.00059 U	***0.015*** UJL	***0.015*** U *1	0.003 U	***0.0059*** U	***0.015*** U	***0.0059*** U	NS	***0.3*** U	***0.3*** U	
1,2-Dichloropropane	**0.005**	***0.67*** U	***0.67*** U	0.00067 U	0.00067 U	***1.3*** U	***1.3*** U	0.00067 U	0.00067 U	0.0013 U	0.00067 U	0.0013 U	0.0033 U	0.00067 U	0.00067 U	***0.017*** UJL	***0.017*** U *1	0.0033 U	***0.0067*** U	***0.017*** U	***0.0067*** U	NS	***0.33*** U	***0.33*** U	
2-Butanone (Methyl Ethyl Ketone)	**15**	8.3 U	8.3 U	0.0083 U	0.0083 U	***17*** U	***17*** U	0.0083 U	0.0083 U	0.017 U	0.0083 U	0.017 U	0.041 U	0.0083 U	0.0083 U	0.21 UJL	0.21 U *1	0.041 U	0.083 U	0.21 U	0.083 U	NS	4.1 U	4.1 U	
4-Methyl-2-pentanone (MIBK)	**2.0**	***7.5*** U	***7.5*** U	0.0075 U	0.0075 U	***15*** U	***15*** U	0.0075 U	0.0075 U	0.015 U	0.0075 U	0.015 U	0.037 U	0.0075 U	0.0075 U	0.19 UJL	0.19 U *1	0.037 U	0.075 U	0.19 U	0.075 U	NS	***3.7*** U	***3.7*** U	
Acetone	**22**	1.2 U	1.2 U	0.0012 U	0.0012 U	2.4 U	2.4 U	0.0012 U	0.0064 J	0.0024 U	0.0097 J	0.0024 U	0.006 U	0.0012 U	0.0012 U	0.03 UJL	0.03 U *1	0.006 U	0.012 U	0.03 U	0.012 U	NS	0.6 U	0.6 U	
Benzene	**0.005**	***110***	***130***	0.00053 U	0.00046 U	***220***	***220***	0.00053 U	0.00046 U	***0.11***	***0.13***	***0.03***	***0.022***	***0.0055***	0.00046 U	***3***	***2.4*** F1	***0.6***	***0.66***	***2.5***	***0.86***	NS	***35***	***48***	
Carbon disulfide	**2.4**	1.9 U	1.9 U	0.0019 U	0.0019 U	***3.8*** U	***3.8*** U	0.0019 U	0.0019 U	0.0038 U	0.0019 U	0.0038 U	0.0095 U	0.0019 U	0.0019 U	0.048 UJL	0.048 U *1	0.0095 U	0.019 U	0.048 U	0.019 U	NS	0.95 U	0.95 U	
Chlorobenzene	**0.1**	***2.3***	***2.5***	0.00053 U	0.0013	***1.1*** U	***1.1*** U	0.00053 U	0.00053 U	0.047	0.045	0.0073	0.0062	0.00053 U	0.00053 U	0.013 UJL	0.013 U *1	0.0027 U	0.0053 U	0.013 U	0.0053 U	NS	***0.27*** U	***0.27*** U	
Chloroform	**0.24**	***0.64*** U	***0.64*** U	0.00064 U	0.00064 U	***1.3*** U	***1.3*** U	0.00064 U	0.00064 U	0.0013 U	0.00064 U	0.0013 U	0.0032 U	0.00064 U	0.00064 U	0.016 UJL	0.016 U *1	0.0032 U	0.0064 U	0.016 U	0.0064 U	NS	***0.32*** U	***0.32*** U	
Ethylbenzene	**0.7**	***2.1***	***1.9***	0.00041 U	0.00041 U	***2.4***	***1.5*** J	0.00041 U	0.00041 U	0.061	0.037	0.0085	0.0077	0.00067 J	0.00041 U	0.064 JL	0.081 F2 F1	0.0075	0.0055 J	0.033	0.061	NS	0.21 U	0.21 U	
Hexane	**1.5**	0.52 U	0.52 U	0.00052 U *+	0.00052 U	1 U	1 U	0.00052 U *+	0.00052 U	0.0059 J	0.0036 J	0.001 U	0.0026 U	0.0019 J	0.00052 U	0.013 UJL	0.013 U *1	0.0026 U	0.0052 U	0.013 U	0.0052 U	NS	0.26 U	0.26 U	
Methylene chloride	**0.005**	***1.7*** U	***1.7*** U	0.0017 U	0.0017 U	***3.5*** U	***3.5*** U	0.0017 U	0.0017 U	0.0035 U	0.0017 U	0.0035 U	***0.0086*** U	0.0017 U	0.0017 U	***0.043*** UJL	***0.043*** U *1	***0.0086*** U	***0.017*** U	***0.043*** U	***0.017*** U	NS	***0.86*** U	***0.86*** U	
Styrene	**0.1**	***0.66*** U	***0.66*** U	0.00066 U	0.00066 U	***1.3*** U	***1.3*** U	0.00066 U	0.00066 U	0.0013 U	0.00066 U	0.0013 U	0.0033 U	0.00066 U	0.00066 U	0.016 UJL	0.016 U *1	0.0033 U	0.0066 U	0.016 U	0.0066 U	NS	***0.33*** U	***0.33*** U	
Tetrachloroethene	**0.005**	***0.8*** U	***0.8*** U	0.0008 U	0.0008 U	***1.6*** U	***1.6*** U	0.0008 U	0.0008 U	0.0016 U	0.0008 U	0.0016 U	0.004 U	0.0008 U	0.0008 U	***0.02*** UJL	***0.02*** U *1	0.004 U	***0.008*** U	***0.02*** U	***0.008*** U	NS	***0.4*** U	***0.4*** U	
Toluene	**1**	***28***	***23***	0.00048 U	0.00048 U	***6.9***	***5.7***	0.00048 U	0.00048 U	0.0049	0.0046	0.00095 U	0.0024 U	0.0018	0.00048 U	0.038 JL	0.05 F2 F1	0.037	0.043	0.034	0.03	NS	0.24 U	0.24 U	
trans-1-2-Dichloroethylene	**0.1**	***0.95*** U	***0.95*** U	0.00095 U	0.00095 U	***1.9*** U	***1.9*** U	0.00095 U	0.00095 U	0.0019 U	0.00095 U	0.0019 U	0.0047 U	0.00095 U	0.00095 U	0.024 UJL	0.024 U *1	0.0047 U	0.0095 U	0.024 U	0.0095 U	NS	***0.47*** U	***0.47*** U	
Trichloroethylene	**0.005**	***0.79*** U	***0.79*** U	0.00079 U	0.00079 U	***1.6*** U	***1.6*** U	0.00079 U	0.00079 U	0.0016 U	0.00079 U	0.0016 U	0.004 U	0.00079 U	0.00079 U	***0.02*** UJL	***0.02*** U *1	0.004 U	***0.0079*** U	***0.02*** U	***0.0079*** U	NS	***0.4*** U	***0.4*** U	
Vinyl acetate	**24**	2.1 U	2.1 U	0.0021 U	0.0021 U	4.3 U	4.3 U	0.0021 U	0.0021 U	0.0043 U	0.0021 U	0.0043 U	0.011 U	0.0021 U	0.0021 U	0.053 UJL	0.053 U *1	0.011 U	0.021 U	0.053 U	0.021 U	NS	1.1 U	1.1 U	
Vinyl chloride	**0.002**	***6.6***	***9.1***	0.00064 U	0.00064 U	***1.3*** U	***1.3*** U	0.00064 U	0.00064 U	0.0013 U	0.0007 J	***0.016***	***0.017***	0.00064 U	0.00064 U	***0.076***	***0.016*** U *1	***0.0032*** U	***0.0064*** U	***0.016*** U	***0.0064*** U	NS	***0.32*** U	***0.32*** U	
Xylenes (total)	**10**	2.6 J	1.2 U	0.0012 U	0.0012 U	2.5 U	2.5 U	0.0012 U	0.0012 U	0.031	0.023	0.035	0.024 J	0.0034 J	0.0012 U	0.11 JL	0.086 J F2 F1	0.024 J	0.014 J	0.051 J	0.072 J	NS	0.62 U	0.62 U	
SVOCs by EPA 8270C:																									
2,4,6-Trichlorophenol	**0.024**	0.0014 U	0.0014 U	0.00014 UJL	0.00014 U	0.0068 U	0.0027 U	0.00014 UJL	0.00014 U	0.00068 UJL	0.0014 U	0.014 U	0.0027 U	0.00014 UJL	0.00014 U	0.00014 UJL	0.00014 U	0.00014 UJL	0.00014 U	0.00014 UJL	0.00014 U	NS	0.0027 U	0.0027 U	
2,4-Dichlorophenol	**0.073**	0.0011 U	0.0011 U	0.00011 UJL	0.00011 U	0.0057 U	0.0023 U	0.00011 UJL	0.00011 U	0.00057 UJL	0.0011 U	0.011 U	0.0023 U	0.00011 UJL	0.00011 U	0.00011 UJL	0.00011 U	0.00011 UJL	0.00011 U	0.00011 UJL	0.00011 U	NS	0.0023 U	0.0023 U	
2,4-Dimethylphenol	**0.49**	***7.3***	***10***	0.00061 JL	0.00015 U	***2.2***	***3.2***	0.00015 UJL	0.00015 U	0.027	0.025	0.015 U	0.003 U	0.00015 UJL	0.00015 U	0.00015 UJL	0.00015 UJ *1	0.0004 UJL	0.0018 J	0.0013 JL	0.00015 U	NS	***4.9***	***4.5***	
2-Methylnaphthalene	**0.098**	***0.1*** *+	0.075	0.00048 U *+	0.00048 U	***0.76*** *+	***0.3***	0.00048 UJL *+	0.00048 U	0.055 *+	0.06	***2.5*** *+	0.06	0.00069 J *+	0.00048 U	0.00067 J	0.00048 UJ *1	0.00048 U	0.00048 U	0.00048 U	0.00048 U	NS	0.036 J	0.027 J	
2-Methylphenol	**1.2**	***1.3***	1.1	0.00029 JL	0.00016 U	0.62	0.66	0.00016 UJL	0.00016 U	0.0008 UJL	0.0016 U	0.016 U	0.0032 U	0.00016 UJL	0.00016 U	0.00016 UJL	0.00016 U	0.00016 UJL	0.00016 U	0.00016 UJL	0.00016 U	NS	0.011 J	0.0032 U	
3&4-Methylphenol	**0.12**	***10***	***12***	0.0014 JL	0.00016 U	***3.8***	***4.2***	0.00077 JL	0.00016 U	0.0032 JL	0.0016 U	0.016 U	0.0033 U	0.0023	0.00016 U	0.00016 UJL	0.00016 UJ *1	0.00016 UJL	0.00016 U	0.00016 UJL	0.00016 U	NS	0.0033 U	0.0033 U	
4-Bromophenyl phenyl ether [1]	**0.000061**	***0.0017*** U	***0.0017*** U	***0.00017*** U	***0.00017*** U	***0.0084*** U	***0.0033*** U	***0.00017*** UJL	***0.00017*** U	***0.00084*** UJL	***0.0017*** U	***0.017*** U	***0.0033*** U	***0.00017*** UJL	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	NS	***0.0033*** U	***0.0033*** U	
Acenaphthene	**1.5**	0.051	0.043	0.00044 J	0.00021 U	0.43	0.14	0.0043	0.0018 J	0.044	0.052	***6.7***	0.56	0.0037	0.00021 U	0.00045 J	0.00078 J F2 F1	0.0053	0.006	0.0018 J	0.0029	NS	0.061	0.053	
Acenaphthylene	**1.5**	0.0063 J	0.0052 J	0.00021 U	0.00021 U	0.011 U	0.011 J	0.00021 JL	0.00049 J	0.0026 JL	0.0021 U	0.021 U	0.0043 U	0.00021 UJL	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NS	0.0043 U	0.0043 U	
Aniline	**0.16**	0.019 J	0.0031 UJL	0.00031 U	0.00031 UJL	0.14 J	0.16 JL	0.00031 UJL	0.00031 UJL	0.0016 UJL	0.0031 UJL	0.031 U	0.0063 UJL	0.00031 UJL	0.00031 UJL	0.00031 UJL	0.00031 UJL	0.00031 UJL	0.00031 UJL	0.00031 U	0.00031 UJL	NS	0.013 J	0.015 JL	
Anthracene	**7.3**	0.0015 U	0.0025 J	0.00017 J	0.00015 U	0.16	0.03 J	0.002	0.0048	0.013	0.0078 J	2.7	0.13	0.00093 JL	0.00081 J	0.00022 J	0.00015 U *1	0.00015 J	0.00015 U	0.00027 J	0.00082 J	NS	0.005 J	0.0031 U	
Benzo(a)anthracene	**0.0013**	***0.0015*** U	***0.0015*** U	0.00015 U	0.00015 U	***0.06*** J	***0.0082*** J	0.00015 UJL	0.00015 U	***0.0059*** JL	***0.0015*** U	***1.6***	***0.058***	0.00015 UJL	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NS	***0.003*** U	***0.003*** U	
Benzo(a)pyrene	**0.0002**	***0.0015*** U	***0.0015*** U	0.00015 U	0.00015 U	***0.018*** J	***0.003*** U	0.00015 UJL	0.00015 U	***0.0035*** JL	***0.0015*** U	***0.55***	***0.02*** J	0.00015 UJL	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NS	***0.003*** U	***0.003*** U	
Benzo(b)fluoranthene	**0.0013**	***0.0021*** U	***0.0021*** U	0.00021 U	0.00021 U	***0.024*** J	***0.0042*** U	0.00021 UJL	0.00021 U	***0.0033*** JL	***0.0021*** U	***0.64***	***0.03*** J	0.00021 UJL	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NS	***0.0042*** U	***0.0042*** U	
Benzo(g,h,i)perylene	**0.73**	0.0014 U	0.0014 U	0.00014 U	0.00014 U	0.0071 U	0.0029 U	0.00014 UJL	0.00014 U	0.00071 UJL	0.0014 U	0.13 J	0.0049 J	0.00014 UJL	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	NS	0.0029 U	0.0029 U	
Benzo(k)fluoranthene	**0.013**	0.0017 U	0.0017 U	0.00017 U	0.00017 U	0.009 J	0.0033 U	0.00017 UJL	0.00017 U	0.002 JL	0.0017 U	***0.34***	0.012 J	0.00017 UJL	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	NS	0.0033 U	0.0033 U	
Benzyl Alcohol	**2.4**	0.045 U *+	0.045 U	0.0045 U *+	0.0045 U	0.23 U *+	0.1 J	0.0045 UJL *+	0.0045 U	0.023 UJL *	0.045 U	0.45 U *+	0.09 U	0.0045 UJL *	0.0045 U	0.0045 U *+	0.0045 UJ *1	0.0045 U *+	0.0045 U	0.0045 U *+	0.0045 U	NS	0.09 U *+	0.09 U	
bis(2-Chloroethyl) ether	**0.00083**	***0.099***	***0.081***	0.00028 U	0.00028 U	***0.046*** J	***0.048***	0.00028 UJL	0.00028 U	***0.0014*** UJL	***0.0028*** U	***0.028*** U	***0.0056*** U	0.00028 UJL	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U	NS	***0.19***	***0.14***	
bis(2-Ethylhexyl) phthalate	**0.006**	0.0022 U	0.0022 U	0.00022 U	0.00022 U	***0.011*** U	0.0045 U	0.00022 UJL	0.00022 U	0.0011 UJL	0.0022 U	***0.022*** U	0.0045 U	0.00022 UJL	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	NS	0.0045 U	0.0045 U	
Benzyl Butyl Phthalate	**0.48**	0.0015 U	0.0015 U	0.00015 U	0.00015 U	0.16	0.029 J	0.00015 UJL	0.00015 U	0.00075 UJL	0.0015 U	0.015 U	0.003 U	0.00015 UJL	0.00015 U	0.00015 U	0.00015 U	0.00037 J	0.00015 U	0.00015 U	0.00015 U	NS	0.003 U	0.003 U	
Chrysene	**0.13**	0.0016 U	0.0016 U	0.00016 U	0.00016 U	0.049 J	0.0063 J	0.00016 UJL	0.00016 U	0.0047 JL	0.0016 U	***1.4***	0.054	0.00016 UJL	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NS	0.0032 U	0.0032 U	
Dibenz(a,h)anthracene [1]	**0.0002**	***0.0015*** U	***0.0015*** U	0.00015 U	0.00015 U	***0.0074*** U	***0.003*** U	0.00015 UJL	0.00015 U	***0.00074*** UJL	***0.0015*** U	***0.038*** J	***0.003*** U	0.00015 UJL	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NS	***0.003*** U	***0.003*** U	
Dibenzofuran	**0.098**	0.042	0.04	0.00034 U	0.00034 U	***0.32***	***0.1***	0.00034 UJL	0.00034 U	0.029	0.026	***4.9***	***0.36***	0.00057 JL	0.00034 U	0.00037 J	0.00034 UJ *1	0.00078 J	0.00096 J	0.00034 U	0.00034 U	NS	0.027 J	0.022 J	
Di-n-butyl phthalate	**2.4**	0.008 U *+	0.008 U	0.0008 U *+	0.0008 U	0.04 U *+	0.016 U	0.0008 UJL *+	0.0008 U	0.004 UJL *	0.008 U	0.08 U *+	0.016 U	0.0008 UJL *	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	NS	0.016 U	0.016 U	
Di-n-octyl phthalate	**0.98**	0.0017 U	0.0017 U	0.00017 U	0.00017 U	0.0085 U	0.0034 U	0.00017 UJL	0.00017 U	0.00085 UJL	0.0017 U	0.017 U	0.0034 U	0.00017 UJL	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	NS	0.0034 U	0.0034 U	
Fluoranthene	**0.98**	0.0015 U	0.0015 U	0.00015 U	0.00015 U	0.38	0.048	0.00047 JL	0.00015 U	0.04	0.015 J	***11***	0.39	0.00028 JL	0.00015 U	0.00015 U *- *1	0.00015 UJ *1	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NS	0.0033 J	0.003 U	
Fluorene	**0.98**	0.027	0.024	0.00021 U	0.00021 U	0.4	0.1	0.00026 JL	0.00031 J	0.043	0.033	***6.5***	0.46	0.0023	0.00021 U	0.00046 J	0.00078 J F2 F1	0.00066 J	0.00055 J	0.0019 J	0.0031	NS	0.032 J	0.03 J	
Indeno(1,2,3-cd)pyrene	**0.0013**	***0.0085*** U	***0.0085*** U	0.00085 U	0.00085 U	***0.043*** U	***0.017*** U	0.00085 UJL	0.00085 U	***0.0043*** UJL	***0.0085*** U	***0.11*** J	***0.017*** U	0.00085 UJL	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	NS	***0.017*** U	***0.017*** U	
Naphthalene	**0.49**	***1.1***	***0.98***	0.0015 J	0.00071 J	***2.9***	***2.4***	0.00078 JL	0.0014 J	0.12	0.23	0.43	0.0085 U	0.0024	0.00042 U	0.021	0.018 J F2 F1	0.00083 J	0.0015 J	0.0036	0.0059	NS	0.31	0.22	
Phenanthrene	**0.73**	0.01 J	0.0095 J	0.00018 U	0.00018 U	***0.81***	0.15	0.0003 JL	0.00018 U	0.056	0.031	***17***	***1.2***	0.00018 UJL	0.00018 U	0.00038 J	0.00044 J F2 F1	0.00018 U	0.00018 U	0.00061 J	0.00018 U	NS	0.026 J	0.024 J	
Phenol	**7.3**	0.3	0.36 JL	0.0002 UJL	0.0002 UJL	0.19 J	0.26 BJL	0.0002 UJL	0.0002 UJL	0.0013 JL	0.002 UJL	0.031 J	0.016 JL B	0.0002 UJL	0.0002 UJL	0.029 JL	0.0081 U	0.00072 JL	0.0016 JL B	0.045 JL	0.0038 JL B	NS	0.048 JL	0.077 JL B	
Pyrene	**0.73**	0.0016 U	0.0016 U	0.00016 U	0.00016 U	0.23	0.032 J	0.00028 JL	0.00016 U	0.023	0.01 J	***5.4***	0.25	0.00024 JL	0.00016 U	0.00016 U *- *1	0.00016 U *1	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NS	0.0032 U	0.0032 U	
Pyridine	**0.024**	0.0072 UJL	0.0072 UJL	0.00072 UJL	0.0021 U	***0.036*** UJL	0.014 UJL	0.00072 UJL	0.002 U	0.0036 UJL	0.0072 UJL	***0.072*** UJL	0.014 UJL	0.00072 UJL	0.0025 U	0.00072 UJL	0.00072 UJL F2	0.00072 UJL	0.0018 U	0.00072 UJL	0.00072 UJL	NS	0.014 UJL	0.014 UJL	
Herbicides by EPA 8151:																									
2,4-D	**0.070**	0.000029 UJL	0.00016 U *1	0.000033 J	0.00016 U *1	0.000029 U	0.00016 U *1	0.000029 U	0.00016 U *1	0.000029 U	0.00016 U *1	0.000029 U	0.00015 U *1	0.000029 UJL	0.00015 U *1	0.000029 U	0.00016 U *1	0.000029 U	0.00016 U *1	0.000029 U	0.00016 U *1	NS	0.000029 UJL	0.00016 U *1	
Metals by EPA 6020:																									
Lead	**0.015**	0.00011 U	0.00037 U	0.00011 U	0.00037 U	0.003	0.0057	0.00011 U	0.00037 U	***0.026***	0.015	0.0017 J	0.00037 U	0.013	0.0016 J	0.00032 J	0.00081 J	0.00011 U	0.00037 U	0.0015 J	0.0015 J	NS	0.00012 J	0.00037 U	
Field Parameters:																									
pH (Standard Units)	NE	6.64	6.37	6.73	6.77	NM	NM	6.88	6.57	6.65	6.26	NM	NM	6.47	6.19	6.58	6.47	6.74	6.10	6.70	6.39	NS	6.34	5.91	
Temperature (Degrees C)	NE	18.9	25.8	13.8	29.5	NM	NM	13.4	37.0	19.9	30.7	NM	NM	20.4	27.7	18.5	26.7	20.6	26.2	19.6	26.3	NS	19.5	29.1	
Conductivity (µS/cm)	NE	1,451	1634	951	1075	NM	NM	3,010	5740	919	793	NM	NM	1,532	2220.00	887	618	1,849	2270	981	1383	NS	1,892	1867	
Visual Discoloration	NE	No	No	No	No	No	No	No	No	black particles	No	No	Trace NAPL	Flooded	Slightly Cloudy	No	No	No	No	No	No	NS	No	No	
Odor Detected	NE	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	NS	No	No	

Table 10

2021 GROUNDWATER ANALYTICAL DATA SUMMARY

Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Compliance Plan Table V Well Designation		CAO	CAO		CAO		CAO	CAS		CAS		CAS		CAO	CAO		CAS		CAO		CAO		CAS/POE	
		MW-20	MW-21	MW-21	MW-22	MW-22	MW-23	MW-24R	MW-24R	MW-25	MW-25	MW-26	MW-26	MW-27	MW-29	MW-29	MW-30	MW-30	MW-31	MW-31	MW-32	MW-32	MW-33	MW-33
GWPS Achieved?		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Analytes	**GWPS * (mg/L)**	Product in Well	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-27-20	Product in Well	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Not Sampled - No Access	Sampled 07-20-23	Product in Well	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23
VOCs by SW-846 8260:																								
1,1-Dichloroethene	**0.007**	NS	***0.074*** U	***0.015*** U	0.0015 U	0.0037 U	NS	***1.5*** U	***1.5*** U	***0.15*** U	***0.15*** U	NS	***0.037*** U	NS	0.00074 U	0.00074 U	0.00074 U	0.00074 U	***0.01***	***0.019***	0.00074 U	0.00074 U	***0.037*** U	***0.037*** U
1,2,3-Trichloropropane	**0.00003**	NS	***0.049*** U	***0.0098*** U	***0.00098*** U	***0.0025*** U	NS	***0.98*** U	***0.98*** U	***0.098*** U	***0.098*** U	NS	***0.025*** U	NS	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.57***	***0.24***
1,2-Dichlorobenzene	**0.6**	NS	0.051 U	0.01 U	0.001 U	0.0025 U	NS	***1*** U	***1*** U	0.1 U	0.1 U	NS	0.025 U	NS	0.00051 U	0.00051 U	0.00088 J	0.00051 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U	0.025 U	0.025 U
1,2-Dichloroethane	**0.005**	NS	***0.059*** U	***0.012*** U	0.0012 U	0.003 U	NS	***1.2*** U	***1.2*** U	***0.12*** U	***0.12*** U	NS	***0.03*** U	NS	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	***0.03*** U	***0.03*** U
1,2-Dichloropropane	**0.005**	NS	***0.067*** U	***0.013*** U	0.0013 U	0.0033 U	NS	***1.3*** U	***1.3*** U	***0.13*** U	***0.13*** U	NS	***0.033*** U	NS	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	***0.033*** U	***0.033*** U
2-Butanone (Methyl Ethyl Ketone)	**15**	NS	0.83 U	0.17 U	0.017 U	0.041 U	NS	***17*** U	***17*** U	1.7 U	1.7 U	NS	0.41 U	NS	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.41 U	0.41 U
4-Methyl-2-pentanone (MIBK)	**2.0**	NS	0.75 U	0.15 U	0.015 U	0.037 U	NS	***15*** U	***15*** U	1.5 U	1.5 U	NS	0.37 U	NS	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.37 U	0.37 U
Acetone	**22**	NS	0.12 U	0.024 U	0.0024 U	0.006 U	NS	2.4 U	2.4 U	0.24 U	0.24 U	NS	0.06 U	NS	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.011 J	0.0012 U	0.0012 U	0.06 U	0.06 U
Benzene	**0.005**	NS	***11***	***2.7***	***0.2***	***0.079***	NS	***200***	***140***	***11***	***12***	NS	***4.2***	NS	0.00053 U	0.00046 U	***0.031***	***0.0074***	0.0046	***0.0097***	0.00053 U	0.00046 U	***1.3***	***0.61***
Carbon disulfide	**2.4**	NS	0.19 U	0.038 U	0.0038 U	0.0095 U	NS	***3.8*** U	***3.8*** U	0.38 U	0.38 U	NS	0.095 U	NS	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.095 U	0.095 U
Chlorobenzene	**0.1**	NS	0.053 U	0.015 J	0.0011 U	0.0027 U	NS	***1.1*** U	***1.1*** U	***0.11*** U	***0.25***	NS	***0.16***	NS	0.00053 U	0.00053 U	0.0015	0.001	0.015	0.002	0.0098	0.0068	0.089	0.052
Chloroform	**0.24**	NS	0.064 U	0.013 U	0.0013 U	0.0032 U	NS	***1.3*** U	***1.3*** U	0.13 U	0.13 U	NS	0.032 U	NS	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.0017	0.00064 U	0.00064 U	0.00064 U	0.032 U	0.032 U
Ethylbenzene	**0.7**	NS	0.42	0.24	0.0089	0.0079	NS	***1.3*** J	***1.1*** J	0.082 J	0.082 U	NS	0.075	NS	0.00041 U	0.00041 U	0.0019	0.00041 U	0.00041 U	0.00041 U	0.00041 U	0.00041 U	0.39	0.11
Hexane	**1.5**	NS	0.052 U	0.01 U	0.014	0.009 J	NS	1 U	1 U	0.1 U	0.1 U	NS	0.026 U	NS	0.00052 U *+	0.00052 U	0.00052 U	0.00052 U	0.0025 J	0.0011 J	0.00052 U *+	0.00052 U	0.026 U	0.026 U
Methylene chloride	**0.005**	NS	***0.17*** U	***0.035*** U	0.0035 U	***0.0086*** U	NS	***3.5*** U	***3.5*** U	***0.35*** U	***0.35*** U	NS	***0.086*** U	NS	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	***0.086*** U	***0.086*** U
Styrene	**0.1**	NS	0.066 U	0.013 U	0.0013 U	0.0033 U	NS	***1.3*** U	***1.3*** U	***0.13*** U	***0.13*** U	NS	0.033 U	NS	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.033 U	0.033 U
Tetrachloroethene	**0.005**	NS	***0.08*** U	***0.016*** U	0.0016 U	0.004 U	NS	***1.6*** U	***1.6*** U	***0.16*** U	***0.16*** U	NS	***0.04*** U	NS	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	***0.36***	***0.069***
Toluene	**1**	NS	0.048 U	0.0095 U	0.0081	0.0089	NS	***10***	***6.5***	0.53	0.34	NS	0.17	NS	0.00048 U	0.00048 U	0.0061	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.7	0.22
trans-1-2-Dichloroethylene	**0.1**	NS	0.095 U	0.019 U	0.0019 U	0.0047 U	NS	***1.9*** U	***1.9*** U	***0.19*** U	***0.19*** U	NS	0.047 U	NS	0.00095 U	0.00095 U	0.00095 U	0.00095 U	0.02	***0.11***	0.00095 U	0.00095 U	0.047 U	0.047 U
Trichloroethylene	**0.005**	NS	***0.079*** U	***0.016*** U	0.0016 U	0.004 U	NS	***1.6*** U	***1.6*** U	***0.16*** U	***0.16*** U	NS	***0.04*** U	NS	0.00079 U	0.00079 U	0.00079 U	0.00079 U	0.0035 J	***0.0067***	0.00079 U	0.00079 U	***0.24*** J	***0.16*** J
Vinyl acetate	**24**	NS	0.21 U	0.043 U	0.0043 U	0.011 U	NS	4.3 U	4.3 U	0.43 U	0.43 U	NS	0.11 U	NS	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.11 U	0.11 U
Vinyl chloride	**0.002**	NS	***0.064*** U	***0.013*** U	0.0013 U	***0.0032*** U	NS	***1.3*** U	***1.3*** U	***0.13*** U	***0.13*** U	NS	***0.032*** U	NS	0.00064 U	0.00064 U	0.0013 J	0.0014 J	***0.084***	***0.19***	0.00064 U	0.00064 U	***2.4***	***2.7***
Xylenes (total)	**10**	NS	0.12 U	0.046 J	0.041	0.041 J	NS	2.5 U	2.5 U	0.25 U	0.25 U	NS	0.062 U	NS	0.0012 U	0.0012 U	0.0035 J	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	1.1	0.66
SVOCs by EPA 8270C:																								
2,4,6-Trichlorophenol	**0.024**	NS	0.00068 U	0.00014 U	0.00068 U	0.0014 U	NS	0.0027 UJL	0.0014 U	0.00068 U	0.00014 U	NS	0.00014 U	NS	0.00014 UJL	0.00014 U	0.00068 U	0.00014 U	0.00027 U	0.00014 U	0.00027 U	0.00014 UJL	0.014 U	0.0068 U
2,4-Dichlorophenol	**0.073**	NS	0.00057 U	0.00011 U	0.00057 U	0.0011 U	NS	0.016 JL	0.01 J	0.00057 U	0.00011 U	NS	0.00011 U	NS	0.00011 UJL	0.00011 U	0.00057 U	0.00011 U	0.00023 U	0.00011 U	0.00023 U	0.00011 UJL	0.011 U	0.0057 U
2,4-Dimethylphenol	**0.49**	NS	0.05	0.11	0.00074 U	0.006 J	NS	***3.3***	***4.4***	0.057	0.048	NS	0.22	NS	0.00015 UJL	0.00015 U	0.00074 U	0.0048	0.0003 U	0.0081	0.0003 U	0.00015 UJL	***0.52***	0.38
2-Methylnaphthalene	**0.098**	NS	0.058	0.054	0.028	0.039	NS	***0.17***	***0.11***	0.0043 J	0.0024	NS	0.011	NS	0.00048 U	0.00048 U	0.0024 U	0.00071 J	0.00096 U	0.00048 U	0.00096 U	0.00048 UJL	***1.7***	***0.8***
2-Methylphenol	**1.2**	NS	0.0008 U	0.00016 U	0.0008 U	0.0016 U	NS	0.93	0.64	0.02	0.015	NS	0.018	NS	0.00016 UJL	0.00016 U	0.0008 U	0.00016 U	0.00032 U	0.0018 J	0.00032 U	0.00016 UJL	0.11 J	0.068 J
3&4-Methylphenol	**0.12**	NS	0.00081 U	0.00016 U	0.00081 U	0.0016 U	NS	***2.4***	***2.3*** JL	0.015	0.012 JL	NS	0.014 JL	NS	0.00016 UJL	0.00072 JL	0.00081 U	0.0096 JL	0.00033 U	0.018 JL	0.00033 U	0.0011 JL	0.068 J	0.052 JL
4-Bromophenyl phenyl ether [1]	**0.000061**	NS	***0.00084*** U	***0.00017*** U	***0.00084*** U	***0.0017*** U	NS	***0.0033*** UJL	***0.0017*** U	***0.00084*** U	***0.00017*** U	NS	***0.00017*** U	NS	***0.00017*** U	***0.00017*** U	***0.00084*** U	***0.00017*** U	***0.00033*** U	***0.00017*** U	***0.00033*** U	***0.00017*** UJL	***0.017*** U	***0.0084*** U
Acenaphthene	**1.5**	NS	0.089	0.098	0.011	0.014 J	NS	0.058	0.055	0.016	0.017	NS	0.033	NS	0.00021 U	0.00081 J	0.002 J	0.00089 J	0.00072 J	0.00021 U	0.00042 U	0.00021 UJL	***2.2***	1.1
Acenaphthylene	**1.5**	NS	0.0011 U	0.00021 U	0.0011 U	0.0021 U	NS	0.0054 JL	0.0052 J	0.0011 U	0.00021 U	NS	0.00021 U	NS	0.00021 U	0.00021 U	0.0011 U	0.00021 U	0.00043 U	0.00021 U	0.00043 U	0.00021 UJL	0.021 U	0.024 J
Aniline	**0.16**	NS	0.0016 U	0.0011 JL	0.0016 U	0.0031 UJL	NS	0.1	0.063 JL	0.0016 U	0.00031 UJL	NS	0.00031 UJL	NS	0.00031 U	0.00031 UJL	0.0016 U	0.00031 UJL	0.00063 U	0.00031 UJL	0.00063 U	0.00031 UJL	0.031 U	0.016 UJL
Anthracene	**7.3**	NS	0.0035 J	0.0049	0.0016 J	0.0024 J	NS	0.1	0.02	0.0014 J	0.0011 J	NS	0.0016 J	NS	0.00015 U	0.00015 U	0.00077 U	0.00043 J	0.00031 U	0.00015 U	0.00031 U	0.00015 UJL	0.57	0.24
Benzo(a)anthracene	**0.0013**	NS	0.00075 U	0.00015 U	0.00075 U	***0.0015*** U	NS	***0.0099*** JL	***0.0015*** U	0.00075 U	0.00015 U	NS	0.00015 U	NS	0.00015 U	0.00015 U	0.00075 U	0.00015 U	0.0003 U	0.00015 U	0.0003 U	0.00015 UJL	***0.27***	***0.11***
Benzo(a)pyrene	**0.0002**	NS	***0.00074*** U	0.00015 U	***0.00074*** U	***0.0015*** U	NS	***0.003*** UJL	***0.0015*** U	***0.00074*** U	0.00015 U	NS	0.00015 U	NS	0.00015 U	0.00015 U	***0.00074*** U	0.00015 U	***0.0003*** U	0.00015 U	***0.0003*** U	0.00015 UJL	***0.076*** J	***0.034*** J
Benzo(b)fluoranthene	**0.0013**	NS	0.001 U	0.00021 U	0.001 U	***0.0021*** U	NS	***0.0042*** UJL	***0.0021*** U	0.001 U	0.00021 U	NS	0.00021 U	NS	0.00021 U	0.00021 U	0.001 U	0.00021 U	0.00042 U	0.00021 U	0.00042 U	0.00021 UJL	***0.11*** J	***0.048*** J
Benzo(g,h,i)perylene	**0.73**	NS	0.00071 U	0.00014 U	0.00071 U	0.0014 U	NS	0.0029 UJL	0.0014 U	0.00071 U	0.00014 U	NS	0.00014 U	NS	0.00047 J	0.00014 U	0.00071 U	0.00014 U	0.00029 U	0.00014 U	0.00029 U	0.00014 UJL	0.019 J	0.0086 J
Benzo(k)fluoranthene	**0.013**	NS	0.00083 U	0.00017 U	0.00083 U	0.0017 U	NS	0.0033 UJL	0.0017 U	0.00083 U	0.00017 U	NS	0.00017 U	NS	0.00023 J	0.00017 U	0.00083 U	0.00017 U	0.00033 U	0.00017 U	0.00033 U	0.00017 UJL	***0.052*** J	***0.025*** J
Benzyl Alcohol	**2.4**	NS	0.023 U *+	0.0045 U	0.023 U *+	0.045 U	NS	0.09 UJL *+	0.045 U	0.023 U *+	0.0045 U	NS	0.0045 U	NS	0.0045 U *+	0.0045 U	0.023 U *+	0.0045 U	0.009 U *+	0.0045 U	0.009 U *+	0.0045 UJL	0.45 U *+	0.23 U
bis(2-Chloroethyl) ether	**0.00083**	NS	***0.031***	***0.028***	***0.0042*** J	***0.0028*** U	NS	***0.097***	***0.073***	***0.0016*** J	***0.0022***	NS	***0.067***	NS	0.00028 U	0.00028 U	***0.0014*** U	0.00028 U	0.00056 U	0.00028 U	0.00056 U	0.00028 UJL	***0.043*** J	***0.041*** J
bis(2-Ethylhexyl) phthalate	**0.006**	NS	0.0011 U	0.00022 U	0.0011 U	0.0022 U	NS	***0.071***	0.0022 U	***0.078***	0.00022 U	NS	0.00022 U	NS	0.00022 U	0.00022 U	0.0011 U	0.00022 U	0.00045 U	0.00022 U	0.00045 U	0.00022 UJL	***0.022*** U	***0.011*** U
Benzyl Butyl Phthalate	**0.48**	NS	0.00075 U	0.00015 U	0.00075 U	0.0015 U	NS	0.003 UJL	0.0015 U	0.002 J	0.00015 U	NS	0.00015 U	NS	0.00015 U	0.00015 U	0.0023 J	0.00015 U	0.0003 U	0.00015 U	0.0003 U	0.00015 UJL	***2.6***	***0.85***
Chrysene	**0.13**	NS	0.0008 U	0.00016 U	0.0008 U	0.0016 U	NS	0.01 JL	0.0034 J	0.0008 U	0.00016 U	NS	0.00016 U	NS	0.00016 U	0.00016 U	0.0008 U	0.00016 U	0.00032 U	0.00016 U	0.00032 U	0.00016 UJL	***0.24***	0.1
Dibenz(a,h)anthracene [1]	**0.0002**	NS	***0.00074*** U	0.00015 U	***0.00074*** U	***0.0015*** U	NS	***0.003*** UJL	***0.0015*** U	***0.00074*** U	0.00015 U	NS	0.00015 U	NS	***0.00099*** J	0.00015 U	***0.00074*** U	0.00015 U	***0.0003*** U	0.00015 U	***0.0003*** U	0.00015 UJL	***0.015*** U	***0.0074*** U
Dibenzofuran	**0.098**	NS	0.034	0.033	0.0065 J	0.0093 J	NS	0.08	0.038	0.0074 J	0.0064	NS	0.016	NS	0.00034 U	0.00038 J	0.0017 J	0.00056 J	0.00067 U	0.00034 U	0.00067 U	0.00034 UJL	***1.6***	***0.75***
Di-n-butyl phthalate	**2.4**	NS	0.004 U	0.0008 U	0.004 U	0.008 U	NS	0.016 UJL	0.008 U	0.004 U	0.0008 U	NS	0.0008 U	NS	0.0008 U	0.0008 U	0.004 U	0.0008 U	0.0016 U	0.0008 U	0.0016 U	0.0008 UJL	0.08 U	0.04 U
Di-n-octyl phthalate	**0.98**	NS	0.00085 U	0.00017 U	0.00085 U	0.0017 U	NS	0.0034 UJL	0.0017 U	0.0014 J	0.00017 U	NS	0.00017 U	NS	0.00038 J	0.00017 U	0.00085 U	0.00017 U	0.00034 U	0.00017 U	0.00034 U	0.00017 UJL	0.017 U	0.0085 U
Fluoranthene	**0.98**	NS	0.00074 U	0.00062 J	0.0015 J	0.0024 J	NS	0.089	0.027	0.0024 J	0.001 J	NS	0.0017 J	NS	0.00015 U	0.00015 U	0.0011 J	0.00054 J	0.0005 J	0.00015 U	0.0003 U	0.00015 UJL	***1.8***	0.7
Fluorene	**0.98**	NS	0.037	0.039	0.0076 J	0.0095 J	NS	0.18	0.046	0.0075 J	0.0032	NS	0.016	NS	0.00021 U	0.00032 J	0.0024 J	0.00083 J	0.00061 J	0.00026 J	0.00041 U	0.00024 JL	***1.7***	0.8
Indeno(1,2,3-cd)pyrene	**0.0013**	NS	***0.0043*** U	0.00085 U	***0.0043*** U	***0.0085*** U	NS	***0.017*** UJL	***0.0085*** U	***0.0043*** U	0.00085 U	NS	0.00085 U	NS	0.00085 U	0.00085 U	***0.0043*** U	0.00085 U	***0.0017*** U	0.00085 U	***0.0017*** U	0.00085 UJL	***0.085*** U	***0.043*** U
Naphthalene	**0.49**	NS	0.31	0.42	0.013	0.0098 J	NS	***1***	***0.8***	0.039	0.0016 J	NS	0.072	NS	0.00042 U	0.0017 J	0.0047 J	0.0021	0.00085 U	0.0026	0.00085 U	0.0012 JL	***2.6***	***1.9***
Phenanthrene	**0.73**	NS	0.0062 J	0.0071	0.0066 J	0.0099 J	NS	0.099	0.066	0.0051 J	0.0032	NS	0.0052	NS	0.00018 U	0.00024 J	0.0039 J	0.0015 J	0.00097 J	0.00018 U	0.00035 U	0.00018 UJL	***3.8***	***1.6***
Phenol	**7.3**	NS	0.01 JL	0.0061 JL B	0.001 UJL	0.002 UJL	NS	0.13 JL	0.19 JL	0.071 JL	0.064 JL	NS	0.046 JL	NS	0.0002 UJL	0.0002 UJL	0.001 UJL	0.0002 UJL	0.0004 UJL	0.00035 JL	0.0004 UJL	0.0002 UJL	0.02 UJL	0.019 JL
Pyrene	**0.73**	NS	0.0008 U	0.00016 U	0.0011 J	0.0017 J	NS	0.059	0.017 J	0.0016 J	0.00095 J	NS	0.00097 J	NS	0.00016 U	0.00016 U	0.0008 U	0.00034 J	0.00032 U	0.00016 U	0.00032 U	0.00016 UJL	***1.2*** U	0.5
Pyridine	**0.024**	NS	0.0036 U	0.0015 JLB	0.0036 UJL	0.0072 UJL	NS	0.014 UJL	0.0072 UJL *	0.0036 UJL	0.00072 UJL *	NS	0.00072 UJL *	NS	0.00072 UJL	0.00072 UJL *1	0.0036 UJL	0.00085 JL *1	0.0014 UJL	0.00072 UJL *1	0.0014 UJL	0.00073 JL *1	***0.072*** UJL	***0.036*** UJL *
Herbicides by EPA 8151:																								
2,4-D	**0.070**	NS	0.000029 U	0.00016 U	0.0051	0.0034	NS	0.00029 U	0.00016 U	0.000029 U	0.00016 U	NS	0.00016 U	NS	0.000029 U	0.00016 U	0.000029 U	0.00016 U	0.000029 U	0.00015 U	0.000029 U	0.00019 J	0.000029 U	0.00016 U
Metals by EPA 6020:																								
Lead	**0.015**	NS	0.00011 U	0.00037 U	0.00081 J	0.0019 J	NS	***0.092***	0.0045	***0.074***	0.0037	NS	***0.18***	NS	0.00011 U	0.00037 U	***0.018***	0.00065 J	0.0003 J	0.00037 U	0.00011 U	0.00037 U	0.004	0.00044 J
Field Parameters:																								
pH (Standard Units)	NE	NS	6.13	6.14	7.12	7.09	NS	NM	NM	NM	NM	NS	NM	NS	6.41	6.56	NM	NM	6.62	6.89	6.73	6.67	NM	NM
Temperature (Degrees C)	NE	NS	22.4	28.40	19.8	27.8	NS	NM	NM	NM	NM	NS	NM	NS	16.5	32.6	NM	NM	15.1	29.9	13.7	28.9	NM	NM
Conductivity (µS/cm)	NE	NS	1,704	1716	1,286	1555	NS	NM	NM	NM	NM	NS	NM	NS	746	633	NM	NM	2,410	2450	1,080	1092	NM	NM
Visual Discoloration	NE	NS	No	No	No	No	NS	No	No	No	No	NS	No	NS	No	No	No	No	No	No	No	No	No	No
Odor Detected	NE	NS	No	No	No	No	NS	No	No	No	No	NS	No	NS	No	No	No	No	No	No	No	No	No	No

Table 10

2021 GROUNDWATER ANALYTICAL DATA SUMMARY

Southeast Holding Basin
KM Liquids Terminals LLC
Galena Park Terminal

Compliance Plan Table V Well Designation		CAS	CAS	PSO										
		MW-34	MW-34	P-1	S. Trench	N. Trench	Field Blank 1	Field Blank 1	Field Blank 2	Field Blank 2	Field Blank 3	Field Blank 3	Trip Blank 1	Trip Blank 1
GWPS Achieved?		No	No	No	No	No								
Analytes	**GWPS * (mg/L)**	Sampled 01-30-23	Sampled 07-27-20	Product in Well	Product in Well	Product in Well	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23	Sampled 01-30-23	Sampled 07-20-23
VOCs by SW-846 8260:														
1,1-Dichloroethene	**0.007**	***0.74*** U	***0.74*** U	NS	NS	NS	0.00074 U	0.00074 U	0.00074 U	0.00074 U	0.00074 U	0.00074 U	0.00074 U	0.00074 U
1,2,3-Trichloropropane	**0.00003**	***0.49*** U	***0.49*** U	NS	NS	NS	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U	***0.00049*** U
1,2-Dichlorobenzene	**0.6**	***0.73*** J	0.51 U	NS	NS	NS	0.00051 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U	0.00051 U
1,2-Dichloroethane	**0.005**	***0.59*** U	***0.59*** U	NS	NS	NS	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U
1,2-Dichloropropane	**0.005**	***0.67*** U	***0.67*** U	NS	NS	NS	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U	0.00067 U
2-Butanone (Methyl Ethyl Ketone)	**15**	8.3 U	8.3 U	NS	NS	NS	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U *1
4-Methyl-2-pentanone (MIBK)	**2.0**	***7.5*** U	***7.5*** U	NS	NS	NS	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U
Acetone	**22**	1.2 U	1.2 U	NS	NS	NS	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
Benzene	**0.005**	***150***	***95***	NS	NS	NS	0.00053 U	0.00046 U	0.00053 U	0.00046 U	0.00053 U	0.00046 U	0.00053 U	0.00046 U
Carbon disulfide	**2.4**	1.9 U	1.9 U	NS	NS	NS	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Chlorobenzene	**0.1**	***3.1***	***1.9***	NS	NS	NS	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U
Chloroform	**0.24**	***0.64*** U	***0.64*** U	NS	NS	NS	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U
Ethylbenzene	**0.7**	***2.9***	***1.1***	NS	NS	NS	0.00041 U	0.00041 U	0.00041 U	0.00041 U	0.00041 U	0.00041 U	0.00041 U	0.00041 U
Hexane	**1.5**	0.52 U	0.52 U	NS	NS	NS	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U	0.00052 U
Methylene chloride	**0.005**	***1.7*** U	***1.7*** U	NS	NS	NS	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Styrene	**0.1**	***0.66*** U	***0.66*** U	NS	NS	NS	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U	0.00066 U
Tetrachloroethene	**0.005**	***0.8*** U	***0.8*** U	NS	NS	NS	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U
Toluene	**1**	***25***	***14***	NS	NS	NS	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U
trans-1-2-Dichloroethylene	**0.1**	***0.95*** U	***0.95*** U	NS	NS	NS	0.00095 U	0.00095 U	0.00095 U	0.00095 U	0.00095 U	0.00095 U	0.00095 U	0.00095 U
Trichloroethylene	**0.005**	***0.79*** U	***0.79*** U	NS	NS	NS	0.00079 U	0.00079 U	0.00079 U	0.00079 U	0.00079 U	0.00079 U	0.00079 U	0.00079 U
Vinyl acetate	**24**	2.1 U	2.1 U	NS	NS	NS	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U
Vinyl chloride	**0.002**	***4***	***4.3***	NS	NS	NS	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00064 U
Xylenes (total)	**10**	3.5 J	1.2 U	NS	NS	NS	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
SVOCs by EPA 8270C:														
2,4,6-Trichlorophenol	**0.024**	0.014 U	0.0068 U	NS	NS	NS	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	NA	NA
2,4-Dichlorophenol	**0.073**	0.011 U	0.0057 U	NS	NS	NS	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	NA
2,4-Dimethylphenol	**0.49**	***12***	***18***	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	NA
2-Methylnaphthalene	**0.098**	***1.1***	***0.14***	NS	NS	NS	0.00048 U	0.00048 U	0.00048 U	0.00056 J	0.00048 U *+	0.00048 U	NA	NA
2-Methylphenol	**1.2**	***5.5***	***2.3***	NS	NS	NS	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	NA
3&4-Methylphenol	**0.12**	***37***	***38*** JL	NS	NS	NS	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NA	NA
4-Bromophenyl phenyl ether [1]	**0.000061**	***0.017*** U	***0.0084*** U	NS	NS	NS	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	***0.00017*** U	NA	NA
Acenaphthene	**1.5**	0.5	0.063 J	NS	NS	NS	0.00021 U	0.00021 U	0.00021 U	0.00026 J	0.00021 U	0.00021 U	NA	NA
Acenaphthylene	**1.5**	0.021 U	0.011 U	NS	NS	NS	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U *+	0.00021 U	NA	NA
Aniline	**0.16**	0.031 U	0.016 UJL	NS	NS	NS	0.00031 U	0.00031 UJL	0.00031 U	0.00031 UJL	0.00031 U	0.00031 UJL	NA	NA
Anthracene	**7.3**	0.17 J	0.014 J	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	NA
Benzo(a)anthracene	**0.0013**	***0.075*** J	***0.0075*** U	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	NA
Benzo(a)pyrene	**0.0002**	***0.026*** J	***0.0074*** U	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	***0.00026*** J *+	0.00015 U	NA	NA
Benzo(b)fluoranthene	**0.0013**	***0.031*** J	***0.01*** U	NS	NS	NS	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NA	NA
Benzo(g,h,i)perylene	**0.73**	0.014 U	0.0071 U	NS	NS	NS	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00038 J	0.00014 U	NA	NA
Benzo(k)fluoranthene	**0.013**	***0.017*** U	0.0083 U	NS	NS	NS	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00043 J	0.00017 U	NA	NA
Benzyl Alcohol	**2.4**	0.45 U *+	0.23 U	NS	NS	NS	0.0045 U	0.0045 U	0.0045 U *+	0.0045 U	0.0045 U *+	0.0045 U	NA	NA
bis(2-Chloroethyl) ether	**0.00083**	***0.14*** J	***0.12***	NS	NS	NS	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U	NA	NA
bis(2-Ethylhexyl) phthalate	**0.006**	***0.022*** U	***0.075*** J	NS	NS	NS	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U	NA	NA
Benzyl Butyl Phthalate	**0.48**	0.015 U	0.0075 U	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	NA
Chrysene	**0.13**	0.065 J	0.008 U	NS	NS	NS	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00043 J *+	0.00016 U	NA	NA
Dibenz(a,h)anthracene [1]	**0.0002**	***0.015*** U	***0.0074*** U	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	***0.0019*** J	0.00015 U	NA	NA
Dibenzofuran	**0.098**	***0.37***	0.044 J	NS	NS	NS	0.00034 U	0.00034 U	0.00034 U	0.00047 J	0.00034 U	0.00034 U	NA	NA
Di-n-butyl phthalate	**2.4**	0.08 U	0.04 U	NS	NS	NS	0.0008 U	0.027	0.0008 U	0.0008 U	0.0008 U *+	0.0008 U	NA	NA
Di-n-octyl phthalate	**0.98**	0.017 U	0.0085 U	NS	NS	NS	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	NA	NA
Fluoranthene	**0.98**	0.42	0.036 J	NS	NS	NS	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	NA	NA
Fluorene	**0.98**	0.4	0.047 J	NS	NS	NS	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U	NA	NA
Indeno(1,2,3-cd)pyrene	**0.0013**	***0.085*** U	***0.043*** U	NS	NS	NS	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	0.00085 U	NA	NA
Naphthalene	**0.49**	***3.5***	***1.5***	NS	NS	NS	0.00072 J	0.00042 U	0.00042 U	0.00087 J	0.00042 U	0.00042 U	NA	NA
Phenanthrene	**0.73**	***0.91***	0.078 J	NS	NS	NS	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U	NA	NA
Phenol	**7.3**	0.5 JL	0.3 JL	NS	NS	NS	0.0002 U	0.0002 UJL	0.0002 U	0.0002 UJL	0.0002 U	0.0002 UJL	NA	NA
Pyrene	**0.73**	0.29	0.025 J	NS	NS	NS	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U *+	0.00016 U	NA	NA
Pyridine	**0.024**	***0.072*** UJL	***0.036*** UJL *	NS	NS	NS	0.00072 U	0.00072 UJL *1	0.00072 U	0.00072 UJL *1	0.00072 U	0.00072 UJL *1	NA	NA
Herbicides by EPA 8151:														
2,4-D	**0.070**	0.0029	0.00016 U	NS	NS	NS	0.000029 U	0.00016 U	0.000029 U	0.00016 U	0.0001 J	0.00016 U	NA	NA
Metals by EPA 6020:														
Lead	**0.015**	***0.041***	***0.018***	NS	NS	NS	0.00011 U	0.00037 U	0.00011 U	0.00037 U	0.00011 U	0.00037 U	NA	NA
Field Parameters:														
pH (Standard Units)	NE	NM	NM	NS	NS	NS	NM	NM	NM	NM	NM	NM	NM	NM
Temperature (Degrees C)	NE	NM	NM	NS	NS	NS	NM	NM	NM	NM	NM	NM	NM	NM
Conductivity (µS/cm)	NE	NM	NM	NS	NS	NS	NM	NM	NM	NM	NM	NM	NM	NM
Visual Discoloration	NE	No	No	NS	NS	NS	NM	NM	NM	NM	NM	NM	NM	NM
Odor Detected	NE	No	No	NS	NS	NS	NM	NM	NM	NM	NM	NM	NM	NM

Table 11
Central Plant Analytical Data 2023

Exposure Pathway		West Migration Pathway																
Compliance Plan Table V Well Designation		POE		POE		POE		POE		POE		AMP			AMP		AMP	
Sample Location		POE-1	POE-1	POE-2	POE-2	RI-1-14	RI-1-14	RI-3-02	RI-3-02	RI-3-03	RI-3-03	AMP-1	AMP-1	DUP-1	AMP-2	AMP-2	AMP-3	AMP-3
Sample Date		7/21/2023	1/31/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023	1/31/23	7/21/2023	1/31/2023	7/21/2023	1/31/2023
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum												0.032	0.032	0.032	0.011	0.011	0.010	0.010
Analytes	GWPS	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005							
SVOCs by EPA 8270D																		
2,4-Dichlorophenol		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3 & 4 Methylphenol (m and p Cresol)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Herbicides by EPA 8151A																		
2,4-D		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs by EPA 8260C																		
1,2,3-Trichloropropane		NA	NA	NA	NA	NA	NA		NA		NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.00046 U	0.000533 U	0.00046 U	0.000533 U	0.00046 U	0.000533 U	0.00046 U	0.000533 U	0.00046 U	0.000533 U	0.0118	0.0129	0.0129	0.00046 U	0.000533 U	0.00046 U	0.000533 U
Chlorobenzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals by EPA 6020																		
Lead		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW Permit 50054

AAL = Attenuation Action Level

All results reported in milligrams per liter (mg/L)

NA = Not Analyzed

TRRP = Texas Risk Reduction Program

PCL = protective concentration level

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Bold Italic = Exceeds the GWPS

[1]TRRP PCL = $^{GW}GW_{ing}$ = Ingestion of COCs in Class I or 2

Benzene is the only analyte required in CP Table IIIA for the west migration pathway and it is compared to the TRRP $^{GW}GW_{ing}$ PCL
CAO wells do not have a GWPS

U = Analyte was not detected at or above the SDL.

J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

* = LCS or LCSD exceeds the control limits

L = the LCS data for this anlytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

Table 11
Central Plant Analytical Data 2023

Exposure Pathway	East, Southeast, and South Migration Pathway															
Compliance Plan Table V Well Designation	CAO		CAO			CAO		CAO		CAO			POE		POE	
Sample Location	RI-3-01	RI-3-01	MW-35R	MW-35R DUP-1	MW-35R	MW-36	MW-36	MW-37	MW-37	MW-38	MW-38		RI-1-18	RI-1-18	RI-1-17	RI-1-17
Sample Date	7/21/2023	1/31/2023	7/21/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023	7/21/2023	1/31/2023		7/21/2023	1/31/2023	7/21/2023	1/31/2023
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum																
Analytes												GWPS				
SVOCs by EPA 8270D																
2,4-Dichlorophenol	0.000115 U	0.000115 UJL	0.00115 U	0.000115 U	0.000115 UJL	0.000115 U	0.000115 UJL	0.000115 U	0.000115 UJL	0.000115 UJL	0.000115 UJL	21400	0.000115 U	0.000115 U	0.000115 U	0.000115 UJL
2,4-Dimethylphenol	0.000148 U	0.000148 UJL	0.00148 U	0.000148 U	0.000148 UJL	0.000148 U	0.000148 UJL	0.000148 U	0.000148 UJL	0.000148 UJL	0.000148 UJL	5520	0.000148 U	0.000148 U	0.000148 U	0.000148 UJL
2-Methylphenol	0.000159 U	0.000159 UJL	0.00159 U	0.000159 U	0.000159 UJL	0.000159 U	0.000159 UJL	0.000159 U	0.000159 UJL	0.000159 UJL	0.000159 UJL	42700	0.000159 U	0.000159 U	0.000159 U	0.000159 UJL
3 & 4 Methylphenol (m and p Cresol)	0.000163 U	0.000163 UJL	0.00163 U	0.000814 J	0.000163 UJL	0.000163 U	0.000163 UJL	0.000163 U	0.000517 JL	0.000163 UJL	0.000163 UJL	125000	0.000163 U	0.000163 U	0.000163 U	0.000163 UJL
Acenaphthene	0.000208 U	0.000208 UJL	0.209	0.209	0.2 JL	0.000208 U	0.000208 UJL	0.000475 J	0.00044 JL	0.000208 UJL	0.000208 UJL	3380	0.000302 J	0.000307 J	0.000208 U	0.000208 UJL
Benzo[a]anthracene	0.00015 U	0.00015 UJL	0.0015 U	0.00015 U	0.000244 J	0.00015 U	0.00015 UJL	0.00015 U	0.00015 UJL	0.00015 UJL	0.00015 UJL	1000	0.00015 U	0.00015 U	0.00015 U	0.00015 UJL
Bis(2-chloroethyl)ether	0.000278 U	0.000278 UJL	0.00278 U	0.000278 U	0.000278 UJL	0.000278 U	0.000278 UJL	0.000278 U	0.000278 UJL	0.000278 UJL	0.000278 UJL	443	0.000278 U	0.000278 U	0.000278 U	0.000278 UJL
Butyl benzyl phthalate	0.00015 U	0.00015 UJL	0.0015 U	0.00015 U	0.00015 UJL	0.00015 U	0.00015 UJL	0.00015 U	0.00015 UJL	0.00015 UJL	0.00015 UJL	12300	0.00015 U	0.00015 U	0.00015 U	0.00015 UJL
Carbazole	0.000453 U	NA	0.106	0.108 J	NA JL	0.000453 U	NA	0.000453 U	NA	0.000453 UJL	NA	1890	0.000453 U	NA	0.000453 U	NA
Dibenzofuran	0.000336 U	0.000336 UJL	0.113	0.119	0.115 JL	0.000336 U	0.000336 UJL	0.000431 J	0.000336 UJL	0.000336 UJL	0.000336 UJL	5440	0.000336 U	0.000336 U	0.000336 U	0.000336 UJL
Fluoranthene	0.000148 U	0.000148 UJL	0.00426 J	0.00445	0.00457 JL	0.000148 U	0.000148 UJL	0.000148 U	0.000148 UJL	0.000148 UJL	0.000148 UJL	248	0.000148 U	0.000148 U *	0.000148 U	0.000148 UJL *
Fluorene	0.000205 U	0.000205 UJL	0.0697	0.0745	0.0616 JL	0.000205 U	0.000205 UJL	0.000205 U	0.000205 UJL	0.000205 UJL	0.000205 UJL	4138	0.000205 U	0.000205 U	0.000205 U	0.000205 UJL
Naphthalene	0.00132 U	0.000779 JL	2.61 J	3.73 J	2.89 JL	0.000423 U	0.000999 JL	0.00105 U	0.00081 JL	0.00102 U	0.000423 UJL	10500	0.000762 U	0.000423 U	0.00148 U	0.000423 UJL
Phenanthrene	0.000176 U	0.000176 UJL	0.0689	0.0764	0.0734 JL	0.000176 U	0.000176 UJL	0.000176 U	0.000176 UJL	0.000176 UJL	0.000176 UJL	385	0.000176 U	0.000176 U	0.000176 U	0.000176 UJL
Pyrene	0.000159 U	0.000159 UJL	0.00224 J	0.00253	0.00238 * JL	0.000159 U	0.000159 UJL *	0.000159 U	0.000159 UJL *	0.000159 UJL	0.000159 UJL *	20.1	0.000159 U	0.000159 U *	0.000159 U	0.000159 UJL *
Herbicides by EPA 8151A																
2,4-D	0.000155 U	0.0000288 U	0.000155 U	0.000156 U	0.0000288 U	0.000156 U	0.0000288 U	0.000156 U	0.0000288 U	0.000156 U	0.0000288 U	212000	0.000156 U	0.0000288 U	0.000155 U	0.0000288 U
VOCs by EPA 8260C																
1,2,3-Trichloropropane	0.00049 U	0.00049 U	0.00049 U	0.00049 U	0.98 U	0.00049 U	0.098 U	0.00049 U	0.00049 U	0.00049 U	0.00049 U	125	0.00049 U	0.00049 U	0.00049 U	0.00049 U
Benzene	0.00046 U	0.000533 U	0.264	0.265	1.07 U	0.106	0.15 J	0.00535	0.0107	0.00046 U	0.000533 U	5920	0.00046 U	0.000533 U	0.00046 U	0.000533 U
Chlorobenzene	0.00053 U	0.000657 U	0.00053 U	0.00053 U	1.31 U	0.00189	0.131 U	0.00106	0.000657 U	0.00053 U	0.000657 U	8780	0.00053 U	0.000657 U	0.00053 U	0.000657 U
cis-1,2-Dichloroethene	0.000714 U	0.000714 U	160	164	175	27.8 b	26.2	0.000714 U	0.000714 U	0.000714 U	0.000714 U	56900	0.000714 U	0.000714 U	0.000714 U	0.000714 U
Ethylbenzene	0.000411 U	0.000411 U	0.199	0.212	0.822 U	0.00597	0.0822 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	20800	0.000411 U	0.000411 U	0.000411 U	0.000411 U
Tetrachloroethene	0.000801 U	0.000801 U	0.868	0.882	2.68	2.14	2.35	0.000801 U	0.000801 U	0.000801 U	0.000801 U	18000	0.000801 U	0.000801 U	0.000801 U	0.000801 U
Toluene	0.000475 U	0.000475 U	0.19	0.221	0.95 U	0.0236	0.095 U	0.000475 U	0.000475 U	0.000475 U	0.000475 U	40200	0.000475 U	0.000475 U	0.000475 U	0.000475 U
Trichloroethene	0.000791 U	0.000791 U	2.86	3.08	3.2 J	8	9.03	0.000791 U	0.000791 U	0.000791 U	0.000791 U	34100	0.000791 U	0.000791 U	0.000791 U	0.000791 U
Vinyl chloride	0.000638 U	0.000638 U	12.1	13.4	7.91	0.343	0.367 J	0.000638 U	0.000638 U	0.000638 U	0.000638 U	435	0.000638 U	0.000638 U	0.000638 U	0.000638 U
Xylenes, Total	0.00124 U	0.00124 U	0.161 J	0.156 J	2.48 U	0.00281 J	0.248 U	0.00124 U	0.00124 U	0.00124 U	0.00124 U	71100	0.00124 U	0.00124 U	0.00124 U	0.00124 U
Metals by EPA 6020																
Lead	0.000367 U	0.000266 J	0.000367 U	0.000367 U	0.000206 J	0.000468 J	0.00092 J	0.000367 U	0.000115 J	0.000367 U	0.000112 U	443	0.000367 U	0.000112 U	0.000424 J	0.000392 J

Notes:

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

AAL = Attenuation Action Level

All results reported in milligrams per liter (mg/L)

NA = Not Analyzed

TRRP = Texas Risk Reduction Program

PCL = protectice concentration level

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Bold Italic = Exceeds the GWPS

[1] TRRP PCL = $^{GW}GW_{Ing}$ = Ingestion of COCs in Class 1 or 2 groundwater

Benzene is the only alayte required in CP Table IIIA for the west migration pathway and it is compared to the TRRP $^{GW}GW_{Ing}$ PCL

CAO wells do not have a GWPS

U = Analyte was not detected at or above the SDL.

J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

* = LCS or LCSD exceeds the control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

Table 11
Central Plant Analytical Data 2023

Exposure Pathway	Quality Control Samples			
Compliance Plan Table V Well Designation				
Sample Location	FB-1	FB-1	Trip Blank	Trip Blank
Sample Date	7/21/2023	1/31/2023	7/21/2023	1/31/2023
Calculated AAL for Benzene (mg/L) 2014 RAP Addendum				
Analytes				
SVOCs by EPA 8270D				
2,4-Dichlorophenol	0.000115 U	0.000115 U	NA	NA
2,4-Dimethylphenol	0.000148 U	0.000148 U	NA	NA
2-Methylphenol	0.000159 U	0.000159 U	NA	NA
3 & 4 Methylphenol (m and p Cresol)	0.000163 U	0.000163 U	NA	NA
Acenaphthene	0.000208 U	0.000208 U	NA	NA
Benzo[a]anthracene	0.000150 U	0.00105 J	NA	NA
Bis(2-chloroethyl)ether	0.000278 U	0.000278 U	NA	NA
Butyl benzyl phthalate	0.00015 U	0.00015 U	NA	NA
Carbazole	0.000453 U	NA	NA	NA
Dibenzofuran	0.000336 U	0.000336 U	NA	NA
Fluoranthene	0.000148 U	0.00141 J *	NA	NA
Fluorene	0.000205 U	0.000205 U	NA	NA
Naphthalene	0.000516 J	0.000423 U	NA	NA
Phenanthrene	0.000176 U	0.00053 J	NA	NA
Pyrene	0.000159 U	0.00128 J *	NA	NA
Herbicides by EPA 8151A				
2,4-D	0.000155 U	0.0000288 U	NA	NA
VOCs by EPA 8260C				
1,2,3-Trichloropropane	0.00049 U	0.00049 U	0.00049 U	0.00049 U
Benzene	0.00046 U	0.000533 U	0.00046 U	0.000533 U
Chlorobenzene	0.00053 U	0.000657 U	0.00053 U	0.000657 U
cis-1,2-Dichloroethene	0.000714 U	0.000714 U	0.000714 U	0.000714 U
Ethylbenzene	0.000411 U	0.000411 U	0.000411 U	0.000411 U
Tetrachloroethene	0.000801 U	0.000801 U	0.000801 U	0.000801 U
Toluene	0.000475 U	0.000475 U	0.000475 U	0.000475 U
Trichloroethene	0.000791 U	0.000791 U	0.000791 U	0.000791 U
Vinyl chloride	0.000638 U	0.000638 U	0.000638 U	0.000638 U
Xylenes, Total	0.00124 U	0.00124 U	0.00124 U	0.00124 U
Metals by EPA 6020				
Lead	0.000367 U	0.000112 U	NA	NA

Notes:

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

AAL = Attenuation Action Level

All results reported in milligrams per liter (mg/L)

NA = Not Analyzed

TRRP = Texas Risk Reduction Program

PCL = protectice concentration level

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Bold Italic = Exceeds the GWPS

[1] TRRP PCL = $^{GW}GW_{Ing}$ = Ingestion of COCs in Class 1 or 2 groundwater

Benzene is the only alayte required in CP Table IIIA for the west migration pathway and it is compared to the TRRP

CAO wells do not have a GWPS

U = Analyte was not detected at or above the SDL.

J = Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.

* = LCS or LCSD exceeds the control limits

L - The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

Table 12

Kinder Morgan Galena Park
West Plant Analytical Data
2023

Plant Area			West Plant											
Compliance Plan Table V Well Designation			POE		POE		POE		POE		AMP		AMP	
			MW-18		MW-25		MW-28		MW-26		MW-36		MW-30	
PCL Achieved?			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:														
Dichloroethane, 1,2-	1030	mg/L	0.00118 U	0.0118 U	0.0148 U	0.0118 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U
Benzene	1470	mg/L	0.00402	0.0107 J	0.0133 U	0.014 J	0.0032	0.00066 J	0.0417	0.0301	0.000533 U	0.00046 U	0.000533 U	0.00046 U
Chlorobenzene	2190	mg/L	0.00106 U	0.0106 U	0.0133 U	0.0106 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U
Dichloroethene, cis-1,2-	14200	mg/L	0.00143 U	0.0143 U	0.0179 U	0.0143 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U
Ethylbenzene	5180	mg/L	0.000822 U	0.00822 U	0.0103 U	0.00822 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U
Isopropylbenzene	4890	mg/L	0.00992	0.0123 U	4.07	3.23	0.0395	0.0257	0.0151	0.00558	0.000613 U	0.000613 U	0.000613 U	0.000613 U
Tetrachloroethylene	4470	mg/L	0.001600 U	0.016 U	0.0200 U	0.016 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U
Trichloroethylene	8490	mg/L	0.00158 U	0.0158 U	0.0198 U	0.0158 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U
Vinyl chloride	5760	mg/L	0.00128 U	0.0128 U	0.0160 U	0.0128 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U
Xylene (Total)	17700	mg/L	0.227	1.81	0.031 U	0.0248 U	0.0102	0.00874 J	0.00124 U	0.00124 U	0.001240 U	0.00124 U	0.001240 U	0.00124 U
SVOCs by 8270C LL:														
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 U	0.000278 U	0.000278 UJL	0.00278 U	0.000278 U	0.000278 U	0.00171 J	0.00257	0.00111 UJL	0.000278 UJL	0.000278 U	0.000278 U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Table 12

Kinder Morgan Galena Park
West Plant Analytical Data
2023

Plant Area			West Plant											
Compliance Plan Table V Well Designation			AMP		AMP				AMP		AMP		AMP	
			MW-37		MW-27				MW-38		MW-35		MW-20	
PCL Achieved?			Yes	Yes	Yes	DUP-1	Yes	DUP-1	Product in Well	Product in Well	Yes	Yes	Yes	Yes
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 08-15-23	Not Sampled 02-24-23	Not sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:														
Dichloroethane, 1,2-	1030	mg/L	0.00059 U	0.00059 U	0.118 U	0.118 U	0.148 U	0.148 U	NS	NS	0.00059 U	0.00059 U	0.00295 U	0.00118 U
Benzene	1470	mg/L	0.00203	0.0497	28.9	29.1	32.9	33.1	NS	NS	0.000533 U	0.00046 U	0.077	0.0437
Chlorobenzene	2190	mg/L	0.00053 U	0.00053 U	0.106 U	0.106 U	0.133 U	0.133 U	NS	NS	0.00053 U	0.00053 U	0.00265 U	0.00106 U
Dichloroethene, cis-1,2-	14200	mg/L	0.116	3.84	0.143 U	0.143 U	0.179 U	0.179 U	NS	NS	0.000714 U	0.000714 U	0.00357 U	0.00143 U
Ethylbenzene	5180	mg/L	0.000411 U	0.0217	1.69	1.67	2.71	2.7	NS	NS	0.000411 U	0.000411 U	0.0138	0.00301
Isopropylbenzene	4890	mg/L	0.000613 U	0.00249	0.123 U	0.123 U	0.153 U	0.153 U	NS	NS	0.000613 U	0.000613 U	0.505	0.277
Tetrachloroethylene	4470	mg/L	0.000801 U	0.000801 U	0.160 U	0.160 U	0.2 U	0.2 U	NS	NS	0.000801 U	0.000801 U	0.004010 U	0.0016 U
Trichloroethylene	8490	mg/L	0.000791 U	0.000791 U	0.158 U	0.158 U	0.198 U	0.198 U	NS	NS	0.000791 U	0.000791 U	0.00396 U	0.00158 U
Vinyl chloride	5760	mg/L	0.0913	5.9	0.128 U	0.128 U	0.16 U	0.16 U	NS	NS	0.000638 U	0.000638 U	0.00319 U	0.00128 U
Xylene (Total)	17700	mg/L	0.00124 U	0.0456	1.410 J	1.44 J	2.07 J	1.97 J	NS	NS	0.001240 U	0.00124 U	0.0062 U	0.00913 J
SVOCs by 8270C LL:														
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 UJL	0.000278 U	0.000278 U	0.000278 UJL	0.00278 U	0.00278 U	NS	NS	0.00111 U	0.000278 U	0.000278 U	0.00278 U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Table 12

Kinder Morgan Galena Park
West Plant Analytical Data
2023

Plant Area					West Plant		West Chem							
Compliance Plan Table V Well Designation			AMP		AMP		CAO		CAO		POE		AMP	
			MW-29		MW-31		MW-3		P-1		P-2		VMW-1	
PCL Achieved?			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:														
Dichloroethane, 1,2-	1030	mg/L	0.00118 U	0.00118 U	0.0118 U	0.0148 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00295 U	0.00118 U	0.00059 U	0.00059 U
Benzene	1470	mg/L	0.00107 U	0.000919 U	0.0107 U	0.0115 U	0.000533 U	0.00046 U	0.000533 U	0.00046 U	0.372	0.226	0.000533 U	0.00046 U
Chlorobenzene	2190	mg/L	0.191	0.159	0.0338	0.041	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.0568	0.0685	0.00053 U	0.00053 U
Dichloroethene, cis-1,2-	14200	mg/L	0.00143 U	0.00143 U	2.32	2.23	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.00357 U	0.00143 U	0.0031	0.00684
Ethylbenzene	5180	mg/L	0.000822 U	0.000822 U	0.00822 U	0.0103 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.00293 J	0.002	0.000411 U	0.000411 U
Isopropylbenzene	4890	mg/L	0.00123 U	0.00123 U	0.0123 U	0.0153 U	0.000613 U	0.000613 U	0.000613 U	0.000613 U	0.0118	0.0119	0.000613 U	0.000613 U
Tetrachloroethylene	4470	mg/L	0.001600 U	0.0016 U	0.016 U	0.02 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.004010 U	0.0016 U	0.000801 U	0.000801 U
Trichloroethylene	8490	mg/L	0.00158 U	0.00158 U	0.0158 U	0.0198 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.00396 U	0.00158 U	0.000791 U	0.000791 U
Vinyl chloride	5760	mg/L	0.00128 U	0.00128 U	0.053	0.0774	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.00319 U	0.00128 U	0.000638 U	0.00151 J
Xylene (Total)	17700	mg/L	0.002480 U	0.00248 U	0.0248 U	0.031 U	0.001240 U	0.00124 U	0.001240 U	0.00124 U	0.00686 J	0.0172 J	0.001240 U	0.00124 U
SVOCs by 8270C LL:														
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 UJL	0.000278 UJL	0.00111 UJL	0.000278 U	0.000278 U	0.000278 U	0.000278 UJL	0.000278 U	0.000278 UJL	0.000278 U	0.000278 U	0.000278 U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Table 12

Kinder Morgan Galena Park
West Plant Analytical Data
2023

Plant Area			West Chem					West Chem						
Compliance Plan Table V Well Designation			CAO			AMP		CAO		AMP		AMP		
			VMW-2			VMW-3		VMW-4		VMW-6		VMW-7		
PCL Achieved?			Yes	DUP-2	Yes	Product in Well	Product in Well	Yes	Yes	Yes	Yes	Yes	Yes	DUP-2
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 02-24-23	Sampled 08-15-23	Not Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 08-15-23
VOCs by 8260B:														
Dichloroethane, 1,2-	1030	mg/L	0.00059 U	0.00059 U	0.00059 U	NS	NS	0.00059 U	0.00059 U	0.0295 U	0.0295 U	0.00059 U	0.00059 U	0.00097 J
Benzene	1470	mg/L	0.000533 U	0.000533 U	0.00046 U	NS	NS	0.000533 U	0.00046 U	4.81	3.67	0.0964	0.0743	0.0882
Chlorobenzene	2190	mg/L	0.00053 U	0.00053 U	0.00053 U	NS	NS	0.0022	0.00317	1.58	0.825	0.00053 U	0.00053 U	0.00053 U
Dichloroethene, cis-1,2-	14200	mg/L	0.000714 U	0.000714 U	0.000714 UJ	NS	NS	0.00153	0.00398	2.17	0.746	0.0137	0.0111	0.0111
Ethylbenzene	5180	mg/L	0.000411 U	0.000411 U	0.000411 U	NS	NS	0.000411 U	0.000411 U	0.496	0.538	0.000411 U	0.000411 U	0.000411 U
Isopropylbenzene	4890	mg/L	0.0164	0.0128	0.011	NS	NS	0.000613 U	0.000613 U	0.0307 U	0.0307 U *	0.000613 U	0.000613 U	0.000613 U
Tetrachloroethylene	4470	mg/L	0.000801 U	0.000801 U	0.000801 U	NS	NS	0.000801 U	0.000801 U	0.0401 U	0.0401 U	0.000801 U	0.000801 U	0.000801 U
Trichloroethylene	8490	mg/L	0.000791 U	0.000791 U	0.000791 U	NS	NS	0.000791 U	0.000791 U	0.0396 U	0.0396 U	0.000791 U	0.000791 U	0.000791 U
Vinyl chloride	5760	mg/L	0.000638 U	0.000638 U	0.000638 U	NS	NS	0.000638 U	0.000638 U	0.281	0.14	0.0109	0.0105	0.0109
Xylene (Total)	17700	mg/L	0.001240 U	0.00124 U	0.00124 U	NS	NS	0.001240 U	0.00124 U	0.062 U	0.062 U	0.001240 U	0.00124 U	0.00124 U
SVOCs by 8270C LL:														
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 U	0.000278 U	0.000278 U	NS	NS	0.000278 UJL	0.000278 UJL	0.00278 UJL	0.062 U	0.000278 U	0.000278 U	0.000278 U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Table 12

Kinder Morgan Galena Park
West Plant Analytical Data
2023

Plant Area			West Chem				West Plant				West P	
Compliance Plan Table V Well Designation			CAO				Recovery Wells				Recovery	
			VMW-9				MW-23		MW-39		OB-1	
PCL Achieved?			Yes	Yes			No	No	No	Yes	Yes	Yes
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 08-15-23	TRRP GW PCL	Units	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:												
Dichloroethane, 1,2-	1030	mg/L	0.00059 U	0.00059 U	0.005	mg/L	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U	0.00059 U
Benzene	1470	mg/L	0.0568	0.0111	0.005	mg/L	*0.00573*	*0.00563*	*0.0067*	0.00462	0.000533 U	0.00046 U
Chlorobenzene	2190	mg/L	0.00311	0.00268	0.1	mg/L	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U
Dichloroethene, cis-1,2-	14200	mg/L	0.0269	0.0173	0.07	mg/L	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U	0.000714 U
Ethylbenzene	5180	mg/L	0.000411 U	0.000411 U	0.7	mg/L	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U	0.000411 U
Isopropylbenzene	4890	mg/L	0.000613 U	0.000613 U	7.3	mg/L	0.000613 U	0.000613 U	0.000613 U	0.000613 U	0.0196	0.00706
Tetrachloroethylene	4470	mg/L	0.000801 U	0.000801 U	0.005	mg/L	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U	0.000801 U
Trichloroethylene	8490	mg/L	0.00153 J	0.000791 U	0.005	mg/L	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U	0.000791 U
Vinyl chloride	5760	mg/L	0.00366	0.00251	0.002	mg/L	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U	0.000638 U
Xylene (Total)	17700	mg/L	0.001240 U	0.00124 U	10	mg/L	0.001240 U	0.00124 U	0.001240 U	0.00124 U	0.001240 U	0.00124 U
SVOCs by 8270C LL:												
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 U	0.000278 U	0.0019	mg/L	0.000278 U	0.000278 U	0.000403 JL	0.00278 U	0.000278 U	0.000278 U

Plant Area			OB-3	
Compliance Plan Table V Well Designation			Recovery	
			OB-3	
PCL Achieved?			No	No
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:				
Dichloroethane, 1,2-	1030	mg/L	0.00059 U	0.00059 U
Benzene	1470	mg/L	*0.0104*	*0.00925*
Chlorobenzene	2190	mg/L	0.00053 U	0.00053 U
Dichloroethene, cis-1,2-	14200	mg/L	0.000714 U	0.000714 U
Ethylbenzene	5180	mg/L	0.000411 U	0.000411 U
Isopropylbenzene	4890	mg/L	0.000613 U	0.000613 U
Tetrachloroethylene	4470	mg/L	0.000801 U	0.000801 U
Trichloroethylene	8490	mg/L	0.000791 U	0.000791 U
Vinyl chloride	5760	mg/L	0.000638 U	0.000638 U
Xylene (Total)	17700	mg/L	0.001240 U	0.00124 U
SVOCs by 8270C LL:				
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 UJL	0.00278 U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{Ing}$)

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Table 12

Kinder Morgan Galena Park
West Plant Analytical Data
2023

Plant Area			lant			
Compliance Plan Table V Well Designation			Wells			
			RW-01		RW-25R	
PCL Achieved?			Yes	Yes	Yes	Yes
Analytes	GWPS	Units	Sampled 02-24-23	Sampled 08-15-23	Sampled 02-24-23	Sampled 08-15-23
VOCs by 8260B:						
Dichloroethane, 1,2-	1030	mg/L	0.00059 U	0.00059 U	0.00059 U	0.00059 U
Benzene	1470	mg/L	0.000533 U	0.00046 U	0.000533 U	0.00046 U
Chlorobenzene	2190	mg/L	0.00104	0.00127	0.00053 U	0.00053 U
Dichloroethene, cis-1,2-	14200	mg/L	0.000714 U	0.000714 U	0.000714 U	0.000714 UJ
Ethylbenzene	5180	mg/L	0.000411 U	0.000411 U	0.000411 U	0.000411 U
Isopropylbenzene	4890	mg/L	0.0524	0.0342	0.0076	0.00712
Tetrachloroethylene	4470	mg/L	0.000801 U	0.000801 U	0.000801 U	0.000801 U
Trichloroethylene	8490	mg/L	0.000791 U	0.000791 U	0.000791 U	0.000791 U
Vinyl chloride	5760	mg/L	0.000638 U	0.000638 U	0.000638 U	0.000638 U
Xylene (Total)	17700	mg/L	0.001240 U	0.00124 U	0.001240 U	0.00124 U
SVOCs by 8270C LL:						
Bis(2-Chloroethyl)ether	110	mg/L	0.000278 U	0.000278 U	0.000278 U	0.00278 U

Notes:

Recovery wells are compaterd to the Texas Risk Reduction Program residential groundwater injestion Protective Concentration Limit ($^{GW}GW_{I}$

GWPS - Groundwater Protection Standard as listed in CP Table IIIA of HW permit 50054

(mg/L) - Milligrams per liter

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B - Compound was found in the blank and sample

H - Sample was prepped or analyzed beyond the specified holding time

* - Laboratory Control Sample (LCS) or LCS Duplicate exceeds the control limits

- - Not reported

NS - Not sampled

F - RPD exceeded lab control limits.

U - Indicates the analyte was analyzed for but not detected.

Bold Italic - Exceeds GWPS

NA - Not applicable

D - The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Orange highlight - The laboratory method detection limit (MDL) is higher than the PCL

POE = Point of Exposure

AMP = Attenuation Monitoring Point

CAO = Corrective Action Observation

Table 13

TCI Groundwater Analytical Data Summary
February 2023

Well ID	Date	Analyte						PCL Exceeded?
		Benzene	Ethylbenzene	Toluene	Xylene	Styrene	Arsenic	
	GWPS	0.005	0.7	1	10	0.1	0.01	
AMP-2	2/23/2023	**91.7**	**0.463**	**1.24**	**0.477 J**	<0.0655 U	**0.0236**	Y
MW-10 TCI	2/23/2023	**216**	**0.388**	**4.38**	**0.382 J**	<0.0655 U	**0.0180**	Y
MW-12 TCI	2/23/2023	**67.7**	**0.231**	**11.6**	**0.335 J**	**0.0914 J**	**0.00936 J**	Y
MW-18-TCI	2/23/2023	<0.000533 U	<0.000411 U	<0.000475 U	<0.00124 U	<0.000655 U	<0.00805 U	N
MW-19-TCI	2/23/2023	<0.000533 U	<0.000411 U	<0.000475 U	<0.00124 U	<0.000655 U	**0.00997 J**	N
RW-3	2/23/2023	**1.61**	<0.0206 U	<0.0238 U	<0.0620 U	<0.0328 U	**0.00943 J**	Y
RW-5	2/23/2023	**0.356**	<0.00206 U	**0.00400 J**	**0.0165 J**	<0.00328 U	**0.0423 J**	Y
MW-04-TCI	2/23/2023	**0.156**	<0.000822 U	**0.00138 J**	<0.00248 U	<0.00131 U	**0.0894**	Y
Duplicate (RW-5)	2/23/2023	**0.355**	<0.00206 U	**0.00403 J**	**0.0170 J**	<0.00328 U	**0.0752 J**	Y

Notes:

Concentrations exceed the TCEQ TRRP Tier 1 $^{GW}GW_{Ing}$ PCL

All concentrations are reported in milligrams per liter (mg/L)

J - Estimated concentration

GWPS - Groundwater Protection Standard

U – Not detected.

Table 14
Historical Groundwater Concentration Summary
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park Texas

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-1	07/31/15	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
(8-foot Sump)	02/25/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	06/16/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/14/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NS	NS	NS	NS	NS	NS	NS
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-2	07/31/15	**0.00415**	**0.000378 J**	**0.000568 J**	**0.0055**	**0.00514**	**0.000196 J**	0.0000777 U
	02/25/16	**0.124**	**0.0145**	**0.00145**	**0.0168**	**0.0298**	**0.0203**	**0.062**
	06/16/16	**0.0974**	**0.00826**	**0.00103**	**0.0164**	**0.127**	**0.128**	**0.355**
	09/09/16	**0.0846**	**0.00866**	**0.00114**	**0.0173**	**0.0387**	**0.0352**	**0.079**
	01/24/18	**0.0163**	**0.00236**	**0.000411 J**	**0.00833**	0.000190 U	0.000140 U	0.000160 U
	08/30/18	**0.0777**	**0.0495**	**0.00208**	**0.0469**	0.000189 U	0.000135 U	**0.000551 J**
	03/01/19	**0.0409**	**0.0205**	**0.00116**	**0.0145**	**0.00989**	**0.00931**	0.000160 U
	08/29/19	**0.0522**	**0.00790**	**0.00137**	**0.0161**	**0.0683**	**0.0629**	**0.0743**
	02/14/20	**0.0515**	**0.00416**	**0.00112**	**0.0143**	**0.0161 J**	**0.0130 J**	**0.0159 J**
	07/27/20	**0.0420**	**0.00225**	**0.000692 J**	**0.0104**	**0.0137 J**	**0.00946 J**	**0.00275 J**
	01/20/21	**0.0438**	**0.0033**	**0.00086 J**	**0.0112**	**0.0116**	**0.0098**	**0.0052**
	07/01/21	**0.0277**	**0.000943 J**	**0.00075 J**	**0.0120**	**0.00868**	**0.00674**	**0.00126**
	01/13/22	**0.0731**	**0.0640**	**0.00270**	**0.0455**	**0.0458 JL**	**0.0628 JL**	**0.561 J**
	Duplicate	**0.0717**	**0.0628**	**0.00263**	**0.0458**	**0.0554**	**0.0768**	**0.82 J**
	07/28/22	**0.0460**	**0.00144**	**0.00111**	**0.0174**	0.000333 UJL	0.000480 UJL	0.000423 UJL
	Duplicate	**0.0451**	**0.00146**	**0.00112**	**0.0175**	**0.0083 J**	0.000480 U	**0.0105 J**
	01/30/23	**0.0109**	**0.00183**	**0.000735 J**	**0.0124**	**0.0238**	**0.00244 ***	**0.0468**
	Duplicate	**0.0113**	**0.00181**	**0.000743 J**	**0.0126**	**0.0262**	**0.00273 ***	**0.0562**
	07/21/23	**0.0111**	**0.0196**	**0.00113**	**0.0170**	**0.0872 J**	**0.0715 J**	**1.31 J**
	Duplicate	**0.00905**	**0.0162**	**0.00104**	**0.0151**	**0.062 J**	**0.0478 J**	**0.731 J**
OPHMW-3	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	09/09/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	08/30/18	0.000176 U	**0.000602 J**	0.000198 U	**0.000488 J**	0.000183 U	0.000135 U	**0.000299 J**
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	**0.000562 J**
	08/29/19	0.000176 U	0.000212 U	**0.000536 J**	0.000366 U	0.000190 U	0.000140 U	0.000284 J
	02/14/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	**0.000321 J**	**0.000239 J**
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	**0.000368 J**	0.000480 U	**0.000442 J**
	01/30/23	0.000551 U	0.00124 U	0.000533 U	0.000411 U	0.000333 U	0.00048 U *	0.000423 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-4	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	**0.0233**	**0.0526**	**0.0266**
	09/09/16	0.000176 U	**0.000272 J**	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/28/19	0.000176 U	0.000212 U	**0.000534 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 U
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	**0.00076 J**
	01/30/23	0.000475 U	0.000551 U	0.000411 U	0.00124 U	0.000333 U	0.000423 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-5	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	09/09/16	**0.000305 J**	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	**0.000413 J**	**0.000766 J**	**0.00297**

Table 14
Historical Groundwater Concentration Summary
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park Texas

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-5	08/30/18	**0.000272 J**	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/28/19	0.000176 U	0.000212 U	**0.000535 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	07/27/20	**0.000733 J**	0.000212 U	0.000198 U	**0.000655 J**	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.00071 J	0.00036 J	0.0005 U	0.00078 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 U
	07/28/22	0.000533	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.00124 U	0.000533 U	0.000551 U	0.000475 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-6	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	**0.000231 J**	**0.00033 J**	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	09/09/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	**0.00312**	**0.00159**	**0.000277 J**	**0.00158 J**	**0.000451 J**	**0.000715 J**	**0.00140 J**
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	08/29/19	0.000176 U	0.000212 U	**0.000523 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/14/20	0.000176 U	0.000212 U	0.000198 U	**0.000382 J**	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.00054 J	0.00024 J	0.0005 U	0.00077 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	**0.000358 J**	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	**0.00131 J**	0.000333 U	0.000480 U	**0.000625 J**
	01/30/23	0.000475 U	0.00124 U	0.000533 U	0.00124 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-7	07/31/15	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/25/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	06/16/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	**2.20**	**1.81**	**0.101 J**	**2.74**	**0.096**	**0.117**	**0.305**
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/13/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-8	02/25/16	**8.75**	**3.26**	**0.145**	**2.51**	**0.103**	**0.156**	**0.707**
	06/16/16	**12**	**4.57**	**0.167 J**	**4.57**	**0.108 J**	**0.204**	**1.13**
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/13/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-9	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000183 U	0.0000135 U	0.0000154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	08/29/19	0.000176 U	0.000212 U	**0.000443 J**	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	02/14/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.000475 U	0.000533 U	0.000551 U	0.00124 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U

Table 14
Historical Groundwater Concentration Summary
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park Texas

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-10	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00183 U	0.00135 U	0.00154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	**0.000570 J**
	08/28/19	0.000176 U	0.000212 U	**0.000484 J**	**0.000633 J**	0.00183 U	0.00135 U	0.00154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00190 U	0.00140 U	0.00160 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00190 U	0.00140 U	0.00160 U
	01/20/21	0.00031 J	0.0002 J	0.0005 U	0.00066 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	**0.000362 J**	**0.000671 J**	**0.000555 J**
	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000423 U	0.000333 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-11	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000183 U	0.0000135 U	0.0000154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	08/28/19	0.000176 U	0.000212 U	**0.000499 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	01/20/21	0.000214 U	0.0005 U	0.000192 U	0.000146 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	**0.000598 J**
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.000411 U	0.000533 U	0.000475 U	0.000551 U	0.000333 U	0.000423 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
TRIP BLANK	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	NA	NA	NA
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
EQUIPMENT BLANK	01/30/23	0.00124 U	0.000475 U	0.000411 U	0.00124 U	0.000423 U	0.000480 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
FIELD BLANK	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000423 U	0.000480 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U

Notes:

GWPS - Groundwater Protection Standard

Concentrations in **Bold** exceed the SDL

Acronyms

J - Estimated concentration between the SDL and the MQL

U - Not detected at the SDL

SDL - Sample Detection Limit

NAPL - Non-aqueous phase liquid

L - Bias in sample result is likely low.

* - LCS or LCSD is outside acceptance limits.

Table 15

WEEKLY PUMP RATES

NHB, SEHB, CP PMZ, WP/WC PMZ, and TCI
KM Liquids Terminals LLC
Galena Park Terminal

Week of	Instantaneous Pump Rate (gpm)					Average Pump Rate (gpm)				
	NHB	SEHB	CP PMZ	WP/WC PMZ	TCI	NHB	SEHB	CP PMZ	WP/WC PMZ	TCI
01/02/23	13.74	9.02	0.00	2.40	0.00	8.42	31.66	0.00	1.04	0.00
01/09/23	13.74	9.02	0.00	1.66	0.00	8.02	29.11	0.00	1.17	0.00
01/16/23	13.74	9.02	0.00	1.66	0.00	10.87	30.86	0.00	1.44	0.00
01/23/23	13.74	9.02	0.00	1.66	0.00	8.25	32.82	0.00	1.06	0.00
01/30/23	13.74	8.69	0.00	1.66	0.00	8.69	35.16	0.00	1.23	0.00
02/06/23	13.74	11.06	0.00	1.66	0.00	9.47	31.77	0.00	1.28	0.00
02/13/23	13.74	11.06	0.00	1.48	0.00	9.53	32.51	0.00	1.21	0.82
02/20/23	13.74	11.06	0.00	1.48	0.00	9.33	32.11	0.00	1.17	0.18
02/27/23	13.74	11.06	0.00	1.48	4.21	9.06	34.54	0.00	0.91	0.81
03/06/23	13.74	11.06	0.00	1.48	4.21	8.64	33.02	0.00	1.20	0.56
03/13/23	13.74	11.06	0.00	1.48	4.21	7.48	32.11	0.00	1.14	0.84
03/20/23	13.74	11.06	0.00	1.48	4.21	9.13	31.84	0.00	1.07	0.60
03/27/23	13.74	11.06	0.00	1.48	4.21	6.95	32.86	0.00	1.11	1.50
04/03/23	13.74	11.06	0.00	1.48	4.07	8.77	30.52	0.00	1.07	4.03
04/10/23	13.74	10.19	0.00	1.48	4.07	8.67	30.27	0.00	1.17	3.89
04/17/23	13.74	10.19	0.00	1.48	4.21	8.99	33.60	0.00	0.90	3.64
04/24/23	13.74	10.19	0.00	1.48	4.21	7.72	31.07	0.00	1.01	4.21
05/01/23	13.74	10.19	0.00	1.48	4.21	5.40	29.38	0.00	1.12	4.32
05/08/23	13.74	8.14	0.00	1.48	4.21	5.28	32.41	0.00	1.09	4.50
05/15/23	13.74	8.14	0.00	1.48	4.21	8.11	34.21	0.00	1.20	5.34
05/22/23	13.74	10.19	0.00	1.48	4.21	9.53	34.12	0.00	1.33	4.33
05/29/23	13.74	10.19	0.00	1.48	4.21	8.45	33.48	0.00	1.30	4.72
06/05/23	13.74	10.19	0.00	1.48	4.21	9.14	35.28	0.00	1.29	4.20
06/12/23	13.74	10.19	0.00	1.48	4.21	6.36	32.66	0.00	1.35	5.06
06/19/23	13.74	8.14	0.00	1.48	4.21	5.12	35.05	0.00	1.29	3.94
06/26/23	12.66	7.82	0.00	1.48	4.21	11.33	31.10	0.00	1.29	4.25
07/03/23	11.76	7.82	0.00	1.48	4.21	9.66	30.73	0.00	1.25	2.81
07/10/23	11.76	7.82	0.00	1.48	4.21	9.90	35.68	0.00	1.26	2.92
07/17/23	11.76	8.14	0.00	1.48	4.21	11.18	33.74	0.00	1.17	3.29
07/24/23	11.76	8.14	0.00	1.48	4.21	10.89	34.04	0.00	1.12	2.78
07/31/23	11.76	8.14	0.00	1.48	4.21	12.01	35.65	0.00	1.09	2.62
08/07/23	0.00	8.14	0.00	1.48	4.21	0.00	37.60	0.00	1.03	1.72
08/14/23	0.00	8.14	0.00	1.48	4.21	0.00	28.97	0.00	0.98	15.70

Table 15

WEEKLY PUMP RATES

NHB, SEHB, CP PMZ, WP/WC PMZ, and TCI
KM Liquids Terminals LLC
Galena Park Terminal

Week of	Instantaneous Pump Rate (gpm)					Average Pump Rate (gpm)				
	NHB	SEHB	CP PMZ	WP/WC PMZ	TCI	NHB	SEHB	CP PMZ	WP/WC PMZ	TCI
08/21/23	11.76	8.14	0.00	1.48	4.21	0.00	38.84	0.00	0.96	13.12
08/28/23	11.76	8.14	0.00	1.48	4.21	2.01	35.10	0.00	0.89	2.24
09/04/23	13.03	8.14	0.00	1.48	4.21	7.74	35.73	0.00	0.96	1.23
09/11/23	13.03	8.14	0.00	1.48	4.21	5.90	35.99	0.00	0.87	1.62
09/18/23	0.00	8.14	0.00	1.48	4.21	0.00	33.50	0.00	0.48	2.75
09/25/23	0.00	8.14	0.00	1.48	4.21	0.00	39.42	0.00	0.25	3.05
10/02/23	0.00	8.14	0.00	1.48	4.21	0.00	38.11	0.00	0.98	4.13
10/09/23	0.00	8.14	0.00	1.48	4.21	0.00	24.67	0.00	1.00	4.74
10/16/23	0.00	8.14	0.00	1.48	4.21	0.00	49.66	0.00	0.95	2.00
10/23/23	0.00	8.14	0.00	1.48	4.21	0.00	54.69	0.00	0.97	3.19
10/30/23	0.00	8.14	0.00	1.48	4.21	0.00	46.15	0.00	0.98	3.54
11/06/23	0.00	8.14	0.00	1.48	4.21	0.00	52.28	0.00	0.96	3.49
11/13/23	0.00	8.14	0.00	1.48	4.21	0.00	48.38	0.00	0.94	3.07
11/20/23	0.00	8.14	0.00	1.48	3.21	0.00	52.55	0.00	0.99	1.78
11/27/23	0.00	8.14	0.00	1.48	3.21	0.00	46.12	0.00	0.94	2.69
12/04/23	0.00	8.14	0.00	1.48	3.21	0.00	49.32	0.00	0.98	2.22
12/11/23	0.00	8.14	0.00	1.48	4.20	0.00	47.49	0.00	1.02	1.67
12/18/23	0.00	8.14	0.00	1.48	4.20	0.00	53.43	0.00	1.11	1.83
12/25/23	0.00	NM	0.00	NM	NM	0.00	NM	0.00	NM	NM

gpm -gallons per minute
N/A - Not Applicable
NM - not measured

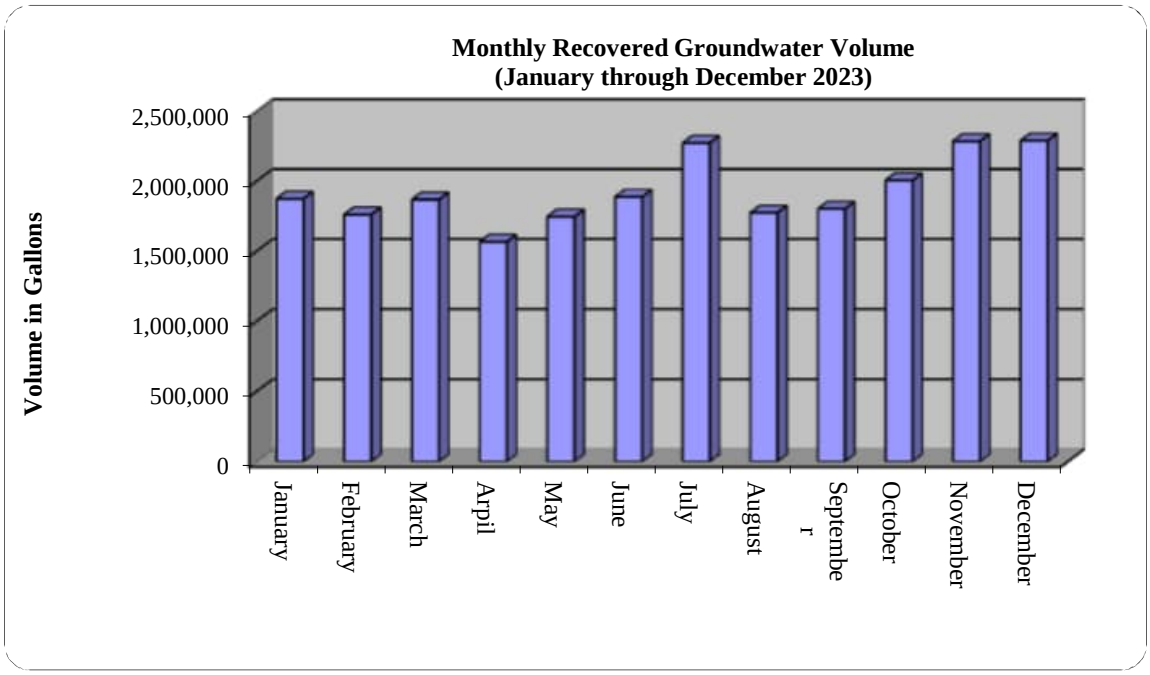
Table 16

FLUID RECOVERY TOTALS

KM Liquids Terminals LLC
Galena Park Terminal

Month	Estimated 2023 Monthly Total Fluid Volume Recovered (gallons)	Estimated 2023 Monthly Total LNAPL Volume Recovered (gallons)
January	1,876,229	1,023
February	1,763,185	860
March	1,870,850	799
Arpil	1,569,099	677
May	1,748,734	1,089
June	1,889,628	1,292
July	2,274,832	663
August	1,776,081	586
September	1,804,431	535
October	2,007,481	517
November	2,287,103	806
December	2,290,803	942

First Quarter 2023 Totals:	**5,510,264**	**2,682**
Second Quarter 2023 Totals:	**5,207,461**	**3,057**
Third Quarter 2023 Totals:	**5,855,344**	**1,784**
Fourth Quarter 2023 Totals:	**6,585,387**	**2,265**
2023 Total	**23,158,455**	**9,788**



Note: LNAPL reported in Table 16 is from the SEHB NTRW and OPH5 from January 1 to December 31, 2023. LNAPL is not present and/or recovered by recovery well from NHB, WP/WC PMZ, CP PMZ, or TCI.

Table 17

MAINTENANCE SYSTEM SHUTDOWNS

NHB, SEHB, CP PMZ, WP/WC PMZ,
TCI, and OPH5
KM Liquids Terminals LLC
Galena Park Terminal

Maintenance Summary							
Issue:		***Replace Piping or Equipment***		***Pumping Counter***		***Pump Maintenance***	
Monitor Well	**Date Installed**	**Date Discovered**	**Date Fixed**	**Date Discovered**	**Date Fixed**	**Date Discovered**	**Date Fixed**
SEHB							
MW-5	2/15/1989	4/13/2023				4/13/2023	
MW-7	1/2/1990						
MW-10	1/4/1990						
MW-13	1/10/1990			3/2/2023	3/2/2023		
				6/1/2023	6/1/2023		
				8/17/2023	8/17/2023		
				10/20/2023	10/20/2023		
MW-24R	12/21/2005						
MW-25	2/16/1990					1/5/2023	1/27/2023
						2/2/2023	2/7/2023
						5/11/2023	5/12/2023
						6/21/2023	
MW-26	2/20/1990	1/5/2023	2/7/2023	9/14/2023	9/14/2023		
		6/1/2023	6/14/2023				
MW-30	unknown						
MW-33	unknown						
MW-34	unknown	1/27/2023	2/2/2023				
RW-1	11/14/1988						
RW-2	11/14/1988						
North Trench	unknown						
South Trench	unknown						
NHB							
MW-4	2/14/1990					1/5/2023	
MW-6	11/18/1991	4/5/2023	4/6/2023	4/19/2023	4/19/2023	6/14/2023	6/23/2023
						6/28/2023	7/6/2023
MW-7	11/22/1991			4/19/2023	4/19/2023		
MW-11	6/3/1993						
MW-12	5/28/1993						
MW-15	6/1/1993	2/7/2023	2/7/2023				

Table 17

MAINTENANCE SYSTEM SHUTDOWNS

NHB, SEHB, CP PMZ, WP/WC PMZ,
TCI, and OPH5
KM Liquids Terminals LLC
Galena Park Terminal

Maintenance Summary							
Issue:		***Replace Piping or Equipment***		***Pumping Counter***		***Pump Maintenance***	
Monitor Well	**Date Installed**	**Date Discovered**	**Date Fixed**	**Date Discovered**	**Date Fixed**	**Date Discovered**	**Date Fixed**
NHB, continued							
RW-16	6/15/1994	1/5/2023				1/5/2023	
RW-17	6/15/1994	4/26/2023	5/18/2023	5/24/2023	5/24/2023		
				8/3/2023	8/3/2023		
CP PMZ (POE-2)							
POE-2	9/1/2008	Well intentionally deactivated since May 9, 2019					
WP/WC PMZ							
RW-1	8/1/2011						
OB-1	3/28/2011						
RW-25R	8/2/2011						
MW-39	2/6/2008						
MW-23	2/15/1990	11/14/2023	small leak				
OB-3	3/28/2011			12/12/2023	12/12/2023		
TCI							
RW-1	4/14/2011	11/3/2023	air reg				
		11/14/2023	vault lid				
RW-2	4/14/2011	5/12/2023	6/2/2023			5/19/2023	6/2/2023
		10/20/2023	lid				
		11/3/2023	air reg				
POE-1	10/24/2008	5/26/2023	5/26/2023			12/15/2023	offline
		10/20/2023	lid				
		11/3/2023	11/9/2023				
RW-3	4/14/2011	6/2/2023	6/2/2023			5/12/2023	5/19/2023
		11/3/2023	air reg				
		11/14/2023	lid				
RW-4	3/29/2011	11/3/2023	air reg			11/14/2023	12/15/2023
RW-5	4/14/2011	5/5/2023	hinge			8/11/2023	11/14/2023
		11/3/2023	11/14/2023			12/15/2023	may need to replace
POE-3	10/24/2008	3/16/2023	3/16/2023				
MW-9	unknown	4/7/2023	6/12/2023	6/22/2023	6/22/2023	10/27/2023	10/27/2023
		11/3/2023	label				
RW-6	11/12/2012	4/25/2023	hinge				
		10/20/2023	11/9/2023				
RW-7	11/12/2011	10/20/2023	corrosion	7/7/2023	7/7/2023		
		11/3/2023	11/9/2023				

Table 17

MAINTENANCE SYSTEM SHUTDOWNS

NHB, SEHB, CP PMZ, WP/WC PMZ,
TCI, and OPH5
KM Liquids Terminals LLC
Galena Park Terminal

Maintenance Summary							
Issue:		***Replace Piping or Equipment***		***Pumping Counter***		***Pump Maintenance***	
Monitor Well	**Date Installed**	**Date Discovered**	**Date Fixed**	**Date Discovered**	**Date Fixed**	**Date Discovered**	**Date Fixed**
TCI Continued							
RW-8	11/13/2012	8/18/2023	8/18/2023				
		11/3/2023	11/9/2023				
RW-9	11/12/2012						
TMW-21	12/12/2013						
OPH5							
No groundwater recovery systems							

System Shut Down Summary			
System Shutdown	**Reason for Shutdown**	**Date Shut Down**	**Date Restarted**
NHB	system shut down to replace ball valve on MW-4	01/12/23	01/12/23
	system shut down due to water coming to the surface near MW-7	08/03/23	08/30/23
	system shut down due to nitrogen leak	09/14/23	
SEHB	System not shut down during the reporting period		
CP PMZ (POE-2)	System not activated during reporting period		
WP/WC PMZ	System shut down due to hot work next to the sump where the system discharges	09/19/23	09/27/23
TCI	System shut down due to breaks in the lines after a December freeze event.	01/06/23	02/17/23

AECP< Technical Services Inc.
19219 Katy Freeway, Suite 100
Houston, Texas 77094

aecom.com

ATTACHMENT X

Response Action Completion Report

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION				REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION	
Site Name:	**KM Liquids Terminals LLC - Galena Park Terminal**			Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No	
Address 1:	**906 Clinton Drive**			Program Area:	**IHW CORRECTIVE ACTION**
Address 2:				Mail Code:	**MC-127**
City:	**Galena Park**	State:	**Texas**	Is This A New Site To This Program Area? ☐ Yes ☑ No	
Zip Code:	**77547**	County:	**Harris**	**TCEQ Facility ID No.:**	**30573**
TCEQ Region:	**Region 12 - Houston**			**--Leave This Field Blank--**	**--Leave This Field Blank--**

DOCUMENT(S) IDENTIFICATION

	PHASE OF REMEDIATION	DOCUMENT NAME
1.	**CLOSURE**	**RESPONSE ACTION COMPLETION REPORT (RACR) FOR REMEDY STANDARD B**
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name:	**Johnny Kennedy**				
Company:	**KM Liquids Terminals LLC**	Phone Number:	**(713) 654-6035**	Fax Number:	
Address 1:	**1500 Clinton Drive**	City:	**Galena Park**	State: **Texas**	Zip Code: **77547**
Address 2:		Email Address:	[redacted]		

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name:	**Ryan Carroll**				
Company:	**Tetra Tech, Inc.**	Phone Number:	**(832)-251-5160**	Fax Number:	
Address 1:	**1500 CityWest Blvd.**	City:	**Houston**	State: **Texas**	Zip Code: **77042**
Address 2:		Email Address:	[redacted]		

TCEQ INTERNAL USE ONLY

Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**RACR B**	4.	
2.		5.	
3.			

KINDER MORGAN
KM Liquids Terminals LLC

June 4, 2024

Ms. Sifuentes-Chavez
Project Manager, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality
Building D, MC-127
12100 Park 35 Circle
Austin, Texas 78753

Re: Report Transmittal – Response Action Completion Report, Old Pump House No. 5 Area of Concern, East Plant
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
ISWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA I.D. No. TXD026481523

Dear Ms. Sifuentes-Chavez:

Please find enclosed one hard copy and one electronic copy of the Response Action Completion Report (RACR) for the Old Pump House No. 5 (OPH5) Area of Concern (AOC) located in the East Plant on the KM Liquids Terminals LLC (KMLT) Galena Park Terminal. This RACR was prepared to document the completion of response actions for groundwater and soil at OPH5 in accordance with the above-referenced Hazardous Waste Permit and Compliance Plan.

KMLT is proposing to remove the corrective action groundwater monitoring requirements for OPH5 from Compliance Plan (CP) Tables III, IIIA, and V as part of the renewal of the Hazardous Waste Permit and Compliance Plan. In addition, the status of OPH5 in CP Table II will be updated to closed with the date that the remedy standard was completed. The Hazardous Waste Permit and Compliance Plan renewal application will be submitted to the Texas Commission on Environmental Quality (TCEQ) by July 7, 2024.

If you have any questions regarding this submittal or require additional information, please feel free to contact me at (713) 654-[redacted]

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy
Remediation Manager

Enclosure

cc: Waste Program Manager – TCEQ Region 12, Houston, Texas

RESPONSE ACTION COMPLETION REPORT

OLD PUMP HOUSE NO. 5 AREA OF CONCERN
(EAST PLANT)

KM LIQUIDS TERMINALS LLC

GALENA PARK TERMINAL
906 CLINTON DRIVE
GALENA PARK, HARRIS COUNTY, TEXAS

Prepared for:

KM Liquids Terminals LLC
906 Clinton Drive
Galena Park, TX 77547

Prepared by:



1500 CITYWEST BLVD., SUITE 1000
HOUSTON, TEXAS 77042

JUNE 4, 2024

ATTACHMENTS

Attachment 1A-1	Groundwater Potentiometric Surface Map – July 2023
Attachment 1A-2	Groundwater Concentration Map – July 2023
Attachment 1C-1	Response Action Design
Attachment 2A	Plume Management Zone Map

APPENDICES

Appendix 1	References
Appendix 3	Deed Notice
Appendix 4	Historical Data Tables
Appendix 9	Historical Reports and TCEQ Correspondence

Executive Summary	Page 1 of 5	
	ID No. 30573	**Report Date:** June 4, 2024

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Response Action Completion Report
Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) 30573
check one: X Initial RACR submittal for this on-site property ___ Subsequent RACR submittal
Report date: June 4, 2024 TCEQ Region No.: 12

TCEQ Program (check one)

X Corrective Action (Mail Code 127)
___ Voluntary Cleanup Program (Mail Code 221)
___ Petroleum Storage Tank Program (Mail Code 137)
___ Superfund PRP Lead (Mail Code 143)
___ Municipal Solid Waste Permits (Mail Code 124)

On-Site Property Information

On-Site Property Name: KM Liquids Terminals LLC
Street no. 906 Pre dir: ____ Street name: Clinton Street type: Drive Post dir: ___
City: Galena Park County: Harris County Code: 101 Zip: 77547
Nearest street intersection or location description: Federal Road

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29.732350°
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 95.225690°

Off-Site Affected Property Information

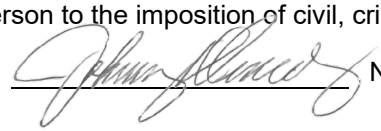
Off-Site Affected Property Name: ____
Street no. ____ Pre dir: ___ Street name: ____ Street type: ____ Post dir: ___
City: ____ County: ____ County Code: ____ Zip: ____

____ Check if there are no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: KM Liquids Terminals LLC
Contact Person: Johnny Kennedy Title: Remediation Manager
Mailing Address: 1500 Clinton Drive
City: Galena Park State: TX Zip: 77520 E-mail address [redacted]
Phone: (713) 654-6035 Fax: (713) 654-6020

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person  Name, print: Johnny Kennedy Date: 6/3/2024

Check the reports/forms submitted:

Remedy Standard A

___ Self-Implementation Notice Submittal date: _____

___ Response Action Plan - Approval date: _____

Remedy Standard B

X Response Action Plan - Approval date: April 10, 2018

List all media (surface soil, subsurface soil, groundwater, sediment, surface water, air) that contained or contains a PCLE zone and specify the response action taken for each media. Indicate the type of removal, decontamination, physical control, or institutional control action that was used in the response action. If a media with a PCLE zone was not addressed in the response action, provide an explanation below.

Media	COCs[1]	Removal	Decontamination	Physical Control	Institutional Control	Modified Response Objective[2]		
						PMZ	WCU	TI
Surface Soil	VOCs/SVOCs	--	--		Deed Notice	X	--	--
Subsurface Soil	VOCs/SVOCs	--	--		Deed Notice	X	--	--
Groundwater	VOCs/SVOCs LNAPL	X (LNAPL)	MNA		Deed Notice	X	--	--

Is there a media that contains a PCLE zone that was not addressed in the response action? yes ___ X no ___

If yes, provide justification for not addressing the PCLE zone in the response action.

Not Applicable

Current land use of the on-site affected property: ___ Residential X Commercial/industrial

Projected future land use of the on-site property (if known): ___ Residential X Commercial/industrial

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).

[2] If a modified groundwater response objective was used, check the type(s) of modifications.

Explain why you believe the response action to be complete.

Old Pump House No. 5 (OPH5) is located in the East Plant of the KM Liquids Terminals LLC (KMLT) Galena Park Terminal. The site of the KMLT Galena Park Terminal has been used for heavy industrial purposes since prior to 1928 and was the site of a former Texaco oil refinery. Old Pump House No. 5 has been present in East Plant since at least 1944 and is currently used to transfer product from locations within the Galena Park terminal and from onsite storage to nearby barge or ship docks.

During an inspection of the subgrade containment area associated with the pump house, seeps of oily liquids into a below-grade concrete containment area were observed on the north and west walls. To evaluate the nature of the seeps and identify a potential source, soil borings were completed adjacent to and outside the containment in the area of the seeps on July 18, 2014. The results of the July 2014 investigation showed that light non-aqueous phase liquids (LNAPL) was present in the subsurface. A fingerprint analysis of the LNAPL indicated that the LNAPL was a weathered gasoline, and the release was likely historical in nature and associated with the former refinery operations. Based on the results of the July 2014 investigation and in accordance with the KMLT Galena Park Terminal RCRA Permit/Compliance Plan effective at that time, notification was made of the discovery of a new Area of Concern and an affected property assessment (APA) under the Texas Risk Reduction Program (TRRP) was completed. The results of the APA were reported to the Texas Commission on Environmental Quality (TCEQ) in an Affected Property Assessment Report (APAR) dated September 29, 2015. The APAR was approved by the TCEQ in a letter dated December 11, 2015.

The soil and groundwater assessment collected and analyzed for target chemicals of concern (COCs). Target COCs included: benzene, ethylbenzene, toluene, total xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), 1-methylnaphthalene, 2-methylnaphthalene, styrene, lead, 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB). The list of target COCs chosen was based on the results of the LNAPL fingerprint analysis which showed the LNAPL to be a weathered gasoline. The source of the gasoline was likely associated with the historical refinery operations in that area of the KMLT Galena Park Terminal.

Based on the results of the APA, a soil Protective Concentration Level Exceedance (PCLE) zone for BTEX, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene and a groundwater PCLE zone for benzene, ethylbenzene, and 1-methylnaphthalene have been identified. The Critical Protective Concentration Level (PCL) used to define the PCLE zones are based on human health exposure pathways with no ecological component and assume a commercial/industrial exposure scenario. The results show that the only potential exposure pathways where COC concentrations in environmental media exceed the critical PCLs are the soil-to-groundwater pathway for soil and the groundwater ingestion pathway for groundwater. The reported soil COC concentrations did not exceed their respective Residential Assessment Level (RAL) for the $^{Tot}Soil_{Comb}$ and $^{Air}Soil_{Inh\text{-}V}$ (where applicable) pathways and the reported groundwater COC concentrations did not exceed their respective RAL for the $^{Air}GW_{Inh\text{-}V}$ (where applicable) pathway.

The shallow groundwater beneath the affected property flows to the southwest towards the Houston Ship Channel. The groundwater beneath the affected property is not currently used, there are no actual or threatened potential receptors and given the current and expected future use of the site, groundwater is unlikely to have future beneficial use.

The results of the APA show the extent of the LNAPL in the subsurface has been defined and is isolated to the area north of the pump house. The approximate areal extent of the LNAPL is 80 feet by 55 feet (4,400 sq. ft.). The LNAPL body is relatively small and given the presumed age has likely reached an equilibrium stage and is not mobile. To further refine the nature of the groundwater PCLE zone and to determine source area groundwater concentrations, monitoring well OPHMW-8 was installed in February 2016 at the location of former temporary piezometer OPHSB-6.

In the 2018 Response Action Plan (RAP), KMLT proposed the following response action for the affected property: establish a Plume Management Zone (PMZ) with institutional controls and LNAPL removal using a passive drain system and recovery from wells containing LNAPL. The TCEQ approved the RAP on April 10, 2018. The RAP was subsequently incorporated into the Resource Conservation Recovery Act (RCRA) Permit within the 2018 Class 3 Permit Modification application. The Revised RCRA Permit was issued on November 8, 2019. The response actions proposed in the RAP have been incorporated into the annual Corrective Action Report in accordance with reporting requirements of Section XI.G and those listed in the Compliance Plan Table VII of RCRA Permit 50054.

The response actions included the following:

- Semi-annual groundwater monitoring of the Point of Exposure (POE), Attenuation Monitoring Points (AMP) and Corrective Action Observation (CAO) wells within the PMZ;
- LNAPL recovery through an automated LNAPL recovery pump; and
- Deed restriction (filed on February 6, 2020) which limits property use to commercial/industrial and restricts the use of groundwater within the established PMZ.

A LNAPL Baildown Testing and LNAPL Transmissivity Report for OPH5 was submitted to the TCEQ in May 2022. The report documented that the LNAPL plume is not expanding; the LNAPL transmissivity data indicates that the LNAPL is not readily recoverable. As outlined in the Performances Measures section of the RAP (RAP Worksheet 3.0), KMLT recommended that the active NAPL recovery be discontinued permanently. In a letter dated August 12, 2022, TCEQ granted conditional approval to cease permanent LNAPL recovery with the following conditions: continue to monitor LNAPL thicknesses for changes in its condition and distribution and verify that no explosive conditions are generated by the LNAPL. KMLT submitted a response letter to the TCEQ on October 12, 2022, which presented the following: they would continue to monitor LNAPL thicknesses during semiannual groundwater monitoring events and they have an extensive hydrocarbon monitoring system (both above grade and below grade) in place to monitor the atmosphere for explosive vapors at OPH5 and the piping manifold associated with the pumphouse. If explosive atmospheric conditions were to develop in the area, the various monitor alarms would be triggered and corrective action would be taken by KMLT safety personnel. KMLT proposed that this system would be adequate to monitor for potential explosive conditions generated by the LNAPL. The TCEQ issued an approval letter on December 12, 2022, indicating KMLT responses adequately addressed TCEQ's comments. These reports submitted by KMLT and the TCEQ response letters are provided in Appendix 9.

As documented in the annual Corrective Action Reports, the semiannual groundwater monitoring events have demonstrated that COCs in POE, AMP and CAO wells have been below the groundwater protection standard (GWPS) established in the RCRA Permit for greater than 5 years. Additionally, the residual LNAPL thicknesses remaining at select monitoring wells appears to be stable and within historical ranges.

The deed restriction at OPH5 will continue to prevent residential land use and prohibit groundwater use beneath the area. This will prevent potential exposure to remaining COCs in groundwater or residual LNAPL.

The completed response actions for OPH5 PCL exceedance (PCLE) zones under Remedy Standard B include the following:

- LNAPL removal and demonstration through transmissivity testing that the LNAPL is not mobile or readily recoverable.
- An institutional control in the form of a deed restriction is in place to limit land use to commercial/industrial and prohibit groundwater use at OPH5.
- Reduction of COC concentrations through natural attenuation.

Groundwater PCLE zone has been addressed through the use of PMZ monitoring and natural attenuation. COC concentrations in groundwater have been reported at concentrations below the critical PCLs in the POE, AMP and CAO wells for a period of three years beginning in 2021. Per the 2018 *Response Action Plan - RAP Worksheet 3.0 Performance Measures and Potential Problems,* groundwater objectives have been met and as such, no further corrective action is required at OPH5. KMLT is requesting no further action for OPH5 and to update CP Table II as part of the RCRA Permit Renewal Application to designate no further action.

Checklist for Report Completeness	ID No. 30573	Report Date: June 4, 2024

Checklist for Report Completeness

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.

			Report Contents	
		Required	**Cover Page**	☒
		Required	**Executive Summary**	☒
		Required	**Checklist for Report Completeness**	☒
		Required	**Worksheet 1.0** Confirmation of Response Action Objectives	☒
		Required	**Attachment 1A*** Maps and Cross Sections	☒
		Required	**Attachment 1B*** Graphs	☒
		Required	**Attachment 1C*** Response Action Diagrams	☒
No ☐	Was a plume management zone used as part of the response action?	☒ Yes	**Worksheet 2.0** Plume Management Zone	☒
			Attachment 2A* Map of Plume Management Zone	☒
No ☒	Was an area of technical impracticability approved for use as part of the response action?	☐ Yes	**Worksheet 3.0** Technical Impracticability	☐
			Attachment 3A* Map of Technical Impracticability Area	☐
No ☐	Were institutional controls used or required as part of the response action?	☒ Yes	**Worksheet 4.0** Institutional Controls	☒
		Required	**Worksheet 5.0** Performance Measures and Problems	☒
No ☐	Did the response action require any operation and maintenance activities?	☒ Yes	**Worksheet 6.0** Operation and Maintenance	☒
No ☒	Has there been any change to the plans for post-response action care from that submitted in the RAP?	☐ Yes	**Worksheet 7.0** Post-Response Action Care	☒
No ☐	Was any information for this report obtained from outside sources?	☒ Yes	**Appendix 1*** References	☒
No ☒	Was an ESA and/or Compensatory Restoration used as part of the response action?	☐ Yes	**Appendix 2*** ESA and Compensatory Restoration	☐
No ☐	Were institutional controls or landowner concurrence required in the response action?	☒ Yes	**Appendix 3*** Institutional Controls and Landowner Concurrence	☒

Checklist for Report Completeness

ID No. 30573

Report Date: June 4, 2024

			Report Contents	
No ☐	Is there data or boring/monitor well information not previously submitted?	☐ Yes →	**Appendix 4*** Data Tables, Boring Logs, and Well Completions	☒
No ☒	Did sampling procedures differ from those described in the RAP?	☐ Yes →	**Appendix 5*** Sampling Procedures	☐
No ☐	Has any sampling been conducted for which the analytical results were not previously submitted?	☐ Yes →	**Appendix 6*** Laboratory Data Packages	☐
No ☒	Were statistics or geostatistics used in the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☒	Were any wastes generated that were not reported through STEERS?	☐ Yes →	**Appendix 8*** Waste Disposition	☐
No ☐	Additional Information (Voluntary)	☒ Yes →	**Appendix 9*** Historical Reports and TCEQ Correspondence	☒

Confirmation of Response Action Objectives	RACR Worksheet 1.0	Page 1 of 5
	ID No. 30573	Report Date: June 4, 2024

Use this worksheet to describe the attainment of the response action objectives in each media.

Response Action Objectives

What was the selected remedy standard for this affected property? ___ A X B

List the environmental media to which this applies Surface soil, subsurface soil, and groundwater
Repeat this section for each medium that had a different response action objective.

Provide a detailed description of the response action. Describe the removal actions, decontamination actions, treatment system(s), physical or institutional control actions, and any actions for ecological considerations (ecological services analysis and compensatory restoration plans) that were conducted in each media and indicate if there were any differences between the actions taken and the actions proposed in the SIN or RAP.

General Response Action Objectives

Remedy Standard B is being pursued for surface soil, subsurface soil, and groundwater PCLE zones for OPH5 to limit potential contact with affected media, reduce potential leaching into groundwater, and reduce COC concentrations in groundwater by:

- LNAPL recovery and subsequent transmissivity testing to verify LNAPL is not mobile or has been recovered to the extent practicable;
- Institutional controls (i.e., deed restriction); and,
- PMZ to monitor and confirm that the plume is stable and/or decreasing. The COC concentrations in groundwater have been reported below the applicable PCLs for the last three years.

Soil Response Action Objectives

For soils within the affected property, the PCLE zone is based on soil COCs leaching to groundwater. COCs with concentrations above the critical PCLs include: benzene, toluene, ethylbenzene, total xylenes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. Concentrations of soil COCs do not exceed RALs for any other applicable soil exposure pathway. The proposed soil response action consisted of establishing a PMZ for the Class 2 groundwater PCLE zone beneath the affected property. Soils containing COCs in excess of the critical PCLs are wholly contained within the PMZ. The groundwater PCLE has been limited in extent and has been stable since monitoring began in 2015. The soil response action objective was achieved by preventing exposure through the use of groundwater monitoring and institutional controls.

Groundwater Response Action Objective

The response action to address the groundwater PCLE zone at the affected property consisted of a PMZ and LNAPL recovery. The PMZ prevented exposure to COCs in the identified soil and groundwater PCLE zones through the use of institutional control mechanisms (e.g., deed recordation and administrative controls through the KMLT permitting process) that prohibit the use of the affected groundwater within the PMZ. The LNAPL recovery reduced the amount of LNAPL present in the subsurface thereby reducing the source zone for the groundwater impact.

The PMZ utilized a groundwater monitoring program to verify that the plume is stable and is not migrating to the POE beyond the PMZ at concentration levels exceeding applicable PCLs. The applicable PCLs (^{SW}GW and/or $^{Air}GW_{Inh\text{-}V}$ PCLs) were established in the RAP and were subsequently included as GWPSs in CP Tables III and IIIA of the Class 3 RCRA Permit Renewal Application. Groundwater analytical data from 2015 to 2023 has demonstrated a stable groundwater plume that is not exceeding the applicable PCLs at the POE or AMP wells.

The response objective with respect to the LNAPL was to remove the LNAPL to the extent practicable. The LNAPL recovery was achieved through removal at wells containing LNAPL, using an automated LNAPL recovery pump (i.e., Magnum Spill Buster™) and/or a portable pump (e.g., peristaltic pump) and a passive drain system that was installed in the north wall of the below-grade concrete containment area. The LNAPL recovery system was terminated when TCEQ concurred that the transmissivity testing confirmed the LNAPL was not mobile and LNAPL had been recovered to the extent practicable.

The response actions were conducted in accordance with the RAP. No deviations from the RAP were identified. In addition to the response actions above, response actions are also included in the Hazardous Waste Permit and Compliance Plan, which include maintenance of perimeter fencing and onsite security measures to restrict access at the facility.

Describe how the response action achieved the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33, as applicable. Explain how the response action was appropriate based on the hydrogeologic and COC characteristics. Describe any unprotective conditions that continued or resulted from the remedial actions and the actions taken to mitigate unprotective conditions.

For soils within the affected property, the PCLE zone is based on soil COCs leaching to groundwater. COCs with concentrations above the critical PCLs include: benzene, toluene, ethylbenzene, total xylenes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. Concentrations of soil COCs do not exceed RAL for any other applicable soil exposure pathway. The proposed soil response action consists of establishing a PMZ for the Class 2 groundwater PCLE zone beneath the affected property. Soils containing COCs in excess of the critical PCLs will be wholly contained within the proposed PMZ.

Institutional controls have been implemented at OPH5 and prevent exposure by restricting land use to commercial/industrial and prohibiting groundwater use.

Response actions for the groundwater PCLE zone included the use of PMZ to monitor COC concentrations over time. COC concentrations in groundwater have been below the applicable PCL for a three-year time period; as such, response actions have been achieved. Once the TCEQ has approved the request for no further action and the renewal application for the Hazardous Waste Permit and Compliance Plan, groundwater monitoring and reporting for OPH5 will be concluded.

If different from the information provided in the RAP, explain how the COCs were handled, treated, disposed, or transferred to another media and document that the response action did not result in any additional exposure conditions due to response action activities.

As presented in the RAP, the LNAPL and contaminated groundwater recovered by the passive drain system in the subsurface containment area and the LNAPL recovered at wells with installed Spill Busters™ were routed to KMLT's wastewater treatment systems and treated, stored, disposed, or recycled in an authorized on-site unit or off-site facility. The purged groundwater was managed through KMLT's wastewater treatment systems.

Explain how the response action achieved the objectives within the reasonable time frame.

Groundwater response actions were achieved in less than the proposed 10-year time frame as described in the RAP. The institutional controls were filed in February 2020 and will remain in place to prevent residential use and restrict groundwater beneath OPH5.

Were physical controls used as part of the response action? ___ Yes X No
If yes, describe the type and purpose of the physical control and discuss how the physical control has proved effective.

Not Appliable

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate that the physical

control or combination of measures reliably contained COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

For soils within the affected property, the PCLE zone is based on soil COCs leaching to groundwater. COCs with concentrations above the critical PCLs include: benzene, toluene, ethylbenzene, total xylenes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. Concentrations of soil COCs do not exceed RAL for any other applicable soil exposure pathway. The proposed soil response action consists of establishing a PMZ for the Class 2 groundwater PCLE zone beneath the affected property. Soils containing COCs in excess of the critical PCLs will be wholly contained within the proposed PMZ. The soil response action objective was achieved by preventing exposure through the use of groundwater monitoring and institutional controls.

Explain how the removal or decontamination action reduced the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevented COC concentrations above the critical soil PCLs from migrating beyond the original boundary of the soil PCLE zone.

For soils within the affected property, the PCLE zone is based on soil COCs leaching to groundwater. COCs with concentrations above the critical PCLs include: benzene, toluene, ethylbenzene, total xylenes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. Concentrations of soil COCs do not exceed RAL for any other applicable soil exposure pathway. The proposed soil response action consists of establishing a PMZ for the Class 2 groundwater PCLE zone beneath the affected property. Soils containing COCs in excess of the critical PCLs will be wholly contained within the proposed PMZ. The soil response action objective was achieved by preventing exposure through groundwater monitoring and institutional controls.

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies: Uppermost Groundwater Bearing Unit (UGBU)

Repeat this section for each groundwater-bearing unit for which a different response action was conducted.

Groundwater classification	1	X 2	3
	___	___	___

Was a modified groundwater response action used for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? ___ Yes X ___ No

If yes, complete the appropriate portions of this report.

Explain how the removal or decontamination actions reduced the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevented COC concentrations above the critical groundwater PCL from migrating beyond the original boundary of the groundwater PCLE zone. If COC concentrations above the critical groundwater PCL ever migrated beyond the original boundary of the groundwater PCLE zone, explain the actions taken to address the increase in the PCLE zone.

Response actions for the groundwater PCLE zone has been addressed through the use of PMZ monitoring and natural attenuation. COC concentrations in groundwater have been below the critical PCLs in the POE, AMP and CAO wells for a three-year time period, and, as such, response actions have been achieved. Once the TCEQ has approved the request for no further action and the renewal application for the Hazardous Waste Permit and Compliance Plan, groundwater monitoring and reporting for OPH5 will be concluded.

Explain how the response action prevented COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh\text{-}V}$) were exceeded.

The $^{Air}GW_{Inh\text{-}V}$ PCL has not been exceeded at any point within the plume during the monitoring program. The release is historical in nature and there is no additional source material being added to the system. In addition, the proposed LNAPL removal, in addition to natural source zone depletion, will further reduce the source mass and reduce the likelihood that COC concentrations would increase.

Explain how the response action prevented COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water was a factor.

Calculated ^{SW}GW PCLs for the affected property are included in the 2018 RAP. Two of the POEs (monitoring wells OPHMW-5 and OPHMW-4) are located adjacent to the nearest downgradient surface water (i.e., Houston Ship Channel) and have never exceeded the ^{SW}GW PCLs. The lower of the ^{SW}GW PCL or the $^{Air}GW_{Inh\text{-}V}$ PCL for each COC will be used as the critical PCL for each COC at the POE. No COC concentrations in any of the PMZ wells have exceed the ^{SW}GW PCLs.

Explain how the response action prevented human and ecological receptor exposure to the groundwater PCLE zone.

The groundwater response action is to establish a PMZ and to recover LNAPL. The PMZ prevented exposure through the use of institutional control mechanisms and establishing appropriate AALs based on the most conservative potential exposure scenario. The institutional control restricts groundwater use and residential land use and the AALs have been protective of potential surface water receptors and onsite workers. The PMZ monitoring program verified that the plume is stable and there is no potential for human health or ecological exposure at levels exceeding the applicable PCLs.

Waste Management

Describe the volume and final disposition or reuse location of waste or environmental media that was removed from the affected property during the response action, if not previously reported under STEERS. Provide copies of all manifests, other documentation of disposition, and landowner consent for reuse of soil in Appendix 8.

The LNAPL and contaminated groundwater recovered by the passive drain system in the subsurface containment area and the LNAPL recovered at wells with installed Spill Busters™ will be routed to KMLT's wastewater treatment systems and treated, stored, disposed, or recycled in an authorized on-site unit or off-site facility. The purged groundwater will be managed through KMLT's wastewater treatment systems.

Plume Management Zone	RACR Worksheet 2.0 Page 1 of 1	
	ID No. 30573	Report Date: June 4, 2024

Complete this worksheet when a PMZ was used as part of the response action. Include in Attachment 2A a map of the PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone (if applicable). If a PMZ was not used, do not submit this worksheet.

Groundwater-bearing unit Uppermost Groundwater Bearing Unit (UGBU)
Repeat this worksheet for each groundwater-bearing unit for which a PMZ was used.
Groundwater classification X 2 ___ 3

Is/was NAPL present? X Yes ___ No
If so, describe how the response action achieved the performance criteria in §350.33(f)(4)(E).

The LNAPL recovery was achieved through removal at wells containing LNAPL (e.g., OPHMW-7), using an automated LNAPL recovery pump (i.e., Magnum Spill Buster™) and/or portable pump and a passive drain system that was installed in April 2016, as an Interim Corrective Measure (ICM) in the north wall of the below-grade concrete containment area associated with the Old Pump House No. 5. This was further shown through the transmissivity testing performing in 2022 which demonstrated that the LNAPL was not mobile and had been removed to the extent practicable.

If this is a Class 2 groundwater, explain how the response action ensured that leachate from the surface soil and subsurface soil PCLE zones did not increase concentration of COCs greater than the measured concentrations at time of RAP submittal. (§350.33(a)(2))

The release is historical in nature and associated with operational practices from approximately 70 years ago. There have been no known new releases in the area and there is no evidence that the source mass is increasing. Given the age of the release, it is likely that the COCs in groundwater and soil have reached an equilibrium point and source area concentrations are not likely to increase. Current conditions show that soil concentration of select COCs exceed the soil-to-groundwater ingestion PCL but are not present in groundwater at levels exceeding the groundwater ingestion PCLs. Additionally, the LNAPL removal, combined with natural source zone depletion, has reduced the source mass and groundwater concentrations at the POE and AMP wells continue to show stable or decreasing trends.

Provide documentation that the COCs did not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachments 1A, 1B, and 2A.

The PMZ monitored the COC concentrations within the plume and at the downgradient extent of the plume. Groundwater generally flows to the southwest and west, toward the Houston Ship Channel. Because the groundwater ingestion pathway was eliminated with the institutional controls of the PMZ, the groundwater to surface water exposure pathway and the groundwater to air inhalation exposure pathway are considered to be complete and are the basis of the critical PCLs/AALs. Groundwater data collected between 2015 through 2023 have not detected concentrations above the applicable PCLs in the POE and AMP. This demonstrates that the PMZ has been effective in showing that COC concentrations have not migrated beyond the PMZ boundary.

Plume Management Zone	RACR Worksheet 2.0 Page 1 of 1	
	ID No. 30573	Report Date: June 4, 2024

List the attenuation action level determined for each attenuation monitoring point. Illustrate the attenuation monitoring points, initial, maximum, and final groundwater PCLE zones (or groundwater concentrations if less than the critical PCL) on the map in Attachment 2A.

COC	Attenuation Monitoring Point (well number)	Attenuation Action Level* (mg/L)	Maximum concentration measured at the attenuation monitoring point (mg/L)
Benzene	OPHMW-10 OPHMW-11	23	0.0031
Ethylbenzene	OPHMW-10 OPHMW-11	3800	0.002
Toluene	OPHMW-10 OPHMW-11	6080	0.000499
Total Xylenes	OPHMW-10 OPHMW-11	1300	0.000633
1-Methylnaphthalene	OPHMW-10 OPHMW-11	18.2	0.000362
2-Methylnaphthalene	OPHMW-10 OPHMW-11	547	0.000671
Naphthalene	OPHMW-10 OPHMW-11	41	0.000598

Technical Impracticability	RACR Worksheet 3.0 Page 1 of 1	
	ID No. 30573	Report Date: June 4, 2024

Use this worksheet to document the use of technical impracticability to modify the groundwater response objectives. Also, complete Worksheet 2.0 to document the plume management zone for the area of technical impracticability. Include a map of the groundwater PCLE zone and area of technical impracticability in Attachment 3A. If technical impracticability was not used as part of the response action, do not submit this worksheet.

If additional information beyond that provided in the RAP is available, describe how it was determined that it was technically impractical to reduce the COC concentrations in groundwater to the critical PCLs. Describe the response actions taken that did not prove effective. Provide graphs in Attachment 1B to illustrate COC concentrations over time and with distance from the source for each response action that did not prove effective. Describe in Worksheet 1.0 the removal/decontamination actions that were conducted for any PCLE zone outside the area of technical impracticability.

Not applicable

Did COCs above the critical PCL migrate beyond the area of technical impracticability and/or beyond the initial boundary of the PCLE zone?

___ yes ___ no

If yes, explain the actions taken to mitigate the migration of COCs.

Not applicable

Institutional Controls	RACR Worksheet 4.0 Page 1 of 1	
	ID No. 30573	Report Date: June 4, 2024

Complete this worksheet if an institutional control will be or has been used as part of the response action. Include in Appendix 3 copies of filed institutional controls and drafts of the proposed institutional controls, copies of landowner concurrences, and a list of landowners from whom landowner concurrence will be requested.

Specify the property for which this applies. KMLT East Plant, Galena Park, Texas

Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[3]				Property Ownership		Anticipated or actual filing date[4]
	Deed notice	Restrictive covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))	X				X		February 26, 2020
Document use of physical or institutional control under Remedy Standard B §350.31(g))							
Document notice of on-going long term response action (§350.31(h))							
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))							
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(I))	X				X		February 26, 2020
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							
Other (specify)							

[3] Check the appropriate box(es) to indicate the type of institutional control required for the response action.
[4] Specify date or amount of time after RAP approval.

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that were used to determine if reasonable progress is being made by the response action in a timely manner. Provide documentation that these performance measures were met. Attach additional information if necessary.

The goal of the PMZ is to prevent exposure to the COCs within the boundaries of the PMZ and to verify that COCs do not migrate beyond the boundaries of the PMZ such that exposure could occur. This was accomplished by use of an institutional control restricting the use of groundwater and implementation of a response action effectiveness monitoring program. Monitoring was conducted on a semi-annual basis to confirm that the COC concentrations within the PMZ remain at a level that is protective of the POE. The level of protectiveness was determined by comparing the groundwater concentrations to the AALs. Concentrations of groundwater COCs were compared to the AALs to demonstrate that the plume is stable, confined to/within the PMZ, and does not exhibit the potential to migrate beyond the PMZ.

Performance of the LNAPL recovery system was monitored by measuring the LNAPL thicknesses in affected wells and by measuring the rate of LNAPL recovery. As presented in the RAP, LNAPL recovery was regularly assessed and the need for further LNAPL recovery was discussed in annual reports until a determination was made that all readily recoverable LNAPL has been removed. The LNAPL Baildown Testing and LNAPL Transmissivity completed in 2022 documented that the LNAPL plume is not expanding; the LNAPL transmissivity data indicates that the LNAPL is not readily recoverable. The TCEQ concurred in their August and December 2022 correspondence that active LNAPL recovery was no longer required.

The monitoring system associated with PMZ was monitored for three years. Per the RAP, if after three years there are no significant, consistent exceedances of the critical PCLs/AALs in the PMZ wells, the response action, with respect to the soil and groundwater PCLE zone, will be considered complete. As such, based on no PCL or AAL exceedances over the past three years, the response action is considered complete and no further action appears warranted.

Problems

Complete the table for the response action. When the response action consisted of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: Plume Management Zone / LNAPL Recovery System

List the problems that were encountered during the response action, describe the impact of each problem, and the response to the problem.

Description of the Problem	Impact	Did this cause a response action failure?		Corrective Response
		Yes	No	
None Encountered				

Operation and Maintenance	RACR Worksheet 6.0 Page 1 of 1	
	ID No.: 30573	**Report Date:** June 4, 2024

Use this worksheet to describe the operation and maintenance (O&M) activities conducted for each response action.

Response Action Name/Designation: Plume Management Zone
List all portions of the response action to which this information applies. Repeat this worksheet for each major component or operation.

Describe the O&M and inspection activities that were conducted to operate and maintain response action components.

Each groundwater monitoring well in the monitoring system was inspected during each semiannual sampling event to confirm well integrity and identify any needed repairs.

Response Action Name/Designation LNAPL Recovery System
List all portions of the response action to which this information applies. Repeat this worksheet for each major component or operation.

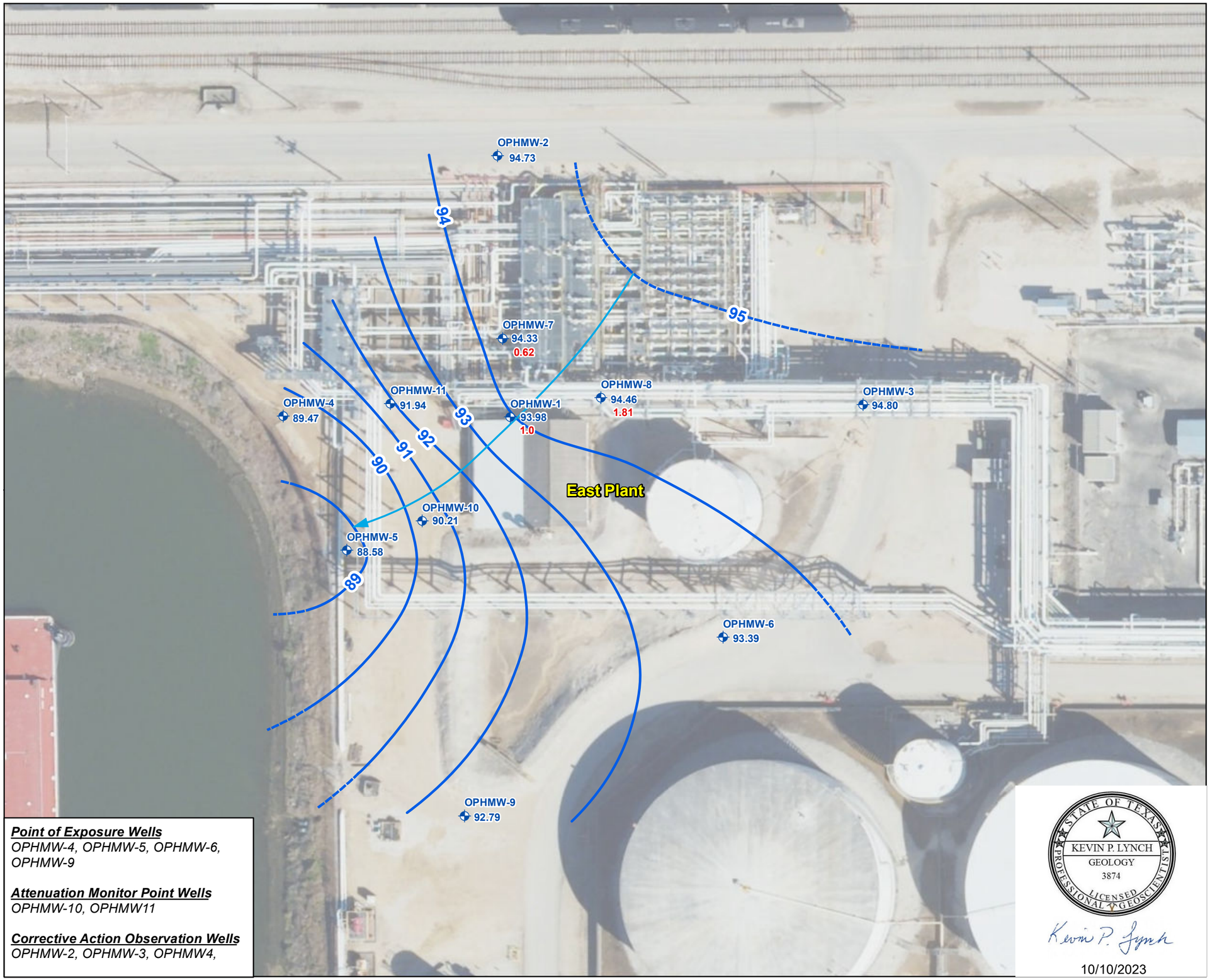
Describe the O&M and inspection activities that have been conducted to operate and maintain response action components.

The system performance was generally monitored on a weekly or biweekly basis but was periodically modified based on LNAPL recurrence to wells, recovery rates and equipment operational status. The monitoring activities included documenting the thickness of LNAPL in wells containing LNAPL, confirming that the installed Spill Busters were powered up and operational, recovering LNAPL via portable pump as applicable, and measuring the discharge rate from the system, noting what percentage of the discharge is LNAPL.

As previously discussed, the LNAPL recovery system was terminated after TCEQ approval in December 2022.

Attachment 1A-1

Groundwater Potentiometric Surface Elevation Contour Map



Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

Legend

- Monitor Well Location
- Groundwater Contour Based on July 21, 2023 Gauging Event (contour interval - 1 foot)
- Inferred Groundwater Contour
- Direction of Groundwater Flow
- 1.81 Product Thickness (ft.)

Notes:
Elevations are based on an assumed elevation datum.

Image: TxGIO Texas Imagery Service
Date: November 16, 2020

0 50 100 Feet
Approximate Scale

N

STATE OF TEXAS
KEVIN P. LYNCH
GEOLOGY
3874
LICENSED
PROFESSIONAL GEOSCIENTIST

Kevin P. Lynch
10/10/2023

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Groundwater Elevation Map
July 21, 2023
OPH5

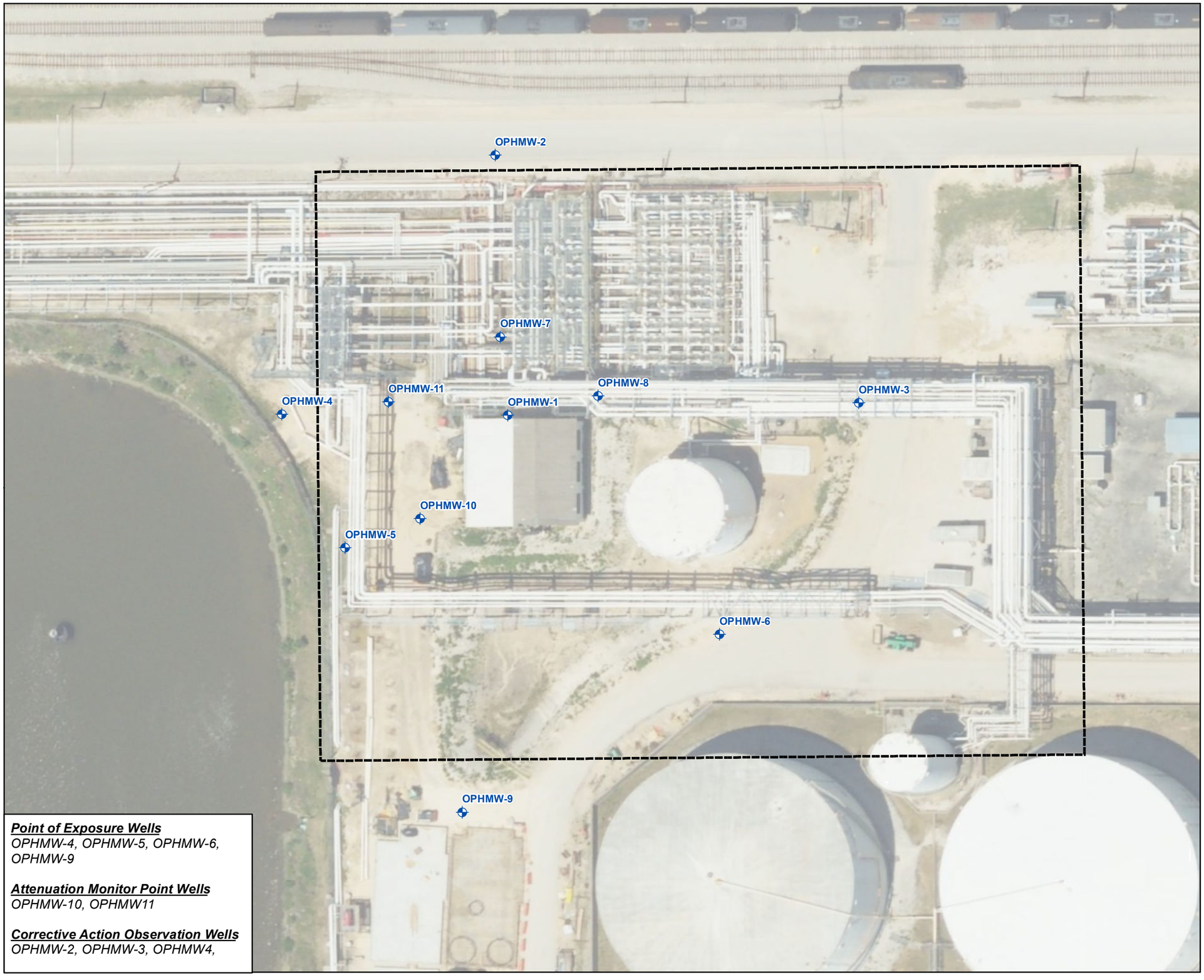
Project:
Kinder Morgan Liquids Terminals LLC
Old Pump House No. 5
Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	10/10/2023	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	10/10/2023	60699810 / Figure12b_GW_OPH5_Jul2023 / 12b

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\12b_GW_OPH5_Jul2023.mxd

Attachment 1A-2

Groundwater Concentration Map



Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitor Point Wells
OPHMW-10, OPHMW11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW4,

Legend

- Monitor Well Location
- Approximate OPH5 Boundary

Notes:
1. No COCs exceeded their applicable groundwater protection standards

Image: TxGIO Texas Imagery Service
Date: April 16, 2023

0 50 100 Feet

Approximate Scale

N

AECOM
19219 KATY FREEWAY STE. 100
HOUSTON, TEXAS 77094
PH: 284-646-2400

Title:
Contaminant Concentration Exceedances Map July 21, 2023 OPH5

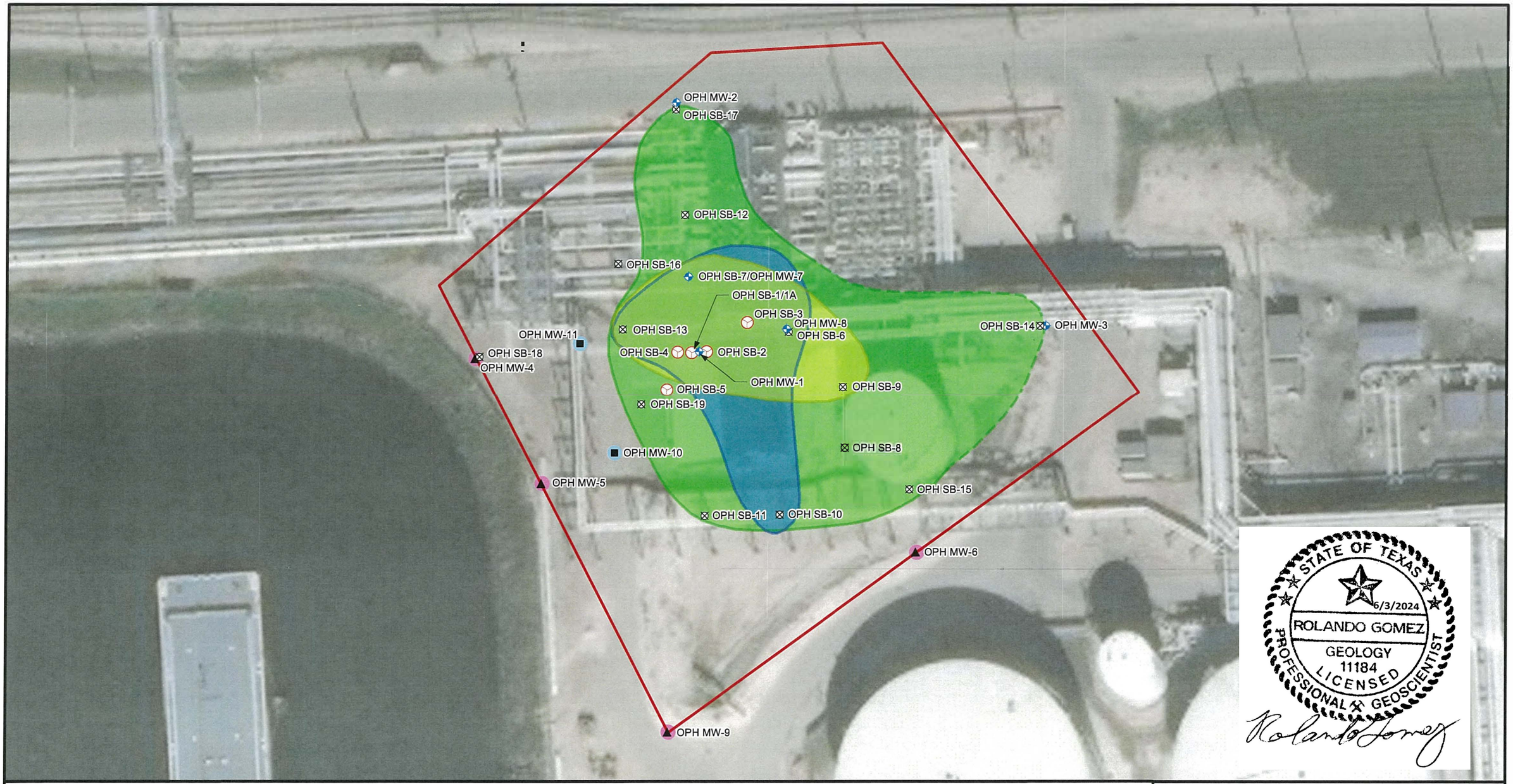
Project:
Kinder Morgan Liquids Terminals LLC Old Pump House No. 5 Galena Park, Texas

Scale:	Drawn By:	Date:	Client:
As Shown	KPL	2/21/2024	KM LIQUIDS TERMINALS LLC
	Chk'd By:	Date:	Project No: / File Name: / Figure:
	AH	2/21/2024	60699810 / Figure20b_COC_OPH5_Jul2023 / **20b**

Document Path: L:\Legacy\USHOU1FS001\Prod\Projects_ENVP2\JOBS2\Kinder Morgan\60649295 KM Galena Park Supt FY21\900-Work\920-939-GIS or Graphics\CAP Report 2024\OPH5\MXD\20b_COC_OPH5_July2023.mxd

Attachment 1C

Response Action Diagram



Soil Boring Location
Well Location
Soil Boring/Temporary Piezometer Location
Soil Boring/Temporary Piezometer Location (Plugged and Abandoned)
Surface Soil PCLE Zone
Subsurface Soil PCLE Zone
Groundwater PCLE Zone

POE Well
AMP Well Location
Plume Management Zone (PMZ) Boundary

Source: ESRI Basemap - Imagery, 2015.

N
W E
S

0 20 40
APPROXIMATE SCALE IN FEET

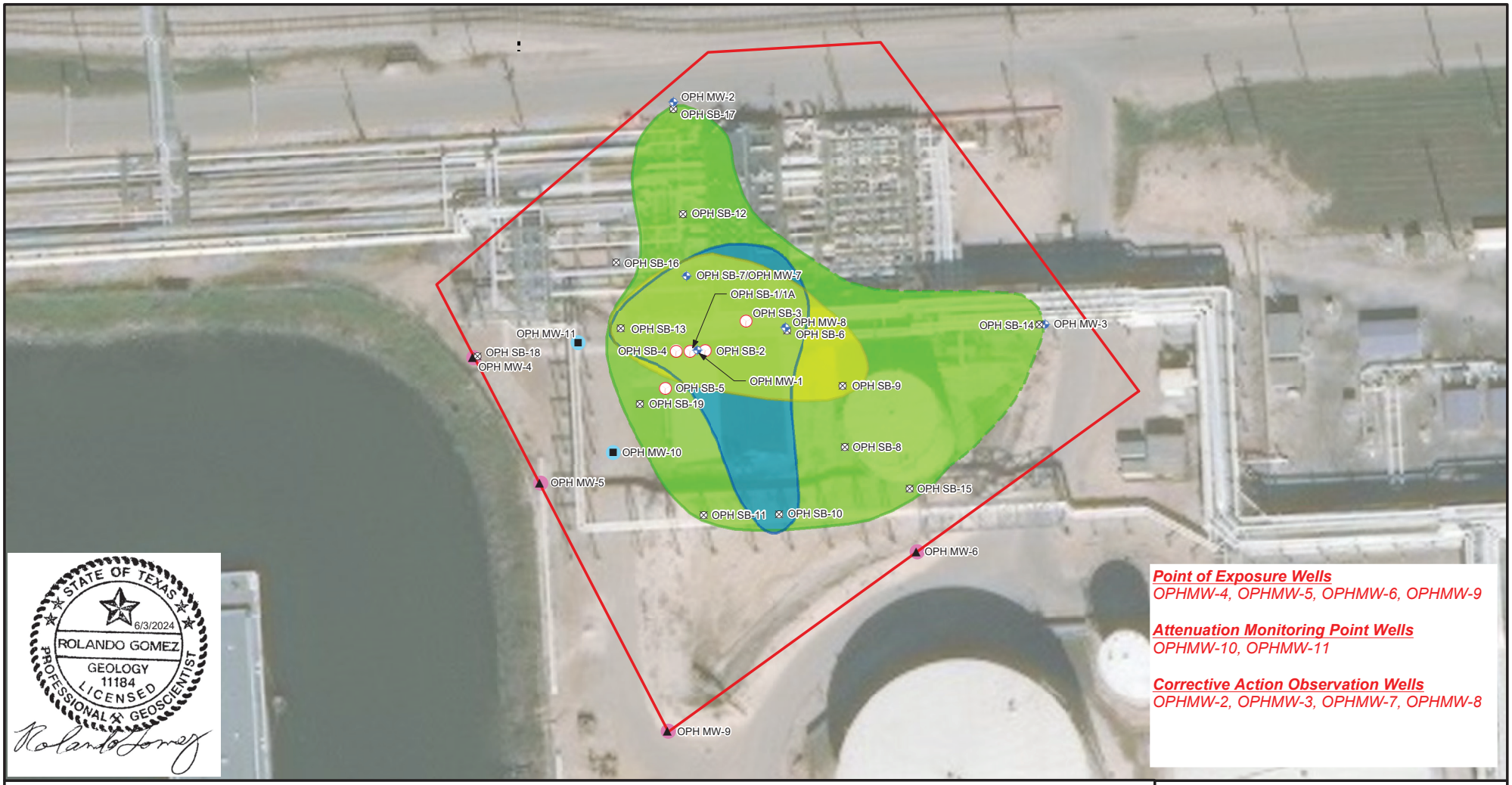
TETRA TECH

RESPONSE ACTION PLAN
OLD PUMP HOUSE NO. 5
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547

FIGURE 2A1
RESPONSE ACTION DESIGN (PMZ)

Attachment 2A

Plume Management Zone



STATE OF TEXAS
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST
6/3/2024

Point of Exposure Wells
OPHMW-4, OPHMW-5, OPHMW-6, OPHMW-9

Attenuation Monitoring Point Wells
OPHMW-10, OPHMW-11

Corrective Action Observation Wells
OPHMW-2, OPHMW-3, OPHMW-7, OPHMW-8

- Soil Boring Location
- Well Location
- Soil Boring/Temporary Piezometer Location
- Soil Boring/Temporary Piezometer Location (Plugged and Abandoned)
- Surface Soil PCLE Zone
- Subsurface Soil PCLE Zone
- Groundwater PCLE Zone
- POE Well
- AMP Well Location
- Plume Management Zone (PMZ) Boundary

Source: ESRI Basemap - Imagery, 2015.

N
W E
S

0 20 40
APPROXIMATE SCALE IN FEET

TETRA TECH

KM LIQUIDS TERMINALS LLC
OLD PUMP HOUSE NO. 5
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547

CP ATTACHMENT A, SHEET 10 OF 10
PLUME MANAGEMENT ZONE MAP

Appendix 1

References

REFERENCES

Tetra Tech, Inc., Affected Property Assessment Report, Old Pump House No. 5 Area of Concern (East Plant), KM Liquids Terminals, Galena Park Terminal, Galena Park, September 29, 2015

Tetra Tech, Inc., Response Action Plan Revision, Old Pump House No. 5 Area of Concern (East Plant), KM Liquids Terminals, Galena Park Terminal, Galena Park, August 30, 2018

AECOM, Annual Corrective Action Program Report, KM Liquids Terminals, Galena Park Terminal, Galena Park, February 28, 2022

AECOM, Annual Corrective Action Program Report, KM Liquids Terminals, Galena Park Terminal, Galena Park, February 28, 2023

AECOM, Annual Corrective Action Program Report, KM Liquids Terminals, Galena Park Terminal, Galena Park, February 28, 2024

Appendix 3

Institutional Controls

KINDER MORGAN

March 2, 2020 FedEx Tracking No. 7779 1149 1008

Ms. Maureen Hatfield, P.G., Project Manager
Team 1, VCP/CA Section
Remediation Division, Mail Code-127
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Re: Institutional Control Filing – Old Pump House 5 AOC
KM Liquids Terminals LLC Galena Park Terminal
Galena Park, Harris County, Texas
TCEQ SWR No. 30573
TCEQ Hazardous Waste Permit/Compliance Plan No. 50054
EPA I.D. No. TXD026481523
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Ms. Hatfield:

In response to your April 10, 2018 conditional approval letter for the *Draft Revised Response Action Plan* (RAP) for the KM Liquids Terminals LLC (Kinder Morgan) Galena Park Old Pump House 5 AOC (OPH5), and CP Table VIII of the Compliance Plan modification issued November 8, 2019, Kinder Morgan is submitting this proof of filing of the institutional control (IC) document (RP-2020-86142) for the affected property at the Kinder Morgan Galena Park Terminal, Galena Park, Texas. The affected property was surveyed by a Texas-licensed surveyor, who provided a metes and bounds description and sealed plat map of the affected area. A listing of constituents of concern (COC) and a description of the maintenance monitoring is also included. The deed notice was filed with the Harris County Clerk on February 26, 2020. The referenced IC proof of filing is attached.

If you have any questions or require any additional information at this time, please do not hesitate to contact me at (713) 654-6035.

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Manager

Attachment
Copy Deed Notice 2020-86142

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston, Texas
(FedEx Tracking No.: 7779 1149 6904)

Notice

RP-2020-86142
02/26/2020 RP1 $100.00

Texas Risk Reduction Program
Deed Notice

STATE OF TEXAS §
§
COUNTY OF HARRIS §

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

A legal property description used in the last recorded vesting deed, covering the Property that includes the entire Recorded tract of land held by the owner executing this deed, is attached hereto and incorporated by reference as Exhibit A.

Portions of the soils and groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

METES AND BOUNDS DESCRIPTION of an 1.807 acre tract of land, extending over, through, along and across, a called 123.5686 acre tract of land (Parcel Three) as recorded in File No. G867917, Official Public Records of Real Property of Harris County, Texas, and also across a called 40 foot wide fee strip, as recorded in Volume 2501, Page 242, Harris County Deed Records, said tracts being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearing and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.

COMMENCING at a brass disc set in concrete found on the South right-of-way line of Clinton Road (called 100' wide), and also being the Northeast corner of a called 24.2862 acre tract (Parcel Two) as recorded in File No. G867917, Official Public Records of Real Property of Harris County, Texas, the POINT OF COMMENCING having coordinates N = 13,832,307.72, E = 3,168,749.80;

THENCE, along and with the East line of said 24.5862 acre tract, South 03° 28' 15" East, at a distance of 387.55 feet pass the Southeast corner

of said 24.5862 acre tract, the same being on the North line of a called 40' wide fee strip as recorded in Volume 2501, Page 242, Harris County Deed Records, at a distance of 427.55 feet pass the Northeast corner of said 123.5686 acre tract, the same being on the South line of said 40' wide fee strip, in all a distance of 1,109.56 feet to a point on the above mentioned East line;

THENCE departing said East line, and over and across said 123.5686 acre tract South 86° 1' 45" West, a distance of 1,398.61 feet to the POINT OF BEGINNING, having coordinates N = 13,832,115.52, E = 3,167,420.94 ;

THENCE, the following five (5) courses:

1. *South 53° 12' 28" West, a distance of 301.44 feet to a point for corner;*
2. *North 30° 04' 12" West, a distance of 274.25 feet to a point for corner;*
3. *North 47° 11' 09" East, a distance of 182.37 feet to a point for corner;*
4. *North 87° 30' 46" East, a distance of 108.85 feet to a point for corner;*

THENCE, South 36° 18' 34" East, a distance of 230.16 feet to the POINT OF Beginning and containing 1.807 acres of land.]

The certified metes and bounds description and corresponding plat map of the affected Property for soil and for groundwater (referred to as the Plume Management Zone) are attached hereto and incorporated herein by reference as Exhibit B

The chemicals of concern (COCs) in soil and groundwater at the Affected Property (the Plume Management Zone), define here as exceeding the TRRP Protective Concentration Levels for residential and commercial/industrial land use, are summarized below:

Soil: benzene, toluene, ethylbenzene, o-xylenes, total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, lead

Groundwater: benzene, ethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and light non-aqueous phase liquid (LNAPL)

This Notice is required for the following reasons:

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels for the site, plus any additional area allowed by the TCEQ in accordance with 30 TAC §350.33(f)(4). The

undersigned has established a plume management zone so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The attached Exhibit B provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all of the chemicals of concern no longer exceed their respective protective concentration levels. This deed notice [and the physical control] must not be removed or modified without prior approval from TCEQ.

The Affected Property currently meets TRRP standards for commercial/industrial use. Based on the reports, the chemicals of concern pose no significant present or future risk to humans or the environment based on commercial/industrial land use. No further remediation of the Affected Property is required by the TCEQ as long as the Affected Property is not to be used for residential purposes as the property may not be protective for residential use. If any person desires in the future to use the Affected Property for residential purposes, the TCEQ must be notified at least 60 days in advance of such use and additional response actions may be necessary before the property may be used for residential purposes. Persons contemplating a change in land use for the Affected Property are encouraged to review the definitions for commercial/industrial and residential land use contained in TRRP as the definition of residential land use is broad.

As of the date of this Notice, the record owner of fee title to the Property is KM Liquids Terminals LLC with address of 1001 Louisiana Street, Suite 1000, Houston, Texas 77002

For additional information, contact:

TCEQ	Mail: TCEQ – MC 199
Central Records	P.O. Box 13087
12100 Park 35 Circle, Building E	Austin, Texas 78711-3087
Austin, TX 78753	

TCEQ Program and Identifier No.: SWR No. 30573

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 14th day of January, 2020. CM

KM Liquids Terminals LLC AKA Kinder Morgan JOP

By: [signature]

Name: Marlin Collins

Title: General Manager

STATE OF TEXAS
HARRIS COUNTY

BEFORE ME, on this the 14th day of January 2020, personally appeared [name] Merlin Collins, [title] General Manager, of [company] Kinder Morgan, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 14th day of January, 2020.

NOTARY PUBLIC STATE OF TEXAS
Dawn Michele Swilley
My Commission Expires
04/19/2023
ID No. 130183031

Notary Public in and for the State of Texas

County of Harris.

My Commission Expires: 4/19/23.

Dawn Michele Swilley

Return To ✓✓
Kinder Morgan
Johnny Kennedy
1500 Clinton Drive
Galena Park, TX
77547

EXHIBIT A

KINDER MORGAN LIQUID TERMINALS LLC
PROPERTIES DESCRIPTION
Galena Park, Texas

FIELD NOTES

373.721 acres of land situated in the Ezekiel Thomas Survey, A-73 Harris County, Texas, being located on the North shore of the Houston Ship Channel and extending Northward to the Southwest side of Hunting Bayou, and being more particularly described in nine (9) tracts, with respect to the "Texas Coordinate System", South Central Zone, NAD27, South Central Zone, said lands being described as follows:

TRACT I

114.23 acres of land, out of that certain 123.5686 acre tract described in Deed conveying 463.8705 acres of land from Texaco, Inc. to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and being described as follows:

BEGINNING at the Northeast corner of said 123.5686 acre tract on the South line of the T&NO RR 40 foot wide R.O.W., and having coordinates: X=3,200,372.11 and Y=709,442.27;

THENCE South 3° 28' 30" East, 2334.00 feet to the Southeast corner of said 123.5686 acre tract in the waters of the Houston Ship Channel;

THENCE in a Northwesterly direction with the Southerly lines of said 123.5686 acre tract and along the Northerly waters of said ship channel with the following three (3) courses and distances:

1. South 88° 17' 37" West, 769.90 feet to an angle corner;
2. North 75° 09' 23" West, 1039.00 feet to an angle corner;
3. North 72° 13' 55" West, 904.52 feet to the Southwest corner of said 120.00 acre tract;

THENCE North 3° 30' 10" West, with the West line of said 123.5686 acre tract, 1334.37 feet to a point for corner at its intersection with the South line of said T&NO RR 40 foot wide R.O.W.;

THENCE in an Easterly direction with the South lines of said railroad R.O.W. with the following five (5) courses and distances;

1. North 86° 31' 10" East, 1083.22 feet to a point of curve;
2. With said curve to the left having a radius of 478.59 feet, a central angel of 43° 33' 00" and an arc length of 363.77 feet to its point of tangency;
3. North 43° 58' 10" East, 100.00 feet to another point of curve;
4. With said curve to the right having a radius of 438.59 feet, a central angel of 43° 33' 00" and an arc length of 333.37 feet to its point of tangency;
5. North, 86° 31' 10" East, 812.00 feet to the POINT OF BEGINNING and containing 114.23 acres of land.

TRACT 2

36.75 Acres of land being described as follows:

BEGINNING at a point for the northeast corner, on the west line of that certain 123.5686 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and the south line of the 80-foot wide right-of-way of the T&NO RR, and having coordinates: X=3,197,198.14 and Y=708,941.83;

THENCE South 3° 30' 10" East, with the west line of said 123.5686 acre tract 1312.45 feet to its southwest corner within the waters of the Houston Ship Channel;

THENCE South 76° 22' 54" West, along the northerly waters of said ship channel an approximate distance of 1141.58 feet to the southeast corner of a 16-foot wide Texas Pipeline Company right-of-way;

THENCE North 3° 26' 35" West, with the east line of said pipeline right-of-way 1538.71 feet to its intersection with the south line of said T&NO RR right-of-way;

THENCE North 87° 48' 43" East, with the south line of said railroad right-of-way 1122.53 feet to the POINT OF BEGINNING, and containing 36.75 acres of land.

TRACT 3

71.02 Acres of land being described as follows:

BEGINNING at a point for the northeast corner on the south line of the 80-foot wide right-of-way of the T&NO RR at its intersection with the west line of the Arco Pipeline Company 25-foot wide fee strip, and having coordinates: X=3,196,352.59 and Y=708,886.60;

THENCE South 3° 26' 35" East, with the west line of said Arco fee strip 1606.00 feet to the southwest corner of said Arco strip within the waters of the Houston Ship Channel;

THENCE South 63° 01' 16" West, along the north side of said ship channel an approximate distance of 1764.41 feet to a point for corner;

THENCE North 1° 18' 10" West, 2345.72 feet to a point for corner on the south line of said 80-foot wide railroad right-of-way;

THENCE North 87° 48' 43" East, with the south line of said right-of-way 1530.39 feet to the POINT OF BEGINNING and containing 71.02 acres of land.

TRACT 4

0.53 Acres of land being known as a "Pipeline Alley" lying adjacent to and on the east side of a 16-foot wide Texas Pipeline Company right-of-way and being described as follows:

BEGINNING at the northwest corner of a 7.2143 acre tract leased to CXI on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,106,663.42 and Y=709,670.91;

THENCE South 3° 26' 35" East, with the west line of said CXI tract, 692.04 feet to its southwest corner on the north line of the 80-foot wide T&NO RR right-of-way;

THENCE South 87° 48' 43" West, with the north line of said railroad right-of-way 33.38 feet to its intersection with the east line of said Texas Pipeline Company right-of-way;

THENCE North 3° 26' 35" West, with the east lines of said pipeline right-of-way, 692.12 feet to its intersection with the south right-of-way line of Clinton Drive;

THENCE North 87° 56' 52" East, with said south right-of-way line, 33.38 feet to the POINT OF BEGINNING and containing 0.53 acres of land.

TRACT 4

10.03 Acres of land being described as follows:

BEGINNING at the northwest corner of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc. to South States Terminals Company recorded under Harris County Clerk's File No. G 876916, on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,197,751.08 and Y=709,710.64'

THENCE South 3° 30' 10" East, with the west line of said 24.2862 acre tract, 668.98 feet to its intersection with the curved north line of the T&NO RR right-of-way, generally 80 feet wide;

THENCE in a westerly direction with the north lines of said railroad right-of-way with the following two (2) courses and distances:

1. With a curve to the right having a radius of 246.48 fee, a central angle of 23° 57' 51" and an arc length of 103.09 feet, (the chord of said arc bears South 75° 49' 53" West,
2. South 87° 48' 43" West, 789.72 feet to the most southerly southeast corner of the 7.2143 acre tract leased to CXI;

THENCE in a northeasterly direction with the irregular southeast boundary of said CXI tract with that following five (5) courses and distances:

1. North 3° 04' 30" West, 182.57 feet to an interior corner,
2. North 84° 50' 40" East, 197.27 feet to another southeast corner,
3. North 3° 04' 30" West, 343.91 feet to another interior corner,
4. North 87° 56' 52" East, 490.97 feet to its most easterly southeast corner,
5. North 1° 56' 57" West, 154.29 feet to its northeast corner on the south right-of-way line of Clinton Drive;

THENCE North 87° 43' 30" East, with said south right-of-way line, 194.01 feet to the POINT OF BEGINNING and containing 10.03 acres of land.

TRACT 5

0.53 Acres of land being known as "Pipeline Alley" lying adjacent to and on the east side of a 16-foot wide Texas Pipeline Company right-of-way and being described as follows:

BEGINNING at the northwest corner of a 7.2143 acre tract leased to CXI on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,106,663.42 and Y=709,670.91;

THENCE South 3° 26' 35" East, with the west line of said CXI tract, 692.04 feet to its southwest corner on the north line of the 80-foot wide T&NO RR right-of-way;

THENCE South 87° 48' 43" West, with the north line of said railroad right-of-way 33.38 feet to its intersection with the east line of said Texas Pipeline Company right-of-way;

THENCE North 3° 26' 35" West, with the east lines of said pipeline right-of-way, 692.12 feet to its intersection with the south right-of-way line of Clinton Drive;

THENCE North 87° 56' 52" East, with said south right-of-way line, 33.38 feet to the POINT OF BEGINNING and containing 0.53 acres of land.

TRACT 6

10.03 Acres of land being described as follows:

BEGINNING at the northwest corner of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc. to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X= 3,197,751.08 and Y=709,710.64;

THENCE South 3° 30' 10" East, with the west line of said 24.2862 acre tract, 668.98 feet to its intersection with the curved north line of the T&NO RR right-of-way, generally 80 feet wide;

THENCE in a westerly direction with the north lines of said railroad right-of-way with the following two (2) courses and distances:

1. With a curve to the right having a radius of 246.48 fee, a central angle of 23° 57' 51" and an arc length of 103.09 feet, (the chord of said arc bears South 75° 49' 53" West, 102.34 feet), to its point of tangency,
2. South 87° 48' 43" West, 789.72 feet to the most southerly southeast corner of the 7.2143 acre tract leased to CXI;

THENCE in a northeasterly direction with the irregular southeast boundary of said CXI tract with that following five (5) courses and distances:

1. North 3° 04' 30" West, 182.57 feet to an interior corner,
2. North 84° 50' 40" East, 197.27 feet to another southeast corner,
3. North 3° 04' 30" West, 343.91 feet to another interior corner,
4. North 87° 56' 52" East, 490.97 feet to its most easterly southeast corner,

5. North 1° 56' 57" West, 154.29 feet to its northeast corner on the south right-of-way line of Clinton Drive;

THENCE North 87° 43' 30" East, with said south right-of-way line, 194.01 feet to the POINT OF BEGINNING and containing 10.03 acres of land.

TRACT 7

1.48 Acres of land being, in part out of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk's File No. G-867916, and being described as follows:

BEGINNING at the northwest corner of said 24.2862 acre tract leased on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,197,751.08 and Y=709,710.64;

THENCE North 86° 31' 10" East, with said south right-of-way line, 91.00 feet to the northwest corner of a 20.0000 acre tract conveyed to Lubripac;

THENCE North 3° 30' 10" East, with the west line of said Lubripac tract, 708.33 feet to its southwest corner on the north line of a 40 foot wide T&NO RR right-of-way;

THENCE South 86° 31' 10" West, with said north line, 91.00 feet to a point for corner;

THENCE North 3° 30' 10" West, in part with the west line of said 24.2862 acre tract, 708.33 feet to the POINT OF BEGINNING and containing 1.48 acres of land.

TRACT 8

1.83 Acres of land being the residue of a 12.16 acre tract of land, in part out of that certain 24.2862 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and being described as follows:

BEGINNING at the northeast corner of said 24.2862 acre tract leased on the south right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,200,346.23 and Y=709,868.49;

THENCE South 3° 30' 10" East, with the east line of said 24.2862 acre tract, 387.00 feet to its southeast corner on the north line of the 40 foot wide T&NO RR right-of-way;

THENCE South 86° 31' 10" West, with said north line, 812.00 feet to a point of curve;

THENCE 32.30 feet in a westerly direction along the arc of said curve to the left having a radius of 478.59 feet, a central angle of 3° 51' 59" and a long chord that bears South 84° 35' 10" West, 32.29 feet to the southwest corner of this 7.478 acre tract;

THENCE North 2° 43' 25" West, with the east line of 4.686 acre tract of land sold to Texaco, 388.12 feet to its intersection with the south right-of-way line of Clinton Drive;

THENCE North 86° 31' 10" East, with said south right-of-way line of Clinton Drive, 839.18 feet to the POINT OF BEGINNING and containing 7.48 acres of land.

Save and except the following 5.649 acre tract as described below:

Being a 5.649 acre tract of land out of the Ezekiel Thomas Survey, Abstract Number 73 and situated in Harris County, Texas, being out of and a portion of the residue of a called 24.2862 acre tract of land conveyed to GATX Terminals Corporation (also known as KM Liquids Terminals, L.P.) as described in deed recorded under Harris County Clerk's File Number (H.C.C.F. No.) G867917, said 5.649 acre tract of land being more particularly described as follows (Bearings shown heron are based on the south line of said residue of a called 24.2862 acre tract of land, being South 86° 31' 10" West);

COMMENCING, for reference at a 1/8-inch pin inside a 6-inch iron pipe found in the south Right-of-Way (R.O.W.) line of Clinton Drive (100 feet R.O.W.) and marking the northeast corner of said residue of a called 24.2862 tract;

THENCE, South 86° 29' 11" West, along the south R.O.W. line of said Clinton Drive and the north line of said residue of a called 24.2862 acre tract, a distance of 154.00 feet;

THENCE, South 03° 28' 41" East, departing the south R.O.W. line of said Clinton Drive and the north line of said residue of a called 24.2862 acre tract, crossing a pipeline corridor and over and across said residue of a called 24.2862 acre tract, a distance of 30.00 feet to a 5/8-inch iron rod with cap stamped "Terra Surveying" set in the south line of said pipeline corridor, marking the northeast corner and the POINT OF BEGINNING of the herein described tract, from which a ½-inch iron rod with cap stamped "Gullett Assoc" bears South 03° 28' 41" East, 0.59 feet;

THENCE, South 03° 28' 41" East, a distance of 358.25 feet to a 1/2 –inch iron rod with cap stamped "Gullett Assoc" found in the south line of said residue of a called 24.2862 acre tract and the north line of a called 2.4947 acre tract (40-foot wide Right-of-Way) as described in a deed to Texas and New Orleans Railroad Company recorded under Volume (Vol.) 2501, Page (Pg.) 242 of the Harris County Deed Records (H.C.D.R.) and marking the southeast corner of the herein described tract;

THENCE, South 86° 31' 10" West, along the south line of said residue of a called 24.2862 acre tract and the north line of said 2.4947 acre tract, at a distance of 561.89 feet (called 561.9 feet) passing a ½-inch iron rod with cap stamped "Gullett Assoc" found, continuing a total distance of 689.32 feet to a 5/8-inch iron rod with cap stamped "Terra Surveying" set marking the southeast corner of a called 4.607 acre tract of land conveyed to Texaco Refining and Marketing Inc., as described in deed recorded under H.C.C.F. No. S836081 and marking the southwest corner of the herein described tract;

THENCE, North 02° 45' 24" West, departing the south line of said residue of a called 24.2862 acre tract and the north line of said 2.4947 acre tract, along the east line of said 4.607 acre tract, at a distance of 338.12 feet passing the most northeasterly corner of said 4.607 acre tract, continuing over and across said residue of a called 24.2862 acre tract, a total distance of 358.10 feet to a 5/8-inch iron rod with cap stamped "Terra Surveying" set in the south line of the aforesaid pipeline corridor, being South 02° 45' 24" East, 29.79 feet from the aforesaid south R.O.W. line of Clinton Drive, marking the northwest corner of the herein described tract;

THENCE, North 86° 30' 15" East, continuing over and across said residue of a called 24.2862 acre tract and along said south line of the pipeline corridor, at a distance of 122.93 feet passing a ½-inch iron rod with cap stamped "Gullett Assoc" which bears South 07° 02' 30" West, 0.59

feet, continuing a total distance of 684.82 feet to the POINT OF BEGINNING and containing 5.649 acres of land.

TRACT 9

120.36 Acres of land being the residue of a 191.43 acre tract of land, in part out of that certain 316.0457 acre tract described in a deed conveying 463.8705 acres of land from Texaco, Inc., to South States Terminals Company recorded under Harris County Clerk's File No. G 867916, and in part out of those certain 43.328 acre and 49.301 acre tracts described in a deed to General American Transportation Company recorded in Volume 2433, Page 332, Harris County Deed Records, said 130.361 acres of land being described as follows:

BEGINNING at the southeast corner of said 316.0157 acre tract leased on the north right-of-way line of Clinton Drive, 100 feet wide, and having coordinates: X=3,200,339.61 and Y= 709,968.27;

THENCE South 86° 31' 10" West, with said north right-of-way line, 64.62 feet to the southeast corner of a 50 foot by 100 foot tract conveyed to Entex, Inc.;

THENCE in a counterclockwise direction with the east, north and west lines of said Entex tract with the following three (3) courses and distances:

1. North 3° 31' 20" West, 100.00 feet,
2. South 86° 31' 10" West, 50.00 feet,
3. South 3° 31' 20" East, 100.00 feet to its southwest corner on the north right-of-way line of Clinton Drive;

THENCE in a westerly direction with the South lines of said 316.0157 acre tract and with said north right-of-way line with the following two (2) courses and distances:

1. South 86° 31' 10" West, 2510.70 feet to an angle point,
2. South 88° 04' 16" West, 46.38 feet to the southwest corner of said 316.0157 acre tract, and the southeast corner of said 43.328 acre tract, being the southeast corner of Tract 4-A of seven parcels totaling 107.5551 acres conveyed to Arco Pipeline Company;

THENCE generally in a northerly direction with the easterly and northerly lines of Tract 4-A, Tract 3, Tract E, Tract D, Tract C-2 and Tract C-1 of said seven Arco Pipeline Company parcels, with the following twelve (12) courses and distances:

1. North 3° 24' 05" West, with the west line of said 316.0157 acre tract and the east line of said 43.328 acre tract 1243.39 feet,
2. South 86° 35' 55" West, 300.00 feet to a point within said 43.328 acre tract,
3. North 3° 24' 05" West, 300.00 feet,
4. North 86° 35' 55" East, 300.00 feet to a point on the common line between said 43.328 acre and said 316.0157 acre tracts,
5. South 3° 24' 05" East, with said common line 100.00 feet,

6. North 86° 31' 10" East, entering said 316.0157 acre tract, 884.30 feet, to the southeast corner of Tract 3,
7. North 3° 24' 05" West, 161.57 feet,
8. North 86° 29' 39" East, 735.70 feet to the southeast corner of Tract E,
9. North 3° 24' 05" West, 1062.41 feet to the northeast corner of said Tract D,
10. South 83° 50' West, 187.96 feet to a point of curve,
11. With said curve to the right having a radius of 484.28 feet, a central angle of 45° 07' 31" and an arc length of 381.41 feet to its point of tangency,
12. North 51° 02' 29" West, 254.36 feet to the lower southwest corner of a 60.57 acre tract surveyed by G.P. Surveyors in October, 1995,

THENCE North 86° 31' 10" East, 262.45 feet to the center of Hunting Bayou and in the northeasterly line of said 191.43 acre tract;

THENCE in a southeasterly direction down Hunting Bayou with the meanders of its centerline and with the westerly and southerly lines of said 102.1255 acre tract with the following six (6) courses and distances:

1. South 57° 41' East, 93.94 feet,
2. South 72° 25' East, 180.00 feet,
3. North 81° 10' East, 315.00 feet,
4. North 89° 30' East, 190.00 feet,
5. North 82° 45' East, 580.00 feet,
6. South 79° 10' East, 188.00 feet to the southeast corner of said 102.1255 acre tract on the east line of said 316.0157 acre tract;

THENCE South 3° 31' 20" East, with the east line of said 316.0157 acre tract, 2849.65 feet to the POINT OF BEGINNING and containing 130.36 acres of land.

Save and except the following 10.000 acres as described below:

ALL that certain 10.0000 acres (435,600 square feet) of land situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, and being out of the residue of that certain 316.0157 acre tract described as Parcel One in instrument to GATX Terminals Corporation recorded under File Number G867917 of the Harris County Official Public Records of Real Property (H.C.O.P.R.R.P.); said 10.0000 acres (435,600 square feet) of land being more particularly described by metes and bounds as follows (all bearings are referenced to the westerly line of said 316.0157 acre tract, having a bearing of North 03° 24' 05" West):

COMMENCING at a ½ inch iron rod found for the southwesterly corner of said 316.0157 acre tract, the southeasterly corner of a called 19.396 acre tract described in instrument to ARCO MIDCON, LLC, recorded under File Number V904204, H.C.O.P.R.R.P., from which a concrete monument found with a "TEXACO" star on top bears S67° 28'W, 0.71 feet, said point also being in the northerly right-of-way of Clinton Drive (100 feet wide), as described in instruments

recorded in Volume 704, Page 216, and Volume 1011, Page 47, of the Harris County Deed Records, (H.C.D.R.);

THENCE North 03° 24' 05" West, 184.69 feet, leaving the northerly right-of-way of said Clinton Drive, with the westerly line of said 316.0157 acre tract, the easterly line of said 19.396 acre tract, to a 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for the POINT OF BEGINNING of the herein described tract;

THENCE North 03° 24' 05" West, with the westerly line of said 316.0157 acre tract, the easterly line of said 19.396 acre tract, at 818.69 feet, passing the most easterly northeast corner of said 19.396 acre tract, at 1,058.69 feet passing the most southerly northeast corner of the residue of a called 38.1524 acre tract described as Tract-A in instrument to Four Corners Pipe Line Company, recorded under File Number R276485, H.C.O.P.R.R.P., said corner being the southeasterly corner of the residue of a called 40.2186 acre tract described in instrument to GATX Terminals Corporation, recorded in Volume 2433, Page 332, H.C.D.R., in all a distance of 1,089.00 feet, to a 5/8 inch iron rod with cap stamped "A.L.SIKES RPLS 2914" set for the northwesterly corner of this tract;

THENCE North 86° 35' 55" East, 400.00 feet to 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for the northeasterly corner of this tract;

THENCE South 03° 24' 05" East, 1eet to 5/8 inch iron rod with cap stamped "A.L. SIKES RPLS 2914" set for the southeasterly corner of this tract;

THENCE South 86° 35' 55" West, 400.00 feet, to the PLACE OF BEGINNING and containing 10.0000 acres (435,600 square feet) of land.

Total Lands of Kinder Morgan Liquid Terminals LLC: 373.721 Acres

Exhibit A

West Chemical Plant Property Description
Galena Park, Texas

THAT CERTAIN TRACT OR PARCEL OF LAND CONTAINING THIRTY SEVEN (37) ACRES MORE OR LESS OUT OF THE EAST HALF OF THE EZEKIEL THOMAS LEAGUE A-73 IN HARRIS COUNTY, TEXAS, AS CONVEYED TO C. D. KEEN AND W. C. WOOLF BY OSCEOLA E. TOD, AS INDEPENDENT EXECUTRIX OF THE ESTATE OF JOHN G. TOD, DECEASED, BY DEED DATED AUGUST 16TH, 1919, AND RECORDED IN VOLUME 431, PAGE 44 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS; INCLUDING ANY LAND ALONG THE WESTERN BOUNDARIES OF SAID TRACT CONVEYED TO KEEN & WOOLF OIL COMPANY BY CLARION OIL COMPANY BY DEED DATED FEBRUARY 6, 1928, AND RECORDED IN VOLUME 730, PAGE 710 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS, AND EXCEPTING HEREFROM ANY LANDS RELEASED TO SAID CLARION OIL COMPANY BY KEEN & WOOLF OIL COMPANY ALONG THE WESTERN BOUNDARY LINE BY SAID DEED DATED FEBRUARY 6TH, 1923, THE TRACT OF LAND HEREBY CONVEYED BEING FURTHER DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT AN 8" INCH IRON PIPE MARKING THE EXISTING NORTHWEST CORNER OF THE AFORESAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND AT THE NORTHEAST CORNER OF THE CLARION OIL COMPANY TRACT OF LAND ON THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE;

THENCE SOUTH 0° 01' 52" WEST, ALONG THE WEST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND, ON THE EAST LINE OF THE AFORESAID CLARION OIL COMPANY TRACT OF LAND, A DISTANCE OF 3698.06 FEET TO A POINT MARKING THE SOUTH-WESTERLY CORNER OF THE SAID KEEN AND WOOLF 37 ACRE TRACT OF LAND ON THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL;

THENCE NORTH 55° 23' 04" EAST, ALONG THE ORIGINAL NORTH BANK OF THE HOUSTON SHIP CHANNEL, A DISTANCE OF 563.37 FEET TO THE SOUTHEASTERLY CORNER OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND;

THENCE NORTH 0° 02' 12" EAST, ALONG THE EAST LINE OF THE SAID KEEN AND WOOLF OIL COMPANY 37 ACRE TRACT OF LAND ON THE WEST LINE OF THE A. M. BAKER, W. G. PRIESTER, IKE EDWARDS, M. TOD, AND J. EDWARDS TRACTS OF LAND, A DISTANCE OF 3381.39 FEET TO A 6 INCH IRON PIPE FOR CORNER ON THE SOUTH LINE OF CLINTON DRIVE;

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 231.30 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 0° 25' EAST, A DISTANCE OF 150.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

THENCE SOUTH 89° 35' WEST ALONG A LINE PARALLEL TO AND 150 FEET SOUTH OF THE SOUTH LINE OF CLINTON DRIVE, A DISTANCE OF 200.00 FEET TO A 1 INCH IRON PIPE FOR CORNER;

CONTINUED ON ATTACHMENT

THENCE SOUTH 89° 35' WEST, ALONG THE SOUTH LINE OF CLINTON DRIVE, 100 FEET WIDE, A DISTANCE OF 32.50 FEET TO THE PLACE OF BEGINNING; SAVE AND EXCEPT AN 80 FOOT STRIP CONVEYED BY JOHN G. TOD TO THE TEXAS AND NEW ORLEANS RAILROAD COMPANY BY DEED DATED SEPTEMBER 28, 1916, RECORDED IN VOLUME 371, PAGE 245 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS.

FILED
2007 JUL 31 PM 3:21
COUNTY CLERK
HARRIS COUNTY, TEXAS

Exhibit B

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

JUL 31 2007

COUNTY CLERK
HARRIS COUNTY, TEXAS

Being part of and out of 30,000 square foot tract or land referred to in the deed recorded in volume 431 at page 44 of the deed records of Harris County Texas, in the Ezekiel Thomas Survey, abstract 713 in Galena Park Harris County Texas and being more particular described as follows:

BEGINNING at a 1-inch iron pipe marking the northeast corner of the aforesaid 30,000 square foot tract of land, on the south line of Clinton Drive, 100 feet wide, said beginning corner being located N 89° 35' E, a distance of 232.50 feet from a iron pipe marking the northwest corner of that tract of land described in deed recorded in Volume 431, Page 44 of the Deed Records of Harris County, Texas;

THENCE S 89° 35' W, along the north line of the aforesaid 30,000 square foot tract of land, on the south line of Clinton Drive, 100 feet wide, a distance of 48.40 feet to a point for corner, in a 6 foot chain link fence line;

THENCE S 0° 21' W, along the said chain link fence line, a distance of 111.96 feet to a fence post for corner;

THENCE S 89° 08' W, along the said fence line, a distance of 150.10 feet to a point for corner, on the west line of the said 30,000 square foot tract of land;

THENCE S 0° 25' E, along the west line of the said 30,000 square foot tract of land, a distance of 36.87 feet to a 1-inch iron pipe marking the southwest corner of the said 30,000 square foot tract of land;

THENCE N 89° 35' E, along the south line of the said 30,000 square foot tract of land, a distance of 200.00 feet to a 1-inch iron pipe marking the southeast corner of the said 30.000 square foot tract of land;

THENCE N 0° 25' W, along the east line of the said 30,000 square foot tract of land, a distance of 150.00 feet to the PLACE OF BEGINNING.

EXHIBIT B

STATE OF TEXAS

August 29, 2018

COUNTY OF HARRIS

EXHIBIT "B"

METES AND BOUNDS DESCRIPTION FOR A

1.807 ACRE AREA

PLUME MANAGEMENT ZONE

METES AND BOUNDS DESCRIPTION of an 1.807 acre tract of land, extending over, through, along and across, a called 123.5686 acre tract of land (Parcel Three) as recorded in File No. G867917, Official Public Records of Real Property of Harris County, Texas, and also across a called 40 foot wide fee strip, as recorded in Volume 2501, Page 242, Harris County Deed Records, said tracts being situated in the Ezekiel Thomas Survey, Abstract 73, Harris County, Texas, said metes and bounds being more fully described as follows:

Bearing and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.

COMMENCING at a brass disc set in concrete found on the South right-of-way line of Clinton Road (called 100' wide), and also being the Northeast corner of a called 24.2862 acre tract (Parcel Two) as recorded in File No. G867917, Official Public Records of Real Property of Harris County, Texas, the POINT OF COMMENCING having coordinates N = 13,832,307.72, E = 3,168,749.80;

THENCE, along and with the East line of said 24.5862 acre tract, South 03° 28' 15" East, at a distance of 387.55 feet pass the Southeast corner of said 24.5862 acre tract, the same being on the North line of a called 40' wide fee strip as recorded in Volume 2501, Page 242, Harris County Deed Records, at a distance of 427.55 feet pass the Northeast corner of said 123.5686 acre tract, the same being on the South line of said 40' wide fee strip, in all a distance of 1,109.56 feet to a point on the above mentioned East line;

THENCE departing said East line, and over and across said 123.5686 acre tract South 86° 1' 45" West, a distance of 1,398.61 feet to the **POINT OF BEGINNING**, having coordinates N = 13,832,115.52, E = 3,167,420.94 ;

THENCE, the following five (5) courses:

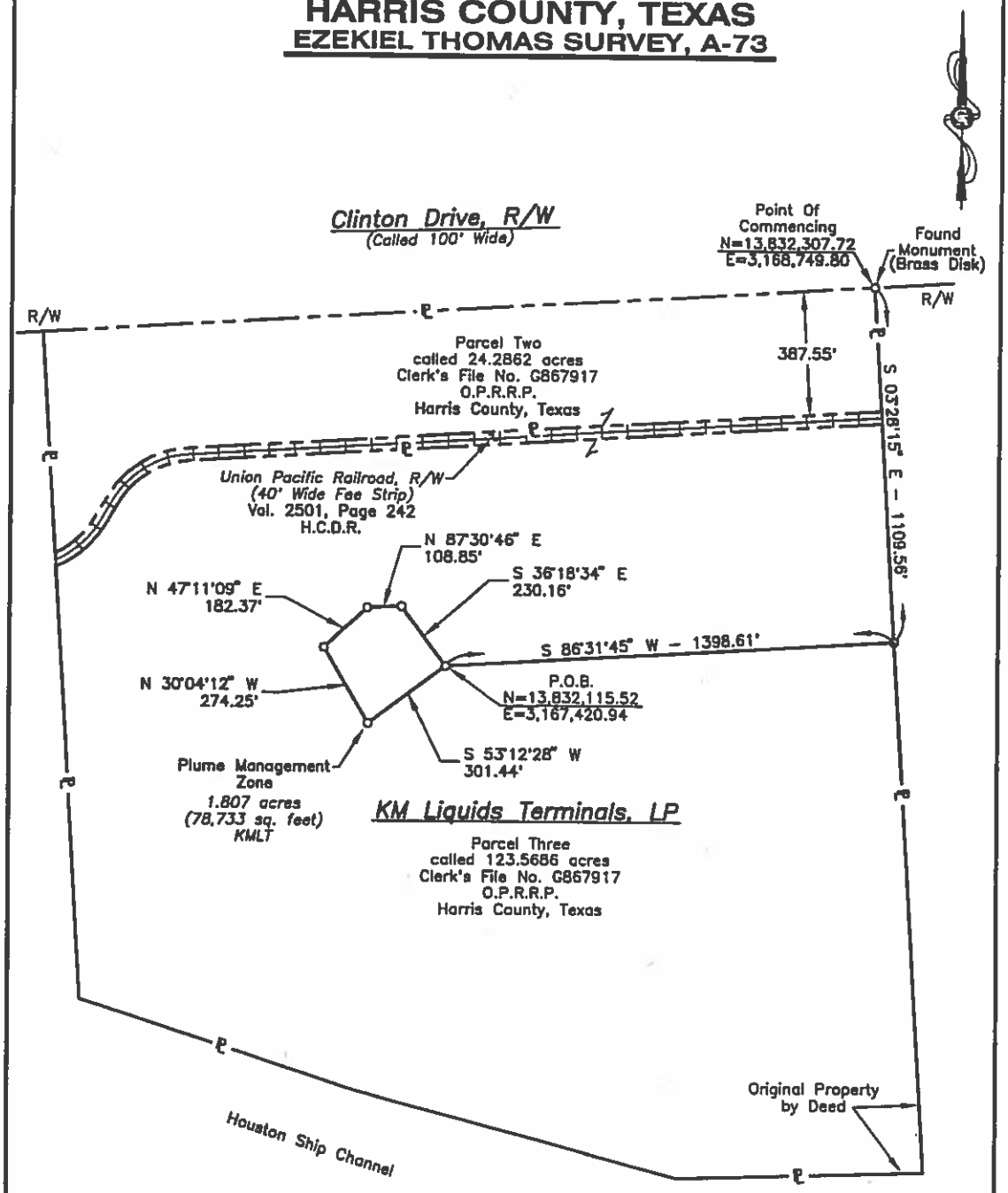
1) South 53° 12' 28" West, a distance of 301.44 feet to a point for corner;
2) North 30° 04' 12" West, a distance of 274.25 feet to a point for corner;
3) North 47° 11' 09" East, a distance of 182.37 feet to a point for corner;
4) North 87° 30' 46" East, a distance of 108.85 feet to a point for corner;

THENCE, South 36° 18' 34" East, a distance of 230.16 feet to the **POINT OF BEGINNING** and containing 1.807 acres of land.

STATE OF TEXAS
REGISTERED
RICHARD CHARITAT
6511
PROFESSIONAL
LAND SURVEYOR

8-29-18

HARRIS COUNTY, TEXAS
EZEKIEL THOMAS SURVEY, A-73



Notes:

1. Bearings and coordinates are based on the Texas Coordinate System, South Central Zone, NAD 83, U.S. survey feet.
2. Description Attached.
3. Easements Have Not Been Determined or Shown As Part of This Survey.
4. Property Corners Have Not Been Monumented.
5. This Survey Does Not Meet The Texas Board of Professional Land Surveyors Standards for a Land Title Boundary Survey.

STATE OF TEXAS
REGISTERED
RICHARD CHARITAT
5510
PROFESSIONAL
LAND SURVEYOR

8-29-18

Exhibit "B"

400' 200' 0' 400'

SCALE 1"=400'

TOTAL ACREAGE: 1.807

GULLETT & ASSOCIATES, INC.
7135 OFFICE CITY DRIVE
HOUSTON, TEXAS 77087
(713) 644-3219
Firm No. TX 100864-00
www.gulonline.com

NO.	DATE	REVISION

DRAWN BY:	FM	DATE:	04/18
CHECKED BY:	RC	DATE:	04/18
PLOT SCALE:	1"=400'	CAD FILE:	5205_201 Tetra Tech

TETRA TECH
2901 Wilcrest Dr. Suite 400
Ph: 832-251-5160 Houston, Texas 77042 Fax: 832-251-5100

PLUME MANAGEMENT ZONE
ACROSS KM LIQUIDS TERMINALS, LP
HARRIS COUNTY, TEXAS

CA-5205-201 REV. 0

FILE DATE: 8/29/2018 10:14 AM Richaritat 5205_201 Tetra Tech 1" = 400'

Exhibit B

Plume Management Zone Maintenance and Monitoring Requirements

Facility monitoring will consist of semi-annual groundwater monitoring of the approved plume management zone well network with annual reporting to the Texas Commission on Environmental Quality. More details regarding monitoring and maintenance can be found in the TCEQ approved Response Action Plan for the Old Pump House No. 5 Area of Concern (AOC).

FILED FOR RECORD

9:42:45 AM

Wednesday, February 26, 2020

COUNTY CLERK, HARRIS COUNTY, TEXAS

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW

THE STATE OF TEXAS
COUNTY OF HARRIS

I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County Texas

Wednesday, February 26, 2020

COUNTY CLERK
HARRIS COUNTY, TEXAS

Appendix 4

Historical Data Tables

TABLE 4-1

Groundwater Measurements
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Well ID	Date	Casing Elevation (ft.)	Screen Interval (ft. bgs)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Corrected Groundwater Elevation (ft.)
OPHMW-1	07/31/15	99.13	1.5 - 9	Not measured			
	02/25/16			Not measured			
	06/16/16			Not measured			
	09/09/16			4.79	5.87	1.08	94.19
	01/24/18			4.22	6.72	2.50	94.55
	08/29/18	101.83		8.28	11.10	2.82	93.15
	02/27/19			7.98	10.89	2.91	93.44
	08/28/19			8.68	10.69	2.01	92.86
	02/13/20			9.18	11.14	1.96	92.37
	07/27/20			7.82	10.77	2.95	93.59
	01/20/21			8.05	10.70	2.65	93.40
	07/01/21			NM	NM	-	-
	01/13/22			NM	NM	-	-
	07/28/22			-	4.01	0.00	97.82
	01/30/23			6.98	8.46	1.48	94.64
	07/21/23			7.72	8.72	1.00	93.97
OPHMW-2	07/31/15	99.13	5-15	-	5.71	0.00	93.42
	02/25/16			-	5.12	0.00	94.01
	06/16/16			-	3.86	0.00	95.27
	09/09/16			-	4.10	0.00	95.03
	01/24/18			-	4.30	0.00	94.83
	08/29/18			-	5.23	0.00	93.90
	02/27/19			-	3.07	0.00	96.06
	08/28/19			-	3.61	0.00	95.52
	02/13/20	98.98		-	5.16	0.00	93.82
	07/27/20			-	3.02	0.00	95.96
	01/20/21			-	4.39	0.00	94.59
	07/01/21			-	2.79	0.00	96.19
	01/13/22			-	4.32	0.00	94.66
	07/28/22			-	5.29	0.00	93.69
	01/30/23			-	3.18	0.00	95.80
	07/21/23			-	4.25	0.00	94.73
OPHMW-3	07/31/15	99.14	5-15	-	7.10	0.00	92.04
	02/25/16			-	4.40	0.00	94.74
	06/16/16			-	2.66	0.00	96.48
	09/09/16			-	3.12	0.00	96.02
	01/24/18			-	4.02	0.00	95.12
	08/29/18			-	3.94	0.00	95.20
	02/27/19			-	2.73	0.00	96.41
	08/28/19			-	3.34	0.00	95.80
	02/13/20	98.94		-	3.97	0.00	94.97
	07/27/20			-	2.98	0.00	95.96
	01/20/21			-	3.85	0.00	95.09

TABLE 4-1

Groundwater Measurements
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Well ID	Date	Casing Elevation (ft.)	Screen Interval (ft. bgs)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Corrected Groundwater Elevation (ft.)
	07/01/21			-	1.85	0.00	97.09
	01/13/22			-	4.53	0.00	94.41
	07/28/22			-	5.09	0.00	93.85
	01/30/23			-	3.45	0.00	95.49
	07/21/23			-	4.14	0.00	94.80
OPHMW-4	07/31/15	99.24	5-20	-	9.68	0.00	89.56
	02/25/16			-	9.94	0.00	89.30
	06/16/16			-	7.47	0.00	91.77
	09/09/16			-	7.55	0.00	91.69
	01/24/18			-	8.34	0.00	90.90
	08/29/18			-	9.31	0.00	89.93
	02/27/19			-	7.03	0.00	92.21
	08/28/19			-	7.80	0.00	91.44
	02/13/20	99.06		-	9.46	0.00	89.60
	07/27/20				6.58	0.00	92.48
	01/20/21				9.28	0.00	89.78
	07/01/21				6.74	0.00	92.32
	01/13/22				8.73	0.00	90.33
	07/28/22				9.56	0.00	89.50
	01/30/23				8.40	0.00	90.66
	07/21/23				9.59	0.00	89.47
OPHMW-5	07/31/15	99.62	5-20	-	10.92	0.00	88.70
	02/25/16			-	11.72	0.00	87.90
	06/16/16			-	9.98	0.00	89.64
	09/09/16			-	9.46	0.00	90.16
	01/24/18			-	11.09	0.00	88.53
	08/29/18			-	10.32	0.00	89.30
	02/27/19			-	10.21	0.00	89.41
	08/28/19			-	10.07	0.00	89.55
	02/13/20	99.42		-	11.20	0.00	88.22
	07/27/20			-	9.37	0.00	90.05
	01/20/21			-	11.22	0.00	88.20
	07/01/21			-	10.01	0.00	89.41
	01/13/22			-	10.96	0.00	88.46
	07/28/22			-	10.85	0.00	88.57
	01/30/23			-	10.56	0.00	88.86
	07/21/23			-	10.84	0.00	88.58
OPHMW-6	07/31/15	99.54	5-20	-	6.20	0.00	93.34
	02/25/16			-	6.25	0.00	93.29
	06/16/16			-	4.55	0.00	94.99
	09/09/16			-	5.13	0.00	94.41
	01/24/18			-	6.20	0.00	93.34

TABLE 4-1

Groundwater Measurements
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Well ID	Date	Casing Elevation (ft.)	Screen Interval (ft. bgs)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Corrected Groundwater Elevation (ft.)
	08/29/18			-	6.36	0.00	93.18
	02/27/19			-	4.97	0.00	94.57
	08/28/19			-	4.80	0.00	94.74
	02/13/20	99.38		-	5.91	0.00	93.47
	07/27/20			-	5.05	0.00	94.33
	01/20/21			-	5.75	0.00	93.63
	07/01/21			-	4.43	0.00	94.95
	01/13/22			-	6.33	0.00	93.05
	07/28/22			-	6.87	0.00	92.51
	01/30/23			-	5.38	0.00	94.00
	07/21/23			-	5.99	0.00	93.39
OPHMW-7	07/31/15	98.18	3-13	Not measured			
	02/25/16			7.33	10.15	2.82	90.45
	06/16/16			5.01	7.13	2.12	92.87
	09/09/16			5.50	7.00	1.50	92.47
	01/24/18			-	6.70	0.00	91.48
	08/29/18			7.24	7.25	0.01	90.94
	02/27/19			5.59	5.70	0.11	92.57
	08/28/19			6.92	7.01	0.09	91.25
	02/13/20	100.78		7.09	7.11	0.02	93.69
	07/27/20			5.40	5.63	0.23	95.35
	01/20/21			6.75	6.88	0.13	94.01
	07/01/21			4.57	5.80	1.23	96.03
	01/13/22			6.79	6.79	0.00	93.99
	07/28/22			7.49	7.50	0.01	93.29
	01/30/23			5.08	5.91	0.83	95.58
	07/21/23			6.37	6.99	0.62	94.32
OPHMW-8	07/31/15	Not Installed					
	02/25/16	98.42	5-15	-	4.10	0.00	94.32
	06/16/16			-	2.37	0.00	96.05
	09/09/16			2.57	4.13	1.56	95.63
	01/24/18	98.20		4.25	4.27	0.02	93.95
	08/29/18			4.32	4.34	0.02	93.88
	03/01/19			2.75	2.80	0.05	95.44
	08/28/19			2.43	2.45	0.02	95.77
	02/13/20	98.48		4.40	4.43	0.03	94.08
	07/27/20			3.21	3.70	0.49	95.20
	01/20/21			4.01	4.27	0.26	94.43
	07/01/21			2.16	4.09	1.93	96.05
	01/13/22			4.19	5.14	0.95	94.15
	07/28/22			4.93	5.55	0.62	93.46
	01/30/23			3.41	4.95	1.54	94.85
	07/21/23			3.78	5.59	1.81	94.44

TABLE 4-1

Groundwater Measurements
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Well ID	Date	Casing Elevation (ft.)	Screen Interval (ft. bgs)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Corrected Groundwater Elevation (ft.)
OPHMW-9	07/31/15	Not Installed					
	02/25/16	Not Installed					
	06/16/16	Not Installed					
	09/09/16	Not Installed					
	01/24/18	97.54	5-15	-	4.95	0.00	92.59
	08/29/18			-	5.13	0.00	92.41
	02/27/19			-	3.89	0.00	93.65
	08/28/19			-	3.89	0.00	93.65
	02/13/20			-	4.89	0.00	92.65
	07/27/20				4.17	0.00	93.37
	01/20/21			-	4.76	0.00	92.78
	07/01/21			-	3.77	0.00	93.77
	01/13/22			-	5.18	0.00	92.36
	07/28/22			-	5.69	0.00	91.85
	01/30/23			-	4.48	0.00	93.06
	07/21/23			-	4.75	0.00	92.79
OPHMW-10	07/31/15	Not Installed					
	02/25/16	Not Installed					
	06/16/16	Not Installed					
	09/09/16	Not Installed					
	01/24/18	96.94	5-15	-	7.40	0.00	89.54
	08/29/18			-	6.96	0.00	89.98
	02/27/19			-	6.25	0.00	90.69
	08/28/19			-	6.36	0.00	90.58
	02/13/20			-	7.38	0.00	89.56
	07/27/20			-	5.77	0.00	91.17
	01/20/21			-	7.44	0.00	89.50
	07/01/21			-	5.73	0.00	91.21
	01/13/22			-	7.10	0.00	89.84
	07/28/22			-	7.57	0.00	89.37
	01/30/23			-	6.43	0.00	90.51
	07/21/23			-	6.73	0.00	90.21

TABLE 4-1

Groundwater Measurements
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Well ID	Date	Casing Elevation (ft.)	Screen Interval (ft. bgs)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Corrected Groundwater Elevation (ft.)
OPHMW-11	07/31/15	Not Installed					
	02/25/16	Not Installed					
	06/16/16	Not Installed					
	09/09/16	Not Installed					
	01/24/18	96.36	5-15	-	4.94	0.00	91.42
	08/29/18			-	5.96	0.00	90.40
	02/27/19			-	4.40	0.00	91.96
	08/28/19			-	4.46	0.00	91.90
	02/13/20			-	5.72	0.00	90.64
	07/27/20			-	3.82	0.00	92.54
	01/20/21			-	4.98	0.00	91.38
	07/01/21			-	3.79	0.00	92.57
	01/13/22			-	4.85	0.00	91.51
	07/28/22			-	5.78	0.00	90.58
	01/30/23			-	4.34	0.00	92.02
	07/21/23			-	4.42	0.00	91.94
				-			

Notes:
RSD = Relative Survey Datum (wells referenced to arbitrary 100-ft datum on site)
bgs = Below Ground Surface
TOC = Top of Casing
A NAPL specific gravity of 0.8577
NM = Not Measured

Table 2
Historical Groundwater Concentration Summary
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park Texas

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-1	07/31/15	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
(8-foot Sump)	02/25/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	06/16/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/14/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NS	NS	NS	NS	NS	NS	NS
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-2	07/31/15	**0.00415**	**0.000378 J**	**0.000568 J**	**0.0055**	**0.00514**	**0.000196 J**	0.0000777 U
	02/25/16	**0.124**	**0.0145**	**0.00145**	**0.0168**	**0.0298**	**0.0203**	**0.062**
	06/16/16	**0.0974**	**0.00826**	**0.00103**	**0.0164**	**0.127**	**0.128**	**0.355**
	09/09/16	**0.0846**	**0.00866**	**0.00114**	**0.0173**	**0.0387**	**0.0352**	**0.079**
	01/24/18	**0.0163**	**0.00236**	**0.000411 J**	**0.00833**	0.000190 U	0.000140 U	0.000160 U
	08/30/18	**0.0777**	**0.0495**	**0.00208**	**0.0469**	0.000189 U	0.000135 U	**0.000551 J**
	03/01/19	**0.0409**	**0.0205**	**0.00116**	**0.0145**	**0.00989**	**0.00931**	0.000160 U
	08/29/19	**0.0522**	**0.00790**	**0.00137**	**0.0161**	**0.0683**	**0.0629**	**0.0743**
	02/14/20	**0.0515**	**0.00416**	**0.00112**	**0.0143**	**0.0161 J**	**0.0130 J**	**0.0159 J**
	07/27/20	**0.0420**	**0.00225**	**0.000692 J**	**0.0104**	**0.0137 J**	**0.00946 J**	**0.00275 J**
	01/20/21	**0.0438**	**0.0033**	**0.00086 J**	**0.0112**	**0.0116**	**0.0098**	**0.0052**
	07/01/21	**0.0277**	**0.000943 J**	**0.00075 J**	**0.0120**	**0.00868**	**0.00674**	**0.00126**
	01/13/22	**0.0731**	**0.0640**	**0.00270**	**0.0455**	**0.0458 JL**	**0.0628 JL**	**0.561 J**
	Duplicate	**0.0717**	**0.0628**	**0.00263**	**0.0458**	**0.0554**	**0.0768**	**0.82 J**
	07/28/22	**0.0460**	**0.00144**	**0.00111**	**0.0174**	0.000333 UJL	0.000480 UJL	0.000423 UJL
	Duplicate	**0.0451**	**0.00146**	**0.00112**	**0.0175**	**0.0083 J**	0.000480 U	**0.0105 J**
	01/30/23	**0.0109**	**0.00183**	**0.000735 J**	**0.0124**	**0.0238**	**0.00244 ***	**0.0468**
	Duplicate	**0.0113**	**0.00181**	**0.000743 J**	**0.0126**	**0.0262**	**0.00273 ***	**0.0562**
	07/21/23	**0.0111**	**0.0196**	**0.00113**	**0.0170**	**0.0872 J**	**0.0715 J**	**1.31 J**
	Duplicate	**0.00905**	**0.0162**	**0.00104**	**0.0151**	**0.062 J**	**0.0478 J**	**0.731 J**
OPHMW-3	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	09/09/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	08/30/18	0.000176 U	**0.000602 J**	0.000198 U	**0.000488 J**	0.000183 U	0.000135 U	**0.000299 J**
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	**0.000562 J**
	08/29/19	0.000176 U	0.000212 U	**0.000536 J**	0.000366 U	0.000190 U	0.000140 U	0.000284 J
	02/14/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	**0.000321 J**	**0.000239 J**
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	**0.000368 J**	0.000480 U	**0.000442 J**
	01/30/23	0.000551 U	0.00124 U	0.000533 U	0.000411 U	0.000333 U	0.00048 U *	0.000423 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-4	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	**0.0233**	**0.0526**	**0.0266**
	09/09/16	0.000176 U	**0.000272 J**	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/28/19	0.000176 U	0.000212 U	**0.000534 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 U
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	**0.00076 J**
	01/30/23	0.000475 U	0.000551 U	0.000411 U	0.00124 U	0.000333 U	0.000423 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-5	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	09/09/16	**0.000305 J**	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	**0.000413 J**	**0.000766 J**	**0.00297**

Table 2
Historical Groundwater Concentration Summary
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park Texas

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-5	08/30/18	**0.000272 J**	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	08/28/19	0.000176 U	0.000212 U	**0.000535 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	07/27/20	**0.000733 J**	0.000212 U	0.000198 U	**0.000655 J**	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.00071 J	0.00036 J	0.0005 U	0.00078 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 U
	07/28/22	0.000533	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.00124 U	0.000533 U	0.000551 U	0.000475 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-6	07/31/15	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000874 U	0.0000680 U	0.0000777 U
	02/25/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00019 U	0.00014 U	0.00016 U
	06/16/16	**0.000231 J**	**0.00033 J**	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	09/09/16	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/24/18	**0.00312**	**0.00159**	**0.000277 J**	**0.00158 J**	**0.000451 J**	**0.000715 J**	**0.00140 J**
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	08/29/19	0.000176 U	0.000212 U	**0.000523 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/14/20	0.000176 U	0.000212 U	0.000198 U	**0.000382 J**	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.00054 J	0.00024 J	0.0005 U	0.00077 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	**0.000358 J**	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	**0.00131 J**	0.000333 U	0.000480 U	**0.000625 J**
	01/30/23	0.000475 U	0.00124 U	0.000533 U	0.00124 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-7	07/31/15	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/25/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	06/16/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	**2.20**	**1.81**	**0.101 J**	**2.74**	**0.096**	**0.117**	**0.305**
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/13/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-8	02/25/16	**8.75**	**3.26**	**0.145**	**2.51**	**0.103**	**0.156**	**0.707**
	06/16/16	**12**	**4.57**	**0.167 J**	**4.57**	**0.108 J**	**0.204**	**1.13**
	09/09/16	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/24/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/30/18	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	03/01/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	08/28/19	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	02/13/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/27/20	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/20/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/01/21	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/13/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/28/22	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	01/30/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
	07/21/23	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL	NAPL
OPHMW-9	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000183 U	0.0000135 U	0.0000154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	08/29/19	0.000176 U	0.000212 U	**0.000443 J**	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	02/14/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	0.000160 U
	01/20/21	0.000214 U	0.000146 U	0.0005 U	0.000192 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.000475 U	0.000533 U	0.000551 U	0.00124 U	0.000423 U	0.00048 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U

Table 2
Historical Groundwater Concentration Summary
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park Texas

Location	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene
		mg/L						
	GWPS	23	3800	6080	1300	18	547	41
OPHMW-10	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00183 U	0.00135 U	0.00154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000190 U	0.000140 U	**0.000570 J**
	08/28/19	0.000176 U	0.000212 U	**0.000484 J**	**0.000633 J**	0.00183 U	0.00135 U	0.00154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00190 U	0.00140 U	0.00160 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.00190 U	0.00140 U	0.00160 U
	01/20/21	0.00031 J	0.0002 J	0.0005 U	0.00066 J	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	**0.000362 J**	**0.000671 J**	**0.000555 J**
	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000423 U	0.000333 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
OPHMW-11	01/24/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.0000183 U	0.0000135 U	0.0000154 U
	08/30/18	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	03/01/19	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000198 U	0.000146 U	0.000167 U
	08/28/19	0.000176 U	0.000212 U	**0.000499 J**	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	02/13/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	07/27/20	0.000176 U	0.000212 U	0.000198 U	0.000366 U	0.000183 U	0.000135 U	0.000154 U
	01/20/21	0.000214 U	0.0005 U	0.000192 U	0.000146 U	0.000416 U	0.0006 U	0.001 U
	07/01/21	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	0.000800 U
	01/13/22	0.000214 U	0.000515 U	0.000500 U	0.000330 U	0.000333 U	0.000480 U	**0.000598 J**
	07/28/22	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000333 UJL	0.000480 UJL	0.000423 UJL
	01/30/23	0.000411 U	0.000533 U	0.000475 U	0.000551 U	0.000333 U	0.000423 U *	0.00048 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
TRIP BLANK	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	NA	NA	NA
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
EQUIPMENT BLANK	01/30/23	0.00124 U	0.000475 U	0.000411 U	0.00124 U	0.000423 U	0.000480 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U
FIELD BLANK	01/30/23	0.000533 U	0.000411 U	0.000475 U	0.00124 U	0.000423 U	0.000480 U *	0.000333 U
	07/21/23	0.000460 U	0.000411 U	0.000475 U	0.00124 U	0.000333 U	0.000480 U	0.000423 U

Notes:

GWPS - Groundwater Protection Standard

Concentrations in **Bold** exceed the SDL

Acronyms

J - Estimated concentration between the SDL and the MQL

U - Not detected at the SDL

SDL - Sample Detection Limit

NAPL - Non-aqueous phase liquid

L - Bias in sample result is likely low.

* - LCS or LCSD is outside acceptance limits.

Appendix 9
Historical Reports and TCEQ Correspondence

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Stephanie Bergeron Perdue, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 10, 2018

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LLC
906 Clinton Drive
Galena Park, TX 77547-0486

Re: Conditional Approval of

- *Draft Revised Response Action Plan for TCI Plant,* dated January 15, 2018.
- *Draft Revised Response Action Plan, East Plant Gate 6 Area to the 2014 RAP,* dated March 5, 2018
- *Draft Response Action Plan, Old Pump House (OPH) No. 5 Area of Concern, (East Plant),* dated March 28, 2018;

Kinder Morgan Liquids Terminals, LLC - Galena Park;
TCEQ SWR No. 30573; TCEQ Hazardous Waste Permit/Compliance Plan 50054;
EPA ID No. TXD026481523;
Customer No. CN601545940; Regulated Entity No. RN100237452

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced Response Action Plans (RAPs) received by the Remediation Division on January 24, March 6, and April 2, 2018, respectively. Based on the TCEQ review, the Draft RAPs fulfill the requirements of 30 Texas Administrative Code (TAC) §350.94. The TCEQ hereby approves Draft RAP with the following conditions:

- Within one-hundred-twenty (120) days from the date of this letter please submit the above referenced Response Action Plans (RAPs) as part of a Class 3 Permit Modification application. The Modification to the Permit shall incorporate proposed response actions for the OPH No. 5 Area of Concern, East Plant Gate 6 Area, and the TCI Plant, and any other areas at the Galena Park site in which the response action will take more than 3 years to complete. Please submit an original and three copies of the Class 3 Permit Modification application to the IHW Permits Section at mail code MC130.
- The TCEQ recommends that the Implementation Schedule for the submittal of proof of institutional controls (ICs) in the form of deed notice be consistent between RAPs. For example, proof of filing be submitted within 120 days of RAP approval in accordance with 30 TAC §350.33.
- Since the CP Attachment A maps for the final draft permit will be in black and white the TCEQ recommends that the designated monitoring well location for point-of-exposure well, attenuation monitoring, etc., have a different symbol so the different well can be easily distinguished from one another.
- Revise the deed Notice language in Appendix 4 of the RAPs to include the following information as required by 30 TAC §350.111 and per TCEQ Guidance RG-366/TRRP 16 *Institutional Controls under TRRP*:

- A metes and bounds description of the portion(s) of the affected property to which the IC applies;
- A plat map clearly demarcating the portion(s) of the affected property to which the IC applies. The map must contain a north arrow, a correlating map scale, and a legend identifying any used symbols or abbreviations;
- Both the metes and bounds and plat map need to be certified by a registered professional land surveyor or registered by the Texas Bard of Professional Surveying attesting to the accuracy of the descriptions.
- A list of constituents of concern for each environmental media that contain concentrations above their respective protective concentration levels (PCLs).
- A description of any monitoring and maintenance requirements of the physical controls and/or ICs, or compliance with health and safety plans.
- The TCEQ Program and identifier number which should be SWR No. 30573.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the plan.

Questions concerning this letter should be directed to me at (512) 239-2034 or maureen.hatfield@tceq.texas.gov. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Maureen Hatfield, P.G., Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MH/bk

cc: Mr. Jason Ybarra, Waste Program Manager, TCEQ Region 12 Office, Houston

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 12, 2022

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LL
1500 Clinton Drive
Galena Park, TX 77547

Re: Approval Conditional
Interim Corrective Measures Effectiveness Report, Tract A (North Plant), dated May 17, 2022
Technical Report - Light Non-aqueous Phase Liquid (LNAPL) Bail/Down Testing and LNAPL Transmissivity – Old Pump House 5 (OPH5) Area of Concern (AOC), East Plant, dated May 24, 2022
Kinder Morgan Liquids Terminals, LLC – Galena Park;
TCEQ SWR No. 30573; CN601545940; RN100237452
TCEQ Hazardous Waste Permit/Compliance Plan No. 50054
EPA ID No. TXD026481523;

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced reports and approves them with the following comments:

1. May 17, 2022, Interim Corrective Measures Effectiveness Report, Tract A (North Plant). This report generally meets the requirements of Provisions XI.H.8 of the above-referenced Permit. Please continue to submit interim measures reports per Permit Provision XI.H.8.

2. May 24, 2022, Technical Report - LNAPL Bail/Down Testing and LNAPL Transmissivity – OPH5 AOC, East Plant: The report concludes that (a) the small LNAPL plume within the OPH5 plume management zone (PMZ) is stable and is not expanding and (b) the LNAPL is not readily recoverable based on its transmissivity data. The report recommends ceasing LNAPL permanently. The TCEQ concurs on this proposal, with the following conditions per TCEQ guidance RG-366/TRRP-32 Risk-Based NAPL Management:

    a. Continue to monitor LNAPL thicknesses for changes in its condition or distribution; and,
    b. Verify that no explosive conditions are generated by the LNAPL.

    If the groundwater protective concentration level exceedance (PCLE) zone expands or explosive conditions are present due to LNAPL, propose a

modification to the Response Action Plan (RAP) per 30 Texas Administrative Code (TAC) §350.33(f)(4)(C)(i).

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the RAP.

Questions concerning this letter should be directed to me at (512) 239-2034. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all future documents to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,



Maureen M. Hatfield, P.G., Project Manager
VCP-CA Section, Remediation Division

MMH/mmh

cc: Ms. Alma Jefferson, Waste Program Manager, TCEQ Region 12 Office, Houston, via email

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 19, 2022

Mr. Johnny Kennedy
Remediation Project Manager
Kinder Morgan Liquids Terminals, LL
1500 Clinton Drive
Galena Park, TX 77547

Re: Approval of *Kinder Morgan's (KM's) October 12, 2022 Response to TCEQ's August 12, 2022 Comment letter regarding the Interim Corrective Measures Effectiveness Report (RAER) – Tract A and Light Non-aqueous Phase Liquid (LNAPL) Bail/Down Testing and LNAPL Transmissivity – Old Pump House 5 Area*
Kinder Morgan Liquids Terminals, LLC – Galena Park; TCEQ SWR No. 30573; CN601545940; RN100237452; EPA ID No. TXD026481523;
TCEQ Hazardous Waste Permit with Compliance Plan No. 50054

Dear Mr. Kennedy:

The Texas Commission on Environmental Quality (TCEQ) has completed the review of KM's response and has determined that it adequately addresses the comments in TCEQ's August 12, 2022 letter. Therefore, the above-referenced response, RAER and LNAPL Reports generally meet the reporting requirements in Permit Provision XI.G and CP Table VII.

Questions concerning this letter should be directed to me at (512) 239-2034. When responding by mail, please submit one paper copy and one electronic copy (on USB, disc) of all future documents to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Maureen M. Hatfield, P.G., Project Manager
VCP-CA Section, Remediation Division
MMH/mmh

cc: Ms. Alma Jefferson, Waste Program Manager, TCEQ Region 12 Office, Houston, via email

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION

Site Name: **KM Liquids Terminals LLC – Galena Park Terminal**

Address 1: **906 Clinton Drive**

Address 2:

City: **Galena Park** State: **Texas**

Zip Code: **77547** County: **Harris**

TCEQ Region: **Region 12 - Houston**

REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION

Is This Site Being Managed Under A State Lead Contract?

☐ Yes ☑ No

Program Area: **IHW CORRECTIVE ACTION**

Mail Code: **MC-127**

Is This A New Site To This Program Area?

☐ Yes ☑ No

TCEQ Facility ID No.: **30573**

--Leave This Field Blank-- **--Leave This Field Blank--**

DOCUMENT(S) IDENTIFICATION

	PHASE OF REMEDIATION	DOCUMENT NAME
1.	MISCELLANEOUS	TECHNICAL REPORT NOT OTHERWISE SPECIFIED (NOS)
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name: **Johnny Kennedy**
Company: **KM Liquids Terminals LLC** Phone Number: **(713) 654-6035** Fax Number:
Address 1: **1500 Clinton Drive** City: **Galena Park** State: **Texas** Zip Code: **77547**
Address 2: Email Address: [redacted]

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name: **Vincent Swadis**
Company: **Tetra Tech, Inc.** Phone Number: **(832) 251-6093** Fax Number:
Address 1: **1500 CityWest Blvd** City: **Houston** State: **Texas** Zip Code: **77042**
Address 2: **Suite 1000** Email Address: [redacted]

TCEQ INTERNAL USE ONLY

Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**TECHNICAL REPORT**	4.	
2.		5.	
3.			

KINDER MORGAN
KM Liquids Terminals LLC

May 25, 2022 **FedEx# 8166 0504 9000**

Ms. Maureen Hatfield
Project Manager, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality
Building D, MC-127
12100 Park 35 Circle
Austin, Texas 78753

Re: Report Transmittal – LNAPL Baildown Testing and LNAPL Transmissivity, OPH5 AOC, East Plant
KM Liquids Terminals LLC - Galena Park Terminal
Galena Park, Texas
ISWR No. 30573
Hazardous Waste Permit No. HW-50054
EPA I.D. No. TXD026481523

Dear Ms. Hatfield:

Please find enclosed one original hard copy and an electronic copy (on USB drive) of the above-referenced report. The report was prepared to document light non-aqueous phase liquids (LNAPL) baildown field testing and LNAPL transmissivity determination for the Old Pump House #5 (OPH5) Area of Concern (AOC) in East Plant at the KM Liquids Terminals LLC (KMLT) Galena Park Terminal. The intent of the testing and analyses was to evaluate the recoverability of the LNAPL present in the subsurface at the OPH5 AOC after approximately six years of LNAPL recovery efforts. A prior LNAPL baildown test and evaluation completed in 2016 and presented in the August 2018 Response Action Plan (RAP) for the OPH5 AOC indicated LNAPL transmissivities in the range of 1.77 ft^2/day to 3.42 ft^2/day, indicating LNAPL was recoverable at that time.

To address the LNAPL in the subsurface at the OPH5 AOC, LNAPL recovery began in 2016 with the installation of the passive drain system, which is documented in the August 2018 RAP, and was further enhanced with the installation of a Spill Buster® (an automatic LNAPL recovery system) in OPHMW-7 in 2017 and initiation of manual recovery from OPHMW-1 and OPHMW-8 in 2018. Manual recovery at OPHMW-1 was replaced with a Spill Buster® in early 2021. Manual LNAPL recovery and recovery using the Spill Busters® was continued until May of 2021 when, with Texas Commission on Environmental Quality (TCEQ) concurrence, LNAPL recovery was temporarily stopped (except for the passive drain system) to monitor LNAPL rebound and assess the need to continue LNAPL recovery. At the time LNAPL recovery was ceased, LNAPL thicknesses in the affected wells was generally less than 0.1 feet and recovered volumes, excluding the passive drain system, were less than 0.1 liters per week.

The new LNAPL transmissivity data and the significant reduction in LNAPL recovery volume presented in the attached report indicate all readily recoverable LNAPL has been removed.

KMLT requests your consideration for the recommendation provided by Tetra Tech to cease active NAPL recovery permanently, while continuing to operate the passive subsurface drain system.

If you have any questions regarding this submittal or require additional information, please feel free to contact me at (713) 654-6035, or if you wish you can e-mail me at [redacted]

Sincerely,
KM Liquids Terminals LLC



Johnny Kennedy
Remediation Manager

Enclosure
cc: Waste Program Manager – TCEQ Region 12, Houston, Texas

TETRA TECH
1500 CityWest Boulevard, Suite 1000 ◆ Houston, TX 77042 ◆ (832) 251-5160 ◆ FAX (713) 784-2962

May 24, 2022

Via Electronic Mail

Johnny Kennedy
Remediation Manager
KM Liquids Terminals LLC
1500 Clinton Drive
Galena Park, TX 77547

Subject: LNAPL BAILDOWN TESTING AND LNAPL TRANSMISSIVITY – OPH5 AOC, EAST PLANT, KM LIQUIDS TERMINALS LLC - GALENA PARK TERMINAL, 906 CLINTON DRIVE, GALENA PARK, TEXAS

Dear Mr. Kennedy:

Tetra Tech, Inc. (Tetra Tech) has prepared this letter report to document light non-aqueous phase liquids (LNAPL) baildown field testing and data analyses related to the Old Pump House #5 (OPH5) Area of Concern (AOC) in East Plant at the KM Liquids Terminals LLC (KMLT) Galena Park Terminal. The purpose of the testing and analyses was to evaluate the potential recoverability of the LNAPL present in the subsurface at the OPH5 AOC. The location of the OPH5 AOC on the KMLT Galena Park Terminal is illustrated in Figure 1 and the location of wells associated with the AOC are illustrated in Figure 2.

The area of the OPH5 AOC is currently being remediated under the Corrective Action Program required by the Galena Park Terminal's Hazardous Waste Permit/Compliance Plan (HW-50054). The response action at OPH5 includes a groundwater plume management zone (PMZ) within which a small stable LNAPL plume is being managed. During development of the response action for the area, it was determined that the LNAPL in the subsurface was readily recoverable and therefore the response action included LNAPL recovery within the PMZ.

Recovery and monitoring of LNAPL was initiated in 2016. Initially recovery was through a passive subsurface drain system installed in the wall of a large below grade containment area located adjacent to the LNAPL plume. The LNAPL recovery was subsequently enhanced by the installation of a Spill Buster® system and manual recovery. Historical recovery and monitoring data through first quarter 2021 showed that LNAPL thicknesses and LNAPL recovery volume had been reduced significantly since 2016. With the permission of the Texas Commission on Environmental Quality (TCEQ), LNAPL recovery was stopped, except recovery from the passive drain system, in April 2021 and a monthly monitoring program was instituted to monitor for LNAPL rebound. The monitoring data since shutdown show that LNAPL thicknesses in the affected wells/sumps have over time shown some rebound but are variable. A summary of the historical gauging and recovery data is included as Table 1.

As outlined in the TCEQ approved Response Action Plan (RAP) for OPH5, LNAPL recovery is to be assessed at the OPH5 AOC on a regular basis. The purpose is to determine if the LNAPL

plume continues to be stable and if the LNAPL continues to be readily recoverable. To complete that assessment, an LNAPL baildown test was conducted at one of the monitoring wells associated with the OPH5 AOC (OPHMW-8) on November 18, 2021 and again on January 18, 2022. The purpose was to determine the current LNAPL transmissivity and evaluate whether a recovery endpoint had potentially been reached as suggested by the historical recovery data. The tests and subsequent evaluations were completed in general accordance with procedures outlined in the American Petroleum Institute's (API's) April 2016 User Guide – API LNAPL Transmissivity Workbook: A tool for Baildown Test Analysis (API 2016).

The LNAPL baildown test at OPH5MW-8 included a pretest gauging of fluid levels in the well, rapid removal of the LNAPL in the well (using a peristaltic pump), recordation of the total volume of LNAPL recovered, and subsequent monitoring, by hand using an interface probe, of the depth to LNAPL and depth to groundwater. The field data are summarized in Table 2.

The baildown test analyses were completed using the API LNAPL Transmissivity (Excel) Workbook (API 2016). Well and aquifer-specific data in addition to the test data were input into the workbook. The analyses were completed assuming an unconfined aquifer and a sandy silt formation. The model uses the Bower and Rice, Cooper and Jacob, and Cooper, Bredehoeft and Papadopulos methods to estimate LNAPL transmissivity. The model input and output are included in Attachment 1. The results for the November 2021 testing, using the various methods in the API Workbook, show LNAPL transmissivities ranging from 0.17 ft^2/day to 0.25 ft^2/day with an average LNAPL transmissivity of 0.21 ft^2/day. LNAPL transmissivity values in the range of 0.1 to 0.8 ft^2/day are generally accepted as cutoff values below which LNAPL is largely immobile under either natural or active recovery conditions (ITRC 2009). The November 2021 testing results would suggest that the LNAPL in the subsurface in the OPH5 area has reached a point where it is no longer readily recoverable.

To confirm the November 2021 results, the LNAPL baildown testing was repeated at OPHMW-8 in January 2022. The results for the January 2022 testing show LNAPL transmissivities ranging from 0.20 ft^2/day to 0.61 ft^2/day with an average LNAPL transmissivity of 0.43 ft^2/day. The results are comparable to the results for the November 2021 testing and support the conclusion that the LNAPL at the OPH5 AOC is likely immobile, not readily recoverable, and a recovery endpoint has been reached.

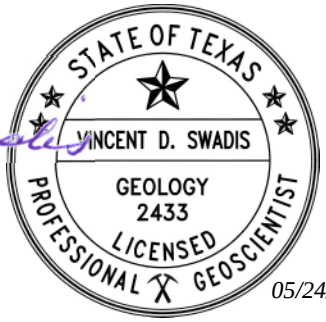
Groundwater monitoring data collected since 2016 show that the LNAPL plume associated with the OPH5 AOC is not expanding and is stable. Active LNAPL recovery between 2016 and 2021 reduced the observed LNAPL thickness in the area from a high of 3.94 feet to 0.04 feet or less depending on well location. Since ceasing active LNAPL recovery in first quarter of 2021, LNAPL thicknesses have rebounded but the LNAPL thickness at the individual wells are not consistent and are highly variable, ranging from 0.44 feet to 2.55 feet in OPHMW-1, 0.02 feet to 1.65 feet in OPHMW-7, and 0.04 feet to 2.51 feet in OPHMW-8. The variability may be due in part to rainfall and the level of soil saturation in the area. Given that the LNAPL plume is not expanding and that the LNAPL transmissivity data indicates that the LNAPL is not readily recoverable, and as outlined in the Performances Measures section of the RAP (RAP Worksheet 3.0), Tetra Tech recommends that the TCEQ be petitioned to cease active NAPL recovery permanently.

Tetra Tech appreciates the opportunity to provide KMLT with professional environmental consulting services. Should you have any questions or comments regarding this letter report, please do not hesitate to contact Vincent Swadis by telephone at 832-251-6093 or by email at [redacted]

Sincerely,
TETRA TECH, INC.

Vincent D. Swadis

Vincent D. Swadis
Senior Project Manager
Tetra Tech, Inc.



05/24/22

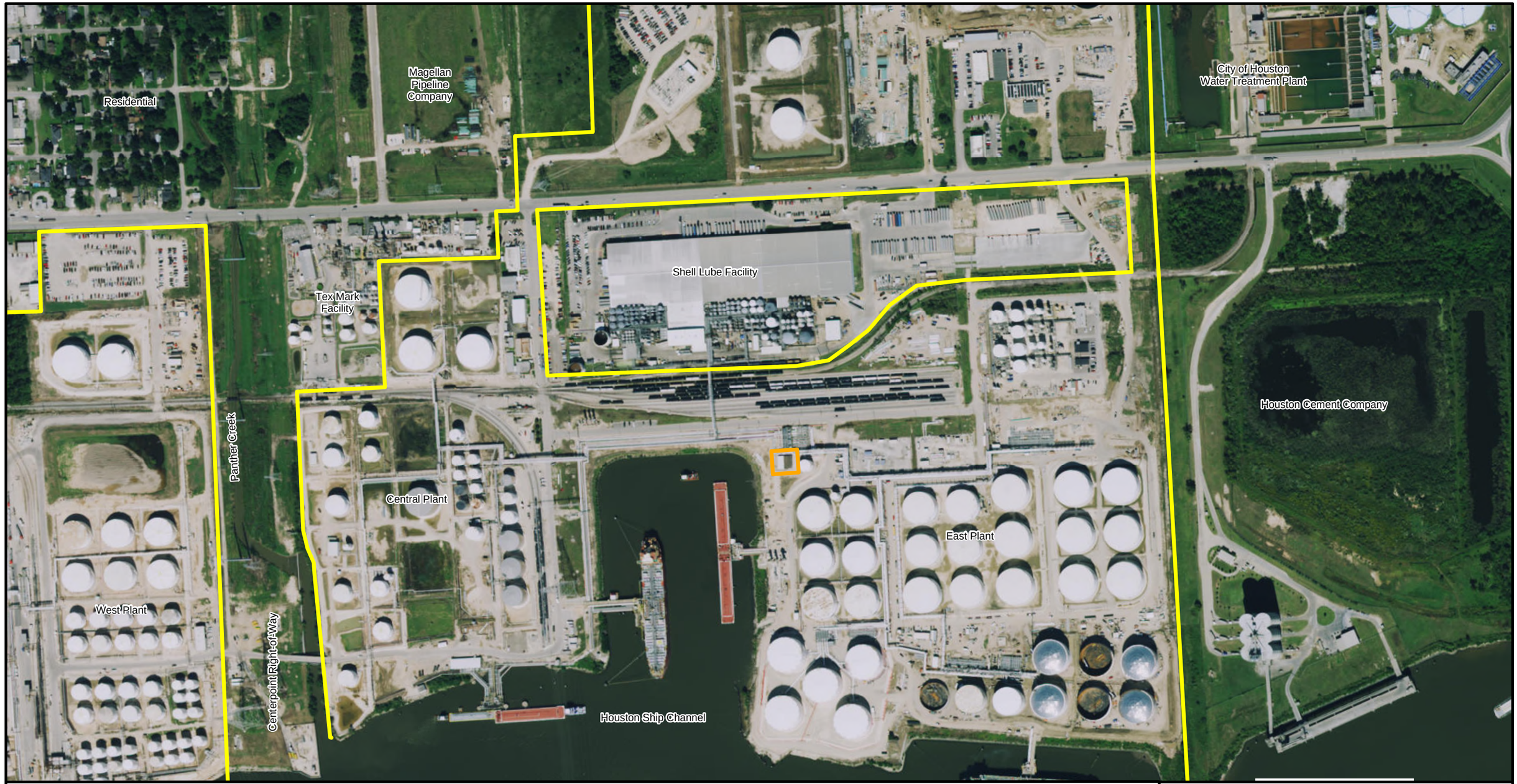
Attachments:

Figure 1 – Site Location Map
Figure 2 – Well Location Map

Table 1 – Historical LNAPL Gauging and Recovery Data – Old Pump House No. 5 AOC
Table 2 – Field Data Summary LNAPL Baildown Test – OPHMW-8

Attachment A – API Transmissivity Workbook Input/Output
Attachment B – References

FIGURES



Approximate Terminal Boundary

Approximate Old Pump House No.5 Location

Source: ESRI Basemap - Imagery, 2013.

N
W E
S

0 200 400

APPROXIMATE SCALE IN FEET

TETRA TECH

OLD PUMP HOUSE NO. 5 AOC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547
PROJECT NO.: 112C06520

FIGURE 1
SITE LOCATION MAP



Well Location

N
W E
S

0 20 40

APPROXIMATE SCALE IN FEET

Source: ESRI Basemap - Imagery, 2015.

TETRA TECH

OLD PUMP HOUSE NO. 5 AOC
GALENA PARK TERMINAL
GALENA PARK, HARRIS COUNTY, TEXAS 77547

FIGURE 2
WELL LOCATION MAP

TABLES

TABLE 1

Historical LNAPL Gauging and Recovery Data
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

	OPHMW-1 (Sump)				OPHMW-7				OPHMW-8			
Date	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)
09/09/16	4.79	5.87	1.08	-	5.50	7.00	1.50	-				
09/07/17	3.92	6.45	2.53	-	5.65	5.70	0.05	-				
09/13/17	4.20	6.58	2.38	-	6.00	6.28	0.28	-				
09/22/17	4.06	6.47	2.41	-	5.84	6.15	0.31	-				
09/29/17	3.96	6.27	2.31	-	5.92	6.25	0.33	-				
10/02/17	3.94	6.42	2.48	-	5.86	5.92	0.06	-				
10/13/17	4.30	6.15	1.85	-	6.13	6.41	0.28	-				
10/19/17	4.56	6.34	1.78	-	6.50	6.66	0.16	-				
10/26/17	4.33	5.54	1.21	-	6.18	6.34	0.16	-				
11/13/17	4.91	6.33	1.42	-	-	6.86	-	-				
11/21/17	4.89	6.28	1.39	-	-	6.84	-	-				
11/27/17	5.15	6.45	1.30	-	-	7.14	-	-				
01/09/18	5.32	7.00	1.68	-	-	7.14	-	-				
01/18/18	5.57	7.10	1.53	-	-	7.21	-	-				
01/24/18	4.22	6.72	2.50	-	-	6.70	-	-	4.25	4.27	0.02	-
01/29/18	4.94	6.95	2.01	1	6.39	6.70	0.31	0.01	3.98	4.25	0.27	0.2
02/05/18	5.03	7.70	2.67	1	6.83	6.86	0.03	Turned pump on	3.86	3.90	0.04	0.01
02/12/18	4.94	7.13	2.19	2	6.36	6.50	0.14	NM - Pumping	3.66	3.70	0.04	Trace
02/19/18	4.69	7.46	2.77	1	6.48	6.56	0.08	NM - Pumping	3.42	3.47	0.05	1
02/26/18	4.51	7.34	2.83	1	5.82	5.90	0.08	NM - Pumping	3.09	3.12	0.03	3
03/09/18	No Recovery - Safety Would Not Issue Permit				No Recovery - Safety Would Not Issue Permit				No Recovery - Safety Would Not Issue Permit			
03/15/18	Interface Probe Malfunction			1	Interface Probe Malfunction			NM - Pumping	3.20	5.93	2.73	2
03/22/18	5.08	7.85	2.77	1	-	7.13	0.00	NM - Pumping	3.40	5.81	2.41	2
03/27/18	5.03	7.85	2.82	1	-	7.73	0.00	NM - Pumping	3.40	5.81	2.41	2.5
04/05/18	4.80	7.51	2.71	1	-	6.63	0.00	NM - Pumping	3.71	3.84	0.13	0.1
04/13/18	Interface Probe Malfunction			0.5	Interface Probe Malfunction			NM - Pumping	Interface Probe Malfunction			0.1
04/19/18	5.22	7.63	2.41	1	-	7.18	0.00	NM - Pumping	4.09	4.70	0.61	1
04/26/18	5.02	7.40	2.38	1	-	6.86	0.00	NM - Pumping	3.79	4.34	0.55	0.5
05/04/18	5.15	6.47	1.32	1	-	7.18	0.00	NM - Pumping	4.08	4.69	0.61	1.5
05/08/18	5.21	7.55	2.34	1	-	7.26	0.00	NM - Pumping	4.18	4.77	0.59	1
05/17/18	5.33	7.62	2.29	0.5	-	7.44	0.00	NM - Pumping	4.37	4.95	0.58	0.5
05/25/18	5.23	7.60	2.37	0.5	-	7.16	0.00	NM - Pumping	4.13	4.51	0.38	0.25
05/30/18	5.17	7.43	2.26	1	-	7.03	0.00	NM - Pumping	4.14	4.31	0.17	1
06/08/18	5.30	7.40	2.10	1	-	7.25	0.00	NM - Pumping	4.27	7.23	2.96	1
06/15/18	5.43	7.45	2.02	1	-	7.46	0.00	NM - Pumping	4.42	4.90	0.48	1
06/21/18	5.15	6.42	1.27	1	6.38	6.40	0.02	NM - Pumping	3.95	4.20	0.25	1

TABLE 1

Historical LNAPL Gauging and Recovery Data
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

	OPHMW-1 (Sump)				OPHMW-7				OPHMW-8			
Date	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)
06/29/18	4.94	6.97	2.03	1	6.74	6.84	0.10	NM - Pumping	4.04	4.21	0.17	1
07/05/18	4.94	6.78	1.84	1	6.15	6.26	0.11	NM - Pumping	4.68	5.13	0.45	1.5
07/12/18	4.54	6.55	2.01	1	6.10	6.43	0.33	NM - Pumping	3.20	3.68	0.48	1
07/18/18	4.48	6.85	2.37	1	-	6.27	0.00	NM - Pumping	3.86	4.15	0.29	1
07/27/18	4.80	6.80	2.00	1	6.77	6.95	0.18	NM - Pumping	3.58	4.15	0.57	1
07/31/18	4.90	6.89	1.99	1	6.83	7.05	0.22	NM - Pumping	3.52	5.81	2.29	1.5
08/08/18	4.95	7.04	2.09	1	7.02	7.06	0.04	NM - Pumping	3.68	5.65	1.97	2
08/16/18	4.89	7.63	2.74	0.5	6.78	6.82	0.04	NM - Pumping	3.86	4.13	0.27	0.5
08/21/18	8.77	11.41	2.64	1	6.98	7.03	0.05	NM - Pumping	4.07	4.34	0.27	0.5
08/29/18	8.25	11.10	2.85	1	7.24	7.25	0.01	NM - Pumping	4.32	4.34	0.02	1
09/05/18	8.42	10.89	2.47	1	6.15	6.40	0.25	NM - Pumping	3.71	4.05	0.34	0.5
09/13/18	8.31	10.93	2.62	1	6.18	6.38	0.20	NM - Pumping	4.02	4.14	0.12	0.5
09/17/18	6.70	10.20	3.50	1.5	5.37	5.61	0.24	NM - Pumping	2.78	3.12	0.34	0.5
09/24/18	6.68	10.19	3.51	1.5	5.32	5.57	0.25	NM - Pumping	2.81	3.14	0.33	0
10/04/18	7.38	10.89	3.51	1	5.29	5.68	0.39	NM - Pumping	2.15	2.22	0.07	0
10/11/18	7.44	11.38	3.94	1.5	5.54	5.83	0.29	NM - Pumping	2.18	2.27	0.09	0.04
10/19/18	7.75	11.37	3.62	1	5.93	6.16	0.23	NM - Pumping	2.71	2.72	0.01	0.03
11/01/18	7.49	10.93	3.44	1.5	5.08	5.23	0.15	NM - Pumping	2.36	2.38	0.02	0.04
11/08/18	7.43	10.89	3.46	1	5.19	5.27	0.08	NM - Pumping	2.35	2.38	0.03	0.003
11/13/18	7.93	10.89	2.96	1	6.08	6.35	0.27	NM - Pumping	2.30	2.32	0.02	0
11/21/18	8.23	10.88	2.65	1	6.28	6.52	0.24	NM - Pumping	2.32	2.34	0.02	0
11/27/18	8.30	10.88	2.58	1	6.51	6.68	0.17	NM - Pumping	3.16	3.20	0.04	0
12/06/18	8.25	10.84	2.59	1	6.29	6.50	0.21	NM - Pumping	2.31	2.32	0.01	0
12/13/18	8.02	10.23	2.21	1	6.04	6.28	0.24	NM - Pumping	2.35	2.36	0.01	0
12/17/18	8.35	10.27	1.92	1	6.48	6.63	0.15	NM - Pumping	3.23	3.25	0.02	0
12/28/18	8.42	11.22	2.80	1	6.24	6.38	0.14	NM - Pumping	3.34	3.36	0.02	0
01/04/19	8.31	10.22	1.91	1	6.37	6.42	0.05	NM - Pumping	3.21	3.23	0.02	0
01/09/19	8.22	10.84	2.62	1	6.30	6.49	0.19	NM - Pumping	2.19	2.20	0.01	0
01/15/19	8.22	10.84	2.62	1	6.42	6.64	0.22	NM - Pumping	3.17	3.19	0.02	0
01/23/19	8.31	10.85	2.54	1	6.29	6.45	0.16	NM - Pumping	3.09	3.19	0.10	0
01/30/19	8.30	10.81	2.51	1	6.41	6.65	0.24	NM - Pumping	3.18	3.20	0.02	0
02/20/19	8.19	10.72	2.53	0.25	6.54	6.70	0.16	NM - Pumping	3.06	3.09	0.03	0.1
02/27/19	7.98	10.89	2.91	0.25	5.59	5.70	0.11	NM - Pumping	-	2.98	0.00	0
03/06/19	8.18	9.75	1.57	0.75	6.29	6.72	0.43	NM - Pumping	2.78	2.83	0.05	0.25
03/14/19	9.95	10.79	0.84	0.5	6.10	6.30	0.20	NM - Pumping	2.65	3.65	1.00	0.5
03/20/19	8.18	10.52	2.34	0.4	6.48	6.66	0.18	NM - Pumping	3.06	4.13	1.07	1.5

TABLE 1

Historical LNAPL Gauging and Recovery Data
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

	OPHMW-1 (Sump)				OPHMW-7				OPHMW-8			
Date	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)
03/25/19	8.12	10.49	2.37	0.5	6.41	6.62	0.21	NM - Pumping	3.40	4.11	0.71	1.5
04/05/19	8.89	10.64	1.75	0.5	7.09	7.13	0.04	NM - Pumping	3.97	4.99	1.02	0.75
04/10/19	8.82	10.81	1.99	0.5	-	6.70	0.00	NM - Pumping	3.68	4.37	0.69	0.25
04/19/19	8.80	10.83	2.03	0.5	-	6.71	0.00	NM - Pumping	3.65	4.39	0.74	0.5
04/26/19	9.00	10.47	1.47	0.5	7.00	7.01	0.01	NM - Pumping	4.03	4.06	0.03	0
04/30/19	9.05	10.45	1.40	0.5	7.03	7.06	0.03	NM - Pumping	4.02	4.04	0.02	0
05/07/19	8.97	10.46	1.49	1	7.00	7.02	0.02	NM - Pumping	4.00	4.01	0.01	0.25
05/17/19	Not Measured			0	7.02	7.03	0.01	NM - Pumping	4.01	4.04	0.03	0.125
05/21/19	Not Measured			0	7.05	7.07	0.02	NM - Pumping	4.07	4.11	0.04	0.25
05/29/19	8.95	11.05	2.10	0	6.37	6.68	0.31	NM - Pumping	4.01	4.02	0.01	1
06/12/19	7.50	10.42	2.92	1	5.20	5.84	0.64	NM - Pumping	2.51	2.60	0.09	0.5
06/21/19	8.00	10.08	2.08	1	5.87	6.10	0.23	NM - Pumping	2.60	2.81	0.21	0.5
06/26/19	8.08	10.90	2.82	0.5	5.36	5.50	0.14	NM - Pumping	2.58	2.87	0.29	0.125
07/01/19	7.79	10.47	2.68	0.75	5.36	6.55	1.19	NM - Pumping	2.55	2.58	0.03	0
07/09/19	7.77	10.43	2.66	0.5	5.34	6.52	1.18	NM - Pumping	2.51	2.53	0.02	0
07/16/19	5.20	10.50	5.30	1	6.24	6.43	0.19	NM - Pumping	2.90	2.91	0.01	0
07/23/19	5.24	10.52	5.28	1	6.30	6.48	0.18	NM - Pumping	2.88	2.90	0.02	0
07/31/19	5.21	10.49	5.28	1	6.35	6.42	0.07	NM - Pumping	2.89	2.91	0.02	0
08/07/19	8.72	10.53	1.81	0.5	6.83	6.91	0.08	NM - Pumping	2.97	2.99	0.02	0
08/13/19	8.52	11.96	3.44	1	6.93	7.05	0.12	NM - Pumping	2.37	2.41	0.04	0.5
08/23/19	8.65	10.70	2.05	1	6.90	6.98	0.08	NM - Pumping	2.45	2.58	0.13	0.25
08/28/19	8.68	10.69	2.01	1	6.92	7.01	0.09	NM - Pumping	2.43	2.45	0.02	0.125
09/05/19	8.91	10.42	1.51	1	6.41	6.43	0.02	NM - Pumping	2.46	2.48	0.02	0
09/10/19	8.48	10.98	2.50	0.5	6.53	6.80	0.27	NM - Pumping	-	3.17	0.00	0
09/20/19	Not Measured			1	Not Measured				Not Measured			0
10/02/19	7.78	10.49	2.71	0	5.93	6.04	0.11	NM - Pumping	-	2.54	0.00	0
10/09/19	7.81	10.52	2.71	1	5.97	6.02	0.05	NM - Pumping	-	2.47	0.00	0
10/15/19	8.36	10.71	2.35	1	6.48	6.63	0.15	NM - Pumping	-	3.31	0.00	0
10/22/19	8.44	11.28	2.84	1	6.09	6.34	0.25	NM - Pumping	3.66	4.41	0.75	0.5
10/28/19	8.47	11.25	2.78	1	6.12	6.31	0.19	NM - Pumping	3.62	4.39	0.77	1
11/04/19	8.15	10.99	2.84	1.5	6.04	6.31	0.27	NM - Pumping	3.42	4.68	1.26	0.5
11/11/19	8.08	11.22	3.14	0.5	5.81	6.12	0.31	NM - Pumping	2.90	4.53	1.63	0.75
11/21/19	8.04	11.19	3.15	1	5.79	6.04	0.25	NM - Pumping	2.85	4.51	1.66	1
11/27/19	8.14	11.12	2.98	1	5.80	6.09	0.29	NM - Pumping	2.91	4.62	1.71	1
12/05/19	8.90	11.41	2.51	0.5	7.10	7.11	0.01	NM - Pumping	4.27	5.33	1.06	0.5
12/09/19	8.91	11.48	2.57	1	7.08	7.10	0.02	NM - Pumping	4.18	5.21	1.03	1

TABLE 1

Historical LNAPL Gauging and Recovery Data
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

	OPHMW-1 (Sump)				OPHMW-7				OPHMW-8			
Date	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)
12/17/19	9.19	11.54	2.35	0.75	7.20	7.22	0.02	NM - Pumping	4.60	5.31	0.71	0.5
12/27/19	8.13	11.49	3.36	1	7.18	7.19	0.01	NM - Pumping	4.52	5.29	0.77	0.5
01/03/20	8.11	11.37	3.26	1	7.14	7.16	0.02	NM - Pumping	4.49	5.23	0.74	1
01/08/20	9.42	11.56	2.14	0.25	-	7.46	0.00	NM - Pumping	4.88	5.41	0.53	0.25
01/15/20	9.08	11.02	1.94	0.25	-	6.85	0.00	NM - Pumping	4.49	4.60	0.11	0.05
01/23/20	8.83	10.88	2.05	0.25	6.30	6.44	0.14	NM - Pumping	4.11	4.21	0.10	0.07
01/31/20	8.66	10.68	2.02	1	6.37	6.71	0.34	NM - Pumping	3.93	4.09	0.16	0.07
02/04/20	8.62	10.81	2.19	1	6.41	6.52	0.11	NM - Pumping	3.95	4.10	0.15	0.07
02/11/20	8.89	11.08	2.19	0.5	6.90	7.00	0.10	NM - Pumping	4.17	4.34	0.17	0.1
02/18/20	8.97	11.21	2.24	0.5	7.11	7.20	0.09	NM - Pumping	4.41	4.46	0.05	0.053
02/25/20	8.86	11.10	2.24	0.5	6.89	6.93	0.04	NM - Pumping	4.15	4.31	0.16	0.066
03/03/20	8.94	11.12	2.18	1	7.01	7.02	0.01	NM - Pumping	-	4.38	0.00	NR
03/10/20	9.15	11.38	2.23	0.5	7.30	7.31	0.01	NM - Pumping	-	4.82	0.00	NR
Due to COVID-19, weekly inspections supsended with TCEQ concurrence												
07/14/20	8.62	11.16	2.54	1	6.79	6.82	0.03	NM - Pumping	3.93	5.09	1.16	0.5
07/20/20	8.59	11.13	2.54	1	6.72	6.75	0.03	NM - Pumping	4.13	4.20	0.07	0.125
07/27/20	7.84	10.77	2.93	1	5.43	5.62	0.19	NM - Pumping	3.22	3.68	0.46	0.066
08/04/20	8.60	11.20	2.60	1	6.78	6.81	0.03	NM - Pumping	4.43	4.46	0.03	0.066
08/10/20	7.69	11.95	4.26	1	5.73	5.95	0.22	NM - Pumping	2.85	3.05	0.20	0.053
08/20/20	7.42	11.67	4.25	1	5.69	5.72	0.03	NM - Pumping	2.62	2.64	0.02	0.026
08/24/20	8.85	11.16	2.31	1	6.87	6.90	0.03	NM - Pumping	4.16	4.21	0.05	0.066
09/01/20	8.20	11.52	3.32	1	7.24	7.26	0.02	NM - Pumping	4.61	4.73	0.12	0.125
09/10/20	8.16	11.47	3.31	1	7.07	7.10	0.03	NM - Pumping	4.70	4.72	0.02	0.026
09/18/20	8.07	10.90	2.83	1	6.16	6.45	0.29	NM - Pumping	3.22	4.91	1.69	0.5
09/24/20	8.02	10.10	2.08	1	6.20	6.45	0.25	NM - Pumping	3.19	4.91	1.72	0.5
09/29/20	8.17	11.10	2.93	1	5.78	5.83	0.05	NM - Pumping	2.93	3.72	0.79	0.5
10/16/20	8.61	11.19	2.58	1	6.02	6.11	0.09	NM - Pumping	3.85	4.68	0.83	0.5
10/20/20	8.38	11.21	2.83	1	6.51	6.55	0.04	NM - Pumping	2.66	3.94	1.28	0.5
10/27/20	8.45	11.23	2.78	1	6.51	6.62	0.11	NM - Pumping	2.71	3.98	1.27	0.5
11/10/20	8.36	10.07	1.71	1	7.33	7.35	0.02	NM - Pumping	4.64	5.34	0.70	0.5
11/20/20	8.60	10.62	2.02	1	7.58	7.74	0.16	NM - Pumping	4.93	5.80	0.87	1
11/23/20	8.64	10.62	1.98	1	7.63	7.72	0.09	NM - Pumping	4.96	5.84	0.88	0.5
12/01/20	8.38	9.74	1.36	1	6.65	6.70	0.05	NM - Pumping	4.60	4.81	0.21	0.053
12/07/20	8.52	9.91	1.39	1	6.91	6.95	0.04	NM - Pumping	4.72	4.96	0.24	0.125
12/14/20	8.34	9.76	1.42	1	6.61	6.69	0.08	NM - Pumping	4.52	4.58	0.06	0.066
12/30/20	8.62	10.71	2.09	1	7.57	7.59	0.02	NM - Pumping	4.91	5.73	0.82	1

TABLE 1

Historical LNAPL Gauging and Recovery Data
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

	OPHMW-1 (Sump)				OPHMW-7				OPHMW-8			
Date	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Approximate Volume of NAPL Recovered (Gal)
01/04/21	8.79	9.78	0.99	0.5	6.43	6.59	0.16	NM - Pumping	3.74	4.12	0.38	0.053
01/12/21	8.44	10.89	2.45	1	6.36	6.52	0.16	NM - Pumping	3.78	3.92	0.14	0.125
01/18/21	8.33	10.84	2.51	1	6.70	6.85	0.15	NM - Pumping	3.81	4.30	0.49	0.08
01/28/21	8.11	10.60	2.49	0.4	6.99	7.10	0.11	NM - Pumping	4.34	4.62	0.28	0.067
02/05/21	8.94	11.18	2.24	0.5	7.15	7.16	0.01	NM - Pumping	4.47	4.62	0.15	0.053
02/10/21	Not Measured			NM - Pumping	7.30	7.34	0.04	NM - Pumping	4.59	4.75	0.16	0.026
02/19/21	Not Measured			NM - Pumping	-	7.00	0.00	NM - Pumping	4.55	4.57	0.02	0.026
02/24/21	8.95	9.03	0.08	NM - Pumping	-	6.83	0.00	NM - Pumping	4.29	4.31	0.02	0.026
03/05/21	8.75	8.80	0.05	NM - Pumping	6.64	6.67	0.03	NM - Pumping	4.10	4.17	0.07	0.026
03/08/21	8.80	8.97	0.17	NM - Pumping	6.71	6.73	0.02	NM - Pumping	4.03	4.09	0.06	0.026
03/18/21	9.20	9.24	0.04	NM - Pumping	7.17	7.19	0.02	NM - Pumping	4.63	4.70	0.07	0.0125
03/26/21	9.21	9.28	0.07	NM - Pumping	7.26	7.28	0.02	NM - Pumping	4.64	4.70	0.06	0.0130
04/01/21	9.40	9.48	0.08	NM - Pumping	7.44	7.47	0.03	NM - Pumping	-	4.89	0.00	0.00
04/06/21	9.42	9.46	0.04	NM - Pumping	7.39	7.40	0.01	NM - Pumping	5.59	5.80	0.21	0.04
04/13/21	9.45	9.48	0.03	NM - Pumping	7.46	7.50	0.04	NM - Pumping	-	4.92	0.00	0.00
05/10/21	8.52	9.34	0.82	System off - NR	6.47	6.65	0.18	System off - NR	3.96	4.09	0.13	NR
06/07/21	9.52	9.98	0.46	System off - NR	7.38	7.40	0.02	System off - NR	4.02	4.06	0.04	NR
07/13/21	7.01	9.33	2.32	System off - NR	4.72	6.14	1.42	System off - NR	2.11	4.62	2.51	NR
08/11/21	8.02	10.32	2.30	System off - NR	6.14	7.79	1.65	System off - NR	3.67	4.77	1.10	NR
09/16/21	7.51	9.04	1.53	System off - NR	4.83	6.27	1.44	System off - NR	2.53	4.23	1.70	NR
10/11/21	6.80	9.35	2.55	System off - NR	5.74	6.50	0.76	System off - NR	2.52	5.40	2.88	NR
11/18/21	8.41	9.48	1.07	System off - NR	6.37	7.05	0.68	System off - NR	3.49	5.81	2.32	NR
12/17/21	8.89	9.52	0.63	System off - NR	7.01	7.03	0.02	System off - NR	4.31	5.37	1.06	NR
01/18/22	9.08	9.52	0.44	System off - NR	7.00	7.19	0.19	System off - NR	4.39	5.45	1.06	NR
02/17/22	8.58	9.47	0.89	System off - NR	6.80	6.92	0.12	System off - NR	4.18	4.53	0.35	NR
03/18/22	8.85	9.60	0.75	System off - NR	6.89	6.97	0.08	System off - NR	4.21	4.55	0.34	NR
04/21/22	8.74	9.83	1.09	System off - NR	6.82	6.91	0.09	System off - NR	4.17	4.67	0.50	NR

Notes:
TOC - Top of Casing
NM - Not Measured
NR - No Recovery

TABLE 2

Field Data Summary
LNAPL Baildown Test - OPHMW-8
November 18, 2021 and January 18, 2022
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Area: OPH5			
Well ID: OPHMW-8			
Test Date: 11/18/21			
Initial Depth to LNAPL: 3.49 ft. TOC			
Initial Depth to Water: 5.81 ft. TOC			
Pump start time: 11:01			
Pump stop time: 11:10			
LNAPL volume recovered: 2.4 liters			
Time Elapsed (min)	DTP (ft. TOC)	DTW (ft. TOC)	NAPL Thickness (ft)
0.5	4.85	5.76	0.91
1	4.77	5.74	0.97
1.5	4.77	5.68	0.91
2	4.74	5.68	0.94
2.5	4.72	5.62	0.90
3	4.70	5.60	0.90
3.5	4.70	5.58	0.88
4	4.68	5.55	0.87
4.5	4.68	5.53	0.85
5	4.67	5.52	0.85
6	4.65	5.49	0.84
7	4.64	5.47	0.83
8	4.61	5.46	0.85
9	4.60	5.43	0.83
10	4.58	5.39	0.81
11	4.56	5.35	0.79
12	4.55	5.34	0.79
13	4.54	5.30	0.76
14	4.52	5.28	0.76
15	4.51	5.24	0.73
16	4.50	5.24	0.74
17	4.49	5.20	0.71
18	4.48	5.15	0.67
19	4.48	5.15	0.67
20	4.47	5.15	0.68
21	4.45	5.13	0.68
22	4.44	5.12	0.68
23	4.43	5.09	0.66
24	4.42	5.07	0.65

Area: OPH5			
Well ID: OPHMW-8			
Test Date: 01/18/22			
Initial Depth to LNAPL: 4.39 ft. TOC			
Initial Depth to Water: 5.45 ft. TOC			
Pump start time: 12:33			
Pump stop time: 12:38			
LNAPL volume recovered: 1.8 liters			
Time Elapsed (min)	DTP (ft. TOC)	DTW (ft. TOC)	NAPL Thickness (ft)
0.5	5.43	5.49	0.06
1	5.37	5.51	0.14
1.5	5.32	5.52	0.20
2	5.30	5.51	0.21
2.5	5.27	5.52	0.25
3	5.24	5.52	0.28
3.5	5.22	5.52	0.30
4	5.20	5.52	0.32
4.5	5.19	5.52	0.33
5	5.14	5.52	0.38
6	5.14	5.51	0.37
7	5.12	5.51	0.39
8	5.10	5.49	0.39
9	5.08	5.48	0.40
10	5.05	5.47	0.42
11	5.05	5.45	0.40
12	5.02	5.43	0.41
13	5.02	5.43	0.41
14	5.02	5.42	0.40
15	5.01	5.40	0.39
16	5.00	5.38	0.38
17	4.99	5.37	0.38
18	4.97	5.35	0.38
19	4.96	5.35	0.39
20	4.95	5.34	0.39
21	4.95	5.33	0.38
22	4.94	5.31	0.37
23	4.94	5.30	0.36
24	4.93	5.29	0.36

TABLE 2

Field Data Summary
LNAPL Baildown Test - OPHMW-8
November 18, 2021 and January 18, 2022
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Area: OPH5			
Well ID: OPHMW-8			
Test Date: 11/18/21			
Initial Depth to LNAPL: 3.49 ft. TOC			
Initial Depth to Water: 5.81 ft. TOC			
Pump start time: 11:01			
Pump stop time: 11:10			
LNAPL volume recovered: 2.4 liters			
Time Elapsed (min)	DTP (ft. TOC)	DTW (ft. TOC)	NAPL Thickness (ft)
25	4.42	5.05	0.63
26	4.40	5.03	0.63
27	4.40	5.02	0.62
28	4.39	5.00	0.61
29	4.38	4.98	0.60
30	4.37	4.97	0.60
31	4.35	4.95	0.60
32	4.35	4.94	0.59
33	4.33	4.95	0.62
34	4.33	4.91	0.58
35	4.33	4.90	0.57
36	4.31	4.90	0.59
37	4.31	4.86	0.55
38	4.30	4.86	0.56
39	4.28	4.84	0.56
40	4.28	4.83	0.55
41	4.28	4.84	0.56
42	4.27	4.83	0.56
43	4.25	4.83	0.58
44	4.25	4.83	0.58
45	4.23	4.82	0.59
46	4.22	4.81	0.59
47	4.21	4.80	0.59
48	4.20	4.80	0.60
49	4.20	4.79	0.59
50	4.18	4.79	0.61
51	4.17	4.79	0.62
52	4.15	4.78	0.63
53	4.15	4.78	0.63

Area: OPH5			
Well ID: OPHMW-8			
Test Date: 01/18/22			
Initial Depth to LNAPL: 4.39 ft. TOC			
Initial Depth to Water: 5.45 ft. TOC			
Pump start time: 12:33			
Pump stop time: 12:38			
LNAPL volume recovered: 1.8 liters			
Time Elapsed (min)	DTP (ft. TOC)	DTW (ft. TOC)	NAPL Thickness (ft)
25	4.92	5.26	0.34
26	4.92	5.26	0.34
27	4.90	5.25	0.35
28	4.90	5.25	0.35
29	4.89	5.23	0.34
30	4.89	5.22	0.33
31	4.88	5.21	0.33
32	4.88	5.20	0.32
33	4.87	5.20	0.33
34	4.87	5.19	0.32
35	4.85	5.18	0.33
36	4.84	5.15	0.31
37	4.84	5.15	0.31
38	4.84	5.14	0.30
39	4.84	5.13	0.29
40	4.83	5.13	0.30
41	4.83	5.12	0.29
42	4.82	5.11	0.29
43	4.82	5.10	0.28
44	4.82	5.10	0.28
45	4.81	5.09	0.28
46	4.81	5.08	0.27
47	4.80	5.08	0.28
48	4.80	5.07	0.27
49	4.79	5.06	0.27
50	4.78	5.04	0.26
51	4.78	5.03	0.25
52	4.78	5.03	0.25
53	4.78	5.03	0.25

TABLE 2

Field Data Summary
LNAPL Baildown Test - OPHMW-8
November 18, 2021 and January 18, 2022
Old Pump House No. 5 AOC
KM Liquids Terminals LLC - Galena Park Terminal
906 Clinton Drive
Galena Park, Texas

Area: OPH5			
Well ID: OPHMW-8			
Test Date: 11/18/21			
Initial Depth to LNAPL: 3.49 ft. TOC			
Initial Depth to Water: 5.81 ft. TOC			
Pump start time: 11:01			
Pump stop time: 11:10			
LNAPL volume recovered: 2.4 liters			
Time Elapsed (min)	DTP (ft. TOC)	DTW (ft. TOC)	NAPL Thickness (ft)
54	4.13	4.77	0.64
55	4.12	4.76	0.64
56	4.14	4.77	0.63
57	4.12	4.77	0.65
58	4.10	4.76	0.66
59	4.10	4.77	0.67
60	4.10	4.77	0.67
65	4.03	4.75	0.72
70	3.99	4.74	0.75
75	3.95	4.73	0.78
80	3.93	4.73	0.80
85	3.91	4.72	0.81
90	3.88	4.72	0.84
95	3.86	4.71	0.85
100	3.85	4.71	0.86
105	3.82	4.70	0.88
110	3.81	4.70	0.89
115	3.80	4.70	0.90
120	3.79	4.69	0.90
150	3.75	4.68	0.93
180	3.72	4.67	0.95
1280	3.72	4.80	1.08

Area: OPH5			
Well ID: OPHMW-8			
Test Date: 01/18/22			
Initial Depth to LNAPL: 4.39 ft. TOC			
Initial Depth to Water: 5.45 ft. TOC			
Pump start time: 12:33			
Pump stop time: 12:38			
LNAPL volume recovered: 1.8 liters			
Time Elapsed (min)	DTP (ft. TOC)	DTW (ft. TOC)	NAPL Thickness (ft)
54	4.77	5.02	0.25
55	4.77	5.00	0.23
56	4.77	5.00	0.23
57	4.76	5.00	0.24
58	4.76	5.00	0.24
59	4.76	4.98	0.22
60	4.75	4.98	0.23
65	4.73	4.97	0.24
70	4.72	4.95	0.23
75	4.70	4.94	0.24
80	4.69	4.92	0.23
85	4.68	4.90	0.22
90	4.67	4.90	0.23
95	4.65	4.90	0.25
100	4.64	4.88	0.24
105	4.64	4.84	0.20
110	4.63	4.84	0.21
115	4.63	4.82	0.19
120	4.62	4.81	0.19
150	4.59	4.79	0.20
180	4.56	4.76	0.20

ATTACHMENT A

API TRANSMISSIVITY WORKBOOK
INPUT/OUTPUT

November 18, 2021

API LNAPL Transmissivity Workbook

Calculation of LNAPL Transmissivity from Baildown Test Data

STEP 1: RESET OUTPUT SUMMARY

RESET

STEP 2: ENTER DATA & VIEW FIGURES

STEP 3: CHOOSE WELL CONDITIONS

Unconfined

Confined

Perched

STEP 4: LNAPL TRANSMISSIVITY SUMMARY

Output Summary

Mean LNAPL Transmissivity (ft^2/d)

0.21

Standard Deviation (ft^2/d)

0.04

Coefficient of Variation

0.19

Well Designation:	OPHHMW-8	Test No. 1
Date:	18-Nov-21	

Ground Surface Elev (ft msl)	0.0	Enter These Data	**Drawdown Adjustment (ft)**
Top of Casing Elev (ft msl)	0.0		
Well Casing Radius, r_c (ft):	0.083	r_{e1}	0
Well Radius, r_w (ft):	0.250		
LNAPL Specific Yield, S_y:	0.175		
LNAPL Density Ratio, ρ_r:	0.849		
Top of Screen (ft bgs):	2.5		
Bottom of Screen (ft bgs):	15.0		
LNAPL Baildown Vol. (gal.):	0.6		
Effective Radius, r_{e3} (ft):	0.129	Calculated Parameters	
Effective Radius, r_{e2} (ft):	0.062		
Initial Casing LNAPL Vol. (gal.):	0.38		
Initial Filter LNAPL Vol. (gal.):	0.53		

Enter Data Here

	Time (min)	DTP (ft btoc)	DTW (ft btoc)	DTP (ft bgs)	DTW (ft bgs)	Water Table Depth (ft)	LNAPL Drawdown s_n (ft)	Average Time (min)	LNAPL Discharge Q_n (ft^3/d)	s_n (ft)	b_n (ft)	r_e (ft)
Initial Fluid Levels:	0	3.49	5.81	3.49	5.81	3.84					2.32	
Enter Test Data:	0.5	4.85	5.76	4.85	5.76	4.99	1.36				0.91	
	1.0	4.77	5.74	4.77	5.74	4.92	1.28	0.8	9.045	1.32	0.97	0.129
	1.5	4.77	5.68	4.77	5.68	4.91	1.28	1.3	-9.045	1.28	0.91	0.129
	2.0	4.74	5.68	4.74	5.68	4.88	1.25	1.8	4.523	1.27	0.94	0.129
	2.5	4.72	5.62	4.72	5.62	4.86	1.23	2.3	-6.030	1.24	0.90	0.129
	3.0	4.70	5.60	4.70	5.60	4.84	1.21	2.8	0.000	1.22	0.90	0.129
	3.5	4.70	5.58	4.70	5.58	4.83	1.21	3.3	-3.015	1.21	0.88	0.129
	4.0	4.68	5.55	4.68	5.55	4.81	1.19	3.8	-1.508	1.20	0.87	0.129
	4.5	4.68	5.53	4.68	5.53	4.81	1.19	4.3	-3.015	1.19	0.85	0.129
	5.0	4.67	5.52	4.67	5.52	4.80	1.18	4.8	0.000	1.19	0.85	0.129
	7.0	4.64	5.47	4.64	5.47	4.77	1.15	6.0	-0.754	1.17	0.83	0.129
	9.0	4.60	5.43	4.60	5.43	4.73	1.11	8.0	0.000	1.13	0.83	0.129
	11.0	4.56	5.35	4.56	5.35	4.68	1.07	10.0	-1.508	1.09	0.79	0.129
	13.0	4.54	5.30	4.54	5.30	4.65	1.05	12.0	-1.131	1.06	0.76	0.129
	15.0	4.51	5.24	4.51	5.24	4.62	1.02	14.0	-1.131	1.04	0.73	0.129
	17.0	4.49	5.20	4.49	5.20	4.60	1.00	16.0	-0.754	1.01	0.71	0.129
	19.0	4.48	5.15	4.48	5.15	4.58	0.99	18.0	-1.508	1.00	0.67	0.129
	21.0	4.45	5.13	4.45	5.13	4.55	0.96	20.0	0.377	0.98	0.68	0.129
	23.0	4.43	5.09	4.43	5.09	4.53	0.94	22.0	-0.754	0.95	0.66	0.129
	25.0	4.42	5.05	4.42	5.05	4.51	0.93	24.0	-1.131	0.94	0.63	0.129
	27.0	4.4	5.02	4.40	5.02	4.49	0.91	26.0	-0.377	0.92	0.62	0.129
	29.0	4.38	4.98	4.38	4.98	4.47	0.89	28.0	-0.754	0.90	0.60	0.129
	31.0	4.35	4.95	4.35	4.95	4.44	0.86	30.0	0.000	0.88	0.60	0.129
	33.00	4.33	4.95	4.33	4.95	4.42	0.84	32.0	0.754	0.85	0.62	0.129
	35.00	4.33	4.90	4.33	4.90	4.42	0.84	34.0	-1.884	0.84	0.57	0.129
	37.00	4.31	4.86	4.31	4.86	4.39	0.82	36.0	-0.754	0.83	0.55	0.129
	39.00	4.28	4.84	4.28	4.84	4.36	0.79	38.0	0.377	0.81	0.56	0.129
	41.00	4.28	4.84	4.28	4.84	4.36	0.79	40.0	0.000	0.79	0.56	0.129
	43.00	4.25	4.83	4.25	4.83	4.34	0.76	42.0	0.754	0.78	0.58	0.129
	45.00	4.23	4.82	4.23	4.82	4.32	0.74	44.0	0.377	0.75	0.59	0.129
	46.00	4.22	4.81	4.22	4.81	4.31	0.73	45.5	0.000	0.74	0.59	0.129
	47.00	4.21	4.80	4.21	4.80	4.30	0.72	46.5	0.000	0.73	0.59	0.129
	48.00	4.2	4.80	4.20	4.80	4.29	0.71	47.5	0.754	0.72	0.60	0.129
	49.00	4.2	4.79	4.20	4.79	4.29	0.71	48.5	-0.754	0.71	0.59	0.129
	50.00	4.18	4.79	4.18	4.79	4.27	0.69	49.5	1.508	0.70	0.61	0.129
	51.00	4.17	4.79	4.17	4.79	4.26	0.68	50.5	0.754	0.69	0.62	0.129
	52.00	4.15	4.78	4.15	4.78	4.24	0.66	51.5	0.754	0.67	0.63	0.129
	53.00	4.15	4.78	4.15	4.78	4.24	0.66	52.5	0.000	0.66	0.63	0.129
	54	4.13	4.77	4.13	4.77	4.23	0.64	53.5	0.754	0.65	0.64	0.129
	55	4.12	4.76	4.12	4.76	4.22	0.63	54.5	0.000	0.64	0.64	0.129
	56	4.14	4.77	4.14	4.77	4.23	0.65	55.5	-0.754	0.64	0.63	0.129
	57	4.12	4.77	4.12	4.77	4.22	0.63	56.5	1.508	0.64	0.65	0.129
	58	4.10	4.76	4.10	4.76	4.20	0.61	57.5	0.754	0.62	0.66	0.129
	59	4.10	4.77	4.10	4.77	4.20	0.61	58.5	0.754	0.61	0.67	0.129
	60	4.10	4.77	4.10	4.77	4.20	0.61	59.5	0.000	0.61	0.67	0.129
	65	4.03	4.75	4.03	4.75	4.14	0.54	62.5	0.754	0.58	0.72	0.129
	70	3.99	4.74	3.99	4.74	4.10	0.50	67.5	0.452	0.52	0.75	0.129
	75	3.95	4.73	3.95	4.73	4.07	0.46	72.5	0.452	0.48	0.78	0.129
	80	3.93	4.73	3.93	4.73	4.05	0.44	77.5	0.302	0.45	0.80	0.129
	85	3.91	4.72	3.91	4.72	4.03	0.42	82.5	0.151	0.43	0.81	0.129
	90	3.88	4.72	3.88	4.72	4.01	0.39	87.5	0.452	0.41	0.84	0.129
	95	3.86	4.71	3.86	4.71	3.99	0.37	92.5	0.151	0.38	0.85	0.129
	100	3.85	4.71	3.85	4.71	3.98	0.36	97.5	0.151	0.37	0.86	0.129
	105	3.82	4.70	3.82	4.70	3.95	0.33	102.5	0.302	0.35	0.88	0.129
	110	3.81	4.70	3.81	4.70	3.94	0.32	107.5	0.151	0.33	0.89	0.129
	115	3.80	4.70	3.80	4.70	3.94	0.31	112.5	0.151	0.32	0.90	0.129
	120	3.79	4.69	3.79	4.69	3.93	0.30	117.5	0.000	0.31	0.90	0.129
	150	3.75	4.68	3.75	4.68	3.89	0.26	135.0	0.075	0.28	0.93	0.129
	180	3.72	4.67	3.72	4.67	3.86	0.23	165.0	0.050	0.25	0.95	0.129

Figure 1

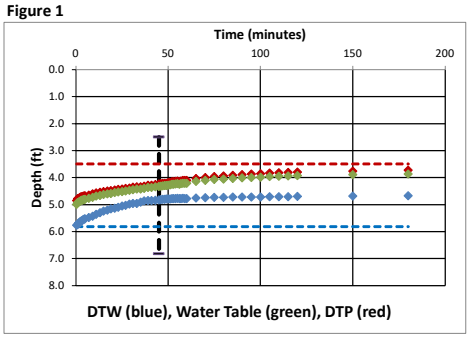
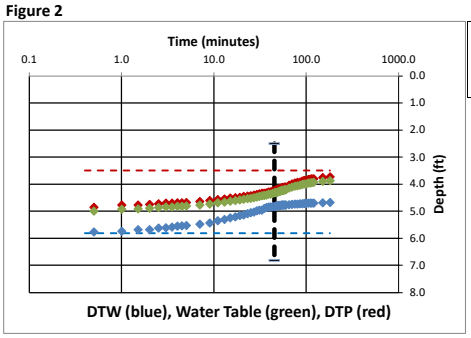


Figure 2



0.4	3.49
180	3.49
0.4	5.81
180	5.81

45.0	2.49	2.5
45.0	6.8	6.8

Figure 3

Q_n (ft^3/d)	s_n (ft)
0	0
2	1.32

Drawdown Adjust.	
Δs_n (ft)	0

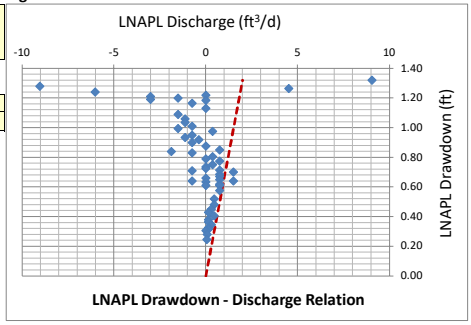
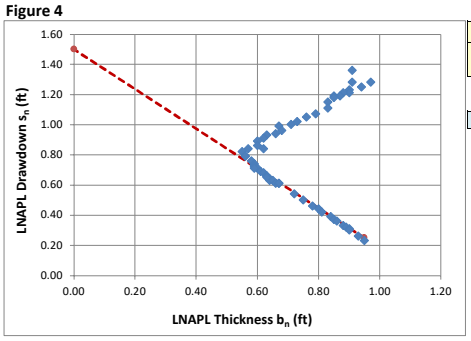


Figure 4



b_n	s_n
0.95	0.25
0	1.5

J-ratio	-1.316

Figure 5

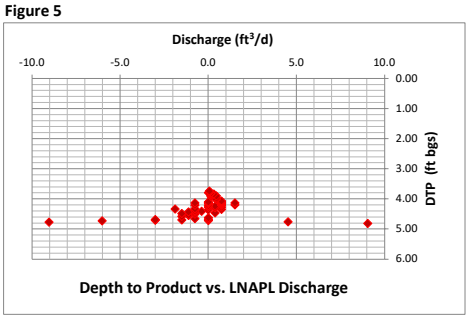


Figure 6

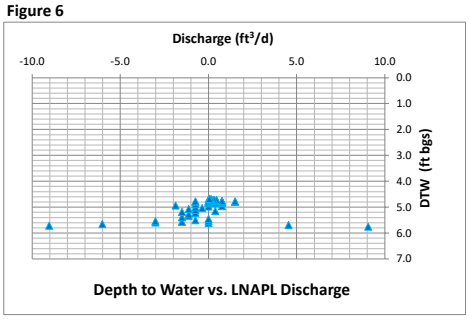


Figure 7

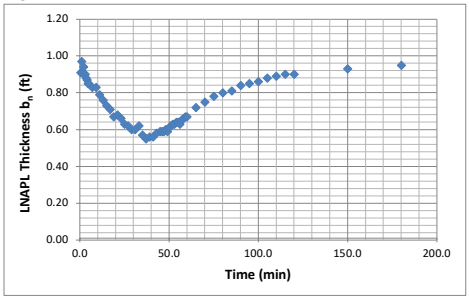


Figure 8

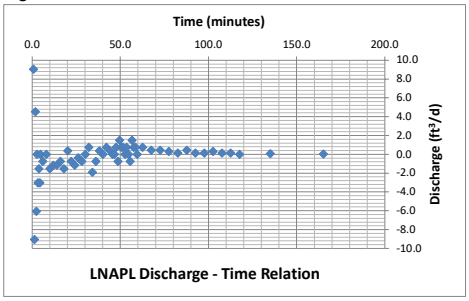


Figure 9

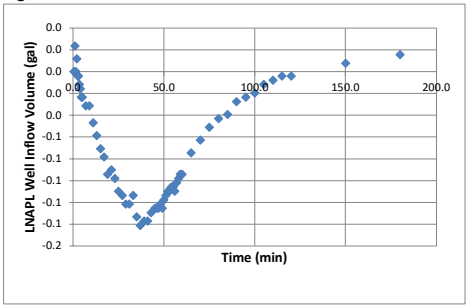
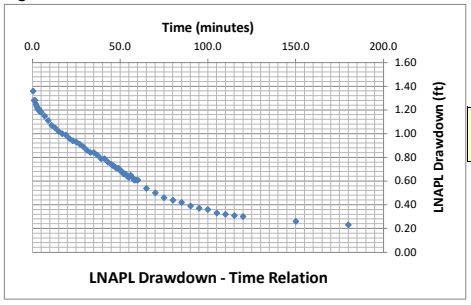


Figure 10



t (min)	s_n (ft)

Generalized Bouwer and Rice (1976)

Well Designation:	OPHHMW-8
Date:	18-Nov-21

$$T_n = \frac{r_e^{\,2}\ln(R/r_e)\ln(s_n(t_1)/s_n(t))}{2(-J)(t-t_1)}$$

Enter early time cut-off for least-squares model fit

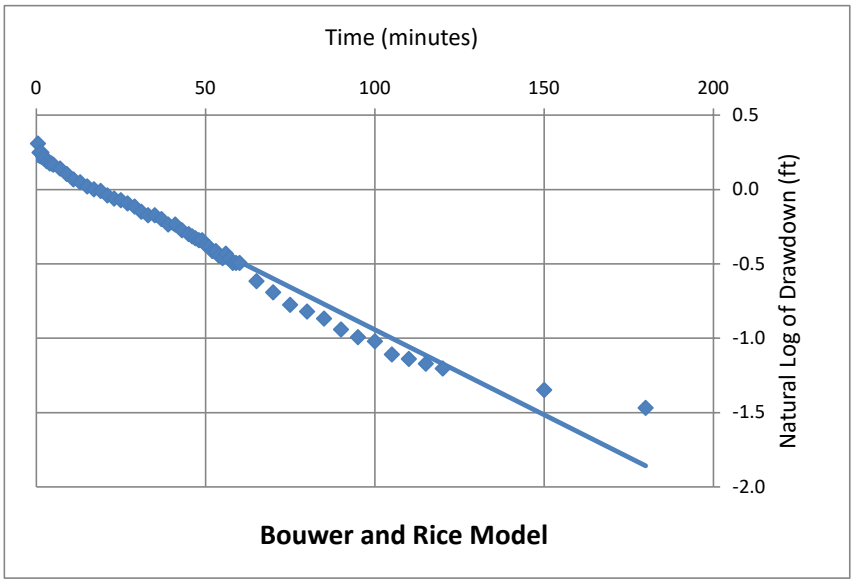
$Time_{cut}$	0	<- Enter or change value here

Model Results: T_n (ft^2/d) = 0.22 +/- 0.00 ft^2/d

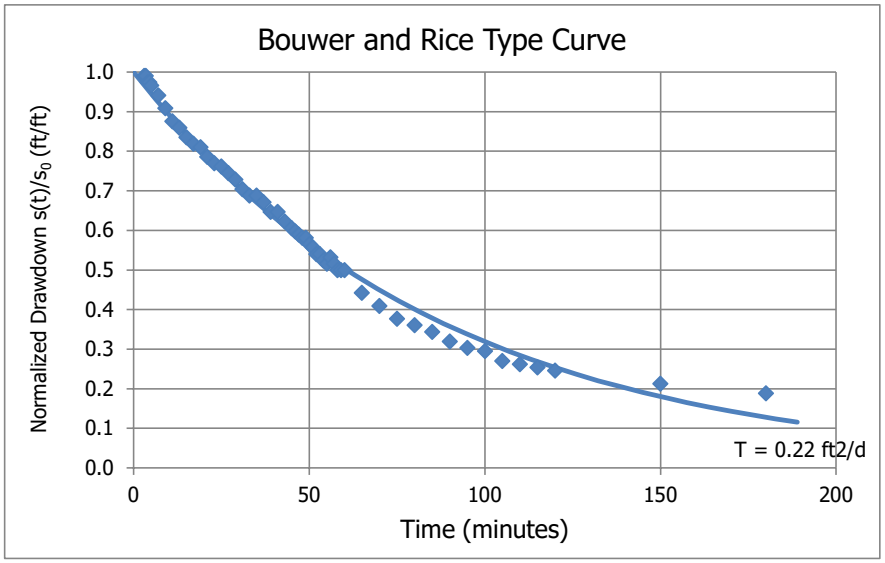
L_e/r_e
18.0
C
1.51
R/r_e
8.60

J-Ratio
-1.316

Coef. Of Variation
0.02



C coefficient calculated from Eq. 6.5(c) of Butler, The Design, Performance, and Analysis of Slug Tests, CRC Press, 2000.



Cooper and Jacob (1946)

Well Designation:	OPHHMW-8
Date:	18-Nov-21

$$V_n(t_i) = \sum_j^i \frac{4\pi T_n s_j}{\ln\left(\frac{2.25 T_n t_j}{r_e^2 S_n}\right)} \Delta t_j$$

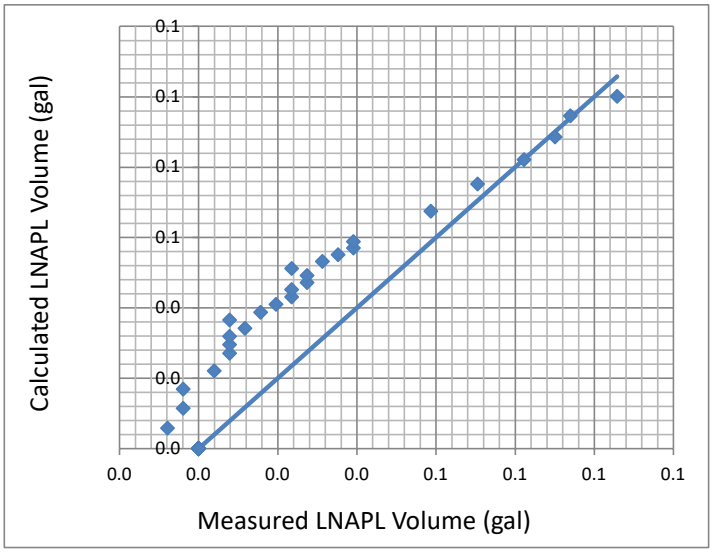
Enter early time cut-off for least-squares model fit

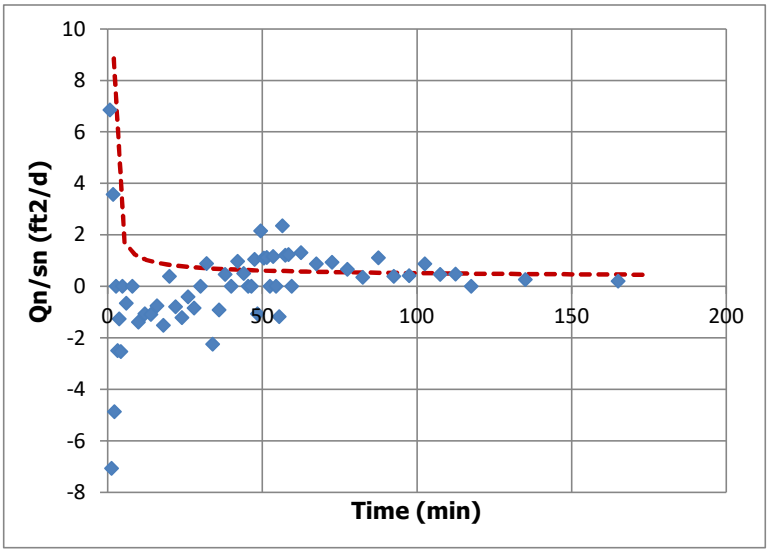
$Time_{cut}$ (min):	35	<- Enter or change values here
Time Adjustment (min):	0	

Trial S_n:	0.025	<-- Enter d for default or enter S_n value
Root-Mean-Square Error:	0.096	<-- Minimize this using "Solver"
	0.025	<-- Working S_n
Trial T_n (ft^2/d):	0.170	<-- By changing T_n through "Solver"

Add constraint T_n > 0.00001

Model Result: T_n (ft^2/d) = **0.17**





Height
0

Cooper, Bredehoeft and Papadopulos (1967)

Well Designation:	OPHHMW-8
Date:	18-Nov-21

Enter early time cut-off for least-squares model fit

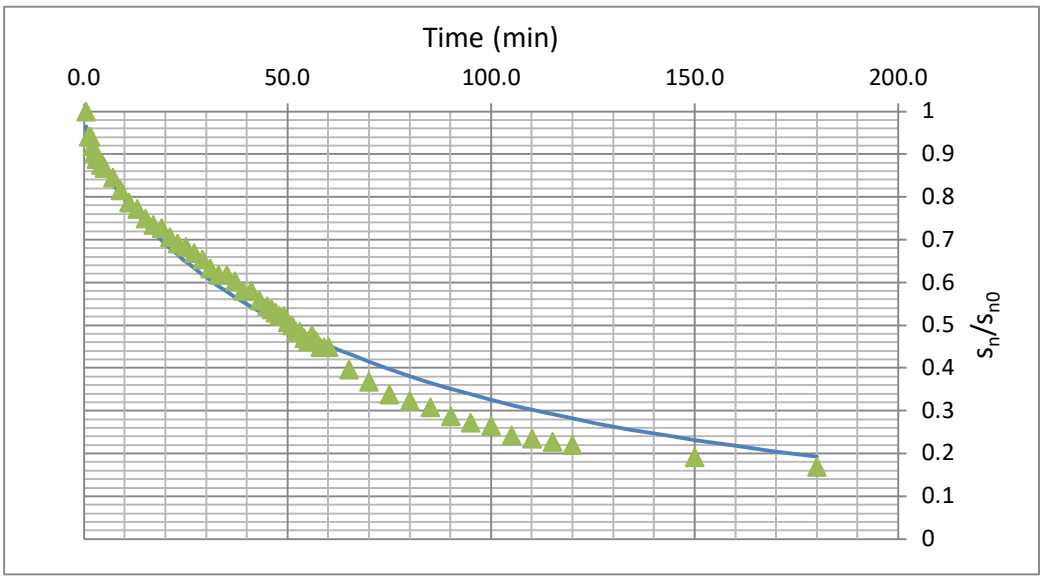
$Time_{cut}$ (min):	0	<- Enter or change values here
Initial Drawdown s_n (ft):	1.36	

Trial S_n:	0.025	<-- Enter d for default
Root-Mean-Square Error:	0.132	<-- Minimize this using "Solver"
Trial T_n (ft^2/d):	0.250	<-- By changing T_n through "Solver"
	0.025	<-- Working S_n

Add constraint Tn > 0.00001

T_{min}	0.5
T_{max}	180

Model Result: T_n (ft^2/d) = **0.25**



J-Ratio
-1.316

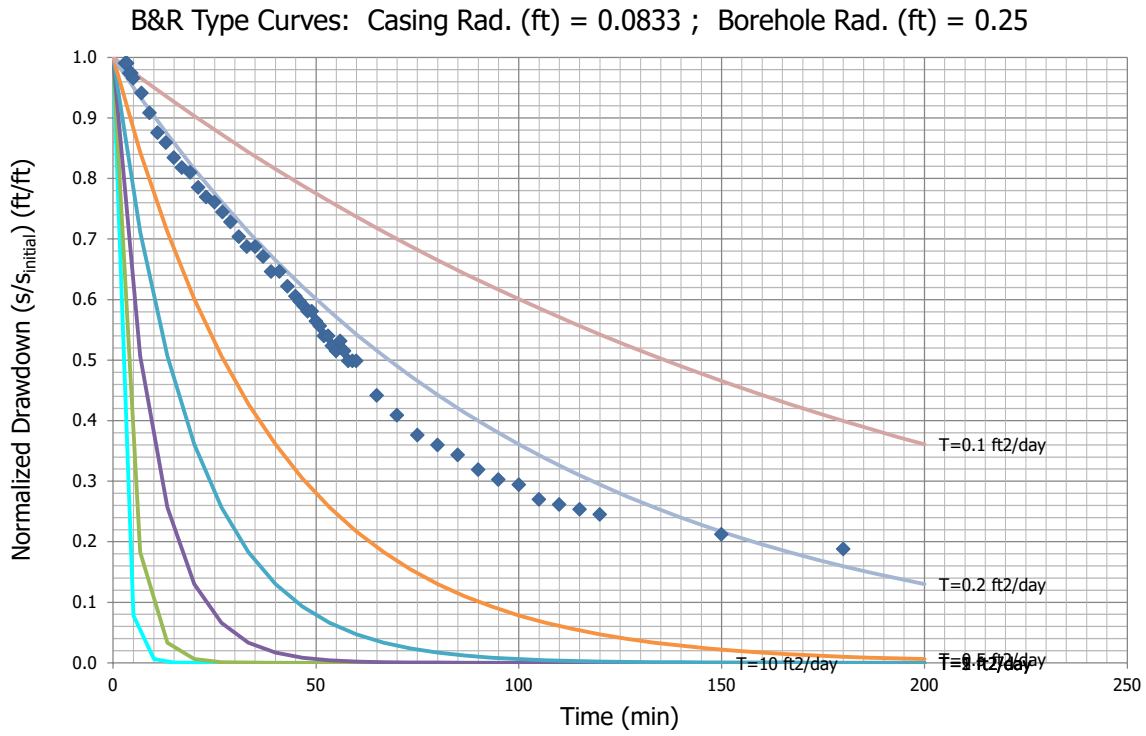
Bouwer and Rice Short Term LNAPL Mobility Test Type Curves

B&R Type Curves: Casing Rad. (ft) = 0.0833 ; Borehole Rad. (ft) = 0.25

Enter these values

Type Curve ID	Type Curve Name	Notes	Max Time (min)	Transmissivity (ft^2/day)
1	T=10 ft2/day		150	10
2	T=5 ft2/day		200	5
3	T=2 ft2/day		200	2
4	T=1 ft2/day		200	1
5	T=0.5 ft2/day		200	0.5
6	T=0.2 ft2/day		200	0.2
7	T=0.1 ft2/day		200	0.1

J-Ratio	
-1.316	<-- If uncertain use
	-0.1507



January 18, 2022

API LNAPL Transmissivity Workbook

Calculation of LNAPL Transmissivity from Baildown Test Data

STEP 1: RESET OUTPUT SUMMARY

RESET

STEP 2: ENTER DATA & VIEW FIGURES

STEP 3: CHOOSE WELL CONDITIONS

Unconfined

Confined

Perched

STEP 4: LNAPL TRANSMISSIVITY SUMMARY

Output Summary

Mean LNAPL Transmissivity (ft^2/d)

0.43

Standard Deviation (ft^2/d)

0.21

Coefficient of Variation

0.48

Well Designation:	OPHMW-8	Beckett and Lyverse (2002)
Date:	18-Jan-22	

Ground Surface Elev (ft msl)	0.0	Enter These Data
Top of Casing Elev (ft msl)	0.0	
Well Casing Radius, r_c (ft):	0.083	r_{e1}
Well Radius, r_w (ft):	0.250	
LNAPL Specific Yield, S_y:	0.175	
LNAPL Density Ratio, ρ_r:	0.849	
Top of Screen (ft bgs):	2.5	
Bottom of Screen (ft bgs):	15.0	
LNAPL Baildown Vol. (gal.):	0.6	
Effective Radius, r_{e3} (ft):	0.129	Calculated Parameters
Effective Radius, r_{e2} (ft):	0.088	
Initial Casing LNAPL Vol. (gal.):	0.17	
Initial Filter LNAPL Vol. (gal.):	0.24	

Drawdown Adjustment (ft)
0

Enter Data Here

	Time (min)	DTP (ft btoc)	DTW (ft btoc)	DTP (ft bgs)	DTW (ft bgs)	Water Table Depth (ft)	LNAPL Drawdown s_n (ft)	Average Time (min)	LNAPL Discharge Q_n (ft^3/d)	s_n (ft)	b_n (ft)	r_e (ft)
Initial Fluid Levels:	0	4.39	5.45	4.39	5.45	4.55					1.06	
Enter Test Data:	0.5	5.43	5.49	5.43	5.49	5.44	1.04				0.06	
	1.0	5.37	5.51	5.37	5.51	5.39	0.98	0.8	12.031	1.01	0.14	0.129
	1.5	5.32	5.52	5.32	5.52	5.35	0.93	1.3	9.023	0.96	0.20	0.129
	2.0	5.30	5.51	5.30	5.51	5.33	0.91	1.8	1.504	0.92	0.21	0.129
	2.5	5.27	5.52	5.27	5.52	5.31	0.88	2.3	6.015	0.90	0.25	0.129
	3.0	5.24	5.52	5.24	5.52	5.28	0.85	2.8	4.511	0.87	0.28	0.129
	3.5	5.22	5.52	5.22	5.52	5.27	0.83	3.3	3.008	0.84	0.30	0.129
	4.0	5.20	5.52	5.20	5.52	5.25	0.81	3.8	3.008	0.82	0.32	0.129
	4.5	5.19	5.52	5.19	5.52	5.24	0.80	4.3	1.504	0.81	0.33	0.129
	5.0	5.14	5.52	5.14	5.52	5.20	0.75	4.8	7.519	0.78	0.38	0.129
	6.0	5.14	5.51	5.14	5.51	5.20	0.75	5.5	-0.752	0.75	0.37	0.129
	7.0	5.12	5.51	5.12	5.51	5.18	0.73	6.5	1.504	0.74	0.39	0.129
	8.0	5.1	5.49	5.10	5.49	5.16	0.71	7.5	0.000	0.72	0.39	0.129
	9.0	5.08	5.48	5.08	5.48	5.14	0.69	8.5	0.752	0.70	0.40	0.129
	10.0	5.05	5.47	5.05	5.47	5.11	0.66	9.5	1.504	0.68	0.42	0.129
	11.0	5.05	5.45	5.05	5.45	5.11	0.66	10.5	-1.504	0.66	0.40	0.129
	12.0	5.02	5.43	5.02	5.43	5.08	0.63	11.5	0.752	0.65	0.41	0.129
	13.0	5.02	5.43	5.02	5.43	5.08	0.63	12.5	0.000	0.63	0.41	0.129
	14.0	5.02	5.42	5.02	5.42	5.08	0.63	13.5	-0.752	0.63	0.40	0.129
	15.0	5.01	5.40	5.01	5.40	5.07	0.62	14.5	-0.752	0.63	0.39	0.129
	16.0	5	5.38	5.00	5.38	5.06	0.61	15.5	-0.752	0.62	0.38	0.129
	17.0	4.99	5.37	4.99	5.37	5.05	0.60	16.5	0.000	0.61	0.38	0.129
	18.0	4.97	5.35	4.97	5.35	5.03	0.58	17.5	0.000	0.59	0.38	0.129
	19.00	4.96	5.35	4.96	5.35	5.02	0.57	18.5	0.752	0.58	0.39	0.129
	20.00	4.95	5.34	4.95	5.34	5.01	0.56	19.5	0.000	0.57	0.39	0.129
	21.00	4.95	5.33	4.95	5.33	5.01	0.56	20.5	-0.752	0.56	0.38	0.129
	22.00	4.94	5.31	4.94	5.31	5.00	0.55	21.5	-0.752	0.56	0.37	0.129
	23.00	4.94	5.30	4.94	5.30	4.99	0.55	22.5	-0.752	0.55	0.36	0.129
	24.00	4.93	5.29	4.93	5.29	4.98	0.54	23.5	0.000	0.55	0.36	0.129
	25.00	4.92	5.26	4.92	5.26	4.97	0.53	24.5	-1.504	0.54	0.34	0.129
	26.00	4.92	5.26	4.92	5.26	4.97	0.53	25.5	0.000	0.53	0.34	0.129
	27.00	4.9	5.25	4.90	5.25	4.95	0.51	26.5	0.752	0.52	0.35	0.129
	28.00	4.9	5.25	4.90	5.25	4.95	0.51	27.5	0.000	0.51	0.35	0.129
	29.00	4.89	5.23	4.89	5.23	4.94	0.50	28.5	-0.752	0.51	0.34	0.129
	30.00	4.89	5.22	4.89	5.22	4.94	0.50	29.5	-0.752	0.50	0.33	0.129
	31.00	4.88	5.21	4.88	5.21	4.93	0.49	30.5	0.000	0.50	0.33	0.129
	32.00	4.88	5.20	4.88	5.20	4.93	0.49	31.5	-0.752	0.49	0.32	0.129
	34.00	4.87	5.19	4.87	5.19	4.92	0.48	33.0	0.000	0.49	0.32	0.129
	36	4.84	5.15	4.84	5.15	4.89	0.45	35.0	-0.376	0.47	0.31	0.129
	38	4.84	5.14	4.84	5.14	4.89	0.45	37.0	-0.376	0.45	0.30	0.129
	40	4.83	5.13	4.83	5.13	4.88	0.44	39.0	0.000	0.45	0.30	0.129
	42	4.82	5.11	4.82	5.11	4.86	0.43	41.0	-0.376	0.44	0.29	0.129
	44	4.82	5.10	4.82	5.10	4.86	0.43	43.0	-0.376	0.43	0.28	0.129
	46	4.81	5.08	4.81	5.08	4.85	0.42	45.0	-0.376	0.43	0.27	0.129
	48	4.80	5.07	4.80	5.07	4.84	0.41	47.0	0.000	0.42	0.27	0.129
	50	4.78	5.04	4.78	5.04	4.82	0.39	49.0	-0.376	0.40	0.26	0.129
	52	4.78	5.03	4.78	5.03	4.82	0.39	51.0	-0.376	0.39	0.25	0.129
	54	4.77	5.02	4.77	5.02	4.81	0.38	53.0	0.000	0.39	0.25	0.129
	56	4.77	5.00	4.77	5.00	4.80	0.38	55.0	-0.752	0.38	0.23	0.129
	58	4.76	5.00	4.76	5.00	4.80	0.37	57.0	0.376	0.38	0.24	0.129
	60	4.75	4.98	4.75	4.98	4.78	0.36	59.0	-0.376	0.37	0.23	0.129
	70	4.72	4.95	4.72	4.95	4.75	0.33	65.0	0.000	0.35	0.23	0.129
	80	4.69	4.92	4.69	4.92	4.72	0.30	75.0	0.000	0.32	0.23	0.129
	90	4.67	4.90	4.67	4.90	4.70	0.28	85.0	0.000	0.29	0.23	0.129
	100	4.64	4.88	4.64	4.88	4.68	0.25	95.0	0.075	0.27	0.24	0.129
	110	4.63	4.84	4.63	4.84	4.66	0.24	105.0	-0.226	0.25	0.21	0.129
	120	4.62	4.81	4.62	4.81	4.65	0.23	115.0	-0.150	0.24	0.19	0.129
	150	4.59	4.79	4.59	4.79	4.62	0.20	135.0	0.025	0.22	0.20	0.129
	180	4.56	4.76	4.56	4.76	4.59	0.17	165.0	0.000	0.19	0.20	0.129

Figure 1

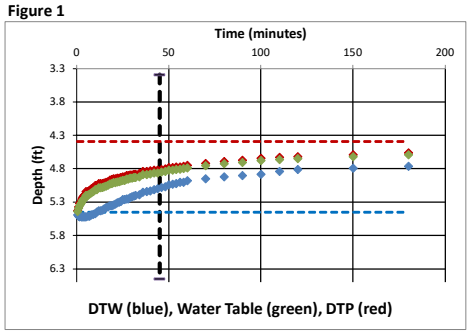
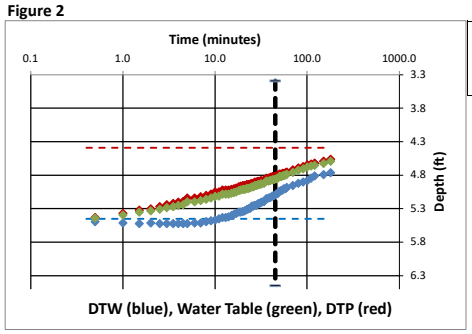


Figure 2



0.4	4.39
180	4.39
0.4	5.45
180	5.45

45.0	3.39	3.4
45.0	6.5	6.5

Figure 3

Q_n (ft^3/d)	s_n (ft)
0	0.7
12	1

Drawdown Adjust.	
Δs_n (ft)	0

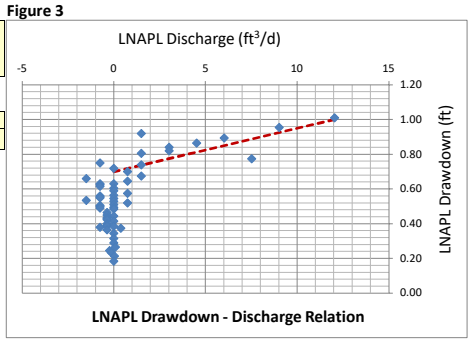


Figure 4

b_n	s_n
1.2	0
0	1.1

J-ratio	-0.917

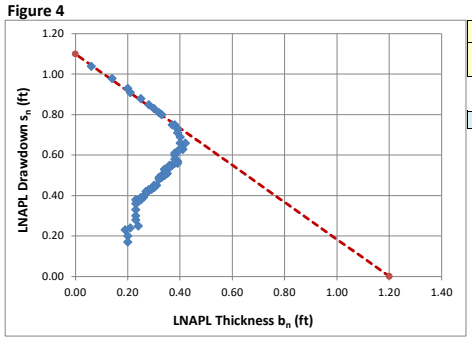


Figure 5

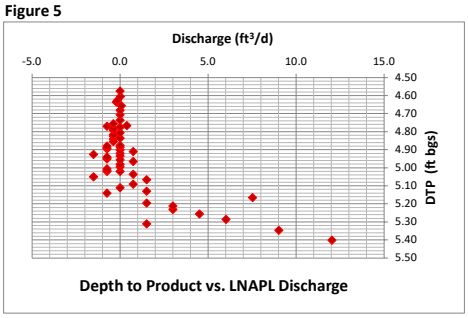


Figure 6

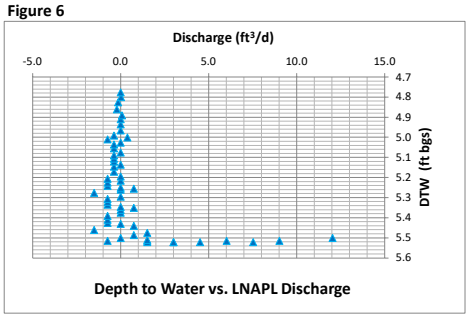


Figure 7

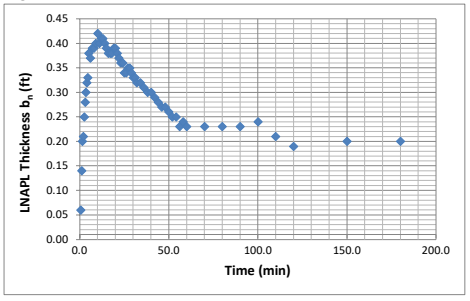


Figure 8

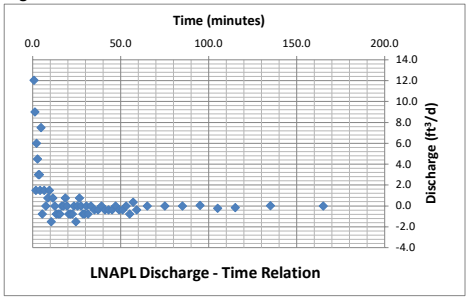


Figure 9

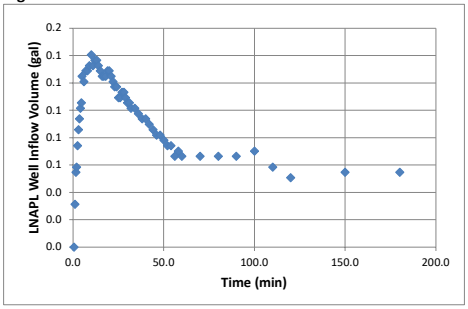
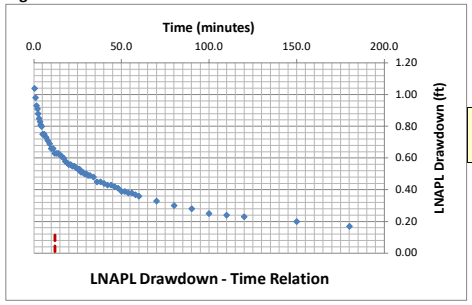


Figure 10



t (min)	s_n (ft)
12	0.115
12	0

Generalized Bouwer and Rice (1976)

Well Designation:	OPHMW-8
Date:	18-Jan-22

$$T_n = \frac{r_e^{\,2}\ln(R/r_e)\ln(s_n(t_1)/s_n(t))}{2(-J)(t-t_1)}$$

Enter early time cut-off for least-squares model fit

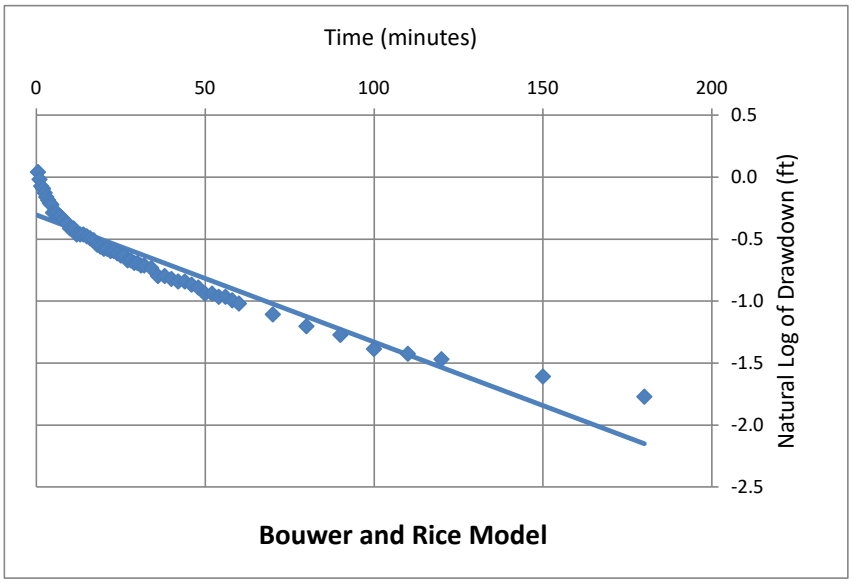
$Time_{cut}$	0	<- Enter or change value here

Model Results: T_n (ft^2/d) = 0.20 +/- 0.01 ft^2/d

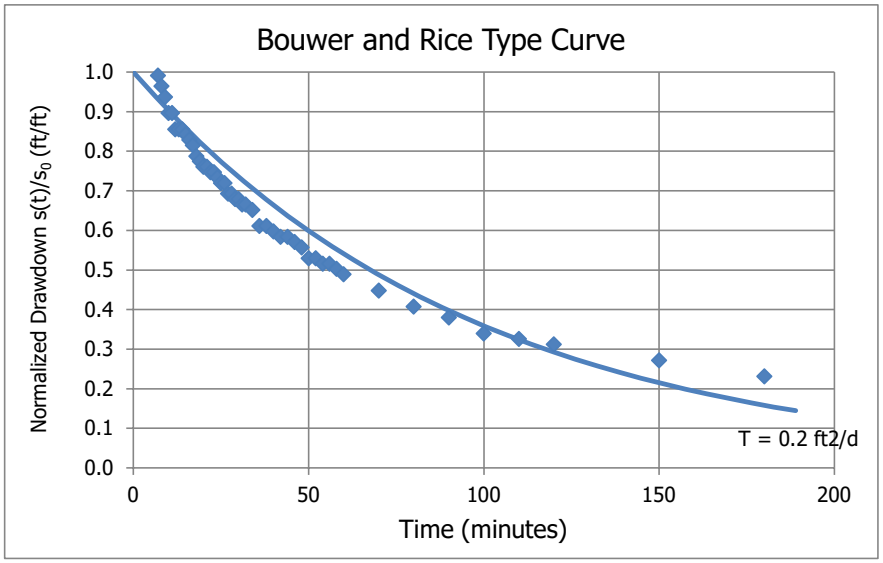
L_e/r_e
8.2
C
1.12
R/r_e
4.57

J-Ratio
-0.917

Coef. Of Variation
0.04



C coefficient calculated from Eq. 6.5(c) of Butler, The Design, Performance, and Analysis of Slug Tests, CRC Press, 2000.



Cooper and Jacob (1946)

Well Designation:	OPHMW-8
Date:	18-Jan-22

$$V_n(t_i) = \sum_j^i \frac{4\pi T_n s_j}{\ln\left(\frac{2.25 T_n t_j}{r_e^2 S_n}\right)} \Delta t_j$$

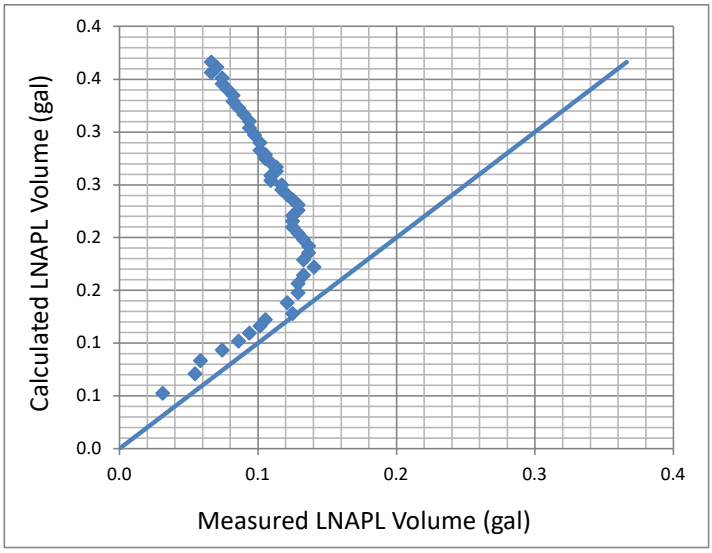
Enter early time cut-off for least-squares model fit

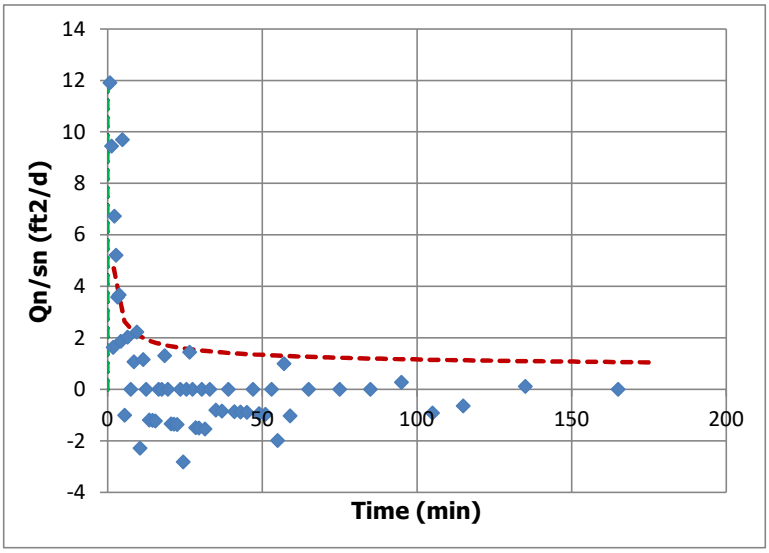
$Time_{cut}$ (min):	0	<- Enter or change values here
Time Adjustment (min):	0	

Trial S_n:	0.025	<-- Enter d for default or enter S_n value
Root-Mean-Square Error:	1.100	<-- Minimize this using "Solver"
	0.025	<-- Working S_n
Trial T_n (ft^2/d):	0.480	<-- By changing T_n through "Solver"

Add constraint T_n > 0.00001

Model Result: T_n (ft^2/d) = **0.48**





Height
12

Cooper, Bredehoeft and Papadopulos (1967)

Well Designation:	OPHMW-8
Date:	18-Jan-22

Enter early time cut-off for least-squares model fit

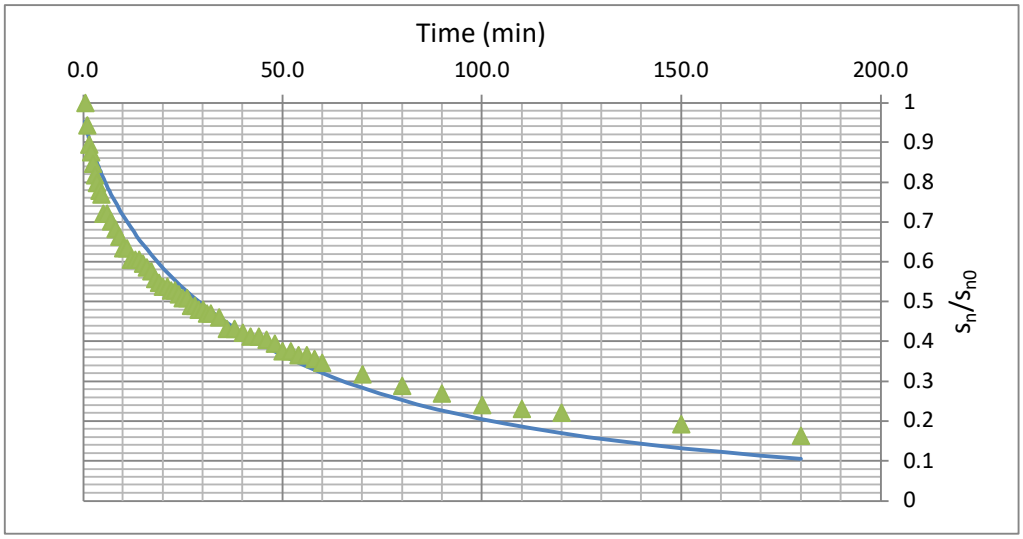
$Time_{cut}$ (min):	0	<- Enter or change values here
Initial Drawdown s_n (ft):	1.04	

Trial S_n:	0.025	<-- Enter d for default
Root-Mean-Square Error:	0.295	<-- Minimize this using "Solver"
Trial T_n (ft^2/d):	0.610	<-- By changing T_n through "Solver"
	0.025	<-- Working S_n

Add constraint Tn > 0.00001

T_{min}	0.5
T_{max}	180

Model Result: T_n (ft^2/d) = **0.61**



J-Ratio
-0.917

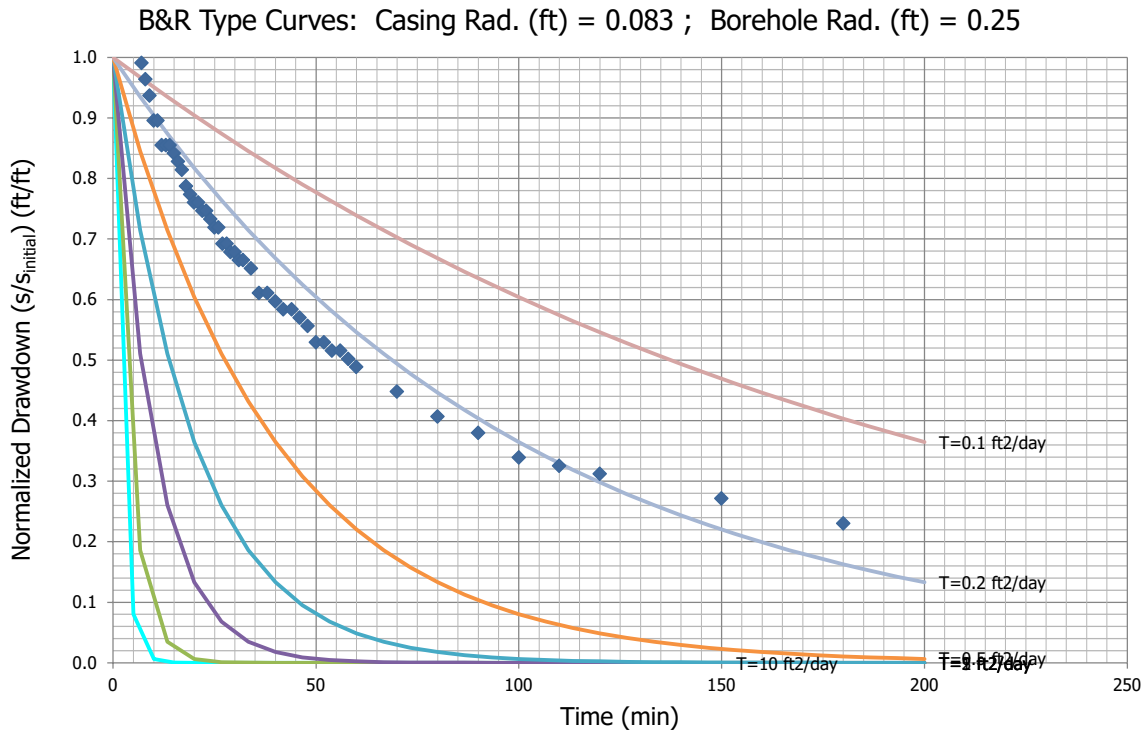
Bouwer and Rice Short Term LNAPL Mobility Test Type Curves

B&R Type Curves: Casing Rad. (ft) = 0.083 ; Borehole Rad. (ft) = 0.25

Enter these values

Type Curve ID	Type Curve Name	Notes	Max Time (min)	Transmissivity (ft^2/day)
1	T=10 ft2/day		150	10
2	T=5 ft2/day		200	5
3	T=2 ft2/day		200	2
4	T=1 ft2/day		200	1
5	T=0.5 ft2/day		200	0.5
6	T=0.2 ft2/day		200	0.2
7	T=0.1 ft2/day		200	0.1

J-Ratio	
-0.917	<-- If uncertain use
	-0.151



ATTACHMENT B

REFERENCES

References

ITRC (Interstate Technology & Regulatory Council), Technical/Regulatory Guidance, Evaluating LNAPL Remedial Technologies for Achieving Project Goals. LNAPL-1033 2. Interstate Technology & Regulatory Council, LNAPLs Team, Washington, D.C. www.itrcweb.org, December 2009

API LNAPL Transmissivity Workbook: A tool for Baildown Test Analysis, User Guide, API Publication 4762, April 2016.

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION

SITE LOCATION				REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION	
Site Name:	**KM Liquids Terminals LLC – Galena Park Terminal**			Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No	
Address 1:	**906 Clinton Drive**			Program Area:	**IHW CORRECTIVE ACTION**
Address 2:				Mail Code:	**MC-127**
City:	**Galena Park**	State:	**Texas**	Is This A New Site To This Program Area? ☐ Yes ☑ No	
Zip Code:	**77547**	County:	**Harris**	**TCEQ Facility ID No.:**	**30573**
TCEQ Region:	**Region 12 - Houston**			**--Leave This Field Blank--**	**--Leave This Field Blank--**

DOCUMENT(S) IDENTIFICATION

	PHASE OF REMEDIATION	DOCUMENT NAME
1.	**REMEDIATION**	**RESPONSE TO COMMENTS**
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name:	**Johnny Kennedy**						
Company:	**KM Liquids Terminals LLC**	Phone Number:	**(713) 654-6035**		Fax Number:		
Address 1:	**1500 Clinton Drive**	City:	**Galena Park**	State:	**Texas**	Zip Code:	**77547**
Address 2:		Email Address:	[redacted]				

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name:	**Vincent Swadis**						
Company:	**Tetra Tech, Inc.**	Phone Number:	**(832) 251-6093**		Fax Number:		
Address 1:	**1500 CityWest Blvd**	City:	**Houston**	State:	**Texas**	Zip Code:	**77042**
Address 2:	**Suite 1000**	Email Address:	[redacted]				

TCEQ INTERNAL USE ONLY

Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**RESPONSE TO COMMENTS**	4.	
2.		5.	
3.			

KINDER MORGAN
KM Liquids Terminals LLC

October 12, 2022 **FedEx No. 7701 8571 8443**

Ms. Maureen Hatfield, P.G.
Project Manager
Team 1, VCP/CA Section
Remediation Division
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
MC-127
Building D
12100 Park 35 Circle
Austin, Texas 78753

Re: Response to TCEQ Comments and Conditional Approval dated August 12, 2022:
Interim Corrective Measures Effectiveness Report, Tract A (North Plant), dated May 17, 2022
Letter Report - *Light Non-aqueous Phase Liquid (LNAPL) Bail/Down Testing and LNAPL Transmissivity – Old Pump House 5 (OPH5) Area of Concern (AOC), East Plant*, dated May 24, 2022
Kinder Morgan Liquids Terminals, LLC – Galena Park
906 Clinton Drive
Galena Park, Texas
TCEQ SWR No. 30573; CN601545940; RN100237452
TCEQ Hazardous Waste Permit/Compliance Plan No. 50054
EPA ID No. TXD026481523

Dear Ms. Hatfield:

KM Liquids Terminals LLC (KMLT) has prepared this letter to address the comments in your letter dated August 12, 2022 regarding the above-referenced reports, and to provide additional information, as applicable. Each KMLT response below is refenced to the Texas Commission on Environmental Quality (TCEQ) assigned comment number.

TCEQ Comment #1 – May 17, 2022, Interim Corrective Measures Effectiveness Report, Tract A (North Plant). This report generally meets the requirements of Provisions XI.H.8 of the above-referenced Permit. Please continue to submit interim measures reports per Permit Provision XI.H.8.

Response to Comment #1 – Comment noted.

TCEQ Comment #2 – May 24, 2022, Technical Report - LNAPL Bail/Down Testing and LNAPL Transmissivity – OPH5 AOC, East Plant: The report concludes that (a) the small LNAPL plume within the OPH5 plume management zone (PMZ) is stable and is not expanding and (b) the LNAPL is not readily recoverable based on its transmissivity data. The report

recommends ceasing LNAPL permanently. The TCEQ concurs on this proposal, with the following conditions per TCEQ guidance RG-366/TRRP-32 Risk-Based NAPL Management:

a. Continue to monitor LNAPL thicknesses for changes in its condition or distribution; and,
b. Verify that no explosive conditions are generated by the LNAPL.

If the groundwater protective concentration level exceedance (PCLE) zone expands or explosive conditions are present due to LNAPL, propose a modification to the Response Action Plan (RAP) per 30 Texas Administrative Code (TAC) §350.33(f)(4)(C)(i).

Response to Comment #2 (general) – Comment noted.

Response to Comment #2a – KMLT will monitor LNAPL thicknesses for changes in its condition or distribution during the semiannual groundwater monitoring required by Provision XI.F.3.d.(1).

Response to Comment #2b – KMLT has an extensive hydrocarbon monitoring system, both above grade and below grade, in place at OPH5 (see attached diagram). The system is in place to monitor the atmosphere for explosive vapors at Old Pumphouse #5 and the piping manifold associated with the pumphouse. If explosive atmospheric conditions were to develop in the area, the various monitors would alarm, and corrective action would be taken by KMLT safety personnel. KMLT proposes that this system will be adequate for meeting the conditions stated in TCEQ Comment 2b.

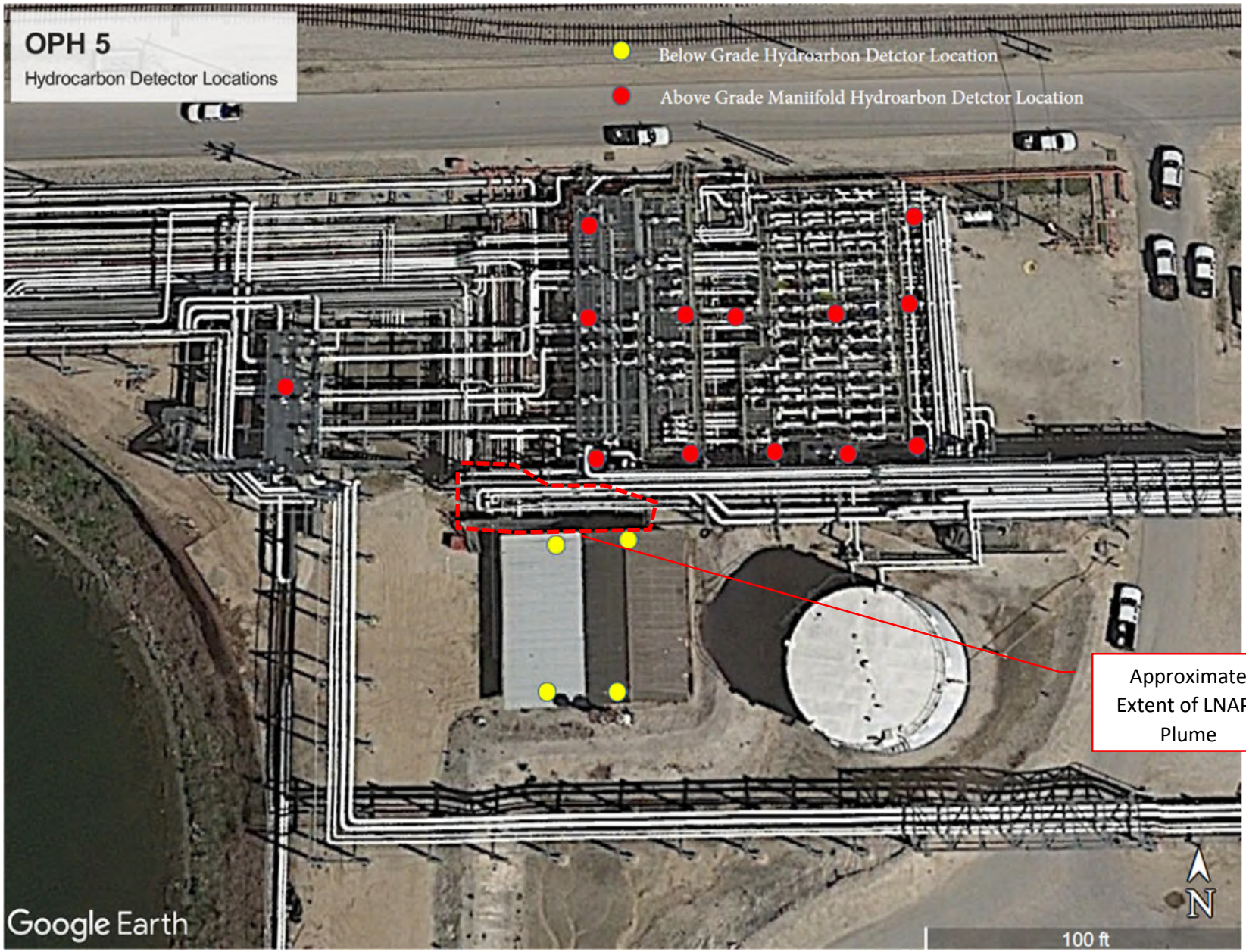
KMLT appreciates the opportunity to work with the TCEQ to resolve the comments above. If you have any questions or require additional information regarding this letter, please feel free to contact me at (713) 654-6035, or if you wish you can e-mail me at [redacted]

Sincerely,
KM Liquids Terminals LLC

Johnny Kennedy, P.G.
Remediation Manager

Attachment:

cc: Waste Program Manager – TCEQ Region 12, Houston, Texas


OPH 5
Hydrocarbon Detector Locations
Below Grade Hydroarbon Detctor Location
Above Grade Maniifold Hydroarbon Detctor Location
Approximate Extent of LNAPL Plume
Google Earth
100 ft
N

ATTACHMENT Y

Sampling and Analysis Plan

SAMPLING AND ANAYSIS PLAN
CORRECTIVE ACTION PROGRAM
GROUNDWATER MONITORING

KM LIQUIDS TERMINALS LLC
GALENA PARK TERMINAL
906 CLINTON DRIVE
GALENA PARK, TEXAS

Industrial Solid Waste Registration No. 30573
Hazardous Waste Permit/Compliance Plan No. HW-50054
EPA ID No. TXD026481523

ISSUED
September 2018

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 CORRECVTIVE ACTION PROGRAM MONITORING SYSTEM 1

3.0 ENVIRONMENTAL HEALTH AND SAFETY CONSIDERATIONS 1

4.0 FIELD ACTIVITIES 2

4.1 Field Preparation 2

4.2 Field Personnel 2

4.3 Field Documentation 3

4.4 Decontamination Procedure 3

4.5 Static Water Level and NAPL Survey 3

4.6 Well Integrity Inspection 4

4.7 Well Purging 4

4.7.1 Purging Equipment and Method 4

4.7.2 Purge Volumes 5

4.7.3 Field Parameters 6

4.7.4 Management of Purge Water 6

4.8 Groundwater Sampling 7

4.8.1 Sample Collection and Handling 7

4.8.2 Sampling Order 7

4.8.3 Special Considerations for Volatile Organic Compound Sampling 7

4.8.4 Filtering of Samples 8

4.8.5 Sample Shipment 8

5.0 SAMPLE MANAGEMENT AND ANALYTICAL REQUIREMENTS 8

5.1 Sample Custody 8

5.1.1 Sample Custody Control 8

5.1.2 Chain of Custody and Sample Shipment 8

5.1.3 Sample Delivery and Receipt of Samples 8

5.2 Sample Containers/Preservatives/Labels 9

5.2 Sample Analyses 9

5.3 Quality Assurance Plan 9

5.4 Field Quality Assurance Quality Control Samples 10

5.4.1 Trip Blank 10

5.4.2 Field Blank 11

5.4.3 Equipment Blank 11

5.4.4 Duplicate Sample 11

5.4.5 Matrix Spike 11

5.6 QA/QC Review of Analytical Results 12

1.0 INTRODUCTION

This Groundwater Sampling and Analysis Plan (SAP) provides guidance for KM Liquids Terminals LLC (Kinder Morgan) personnel, subcontractors, and consultants who do groundwater monitoring tasks at the Galena Park Terminal to fulfill site obligations under the terminal's Hazardous Waste Permit/Compliance Plan (Permit No. HW-50054). This SAP outlines procedures and defines equipment for the collection of representative groundwater samples from monitoring wells and is designed to meet the requirements of 30 Texas Administrative Code (TAC) 335.163(4) and (5) and also 40 CFR 270.30(j).

This SAP is applicable to the groundwater monitoring activities related to the Corrective Action Program at the Galena Park Terminal but may also serve as a reference guide for other groundwater monitoring programs being conducted at the terminal unless specifically authorized otherwise under those other programs. The Corrective Action Program at the Galena Park Terminal applies to the units specified in Compliance Plan (CP) Table I (Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring) of the Hazardous Waste Permit/Compliance Plan.

2.0 CORRECVTIVE ACTION PROGRAM MONITORING SYSTEM

The Corrective Action Program groundwater monitoring system at the Kinder Morgan Galena Park Terminal consists of Point of Compliance (POC) wells, Corrective Action Observation (CAO) wells, Point of Exposure (POE) wells, Background wells, Attenuation Monitoring Point (AMP) wells, Potentiometric Surface Observation (PSO) wells, and Corrective Action System (CAS) wells (recovery wells). The current Corrective Action Program wells and their designation are summarized in CP Table V (Designation of Wells) and CP Attachment A. The well locations are illustrated in CP Attachment A. The Corrective Action Program wells are sampled on a regular basis in accordance with Provision XI.F.3 of the Permit.

3.0 ENVIRONMENTAL HEALTH AND SAFETY CONSIDERATIONS

Groundwater Sampling and Analyses will be performed according to a Health and Safety Plan (HASP) applicable to groundwater sampling conditions at the Galena Park Terminal.

A. Site personnel work under a specific written site procedure.
B. Environmental Contractors prepare a site-approved HASP for all field activities. The Environmental Contractor's HASP will be prepared in accordance with HASP protocol for groundwater sampling at the Kinder Morgan Texas, Galena Park Terminal that include:
    1. Safe work procedures consistent with site safety protocols.
    2. Personal protection equipment (PPE) consistent with assessment of known or potential groundwater contaminants.
    3. Disposal procedures for various media, decontamination rinses, and used PPE.

The site-approved HASP is provided to all field personnel and reviewed with the project manager prior to beginning work, with emphasis on all safety and environmental protection precautions during the well maintenance and sampling tasks.

4.0 FIELD ACTIVITIES

This section provides detailed procedures and requirements for conducting the field activities necessary for collection of the data required by Hazardous Waste Permit/Compliance Plan for the Kinder Morgan Galena Park Terminal. The field activities are conducted on a semiannual or annual basis and include a static water level and NAPL survey, a well integrity inspection, and groundwater sampling,

4.1 Field Preparation

Prior to mobilization to the field for the sampling program, project personnel will review this SAP to ensure collection of all necessary field data and conformance with the procedures described below. Analytical data from the previous sampling event should be reviewed to identify the order in which wells are to be purged and sampled (i.e., recommend sampling in order of increasing constituent concentration).

All groundwater monitoring wells will be sampled using low-flow sampling technique and all recovery wells (CAS wells) will be sampled by collecting the groundwater samples directly from recovery wells as they are pumping using the dedicated pumps and piping used for groundwater remediation. The use of dedicated equipment for groundwater collection will minimize the need for decontamination of sampling equipment between sampling locations and the potential for cross-contamination. All necessary equipment will be procured and/or prepared for use prior to implementation of field activities.

The project manager will review sampling program objectives and determine the Sample Detection Limits (SDLs) needed for comparison with applicable risk-based criteria (i.e. GWPS.). The sampling program will be coordinated with the approved laboratory to ensure that properly prepared sample kits are provided and that analytical methods and laboratory procedures will achieve the necessary SDLs. The sample kits will include all necessary sample containers with closures and appropriate preservatives; wet ice coolers; indelible water-proof labels; and chain-of-custody/analysis request forms.

4.2 Field Personnel

Individuals with experience in environmental sampling that are thoroughly trained and familiar with all aspects of the sampling protocol will perform the groundwater sampling. If two or more people are involved in sample collection, the senior member of the team will be responsible for complete documentation of sampling. The sampling team will be provided by the approved contractor retained by the Kinder Morgan to conduct the field activities.

4.3 Field Documentation

Documentation of sampling events will be written in waterproof ink and maintained as a permanent record. Field notes will be written in a bound field notebook, with pages numbered sequentially, appropriately dated, and signed. In addition, water-level measurements, well purging records, well inspection results, and documentation of on-site testing of groundwater during sampling will be recorded on standardized forms designed to meet the needs of the facility and subsequent data management needs.

Information to be recorded during the sampling event includes: identification of sampling personnel, identification of wells measured/sampled, dates and times of measurement/sample collection, weather conditions, results of static water level measurements; deficiencies in the physical condition of wells noted during well inspections; purging/sampling methods and volumes; results of field water quality measurements; volume of sample collected; analyses to be performed; container type; and sample preservatives.

4.4 Decontamination Procedure

To the extent practicable, groundwater monitoring wells will be sampled using dedicated equipment, such as peristaltic pumps with dedicated down-hole tubing, dedicated low-flow bladder pumps, disposable bailers, or other suitable sampling equipment. The use of dedicated and/or disposable sampling equipment for groundwater collection will minimize the need for decontamination of sampling equipment between sampling locations and the potential for cross-contamination. Equipment made from inert, non-reactive materials such as Teflon®, stainless steel, or other suitable materials will be used to the extent practicable. When non-dedicated equipment is used during the sampling event, the equipment will be thoroughly cleaned prior to use in each well. The equipment will be washed using the following procedure: 1) start with a solution of Alconox® and water, 2) triple rinse with fresh water, 3) spray with 10% isopropanol solution, 4) rinse with fresh water, 5), rinse with deionized water and, 4) air dry. All decontamination fluids will be contained and disposed of as directed by Kinder Morgan personnel.

4.5 Static Water Level and NAPL Survey

Prior to monitor well purging and sample collection, static water levels will be measured in all existing groundwater monitoring wells at the terminal and noted on the appropriate form. The static water level in the well will be measured to the nearest 0.01 feet with an electronic water level indicator. The depth to water level measurements will be taken in the same monitoring well sequence as the sequence the wells will be sampled. Prior to collecting the water level measurements each well will be allowed to equilibrate to atmospheric pressure by removing the well cap and allowing the well to sit for approximately 30 minutes. Between wells, the static water level measuring probe and line that contacted the well will be: 1) wiped with a paper towel soaked with isopropanol, 2) rinsed with deionized water, and 3) air dried. Additionally, the total depth of the each well will be measured to the nearest 0.01 feet during the static water level survey to determine how much, if any, silt has accumulated in the bottom of the well.

At all monitoring wells, the presence or absence of non-aqueous phase liquids (NAPLs) will be determined and noted on a static water level survey form. Any wells in which evidence of NAPL is, or previously has been detected will be sounded using an electronic interface probe, transparent bailer, weighted string, or other suitable device to permit measurement of the thickness of any NAPL accumulation.

It should be noted that generally NAPLs are suspected to be potentially present if dissolved concentrations in the groundwater exceed 1% of the solubility of the pure constituent. Wells with a measurable thickness of NAPL or with a distinctive sheen in discharge water will generally not be sampled for dissolved constituents because: 1) the presence of NAPL confirms that groundwater at the monitoring well is affected, and 2) results of analysis of dissolved-phase constituents are frequently non-representative because of mixing of NAPL with the groundwater during sampling.

4.6 Well Integrity Inspection

All wells are completed with a protective casing or manway and locking cap. Wells will be unlocked prior to initiating sampling procedures and re-locked when sampling is completed and at any time the sampling team leaves the area. Lock keys will be kept at the terminal.

Wells will be inspected to confirm well integrity and identify needed repairs. The inspection shall note any of the following:

- Lock is in place and operable.
- A plug or cap is in place on the inner well casing.
- Integrity of protective casing (or manway) and barrier post (if applicable).
- The monitoring well is clearly labeled.
- The standpipe or flush-mount well covers are in good condition.
- The concrete pad surrounding the well is free of cracks, which penetrate the entire slab.
- The well is free of obstructions.
- The total depth of the well will be measured and the percent screen section blocked by sediment will be determined.
- The condition of the monitoring well is acceptable.

Well inspections should note any observed deficiencies and any deficiencies will be noted in the field records and brought to the attention of the responsible terminal personnel upon completion of each sampling event. During each sampling event, wells will be sounded to total depth to detect the presence of silt accumulation at the base of the well or other obstruction. Measured well bottoms will be recorded on the well purging field form. If twenty percent of the monitoring well screen is blocked by sediment, the well will be developed prior to sampling.

4.7 Well Purging

4.7.1 Purging Equipment and Method

Wells to be sampled which do not have installed pumping equipment will be purged prior to groundwater sample collection. For wells which have installed pumping equipment, samples will be collected directly from the recovery wells (CAS wells) as they are pumping using the dedicated pumps and piping used for groundwater remediation. Groundwater sampling of non-

pumping wells at the Kinder Morgan Galena Park Terminal will be conducted using low-flow sampling techniques. Dedicated tubing will be assigned to each well and the samples will be collected using either a downhole bladder pump or a peristaltic pump or other appropriate equipment. If necessary, sampling can be conducted with a new disposable bailer with nylon cord and wearing dedicated nitrile or latex or other appropriate gloves.

Sample intake depths (i.e. depth of pump intake or depth of bottom of tubing) will be set relative to the top of the well casing, recorded, and used for all subsequent sampling events. The sample intake depths should be set at the mid-point of the screened section and not less than two feet from the bottom of the well. The depth setting of the pump and/or tubing intake for each well will be indicated on the field sampling form.

Low-flow sampling must be conducted in such a manner as to minimize the amount of drawdown in the well during purging and sampling. The objective is to sample groundwater directly from the screened interval (at a point 50% down the screen interval) without mixing of stagnant water from above the screened interval during the sampling process. Pumping rates of no more than 0.1 to 0.5 L/min should be used and water levels in the well monitored at regular intervals, and recorded, to ensure that drawdown in the well does not exceed the method criteria. At no time during the well purging or sampling should the water level drop below the top of the well screen section.

To the extent practicable, drawdown in the well should not exceed 0.3 feet. If, however, drawdown using the minimal discharge that can be achieved exceeds 0.3 feet but remains stable and does not go below the top of the screened interval, continue pumping until the indicator field parameters stabilize. During subsequent low flow sampling events, duplicate to the extent practicable, the extraction rate (based on final pumping rates when indicator field parameters stabilized during previous sampling events) used at each well. The optimum purge rate for each well will be indicated on the field sampling form.

If a well can not be purged using low-flow sampling techniques without producing excessive drawdown (i.e., the water level declines into the screened portion of the well), bailers can be used as an alternative purging and sampling method. A new disposable bailer will be used to extract water from the well until either the well has gone “dry” or three well casing volumes has been removed. A bailed well must be allowed to recharge for at least one hour prior to collecting any samples. Samples will be collected using the disposable bailer. During purging and sampling, the disposable bailer will be lowered slowly into the well and decanted carefully to minimize agitation and the chance for incidental spills.

4.7.2 Purge Volumes

Wells purged using low-flow techniques will be considered purged when the field parameters have stabilized and a volume greater than the drawdown volume of the casing (drawdown below static water level, in feet, times the unit volume per foot of casing) plus the extraction tube volume has been removed.

Wells purged using a bailer will be considered purged when the well has gone “dry” or a minimum of three casing volumes has been removed. A casing volume is equal to the length of

the water column in feet (total well depth relative to top of well casing minus depth to water relative to top of well casing) times the unit volume per foot of casing.

Casing Volume Calculation

A well casing volume is defined as the height of the water column times gallons per foot (gpf) stored in the well casing (0.16 gpf for 2-inch diameter casing, and 0.65 gpf for 4-inch diameter casing), and can be calculated as follows:

$$\text{Casing Volume} = [\pi \text{ (well radius, ft)}^2 \text{ (water column height, ft)}] \text{ (7.4805 gal/ ft}^3\text{)} = \text{gallons}$$

Substituting values to calculate the volume of a one-foot length of two-inch diameter well casing:

$$\text{Casing Volume} =[3.14159 \text{ (2-inch/2} \bullet \text{ 1 ft/12 inches)}^2 \text{ (1 ft)}] \text{ (7.4805 gal/ ft}^3\text{)} = 0.16 \text{ gal}$$

4.7.3 Field Parameters

Field parameters must be monitored during low-flow purging activities to verify that the groundwater collected is representative of the aquifer. The field parameters should be monitored where possible using a flow-through cell. Readings of the field parameters should be taken at regular intervals based either on time or volume purged. Purging is complete and sampling may begin when all indicator field parameters have stabilized. The required field parameters and guidance for determining whether parameter stabilization has been achieved is presented in the table below:

Field Sampling Parameters and Stabilization Criteria

Parameter	Change in Parameter for Three Consecutive Readings
Specific Conductance	± 3%
pH	± 0.2 S.U.
Dissolved Oxygen	± 10%
Redox Potential	± 10 mV
Temperature	± 10%
Turbidity	± 10%

For samples collected from the sample taps at recovery wells, one set of parameter measurements will be taken at the time of sample collection. All meters used to collect the field parameters must be calibrated according to manufacture's specification the day of the sampling event before going into the field. Calibration of the meters will be documented on the field sampling form. Meter calibrations will be checked between well locations by testing with a known standard. If the meters go out of calibration by 10% of more the meter will be recalibrated. Meter recalibration will be documented on the field sampling form.

4.7.4 Management of Purge Water

All purge water will be collected in suitable containers, labeled, and staged in an area designated by Kinder Morgan personnel. Purge water disposal will be managed by an approved contractor designated by Kinder Morgan personnel.

4.8 Groundwater Sampling

4.8.1 Sample Collection and Handling

For wells sampled using low-flow techniques, sampling should be conducted as soon as practicable following purging, preferably within 15 minutes. A bailed well must be allowed to recharge for at least one hour prior to collecting any samples. For wells with low recharge rates that are essentially dewatered during purging (i.e. purged "dry"), the well can be sampled up to 24 hours following completion of purging without further purging or bailing.

Groundwater samples will be collected and handled to minimize the potential for cross-contamination, loss of volatile constituents, or other interference. Sampling personnel will wear clean latex, nitrile or other chemical resistant, non-reactive gloves when handling sampling equipment and containers, and will minimize contact with the sampled groundwater. Care will be taken to prevent contact of the bailer, cord, or other down-hole equipment with the ground or other potential sources of sample contamination. Gloves will be changed and disposed of as waste between sampling locations.

4.8.2 Sampling Order

Well locations will be sampled in order of increasing groundwater constituent concentrations in order to minimize potential for cross-contamination. The suggested parameter bottle filling order is: volatiles, semi-volatiles, herbicides, and metals.

4.8.3 Special Considerations for Volatile Organic Compound Sampling

The proper collection of samples for dissolved VOCs requires minimal disturbance of the sample to limit volatilization and subsequent loss of volatiles from the sample. The principal objective is to provide a valid sample for analysis that has been subjected to a minimal amount of turbulence.

The following procedures should be followed when collecting VOC samples:

- Open the vial, set the cap in a clean place, and place the proper amount of preservative (HCL) in the vial or use vials with preservative already added by the laboratory.
- Fill the vial to the top until a convex meniscus forms on the top of the vial. Do not overfill the vial.
- Check that the cap has not been contaminated and carefully cap the vial. Place the cap directly over the top and screw down firmly. Do not over-tighten and break the cap.
- Invert the vial and tap gently. If an air bubble appears, remove the lid, add water from the well to top off the sample, and close again. It is important that no entrapped air remains in the sample vial.
- Place collected samples in the cooler immediately upon collection and ensure that the samples remain at <6°C but do not allow them to freeze.
- Group VOA samples of similar concentration in common coolers and laboratory sample batches for reduced likelihood of cross contamination during transport and laboratory

analysis. It is recommended that samples be shipped or delivered to the laboratory daily. The holding time for preserved VOC samples, under most protocols, is 14 days.

4.8.4 Filtering of Samples

According to Texas Commission of Environmental Quality (TCEQ) protocols, groundwater samples collected for analyses of total metals should not be filtered in the field prior to preservation by acidification. In some instances, turbidity present in collected groundwater can result in acidification of suspended sediments and anomalously high values for total metals. Therefore, groundwater samples with turbidity values less than 50 NTUs can be analyzed without filtration. For groundwater samples that exceed 50 NTUs, samples should be filtered with a 10-micron filter (only). Samples will be filtered in the field using and a new filter.

4.8.5 Sample Shipment

Sample jars will be packed in bubble wrap (or other suitable material) to prevent breakage and retained in wet ice coolers pending transport to the laboratory with adequate ice packs to maintain samples at a temperature of <6°C until received by laboratory. The laboratory will control the temperature upon receipt. Coolers that are to be shipped by express courier or shipped by air will not be accepted by the carrier if they are leaking fluid; therefore, ice must be packed in leak-proof bags or cool packs used to prevent leakage of fluids from the coolers.

5.0 SAMPLE MANAGEMENT AND ANALYTICAL REQUIREMENTS

5.1 Sample Custody

5.1.1 Sample Custody Control

Sampling personnel will be responsible for the care of collected samples until the containers have been transferred to the custody of the laboratory or courier, preferably no more than 24 hours after collection. Sampling personnel will assure that the collected samples are in the sampler's physical possession, in view at all times, or stored in a secure area to prevent tampering.

5.1.2 Chain of Custody and Sample Shipment

After sample collection, the chain of custody form will be filled out in waterproof ink in legible handwriting and will accompany the samples throughout all phases of shipment and handling. The chain of custody at a minimum will include a list of samples collected, the collection time and date, the analyses requested and method number, the container type and size, and the preservative. The sample cooler will be unique-code-sealed with a custody seal to ensure integrity. The custody seal will be affixed to the cooler such that the cooler can not be opened without breaking the seal.

5.1.3 Sample Delivery and Receipt of Samples

Upon delivery of samples to the laboratory or courier, the sampler will retain a copy of the chain of custody form, signed by the sampler and laboratory personnel indicating the date and time the

sample was relinquished and received. A copy of the chain of custody form showing all signatures from the sampler to the laboratory will be incorporated in the permanent project record.

5.2 Sample Containers/Preservatives/Labels

Samples will be collected in clean, method-specified containers, with appropriate preservatives. Sample containers and preservatives will be supplied by the approved analytical laboratory. Pending use, the sample containers will be stored with lids secured in a clean cooler or box.

Once a sample has been collected, the sample container lid will be secured and a water-proof adhesive label affixed. The label will include sample identification, time and date of collection, sampler's initials, and other pertinent information, as appropriate. The samples will be retained in a cooler as described above pending transport to the laboratory.

The following information will be included on sample labels affixed to field sample containers:

- Site Identification - the site name and location or a unique project number which identifies the site;
- A unique sample ID;
- Collection time and date;
- Name of sampler;
- Requested analysis; and
- Sample preservation

5.2 Sample Analyses

Groundwater samples collected from the Corrective Action Program areas will be submitted to an approved laboratory and analyzed for the area specific indicator parameters listed in CP Table IIIA (Corrective Action Program Table of Indicator Parameters and Groundwater Protection Standard).

5.3 Quality Assurance Plan

All sampling will adhere to strict quality assurance/quality control (QA/QC) requirements to ensure high quality data. Accordingly, sample results will be considered to be representative of the media sampled and to be reproducible within defined statistical limits. These QA/QC protocols will include the following:

- Conformance with the stated requirements of this SAP, including the method of obtaining samples, number and type of sampling containers with precise identification, sample preservation techniques and approved holding times, sample identification codes, and documentation procedures.
- Collection and frequency of QC samples as described below.
- Following the approved decontamination procedure described in this SAP.
- Clear labeling of all samples using appropriate identifiers, identifying sample number, sample location, sample date and time, name of sampler, requested analysis, and sample preservation technique.

- Use of standard COC records to document transfers of samples from point of sampling through to the laboratory.

At a minimum a Level II USEPA Quality Analysis and Quality Control (QA/QC) reporting system must be used for the GMP. The required level of QA/QC will include the following analysis:

- 1 method blank every 20 samples (minimum of one);
- 1 matrix spike every 20 samples (minimum of one);
- 1 lab calibration check sample every 20 samples (minimum of one);
- 1 matrix spike duplicate in 20 samples as a minimum;
- 1 field duplicate sample per 20 samples as a minimum;
- 1 field blank per day of sampling (VOC and SVOC analysis);
- 1 trip blank sample per cool box (for VOC analysis only); and
- 1 equipment blank for the project (for VOC and SVOC analysis);

This level of QA/QC will also require the reporting of the following parameters:

- laboratory sample identification;
- client sample identification;
- analytical method;
- sample collection date;
- date of extraction for SVOCs and Herbicides;
- date of sample digestion for metals;
- date of sample receipt;
- date of analysis;
- detection limits; and
- dilution factors.

5.4 Field Quality Assurance Quality Control Samples

Field Quality Assurance and Quality Control (QA/QC) procedures include the collection of additional samples to measure the effectiveness of the sampling procedures. The following types of QA/QC samples are incorporated into this SAP.

5.4.1 Trip Blank

Trip blanks for VOAs will be prepared by the laboratory. One VOA vial per sample shipping container or cooler will be filled with Type II reagent-grade water, transported to the site with the empty sample bottles, carried with the sample bottles during all sampling activities, and returned to the laboratory for analysis. Contaminants found in the trip blank can be attributed to interaction between the sample and the container, possible contamination due to diffusion of constituents through the septa, or contamination introduced by the laboratory. At a minimum, one trip blank will be analyzed per sampling event and should not be shipped back to the laboratory until the last shipment of samples is sent. One trip blank will be included with each cooler-shipment of a multi-shipment sampling event. The trip blank will be analyzed for VOCs.

5.4.2 Field Blank

A field blank consists of a VOA vial filled with organic-free water, including necessary preservative. To meet the data quality objectives, one field blank will be collected and analyzed for VOCs, SVOCs, and herbicides. A field blank should be collected adjacent to the well most downwind of the sample area where ambient conditions could influence parameter concentration. The field blank bottle(s) are set out beside the well, with the bottle caps off, in a position upwind or nearest to a source of air emission. Contaminants found in the field blank can be attributed to the ambient conditions in the vicinity of the sample location. Frequency will be one per day of sampling.

5.4.3 Equipment Blank

An equipment blank must be performed only when non-dedicated equipment is used. An equipment blank consists of a bottle set, including necessary preservatives, that is filled with deionized water rinsate from the decontaminated equipment used for sampling (i.e., rinse water will be poured from a bailer). Contaminants found in the equipment blank can be attributed to leaching from the sample tubing or equipment or to incomplete decontamination of the sample equipment. If applicable, an equipment blank is collected during sampling events for each sampling matrix, at a frequency of one per day of sampling or one every twenty samples, which ever is the higher frequency. The equipment blank will be analyzed for VOCs, SVOCs, and herbicides.

5.4.4 Duplicate Sample

A field duplicate sample consists of a bottle set, including necessary preservatives, that is filled from one of the sampled wells and assigned a sample identification. The well number that corresponds to the duplicate sample will be recorded in field documentation, but not divulged to the analytical laboratory (blind coding). The meet the data quality objectives, one field duplicate will be collected during each sampling event and analyzed for all project analytes. The duplicate sample provides a measure of precision, or reproducibility of the sample result. Precision as a relative percent deviation (RPD) will be calculated according to the following equation:

$$RPD\% = \frac{(R1-R2) \times 100\%}{(R1+R2)(0.5)}$$

Where:
RPD = Relative Percentage Deviation (%)
R1 = Result from first sample
R2 = Result from duplicate sample

5.4.5 Matrix Spike

For each matrix sampled and sampling batch (every 20 samples), enough sample needs to be collected from one location so as to allow the laboratory to prepare one matrix spike and one matrix spike duplicate for each analytical method employed. Check with the approved laboratory before conducting the sampling event to determine if any extra sample volume will need to be collected.

5.6 QA/QC Review of Analytical Results

The results of analyses of trip blanks, field blanks, and equipment blanks will be used to evaluate sampling procedures and identify external sources of contamination that may influence analytical results. Acceptance criteria for precision of analyses of duplicate samples will be determined by the approved laboratory. Acceptable accuracy for control samples is method dependent and also subject to the performance acceptance criteria of the particular laboratory that is used. General method performance guidelines can be reviewed in the QC portion of each of the applicable EPA SW-846 series methods.

Analytical results as reported by the laboratory will be subject to a thorough QA/QC review. This review will include the following to assess analytical results accuracy:

- Holding Time Review - Check for exceedances of prescribed holding times.
- Blank Review - Review blank analyses for evidence of potential contaminants.
- Duplicate Review - Check for analytical precision and/or sample heterogeneity.
- Spike Review - Review matrix and surrogate spike recovery ranges and spike duplicate relative percent differences as a check for analytical accuracy and for extraction precision and accuracy.
- Elevated Detection Limits - identify samples with elevated detection limits (above the numerical standards used to assess the significance of the data) as a result of sample dilution or small sample volume.

Table 1D - Central Plant
Gauging Data and Groundwater Field Parameters

Kinder Morgan - Galena Park Terminal
Galena Park, Texas

Well I.D.	2H24 # Wells Sampled	2H24 Added # Wells Gauged	RW Sampled by Port	MW Low-Flow Sampled	Top of Casing Elev (ft-msl)	Depth to LNAPL (ft-toc)	Depth to Water (ft-toc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)	Corrected GW Elev (ft-msl)	Water Column (ft)	Total Depth (ft-toc)	Screen Length (ft)	Sample Intake (ft-toc)	Well Inspection	pH (S.U.)	Temp. (C)	S.C. (umhos)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)	Water Clarity	Comments
Monitor Wells																							
AMP-01																							
AMP-02																							
AMP-03																							
POE-01																							
MW-35																							
MW-36																							
MW-37																							
MW-38																							
RI-1-14																							
RI-1-17																							
RI-1-18																							
RI-3-01																							
RI-3-02																							
RI-3-03																							
Recovery Well																							
POE-02																							
Gauge-Only Wells																							
RI-1-09																							
MW-40																							
MW-41																							**Well destroyed previously, per AECOM**

Notes: Semiannual monitoring (planned January & July)
NP = No product (LNAPL), NM = Not measured
Corrected Groundwater Elevation = (LNAPL Thickness x 0.87) + Depth to Groundwater, per AECOM
Sample intakes at midscreen, per AECOM, where permitted by available water column
* POE-2 - 2-in diam. recovery well; casing diameter blocked with recovery hoses, etc., prohibits passage of gauging probe; therefore DTW not measured
RI-1-17, MW-35 toc elevs. per 1-31-22 email from AECOM to HMI

Monitoring Well Purging and Sampling Record

Kinder Morgan
Galena Park Terminal
Galena Park, Texas

Well:
Area: Central Plant

Completion	Casing Diam.	Casing Material
At-Grade __	2-in __	PVC __
Upright __	4-in __	SS __
Vault __	Other __	Other __

Hydrologic Monitoring
Houston, Texas

Well Inspection Information

Initials:

Date	Time	Depth to LNAPL (Ft-TOC)	Depth to Water (Ft-TOC)	LNAPL Thickness (Ft)	DNAPL Thickness (Ft)	Well Total Depth (Ft-TOC)	Sample Intake (Ft-TOC)	Screen Length (Ft)	Well Inspection					Comments
									Cap	Casing	Well Secure	Label	Other	
														Weather:

Well Purging Record

Date	Time	Depth to Water (Ft-TOC)	Cum. Vol. Purged (L)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Purging and Sampling Method	Water Color / Clarity
										Low-flow purging/sampling	
										w/ peristaltic pump+dedicated	
										polyethylene tubing	

Well Sampling Record

Date	Time	Sample I.D.	Depth to Water (Ft-TOC)	pH (std units)	T (C)	SC (umho/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction-Potential (mV)	Turbidity (NTU)	Parameter	Preserv	Comments Lab: Eurofins-TA, Houston, TX
										VOC - LL Special List	HCL	
										SVOC - LL target compound list	Neat	
										2,4-D	Neat	
										Lead	HNO3	

ATTACHMENT Z

SEHB GW_SW Calculations

Attachment Z
2024 Galena Park Terminal Permit Renewal Application
Groundwater to Surface Water Evaluation
Southeast Holding Basin
Kinder Morgan Liquids Terminals, LP Galena Park, Texas

Central Plant - Sandy Channel Fill and Uppermost Naturally Transmissive Unit

Well Location	CAS No.	COG	Maximum Concentration (mg/L)	Chronic Marine ^{SW}RBEL (mg/L)	Human Health ^{SW}RBEL (mg/L)	^{SW}RBEL (mg/L)	^{SW}GW PCL (mg/l)	Solubility in water (mg/l)*
MW-20	83-32-9	Acenaphthene	40.3	4.04E-02	9.90E-01	4.04E-02	3.38E+03	
MW-20	71-43-2	Benzene	1120	1.09E-01	7.08E-02	7.08E-02	5.92E+03	
MW-20	56-55-3	Benzo(a)anthracene	6.32	*1.20E-04*	5.40E-04	1.20E-04	1.00E+01	
MW-21	111-44-4	bis(2-chloroethyl)ether	0.656	*9.55E+00*	5.30E-03	*5.30E-03*	4.43E+02	
MW-10	85-68-7	Butyl benzyl phthalate	14.6	1.47E-01	1.90E+00	1.47E-01	1.23E+04	
MW-20	86-74-8	Carbazole	10.8	*2.26E-02*	*4.16E-02*	2.26E-02	1.89E+03	
MW-31	108-90-7	Chlorobenzene	0.112	1.05E-01	2.10E+00	1.05E-01	8.78E+03	
MW-8	108-39-4	m&p-cresol	98.4	*1.50E+00*	8.74E+00	1.50E+00	1.25E+05	2.40E+04
MW-19	94-75-7	2,4-D	38.3	*8.75E+00*	*2.54E+00*	2.54E+00	2.12E+05	3.10E+02
MW-20	132-64-9	Dibenzofuran	32.2	6.50E-02	*8.27E-02*	6.50E-02	5.44E+03	
MW-4R	156-59-2	cis-1,2-Dichloroethene	67.7	6.80E-01	*1.01E+01*	6.80E-01	5.69E+04	
MW-19	120-83-2	2,4-Dichlorophenol	7.34	*2.56E-01*	2.90E-01	2.56E-01	2.14E+04	
MW-21	105-67-9	2,4-Dimethylphenol	39.4	*6.60E-02*	8.50E-01	6.60E-02	5.52E+03	
MW-12	100-41-4	Ethylbenzene	10.4	2.49E-01	2.10E+00	2.49E-01	2.08E+04	
MW-20	206-44-0	Fluoranthene	36.1	2.96E-03	1.40E-01	2.96E-03	2.48E+02	
MW-20	86-73-7	Fluorene	38.1	5.00E-02	5.30E+00	5.00E-02	4.18E+03	
MW-12	7439-92-1	Lead	0.231	5.30E-03	1.69E-02	*5.30E-03*	4.43E+02	
MW-8	95-48-7	2-Methylphenol	44.8	5.10E-01	8.74E+00	*5.10E-01*	4.27E+04	
MW-20	91-20-3	Naphthalene	176	1.25E-01	*1.86E+00*	*1.25E-01*	1.05E+04	
MW-20	85-01-8	Phenanthrene	97.5	4.60E-03	*3.29E-01*	*4.60E-03*	3.85E+02	
MW-20	129-00-0	Pyrene	25.2	2.40E-04	4.00E+00	*2.40E-04*	2.01E+01	
MW-4R	127-18-4	Tetrachloroethene	52.2	1.45E+00	2.15E-01	2.15E-01	1.80E+04	
MW-4R	79-01-6	Trichloroethane	26.6	9.70E-01	4.08E-01	4.08E-01	3.41E+04	
MW-20	108-88-3	Toluene	50.7	4.80E-01	1.50E+01	4.80E-01	4.02E+04	
MW-4R	96-18-4	1,2,3-Trichloropropane	57.1	*2.92E+00*	*1.49E-03*	1.49E-03	1.25E+02	
MW-4R	75-01-4	Vinyl Chloride	12.6	*5.94E+00*	2.77E-01	*2.77E-01*	2.32E+04	
MW-20	1330-20-7	Xylenes	71.3	8.50E-01	2.16E+01	*8.50E-01*	7.11E+04	
MW-20	107-06-2	1,2 Dichloroethane	100	1.15E+01	3.64E-01	*3.64E-01*	3.04E+04	
MW-20	78-87-5	1,2 Dichloropropane	100	6.10E+00	3.02E-01	*3.02E-01*	2.53E+04	
MW-13	88-06-2	2,4,6 Trichlorophenol	0.05	6.10E-02	2.80E-02	*2.80E-02*	2.34E+03	
P-1	110-54-3	2 – Hexane	0.057	***1.15E+02***	1.22E+03	*1.15E+02*	9.62E+06	1.30E+01
MW-20	91-57-6	2 – Methylnaphthalene	58.4	6.00E-03	3.73E+01	*6.00E-03*	5.02E+02	
MW-8	95-48-7	2 – Methylphenol (o-Cresol)	44.8	1.18E+00	9.48E+03	*1.18E+00*	9.87E+04	
MW-20	101-55-3	4 – Bromophenyl Phenyl Ether	1.6	***2.00E+00***	NV	*2.00E+00*	1.67E+05	NV
MW-8	106-44-5	4 – Methylphenol (p-Cresol)	98.4	3.36E-01	9.48E+02	*3.36E-01*	2.81E+04	
MW-34	62-53-3	Aniline (Phenylamine, Aminobenzene)	0.08	***1.01E-02***	7.95E+03	*1.01E-02*	8.45E+02	
MW-20	120-12-7	Anthracene	15.8	3.60E-05	1.32E+00	*3.60E-05*	3.01E+00	
MW-20	50-32-8	Benzo (a) Pyrene	1.8	1.10E-04	1.03E-05	*1.03E-05*	8.62E-01	
MW-13	205-99-2	Benzo (b) Fluoranthene	2.4	***6.00E-02***	1.30E-05	*1.30E-05*	1.09E+00	
MW-10	191-24-2	Benzo (g,h,i) Perylene	2.1	***1.20E-02***	1.23E+00	*1.20E-02*	1.00E+03	
MW-20	207-08-9	Benzo (k) Fluoranthene	1.61	***6.00E-02***	1.30E-04	*1.30E-04*	1.09E+01	
MW-22	100-51-6	Benzyl Alcohol	5.2	***1.21E+03***	1.14E+05	*1.21E+03*	1.01E+08	4.00E+04
MW-33	85-68-7	Benzyl Butyl Phthalate	3.5	***9.30E-02***	2.39E+02	*9.30E-02*	7.78E+03	
RW-1	117-81-7	bis (2-ethylhexyl) phthalate	0.13	1.00E-01	7.55E-03	*7.55E-03*	6.32E+02	
RW-1	75-15-0	Carbon Disulfide	0.690	***2.53E+02***	2.36E+04	*2.53E+02*	2.12E+07	2.00E+03
MW-34	108-90-7	Chlorobenzene	4.6	1.00E+00	1.33E+03	*1.00E+00*	8.36E+04	
MW-20	67-66-3	Chloroform	100	2.80E+00	7.70E+00	*2.80E+00*	2.34E+05	8.00E+03
MW-20	218-01-9	Chrysene	5.51	***3.50E-01***	1.03E-02	*1.03E-02*	8.58E+02	
MW-10	53-70-3	Dibenz (a,h) Anthracene	2.1	***1.00E-02***	1.30E-06	*1.30E-06*	1.09E-01	
MW-2R	84-74-2	Di-n-Butyl Phthalate	0.089	5.00E-02	9.24E-02	*5.00E-02*	4.18E+03	
MW-7	117-84-0	Di-n-Octyl Phthalate	0.0097	2.00E-03	1.44E-02	*2.00E-03*	1.67E+02	
MW-10	193-39-5	Indeno (1,2,3-c,d) Pyrene	2.1	***1.20E-02***	1.30E-05	*1.30E-05*	1.09E+00	
MW-20	78-93-3	Methyl Ethyl Ketone (2-butanone)	200	***6.57E+04***	3.03E+06	*6.57E+04*	5.50E+09	2.90E+05
MW-10	108-10-1	Methyl Iso-Butyl Ketone	1.70	***1.91E+04***	7.73E+04	*1.91E+04*	1.60E+09	1.91E+04
MW-27	75-09-2	Methylene Chloride	0.227	1.09E+01	1.47E+04	*1.09E+01*	9.08E+05	1.30E+04
MW-20	108-95-2	Phenol	2.03	2.75E+00	3.00E+02	*2.75E+00*	2.30E+05	8.40E+05
MW-33	110-86-1	Pyridine	0.84	***3.54E+01***	9.47E-01	*9.47E-01*	7.92E+04	
MW-20	100-42-5	Styrene	210	4.55E-01	8.30E+03	*4.55E-01*	3.81E+04	
MW-20	156-60-5	Trans -1,2 –Dichloroethylene	100	*1.12E+00*	4.00E+00	*1.12E+00*	9.37E+04	
MW-2R	108-05-4	Vinyl Acetate	0.015	***2.89E+03***	2.14E+06	*2.89E+03*	2.42E+08	2.00E+04
MW-20	75-35-4	1,1 Dichloroethene	100	***5.51E+04***	1.93E+04	*1.93E+04*	1.61E+09	2.50E+03

K =	0.425	ft/day	Based on slug test data for the Central Plant as reported in the APAR dated October 7, 2004.
	0.029017		(i) average hydraulic gradient calculated beyond remediation system from Central Plant April 16, 2007 potentiometric map.
A =	16,500	ft^2	(1100 ft X 15 ft) Area calculated from land/surface water interface beyond remediation system boundary and from the average saturated thickness from monitoring wells located along the ship channel.
			Q = K * i * A 203.4817125 **0.00235511**
Q_{GW} =	0.00235511	cfs	
Q_{stream} =	197	cfs	
dilution factor (DF) =	1.20E-05	$=Q_{stream}/(Q_{GW}+Q_{stream})$	
^{SW}GW PCL =	^{SW}RBEL/DF		

Q_{Stream} is the 7Q2 flow rate for Segment 3 of the Houston Ship Channel calculated from Benaman (1996) arithmetic mean flow and USGS flow rate ratio for 6 USGS stations.

regular font - Value from TRRP-24.

italic font - Ecological Benchmarks derived in accordance with TCEQ's RG-263 and TRRP-24 (see Appendix B).

bold font - Values obtained from Table 1a - Region 4 Surface Water Screening Values for Hazardous Waste Sites; March 2018 Update: Region 4 Ecological Risk Assessment Supplemental Guidance; Aniline (Phenylamine, Aminobenzene) values obtained from Water Quality Criteria For Aniline: (CAS Registry Number 62-53-3) Draft, 9/22/93; Pyridine values obtained from Ambient Water Quality Advisory / Pyridine, Office of Water Regulations and Standards Criteria and Standards Division, USEPA, 1987.

Shaded cell — Human Health Surface Water risk based value calculation ($HH^{SW}RBEL$) for aquatic organisms only obtained from USEPA Publication EPA-822-R-02-012, National Recommended Water Quality Criteria: 2002 - Human Health Criteria Calculation Matrix, November 2002.

NV - No Value. IRIS (U.S. EPA, 2001) does not contain an RfD for 4-bromodiphenyl ether (4-bromophenyl phenyl ether), therefore, a BCF could not be calculated to further calculate a $HH^{SW}GW$ RBEL. 4-Bromodiphenyl ether is not included in the Drinking Water Standards and Health Advisory list (U.S. EPA, 2000). The databases

*Solubility in water of a chemical was utilized if calculated SWGW PCL was more than 5 orders of magnitude greater than the maximum concentration of that chemical

Solubility of chemical in water based on 1 gram/100 milliliters at 25 degrees Celsius = 10,000 milligrams per liter (mg/L).

Source for solubility of chemical is from following source - https://chemicalsafety.ilo.org/dyn/icsc/showcard.listCards3

EMERGENCY RESPONSE ACTION PLAN

Kinder Morgan Liquid Terminals

KINDER MORGAN

Prepared for:

Kinder Morgan Liquid Terminals LLC
Galena Park Terminal
906 Clinton Drive
Galena Park, TX 77547

Prepared by:

MIDSTREAM
Compliance & Response Management, LLC

http://midstreamcrm.com

TABLE OF CONTENTS

Information Summary

Notifications and Facility Response Teams
- Internal Notification Sequence
- External Notification Flowchart
- Internal Notification References
- Contracted Response Resources
- External Notification References
- Notification Data Sheet

Immediate Actions
- Initial Response Actions
- Incident Specific Response Actions
- Product Specific Response Considerations

Evacuation
- Emergency Evacuation Procedures
- Evacuation Diagram

Response Resources
- Facility Response Equipment
- Response Equipment Testing/Deployment
- Contracted Response Resources

Facility Diagrams

FIGURE 1.1

INFORMATION SUMMARY

Kinder Morgan Galena Park Terminal	
Facility Name / Location:	Galena Park Terminal 906 Clinton Drive Galena Park, Texas 77547 (713) 254-4023 (24 Hr.) (713) 472-7660 (Fax)
EPA FRP ID#	FRP-06-TX-00024
USCG Facility ID #: **MISLE**:	HOUWF042 6227455
DOT OPS Tracking #:	1506
Lat / Long:	29° 43' 56" N / 95° 13' 34" W
County:	Harris
Maps / Diagrams:	Area Location Map Provided in Figure 1.2 Facility Diagram Provided in Figure 1.3.
Landside Directions:	From George Bush Intercontinental Airport: Head west on N Terminal Rd. Slight right onto John F Kennedy Blvd. Merge onto North Sam Houston Pkwy E E/Sam Houston Tollway E/Texas 8 Beltway E via the ramp on the left to US-59 E. Take the exit onto U-59 S toward Houston, Take the exit onto I-610 E. Take exit 28 for Clinton Dr. Turn left onto Clinton Dr. (Destination will be on the right.) From William P Hobby Airport: Head northeast on Hobby Airport Loop. Continue onto Broadway St. Turn right onto Bellfort St. Turn left onto Gulf Fwy. Take the ramp on the left onto I-45 N. Take exit 40B to merge onto I-610 E toward TX-225/Pasadena. Take exit 28 for Clinton Dr. Turn right onto Clinton Dr. Make a U-Turn. (Destination will be on the right.)
Waterside Directions:	From the 610 bridge on Buffalo Bayou, proceed east 2.89 miles to the location. The Facility dock is immediately east of Panther Creek before reaching the Washburn Tunnel.

FIGURE 1.1

INFORMATION SUMMARY

Kinder Morgan Galena Park Terminal (Cont'd)	
Certification:	The Company grants full authority to the designated Qualified and Alternate Qualified Individuals to implement the Facility Response Plan and to: ● Activate and engage in contracting with oil spill removal organizations, ● Act as liaison with the pre-designated Federal On-Scene Coordinator (FOSC), and ● Obligate funds required to carry out response activities. The Company certifies that the Plan meets the requirements of subpart F of part 154.
Wellhead Protection Area:	No (Source, Sean Ables, TCEQ, at 512-239-1758)
Date of Facility Start up:	1935
24 Hour Contact Information:	See below (Qualified Individual)

Number of Oil Storage Containers		Maximum Oil Storage Capacity	
265	(Aboveground Storage Tanks)	439,145,011	(Gal)(Aboveground Storage Tanks)
3	(Drum/Tote Storage Areas)	165	(Gal)(Drum/Tote Storage Areas)
0	(Buried Storage Tanks)	0	(Gal)(Buried Storage Tanks)
53	(Manufacturing and Operational)	3,300	(Gal)(Manufacturing and Operational)
0	(Surface Impoundments)	0	(Gal)(Surface Impoundments)

FIGURE 1.1

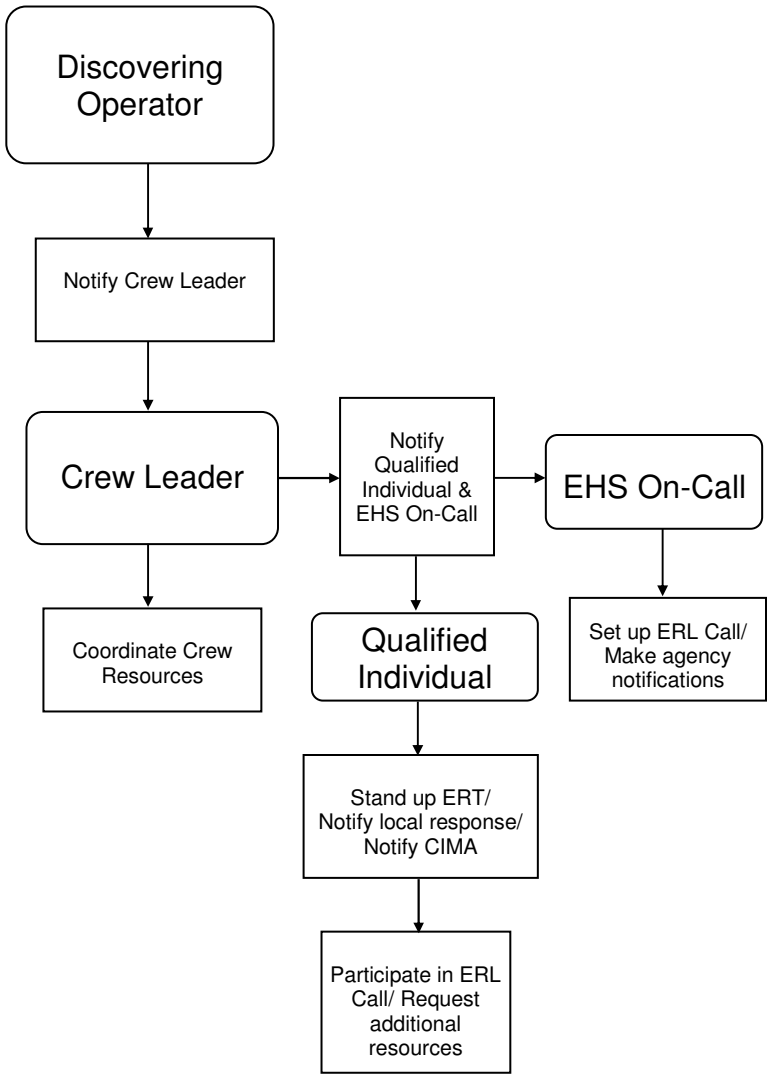
INFORMATION SUMMARY (Cont'd)

Kinder Morgan Galena Park Terminal (Cont'd)	
Owner / Operator	
Owner: Kinder Morgan Liquid Terminals LLC 1001 Louisiana St., Suite 1000 Houston, Texas 77002 (713) 369-9000	**Operator:** Kinder Morgan Liquid Terminals LLC 906 Clinton Drive Galena Park, Texas 77547 (713)-254-4023
Dun and Bradstreet Number: 035123850	**NAICS Code:** 493190
Qualified Individuals*	
Qualified Individual: Alex Rendon Operations Director Office: (346) 352-5923 Cell: (281) 678-4653 Training: ICS Training	***Alt. Qualified Individual:*** Corey McGuire Operations Manager Office: (713) 654-6042 Cell: (832) 963-4373 Training: ICS Training
Environmental Sensitivities and Waterways	
Distance to Navigable Water: 0 – ¼ mile ✓ ¼ – ½ mile ____ ½ - 1 miles ____ > 1 mile ____	
Nearest Protected Waterway or Environmentally Sensitive Area: Houston Ship Channel (Buffalo Bayou)	

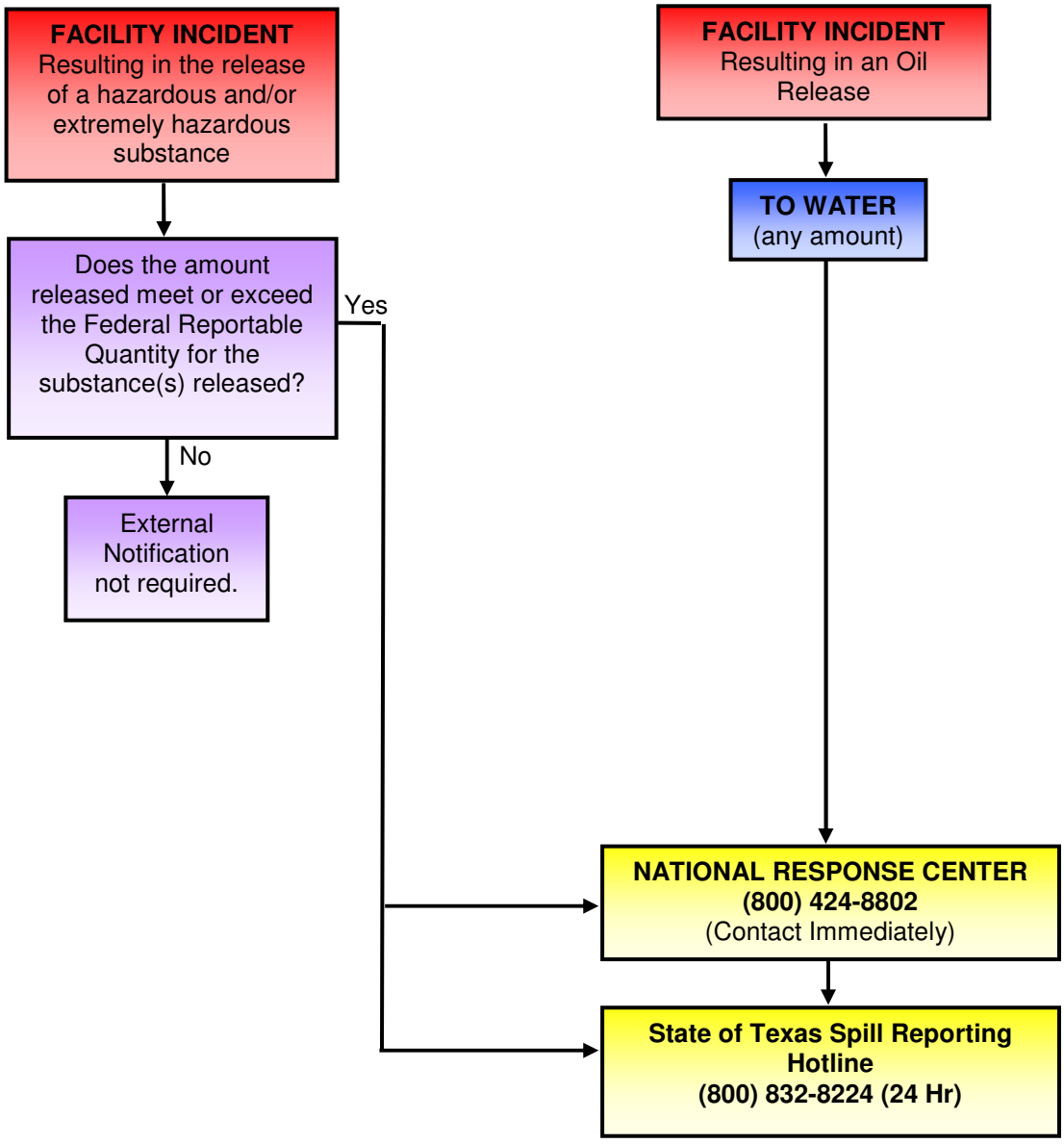
**Home addresses and phone numbers for QIs and AQIs not listed in this Plan for security reasons.*

Note: Information Summary and ICP Section 3, Figures 3.1 through 3.10, represent Notification procedures per 33 CFR 154.1035(b)(1). The description of responsibilities and authority of qualified individuals and alternates are identified in ICP Appendix D per 33 CFR 154.1035(b)(3)(ii).

INTERNAL NOTIFICATION SEQUENCE



EXTERNAL NOTIFICATION FLOWCHART



Note: See Figure 3.5 for additional Required Notifications.

FIGURE 3.1

QUALIFIED INDIVIDUALS

QUALIFIED INDIVIDUALS[1] (App. F, Sec. 1.3.1.1.2, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Qualified Individual/ Operations Director	Alex Rendon	(281) 678-4653	(346) 352-5923	1 Hour
Alt. Qualified Individual/ Alt Ops Chief/Operations Manager	Corey McGuire	(832) 963-4373	(713) 654-6042	1 Hour

[1] Training and training dates stored with the training group and are available upon request. Contact Alison Bess 832-900-5063.
[2] See Section 5.0, 5.2 Qualified Individual for Responsibility during response action.

FIGURE 3.2

EMERGENCY RESPONSE TEAM

EMERGENCY RESPONSE TEAM[1] (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
IC/General Manager	Marlin Collins	(713) 882-2368		
Alt IC/ Operations Director	Alex Rendon	(281) 678-4653	(346) 325-5923	
PIO/Director of Communications	Lexey Long	(361) 935-0738		
ISO/Regional EHS Manager	Scott Eady	(281) 216-7451		
Alt ISO/Manager-EHS	Greg Allen	(713) 447-8856	(713) 920-8409	
Ops Chief/Operations Director	Alex Rendon	(281) 678-4653		
Alt Ops Chief/Operations Manager	Corey McGuire	(832) 963-4373	(713) 654-6042	
Planning Chief/ Engineering Director	Mike Dugger	(713) 213-6975	(713) 450-7495	
Planning Chief/ Engineering Manager	Allen Rhodes	(713) 201-8762		
Documentation Leader/Sr. Admin	Marla Tarwater	(832) 463-4787		
Situation Leader/Maint. Manager	Brian Bernelle	(281) 714-1473		
Resource Unit Leader/ Manager-EHS	Greg Allen	(713) 447-8856	(713) 920-8409	
Finance Chief/ Accounting Director	Teresa Tran	(713) 530-7899	(832) 900-5041	
Alt Finance Chief/ Commercial VP	Clay Jeffirs	(903) 280-4088		
Logistics Chief/ Purchasing Manager	Tiffany Campbell	(713) 248-9082		
Alt Logistics Chief/Sr. Buyer	Chris Hokanson	(908) 447-9709	(713) 420 -6739	

[1] Training records located with the training group. Contact Alison Bess 832-900-5063.
[2] See Section 5.0, 5.3 Emergency Response Team (ERT) for Responsibility during response action.

FIGURE 3.2

EMERGENCY RESPONSE TEAM (Cont'd)

EMERGENCY RESPONSE TEAM[1] (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders	Antonio Delapaz	(832) 971-1738		1 Hour
	Brandn Thaden	(832) 414-5964		1 Hour
	Brandon Rogers	(281) 254-4362		1 Hour
	Cayden Cunniff	(817) 721-4917		1 Hour
	Cesar Salinas	(409) 682-7059		1 Hour
	Chase Brown	(832) 657-2770		1 Hour
	Corey McGuire	(832) 963-4373		1 Hour
	Daniel Cortez	(713) 295-0948		1 Hour
	Davy Malone	(281) 630-1212		1 Hour
	Gabe Delarosa	(409) 293-7327		1 Hour
	Ivo Ngala	(347) 852-5400		1 Hour
	Jason Everett	(713) 498-8932		1 Hour
	John Washington	(832) 414-2677		1 Hour
	Johnny Kennedy	(713) 204-5280		1 Hour
	Jonathan Marquez	(832) 922-3700		1 Hour
	Jonathan Monjares	(713) 670-4612		1 Hour
	Jose Brose	(832) 860-0899		1 Hour
	Kevin Bowyer	(713) 515-2106		1 Hour
	Matthew Clark	(281) 844-8837		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	Michael Hicks	(713) 306-7122		1 Hour
	Philip Hasette	(361) 343-1381		1 Hour
	Philip Zanco	(281) 967-3894		1 Hour
	Ralph Romo	(760) 684-0368		1 Hour
	Ramon (Ray) Solinas	(713) 367-3092		1 Hour
	Rod Guidry	(713) 292-8310		1 Hour
	Ronald Fort	(832) 803-8129		1 Hour
	Roy Torres	(832) 868-9249		1 Hour
	Selso Licerio	(713) 997-9995		1 Hour
	Steven Ball	(832) 445-9416		1 Hour
	Steven Sandefer	(713) 582-7985		1 Hour
	Tyler Sargent	(832) 710-1852		1 Hour
	Wil Trainer	(832) 329-5812		1 Hour
	Phillip Wyrick	(832) 326-7156		1 Hour
	Michael Whittaker	(713) 455-1231		1 Hour
	Daniel Lott	(832) 878-0977		1 Hour
	Spencer Carraway	(832) 840-6338		1 Hour
	Jeffery (Mike) Melton	(832) 495-8192		1 Hour
	Reggie Latchie	(832) 361-8825		1 Hour
	Adam Solis	(832) 606-7981		1 Hour
	JaCorey Shepherd	(936) 465-5487		1 Hour
	Curtis Carr	(281) 229-2532		1 Hour
	Daniel Lopez	(832) 784-1830		1 Hour
	Darwin (Troy) Thomas	(936) 433-4535		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	David Koetter	(281) 409-6841		1 Hour
	David Rangel	(832) 514-8780		1 Hour
	Dustin Fuselier	(409) 739-0025		1 Hour
	Eduardo (Eddie) Meza	(832) 387-8108		1 Hour
	James (Jim) Haskins	(832) 265-6085		1 Hour
	Juan Banda	(281) 513-6492		1 Hour
	Matthew Cleburn	(713) 857-6523		1 Hour
	Robert (Bobby) Papendorf	(832) 707-7934		1 Hour
	Tony Wood	(281) 387-9510		1 Hour
	David Followell	(832) 221-1434		1 Hour
	Greg Allen	(713) 447-8856		1 Hour
	Aarion Fogle	(832) 209-0525		1 Hour
	Adrian Zamora	(832) 722-0701		1 Hour
	Alex Rendon	(281) 678-4653		1 Hour
	Alfredo Encinia	(713) 253-4329		1 Hour
	Barry Shepherd	(832) 725-1907		1 Hour
	Bill Helms	(832) 288-5881		1 Hour
	Charles Jackson	(832) 984-1510		1 Hour
	David Rodriguez Jr.	(281) 838-7120		1 Hour
	Donnie Martinez	(832) 724-0060		1 Hour
	Dwight Harrell	(504) 251-4647		1 Hour
	Freddy Gonalez	(832) 795-8062		1 Hour
	Gerald Nielsen	(832) 527-4976		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (Cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	Harry Antonopoulos	(713) 505-9040		1 Hour
	Jacob Pickle	(903) 987-0686		1 Hour
	James Lovern	(832) 338-6778		1 Hour
	Joe Anderson	(713) 855-5309		1 Hour
	Joseph Lee	(832) 244-1109		1 Hour
	Juan Gomez	(832) 712-7160		1 Hour
	Julian Gonzalez	(832) 745-8144		1 Hour
	Keith Cormier	(832) 335-4852		1 Hour
	Kevin Baker	(281) 910-8252		1 Hour
	Kevin Black	(936) 581-2578		1 Hour
	Luis Gamez	(281) 989-1352		1 Hour
	Mario Jennings	(916) 494-4134		1 Hour
	Mark Gray	(281) 515-7982		1 Hour
	Mathew Gonzalez	(832) 830-4178		1 Hour
	Max Turner	(832) 232-2277		1 Hour
	Michael Fatic	(346) 279-7598		1 Hour
	Michael Paine	(281) 386-9531		1 Hour
	Michael Sellers	(281) 795-1408		1 Hour
	Nicolas Anderson	(832) 570-5903		1 Hour
	Patrick Snow	(832) 433-8440		1 Hour
	Paul Garza	(832) 221-8173		1 Hour
	Roberto Luna	(281) 832-9499		1 Hour
	Ronald Ramirez	(281) 725-1029		1 Hour
	Stephen Hammer	(713) 582-2245		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (Cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	Rudy Roacha	(832) 240-9089		1 Hour
	Tim Tolley	(281) 382-1507		1 Hour
	Matt Myers	(832) 707-3009		1 Hour
	Roberto Galindo	(713) 505-5228		1 Hour
	Gene Powell	(346) 352-5956		1 Hour

FIGURE 3.3

OIL SPILL REMOVAL ORGANIZATIONS

USCG CLASSIFIED OIL SPILL REMOVAL ORGANIZATIONS (OSRO)			
COMPANY	**RESPONSE TIME**	**LOCATION**	**TELEPHONE**
OMI Environmental Solutions	.5 – 1 Hour	450 Preston Ave Pasadena, TX 77503	(800) 645-6671
Horizon Environmental	.5 – 1 Hour	2407 Albright Dr. Houston, TX 77017	(866) 609-6208
Phoenix Pollution Control & Environmental Services	0.5 – 1 Hour	7111 Decker Dr. Baytown, TX 77520	(281) 838-3400

FIGURE 3.4

ADDITIONAL RESPONSE RESOURCES

ADDITIONAL RESPONSE RESOURCES		
Planning and Incident Support		
COMPANY	**LOCATION**	**TELEPHONE**
Midstream Compliance & Response Management, LLC	The Woodlands, Texas/ Gilmer, Texas	(713) 398-6241

FIGURE 3.5

REQUIRED NOTIFICATIONS

REQUIRED NOTIFICATIONS	
NATIONAL RESPONSE CENTER (NRC)	
c/o United States Coast Guard (CG-5335) - Stop 7581 2100 2nd Street, SW Washington, DC 20593-0001	(800) 424-8802 (24 Hr.) (202) 267-2675 (Day Phone)
REPORTING REQUIREMENTS (40 CFR 300.300(b)) TYPE: Any discharge or sighting of oil on navigable waters. (40 CFR 110.6 and 33 CFR 153.203) VERBAL: Immediately (not later than one (1) hour of confirmed discovery to meet 49 CFR 195.52(a). See DOT notification for follow-up NRC notification criteria within 48 hours.) WRITTEN: If an RQ limit is reached, refer to state requirements for written report requirements. NOTE: A call to the NRC must also be made for spills or releases of hazardous substances that meet or exceed their RQ.	
USCG SECTOR HOUSTON-GALVESTON*	
13411 Hillard St. Houston, TX 77034	(281) 464-4854 (24 Hr.)
REPORTING REQUIREMENTS (33 CFR 153.203, 40 CFR 300.300(b)) TYPE: Any oil discharge that has impacted or threatens to impact navigable waters or release of hazardous substances in an amount equal to or greater than the reportable quality. VERBAL: Notification to the USCG is typically accomplished by the call to the NRC. WRITTEN: If an RQ limit is reached, refer to state requirements for written report requirements. NOTE: A call to the NRC must also be made for spills or releases of hazardous substances that meet or exceed their RQ. *If direct reporting to the NRC is not practicable, reports may be made to the USCG or EPA predesignated OSC for the geographic area where the discharge occurs. (40 CFR 300.300(b))	

FIGURE 3.5

REQUIRED NOTIFICATIONS (Cont'd)

REQUIRED NOTIFICATIONS (Cont'd)	
US EPA REGION 6 EMERGENCY RESPONSE*	
1201 Elm Street, Suite 500 Dallas, TX 75270	(800) 424-8802 (24 Hr.) (800) 887-6063 (Non-Emergency) (214) 665-2200 (Non-Emergency)

REPORTING REQUIREMENTS (40 CFR 300.300(b), App. F, Sec. 1.3.1.1, to 40 CFR)

TYPE: Any oil discharge that has impacted or threatens to impact navigable waters or release of hazardous substances in an amount equal to or greater than the reportable quality.

VERBAL: Notification to the EPA is typically accomplished by the call to the NRC.

WRITTEN: As requested by the agency. Within 15 days after an incident involving a RCRA hazardous waste, submit Figure 3.10 to the Regional Administrator.

NOTE: *If direct reporting to the NRC is not practicable, reports may be made to the USCG or EPA predesignated OSC for the geographic area where the discharge occurs. (40 CFR 300.300(b))

STATE OF TEXAS SPILL REPORTING HOTLINE/TEXAS STATE EMERGENCY RESPONSE COMMISSION (TERC)	
Texas Commission of Environmental Quality 12100 Park 35 Circle Austin, Texas 78753	(800) 832-8224 (24 hr.) (512) 239-0400

REPORTING REQUIREMENTS: CITATION: 40 CFR 355.40; App. F, Sec.1.3.1.1.7, to 40 CFR 112; 30 TAC 327

TYPE: All spills of oil or petroleum products into water AND spills on land that meet or exceed 5 barrels or more.

VERBAL: Immediately

WRITTEN: Within 30 working days of the discovery of a reportable discharge or spill, the person responsible must submit written information to the appropriate TCEQ regional office describing the details and supporting the adequacy of the response.

NOTE: The documentation must contain one of the following:

1) Information from the initial notification (see Fig 2.4), and a statement that the response to the discharge or spill has been completed and a description of how the action was conducted (See *Additional Information* below).

2) A request for an extension of time to complete the response, along with the reasons for the request, and a projected work schedule outlining the time required to complete the response action. Proceed according to the projected schedule unless otherwise notified by the appropriate TCEQ regional director.

3) A statement and explanation that the discharge or spill response has not been, and is not expected to be, completed within the maximum allowable extension (six months from the date of the discharge or spill), along with a projected work schedule.

FIGURE 3.5

REQUIRED NOTIFICATIONS (Cont'd)

REQUIRED NOTIFICATIONS (Cont'd)	
DEPARTMENT OF TRANSPORTATION (FOR DOT JURISDICTIONAL FACILITIES*)	
Office of Pipeline Safety Pipeline and Hazardous Material Safety Administration 1200 New Jersey Avenue SE-E-22-321 Washington, District Of Columbia 20590	(800) 424-8802 (24 Hr.) (202) 267-2675 (24 Hr.) (202) 267-1322 (Fax) (202) 366-4566

REPORTING REQUIREMENTS:

TYPE: In addition to the reporting of accidents to the NRC as noted below, a written accident report (PHMSA Form 7000-1, via the online PHMSA Portal, and provided on in Appendix F) must be submitted for releases resulting in any of the following:

1. Explosion or fire not intentionally set by the operator.
2. Release of five gallons or more of hazardous liquid or carbon dioxide, except that no report is required for a release of less than five barrels resulting from a pipeline maintenance activity if the release is:
   a. not one described under the NRC's reporting conditions;
   b. confined to Company property or pipeline right-of-way; and
   c. cleaned up promptly.
3. death of any person.
4. personal injury necessitating hospitalization.
5. estimated property damage, including cost of cleanup and recovery, value of lost product, and damage to the property of the operator or others, or both, exceeding $50,000.

VERBAL: Call to the NRC, within one (1) hour of confirmed discovery and within 48 hours revise or confirm initial report, meets the required verbal notification under DOT reporting requirement.

WRITTEN: As soon as practicable, an accident meeting any of the above criteria must be reported via the PHMSA Portal at the following link: UR https://portal.phmsa.dot.gov/portal

Note: In the event that the link does not direct you to the site, paste the URL into your browser.

FIGURE 3.5

REQUIRED NOTIFICATIONS (Cont'd)

REQUIRED NOTIFICATIONS (Cont'd)	
LOCAL EMERGENCY PLANNING COMMITTEES (LEPC)	
Galena Park LEPC PO Box 971 Galena Park, Texas 77547	(713) 674-5311 (24 Hr.)
REPORTING REQUIREMENTS TYPE: Any release of a hazardous or extremely hazardous substance in an amount equal to or greater than the reportable quantity. VERBAL: Immediately WRITTEN: If requested NOTE:	

FIGURE 3.6

OTHER POTENTIAL REQUIRED NOTIFICATIONS

OTHER POTENTIAL REQUIRED NOTIFICATIONS	
OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA)	
A. Maceo Smith Federal Building 525 Griffin Street, Suite 602 Dallas, Texas 75202	(972) 850-4145 (Region 6 Office) (800) 321-6742 (24 Hr.)
REPORTING REQUIREMENTS TYPE: Fatality from a work related incident or the inpatient hospitalization, amputation, or loss of an eye as a result of a work related incident. VERBAL: Within 8 Hr. (death) and 24 Hr. (others). WRITTEN: As requested by the Agency. NOTE: The verbal notification requires the establishment name; location of the work-related incident; time of the work-related incident; type of reportable event (i.e., fatality, in-patient hospitalization, amputation, or loss of an eye); number and names of employees who suffered a fatality, in-patient hospitalization, amputation, or loss of an eye; contact person and his or her phone number; and brief description of the work-related incident.	
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), REGION 12	
Houston, Texas	(713) 767-3500 (Day Phone)
REPORTING REQUIREMENTS TYPE: Reportable releases to State of Texas - Reporting Hotline VERBAL: Courtesy Call WRITTEN: See State of Texas Spill-Reporting Hotline for details NOTE: N/A	
TEXAS GENERAL LAND OFFICE - AUSTIN	
1700 Congress Ave. Austin, Texas 78701	(800) 998-4456 (24 Hr.) (512) 463-5256 (Day Phone)
REPORTING REQUIREMENTS TYPE: Reportable releases to coastal waters. VERBAL: Immediately. WRITTEN: As the agency may request depending on circumstances. NOTE: N/A	

FIGURE 3.6

OTHER POTENTIAL REQUIRED NOTIFICATIONS (Cont'd)

OTHER POTENTIAL REQUIRED NOTIFICATIONS (Cont'd)	
TEXAS PARKS AND WILDLIFE DEPARTMENT	
Austin, Texas	(800) 792-1112 (24 Hr.)
REPORTING REQUIREMENTS TYPE: Impact to State Park VERBAL: Immediately WRITTEN: As agency may request. NOTE: Provides expertise.	
U.S. FISH AND WILDLIFE SERVICE	
Houston, Texas	(800) 344-9453 (24 Hr.) (281) 286-8282 (Day Phone)
REPORTING REQUIREMENTS TYPE: Impact to endangered or threatened species. VERBAL: Immediately. WRITTEN: As agency may request. NOTE: Provides expertise.	

FIGURE 3.7

FIRE, POLICE, HOSPITALS, AIR MEDICAL SERVICE

FIRE, POLICE, HOSPITALS, AIR MEDICAL SERVICE		
DIAL 911 for All Police, Fire, and Ambulance Emergencies		
SERVICE	**LOCATION**	**TELEPHONE**
Houston HCA Southeast	Pasadena, Texas	(713) 359-2000
Harris County Fire Marshal	Houston, Texas	(281) 436-8000
Harris County Sheriff's Dept.	Houston, Texas	(713) 221-6000
Texas State Police	Austin, Texas	(512) 424-2000
Galena Park Fire Department	Galena Park, Texas	911 / (713) 674-5311
Galena Park Police Department	Galena Park, Texas	(713) 675-3471

FIGURE 3.8

MEDIA NOTIFICATIONS

MEDIA NOTIFICATIONS		
MEDIA OUTLET	**LOCATION**	**TELEPHONE**
National Weather Service	League City, Texas	(281) 337-5074
KHTV-TV Ch 39	Houston, Texas	(713) 781-6396
KPRC-TV Ch 2 NBC	Houston, Texas	(713) 771-9194
KRIV-TV Ch 26 FOX	Houston, Texas	(713) 622-7157
KTMD-TV Ch 48 (Spanish)	Houston, Texas	(713) 783-5863
KTRK-TV Ch 13 ABC	Houston, Texas	(713) 666-8711
KXLN-TV Ch 45 (Spanish)	Houston, Texas	(713) 662-8333
KIKK 95.7 FM / 650 AM	Houston, Texas	(713) 780-0937
KILT 100.3 FM/ 610 AM	Houston, Texas	(713) 961-5632
KLTR 93.7 FM CBS	Houston, Texas	(713) 771-2951
KPRC 950 AM NBC	Houston, Texas	(713) 780-0937
KQUE 102.9 FM / KNUZ 1230	Houston, Texas	(713) 961-5632
KTRH 740 AM	Houston, Texas	(713) 771-2951
KWWJ 1360 AM	Baytown, Texas	(281) 424-5531

FIGURE 3.9

OTHER PUBLIC/INDUSTRY CONTACTS

OTHER PUBLIC/INDUSTRY CONTACTS		
NAME/COMPANY	**LOCATION**	**TELEPHONE**
North Star Midstream	Galena Park, TX	(713) 277-7000 (24 hr)
ICS	Galena Park, TX	(713) 675-0941
VOPAK	Galena Park, TX	(281) 604-6000
Reliant Energy	Houston, TX	(713) 207-7777 (866) 222-7100

FIGURE 3.10

NOTIFICATION DATA SHEET

Date: _____ ***Time:*** _____

INCIDENT DESCRIPTION

Reporter's Full Name: _____ ***Position:*** _____
Day Phone Number: _____ ***Evening Phone Number:*** _____
Company: Kinder Morgan Liquid Terminals ***Organization Type:*** _____
Facility Address : 906 Clinton Drive ***Owner's Address:*** 1001 Louisiana St., Suite 1000
Galena Park, Texas 77547 Houston, Texas 77002

Facility Latitude: 29° 43' 56" N ***Facility Longitude:*** -95° 13' 34" W
Spill Location: _____
(if not at Facility) _____
Responsible Party's Name: _____ ***Phone Number:*** _____
Responsible Party's Address: _____
Source and/or cause of discharge: _____

Nearest City: Galena Park
County: Harris ***State:*** Texas ***Zip code:*** 77506
Section: _____ ***Township:*** _____ ***Range:*** _____ ***Borough:*** _____
Distance from City: _____ ***Direction from City:*** _____
Container Type: _____ ***Container Storage Capacity:*** _____
Facility Oil Storage Capacity: 39,502,4467 ***Units of Measure:*** Gallons
Material:

Material/CHRIS Code	Water Impact (*YES or NO*)	Quantity into Water

RESPONSE ACTION(S)

Action(s) taken to Correct, Control, or Mitigate Incident: _____

Number of Injuries: _____ ***Number of Deaths:*** _____
Evacuation(s): _____ ***Number Evacuated:*** _____
Damage Estimate: _____
More information about impacted medium: _____

CALLER NOTIFICATIONS

National Response Center (NRC): (800) 424-8802 or (202) 267-2675
Additional Notifications (Circle all applicable): ***USCG*** ***EPA*** ***State*** ***Other***

ADDITIONAL INFORMATION

Any information about the incident not recorded elsewhere in this report: _____

NOTE: DO NOT DELAY NOTIFICATION PENDING COLLECTION OF ALL INFORMATION.

2.1 DISCOVERY PROCEDURES

The following actions are taken by personnel immediately upon becoming aware of a discharge or emergency incident, before the Emergency Response Team (ERT) (described in Section 5.0) is formed and functioning. Timely implementation of these initial steps is of the utmost importance because they can greatly affect the overall response operation.

Initial Response Actions to Consider

INITIAL RESPONSE ACTIONS – SUMMARY[1]

Personnel and Public Safety is first priority

1) Warn personnel – Enforce safety and security measures.
2) Stop the product flow – Secure pumps, close valves, etc. remotely (not within spill area).
3) Eliminate sources of ignition - Shut off motors, electrical circuits, open flames, etc. and isolate sources of ignition.
4) Initiate containment – Activate Fire Department and/or OSRO, as necessary, to respond to fire and/or begin active containment measures.
5) Notify National Response Center – EHS Representative typically makes agency notifications.
6) Notify other agency notifications – EHS Representative typically makes agency notifications.
7) Notify other Internal and/or External, as appropriate.

[1] Recommended form detailing immediate actions from Appendix F to 40 CFR Part 112, Section 1.7.1.2A.

Timely implementation of these initial steps is of the utmost importance because they can greatly affect the overall response operation.

It is important to note that these actions are intended only as guidelines. The appropriate response to a particular incident may vary depending on the nature and severity of the incident and on other factors that are not readily addressed. Note that, without exception, personnel and public safety is first priority.

4.2 INCIDENT SPECIFIC RESPONSE ACTIONS

Spill or Leak / Failure of Manifold / Mechanical Loading Arm / Transfer Equipment / Hoses / Piping Rupture / Piping Leak (both under pressure and not under pressure) / Equipment Failure

- Shut down pumping equipment.
- Close upstream and downstream block valves.
- Ensure that all drainage valve(s) are "closed".
- Mitigate spreading of the product, as the situation demands. Potential containment strategies include:
  - Earthen dike/berm
  - Ditching
  - Spreading sorbent material over the spill
- Prevent the spill from entering the waterways, sewer, etc. to the greatest extent possible, from a safe distance.
- Utilize Air Monitoring Equipment to assure that areas are safe to enter for continued response operations.
- Return the line/rack to service when repairs are complete.
- Clean up spilled product to eliminate possible environmental problems. Be alert for underground cables.
- Inform local operators such as utilities, telephone company, railway.
- If the spill escapes the containment area, review the location of socio-economic and environmentally sensitive areas identified in ICP Appendix A and the ESMs Figure A.2. Determine which of these may be threatened by the spill and direct the response operation to these locations. Initiate protection and recovery actions.
- Complete follow-up and written reporting, as the situation demands.

Storage Tank Leak / Tank Overfill / Tank Failure

- Shut down all product movement operations and isolate the tank.
- Ensure that the containment area/dike walls drainage valve(s) is "closed".
- If near tank bottom, consider filling tank with water and maintain water bottom to suspend the discharge.
- Utilize Air Monitoring Equipment to assure that areas are safe to enter for continued response operations.
- Block drainage of spilled material from traveling offsite.
- Stop all traffic in hazardous area (inside and outside of property boundaries), as the situation demands.
- Remove product from containment/dike area (at a sump or in a low area).
- If applicable, process remaining product through the separator system.
- Empty tank as soon as possible.
- Clean up product spill to eliminate any possible environmental problems. Be alert for underground cables.

4.2 INCIDENT SPECIFIC RESPONSE ACTIONS (Cont'd)

Storage Tank Leak / Tank Overfill / Tank Failure (Cont'd)

- Inform local operators such as utilities, telephone company, railway.
- If necessary, call one (1) of the approved waste removal companies to remove the remaining sludge and residue from the containment area. Contact the Environmental Manager, if necessary, to coordinate the removal of waste from the Facility for disposal.
- If the spill escapes the containment area, review the location of socio-economic and environmentally sensitive areas identified in Appendix A. Determine which of these may be threatened by the spill and direct the response to these locations. Initiate protection and recovery actions.
- Complete follow-up and written reporting, as the situation demands.

Leak or Spill at the Vehicle Refueling Area

- Evacuate personnel from the truck loading/unloading area, as the situation demands.
- Shut down all loading/unloading operations, pump motors and valves.
- Guard against all source of ignition.
- Stop all traffic from entering the affected area.
- If a line leaks, close off riser valves and/or tank valves.
- Clean area as appropriate with vacuum equipment, sorbent material, or flush (with water) all remaining product into the separator system.
- Turn off all vehicles.

Vapor Cloud (Massive Spill, Line Rupture, etc.)

- The person who discovers the vapor cloud will sound the alarm and notify the supervisor on duty and vacate the area.
- **Remember: the only proper action in the presence of a vapor cloud is to get away from it. Do not shut off electrical equipment.**
- All personnel will report to the evacuation muster point for roll call and further instructions.
- After all personnel have been accounted for, the Plant Manager or the Area Supervisor will initiate the following actions as deemed necessary:
  - Shut down transfer and blending operations.
  - Evacuation of adjacent property.
  - Only the fire department will be permitted to enter the plant.
- Contact the appropriate agencies and potentially affected neighbors (refer to Figure 3.5 – 3.9).

4.2 INCIDENT SPECIFIC RESPONSE ACTIONS (Cont'd)

Explosions and/or Fire

INDIVIDUAL DISCOVERING THE FIRE - (All Employees)

In the event that a fire response is required, the following actions should be taken, in order:

NOTE: If the situation warrants, and your personal safety is ensured, initial efforts to extinguish small incipient stage fires may prove to the best action. In these situations, if you believe that your personal safety is not at risk, and you can take interim measures to mitigate a situation while the Fire Department is deploying - do so.

- Notify the Management (any level).
  - Acknowledge information and switch all emergency communications to an alternate channel.
  - Shut down or secure all operations.
  - Note time of call.
  - Sound the emergency siren, contact the local fire department.
  - Have staff member check weather for any changes in wind direction.
- Account for contractors and Company personnel.
- IC mobilize to scene.
  - Check wind direction - approach from upwind.
  - Confirm and conduct a preliminary assessment of the situation upon arrival at the scene.
  - Evaluate scene for potential hazards (i.e., overhead power lines, obstacles wind direction).
  - Determine what product is involved and have SDS pulled and reviewed for PPE and firefighting instructions.
- Assemble Company personnel at the Command Post.
  - Fill positions (as required) in the Incident Management System.
  - If not already present, notify IC, Safety Officer, and Operations Chief.
  - Have fire pumps started and on standby (if applicable).
  - Initiate internal and external notifications in accordance with the fire and other.
- Eliminate any sources of ignition in the immediate area.
  - Shut down pumps and any movement into/ out of area.
  - Shut down contractor activity.
  - Stop traffic flow into and out of area.
  - Adjacent tank pumps and motors.
  - Be aware of static electricity.
- Establish objectives and priorities based on this assessment:
  - The Fire Department should quickly get water on the fire and cooling water on adjacent assets.
  - Be aware of overhead power lines, DO NOT flow water near them.
  - Find a way to get water to the fire quickly and safely (i.e., monitors, hydrants, truck).
  - Water will quickly fill the dike area.
  - Evaluate the water usage and determine whether or not to open/ close the internal and external dike drains.

FIGURE 4.1

FLAMMABLE LIQUIDS
(e.g. Gasoline, Diesel, Naphtha)

The following information is intended to provide the initial responder(s) with data that may be useful in making quick decisions and executing prompt response actions. The information is intended for guideline purposes only.

HAZARD IDENTIFICATION / RECOGNITION

GUIDE NO. 128	• HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. • Vapors may form explosive mixtures with air. • Vapors may travel to source of ignition and flash back. • Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). • Vapor explosion hazard indoors, outdoors or in sewers. • Those substances designated with a "P" may polymerize explosively when heated or involved in a fire. • Runoff to sewer may create fire or explosion hazard. • Containers may explode when heated. • Many liquids are lighter than water. • Substance may be transported hot.

HEALTH

- Move victim to fresh air. Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions.

PUBLIC SAFETY

- Isolate spill or leak area immediately for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering area

EVACUATION	**Large Spill** □ Consider initial downwind evacuation for at least 300 meters (1,000 feet). **Fire** □ If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (½ mile) in all directions; also, consider initial evacuation for 800 meters (½ mile) in all directions.

Information excerpted from the *2016 Emergency Response Guidebook*.

2.4 EVACUATION

In case of an emergency evacuation, some or all of the following steps are taken, depending on type of emergency and circumstances:

_____ Sound alarm or give verbal alarm by radio/cell phone or in person.
_____ Call 911.
_____ Initiate emergency shutdown procedures.
_____ Shutdown product transfer operations.
_____ Proceed to the Evacuation Regrouping Area/Muster Point for Roll Call.

Factors affecting the evacuation include:

Location of Stored Materials

The large bulk storage tanks are located in the North, East, Central and West Plant containment areas.

Hazard Imposed by Spilled Material

The hazard imposed is flammability. Refer to Safety Data Sheet (SDS) for health risks and response measures for treatment when exposed.

Spill Flow Direction

A large spill leaving secondary containment would flow by sheet flow to the nearest outfall, which would discharge into the Houston Ship Channel.

Prevailing Wind Direction and Speed

The prevailing wind direction is out of the North at 8 to 9 mph from January to April and out of the southeast at 6 to 8 mph from May to December.

Water Currents, Tides, or Wave Conditions (if applicable)

Water currents, tides, or wave conditions are not applicable because there no over water evacuation.

Arrival of Route of Emergency Response Personnel and Response Equipment

Emergency response personnel and equipment arrive via Clinton Drive.

Evacuation Routes

All evacuation routes lead to one of four muster areas. The primary Muster Area #1 located on Clinton Drive. There are three alternate muster areas designated as Muster Area #2 through #4 as the situation dictates.

Alternate Routes of Evacuation

Primary and alternate routes are interchangeable and identified on Evacuation Diagram.

2.4 EVACUATION (Cont'd)

Transportation of Injured Personnel Nearest Emergency Medical Facility

Head north toward Clinton Dr. Take N. Shaver St. to Westside Dr. in Pasadena. Turn left onto Westside Dr. Turn left onto Spencer Hwy. Drive to your destination. Bayshore Medical Center, 4000 Spencer Hwy, Pasadena, TX 77504.

Location of Alarm/Notification Systems

Audible alarm is activated from Gate 1 of the Security Building. Radios are main form of emergency notification and are usually used prior to alarm activation. The Whelen alarm system has very specific instructions as described below:

- The alarm system should be tested each week at 15:00 Wednesday in concurrence with the Galena Park test.
- Whoever completes the test needs to fill in the test log indicating the date, time, and who completed the test along with any comments.
- If there is a problem with the alarm system, contact the Fire & Safety coordinator ASAP at (361) 726-1614 (Adam Walton).
- Weekly alarm test: Press test button & send button. You should hear an audio stating that it is a test along with four horns and an all clear.
- Emergency alarm: Press emergency button & send button. You should hear an audio stating that there is an emergency proceed to the evacuation point and await further instructions.
- Shelter in place: Press shelter in place button & send button. You should hear a horn, an audio stating to shelter in place and another horn.
- Lightning: Press lightning button & send button. You should hear a horn then an audio stating we are under a lightning advisory cease all work, then another horn.
- All Clear: Press all clear button & send button. You should hear a horn, then an audio stating this is an all clear, then another horn.
- PA: To use the PA press the PA button & send. Key up the microphone and speak slowly and clearly. This will last for 45 seconds. Anything longer you will need to repeat PA and send.
- Loss of power: In the event we have a loss of power we need to power up the black box and the digital receiver on top of the black box.

Centralized Check-In Area for Evacuation Validation

The evacuation assembly areas for the Facility area designated as Muster Area #1 - #4. The muster points are located on the Evacuation Diagram.

Mitigation Command Center

The HBU 405 Clinton Drive, Galena Park will be the initial Command Post.

Location of Shelter-In-Place

The shelter-in-place location will be wherever you are, in a building with the AC turned off or in a turned off vehicle.

2.4 EVACUATION (Cont'd)

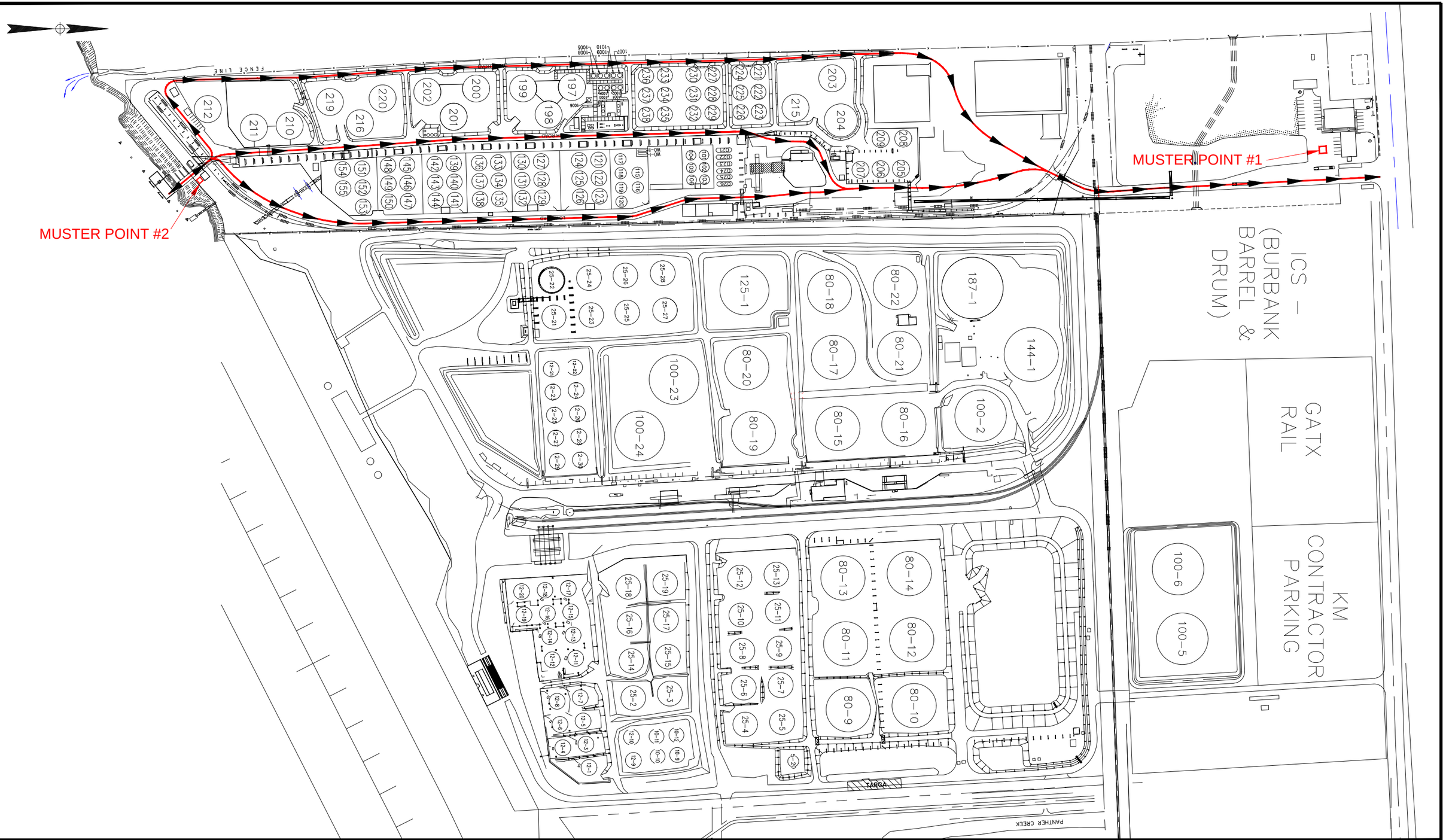
Employees Performing Rescue and Medical Duties during Evacuation

- Perform search of affected area, if personnel are missing and it is safe to do so.
- Account for all personnel.
- Report results of accountability to IC.
- Immediately call 911, if a medical emergency is discovered, and provide them with your name and location of the medical emergency.
- Do not move the injured person except in cases of immediate danger.
- Apply first aid to the level to which you have been trained.
- Await EMS and support ambulance personnel, as instructed.

Community Evacuation Plan

Harris County, Office of Homeland Security and Emergency Management has a community evacuation plan. The following agencies are in charge of community evacuations: Galena Park LEPC, Galena Park Fire Department, Galena Park Police Department, and the Harris County Sheriff Department.

Evacuation Diagram



NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	ISSUED FOR REVIEW	04–17–15	JLM	MG	MG

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED MG
APPROVED RJH ENGR. MGR.
APPROVED AJR REG. ENGR. MGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

MUSTER AREAS & EVACUATION ROUTES

WEST CHEMICAL PLANT

DWG. NO. 88–MS–0198

SCALE NONE | TERMINAL 88 | DATE 04–17–2015

PLOT DATE: Apr 17, 2015 – 3:02pm LOCATION:I:\CAD\GALENAP\MS\88-MS-0198.DWG

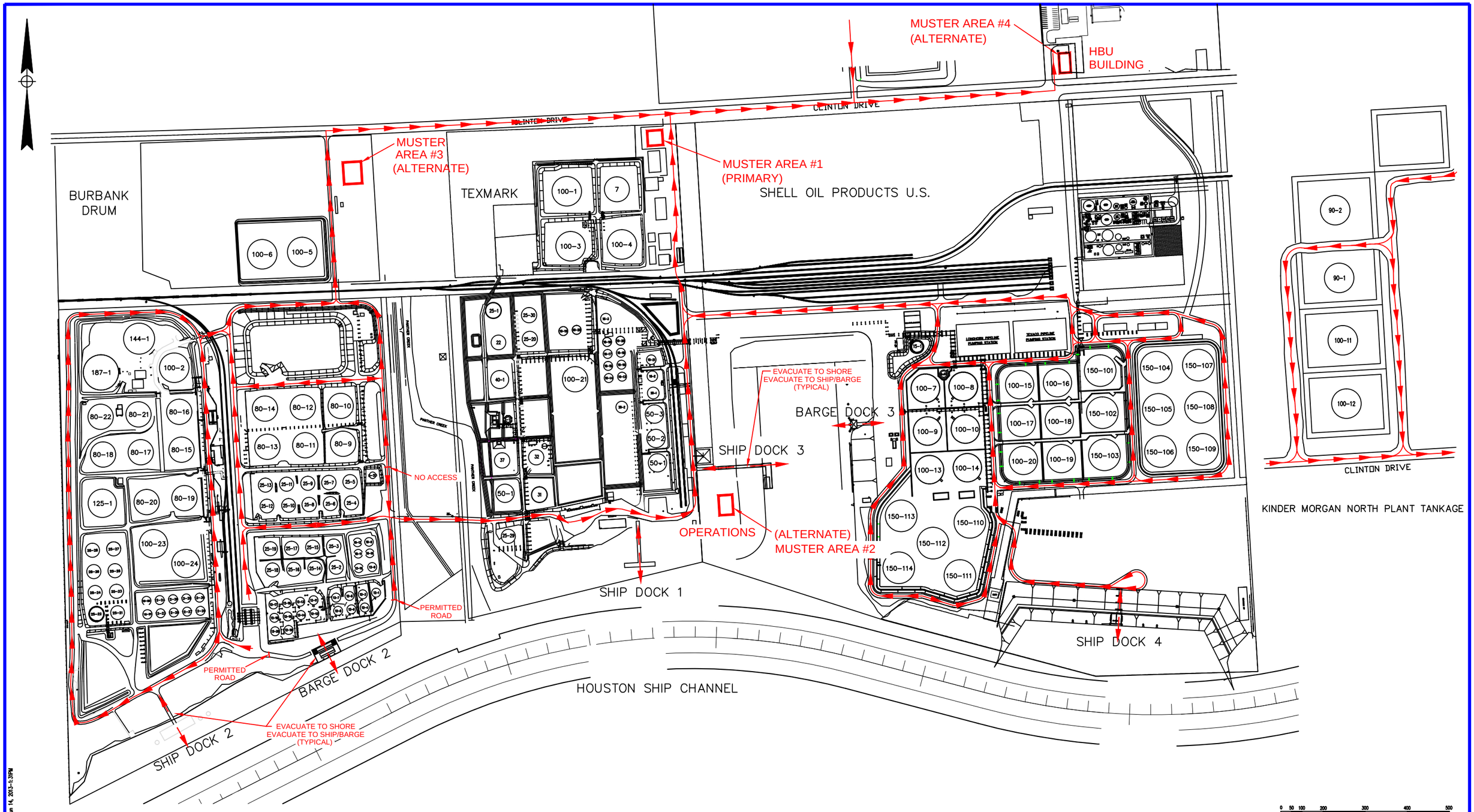


FIGURE 3.1

PLOT DATE: Jun 14, 2013–1:31PM

CONTRACTOR BLOCK

NOTES

THIS DRAWING SUPERCEDES DWG. D–88–1–4302C

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	GENERAL UPDATES	06–14–13	JLM	MG	MN
A	ISSUED FOR REVIEW	09–01–10	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED JA PROJ. ENGR.
APPROVED PA REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

MUSTER AREAS & EVACUATION ROUTES

NORTH, EAST, CENTRAL, AND WEST PLANTS

DWG. NO. 88–MS–0143

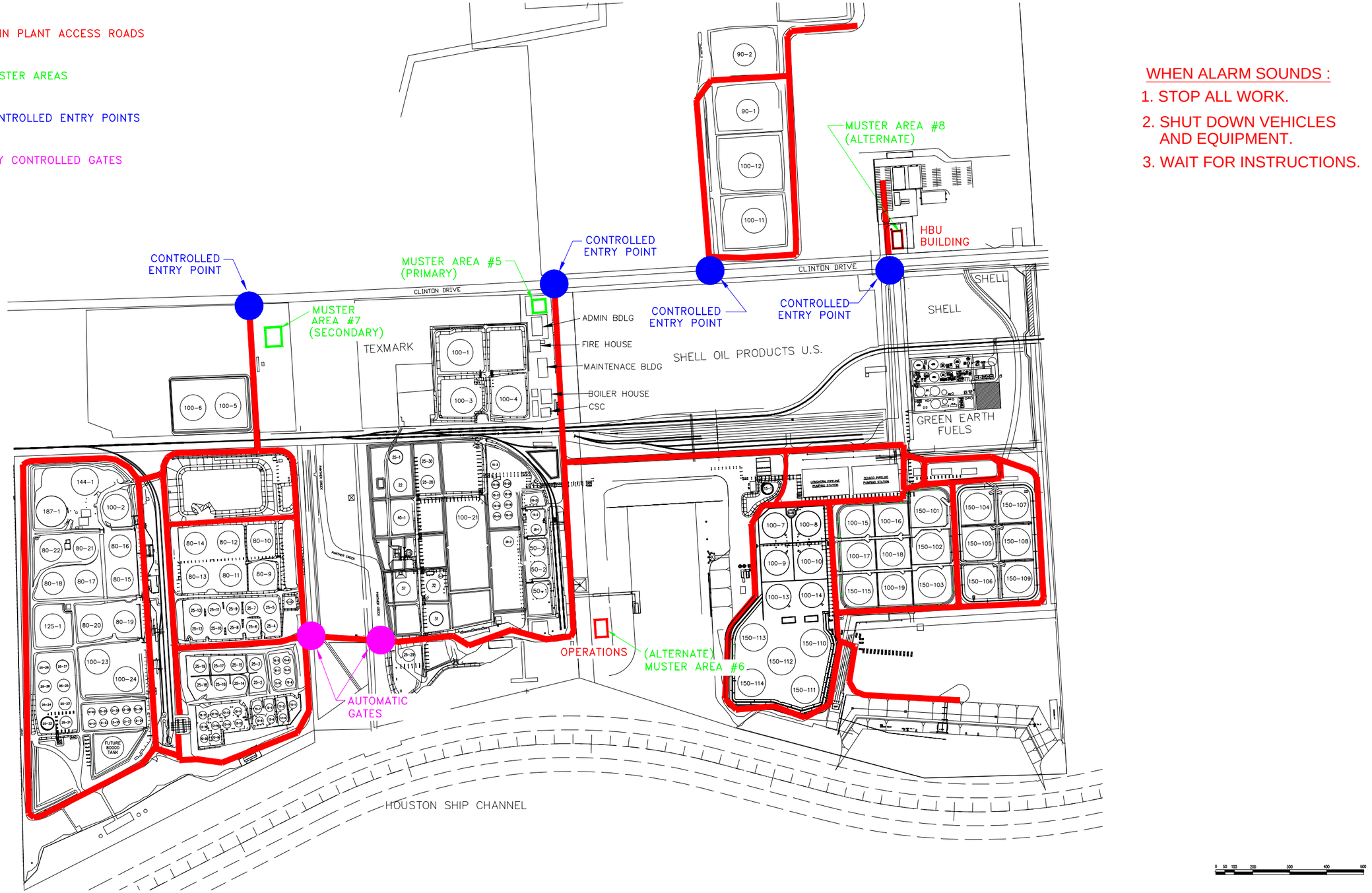
SCALE NONE | TERMINAL 88 | DATE 09–01–2010

MAIN PLANT ACCESS ROADS

MUSTER AREAS

CONTROLLED ENTRY POINTS

KEY CONTROLLED GATES



WHEN ALARM SOUNDS :

1. STOP ALL WORK.
2. SHUT DOWN VEHICLES AND EQUIPMENT.
3. WAIT FOR INSTRUCTIONS.

0 50 100 200 300 400 500

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	GENERAL UPDATES	06-14-13	JLM	MG	MN

KINDER MORGAN

DRAWN S. MARTIN
CHECKED AC
APPROVED _____ PROJ. ENGR.
APPROVED _____ REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST,CENTRAL AND WEST PLANTS

EVACUATION ROUTES

DWG. NO. 88-FPP-CIMA

SCALE NTS | TERMINAL 88 | DATE 12-14-10

FIGURE 4.2

FACILITY RESPONSE EQUIPMENT (App. F, Section 1.3.2 to 40 CFR 112)	
Date of Last Update:	Last Inspection or Response Equipment Test Date:
Inspected By:	Last Deployment Drill Date:
Inspection Frequency:	Deployment Frequency:

SKIMMERS/PUMPS (App F, Sec. 1.3.2(1), to 40 CFR 112)

Type/Model/ Year	Operational Status	Quantity	Capacity bbl/day	Daily Effective Recovery Rate	Storage Location(s)	Date Fuel Last Changed
		NONE				

BOOM (App F, Sec. 1.3.2(2), to 40 CFR 112)

Type/Model/ Year	Operational Status	Number	Size (Length)	Containment Area	Storage Location(s)
Containment Boom/Unk/Unk	Ready	1	1,500 ft	Varies with configuration	Boom Reel

CHEMICAL DISPERSANTS* (App. F, Section 1.3.2.3, to 40 CFR 112)

Type	Operational Status	Amount	Date Purchased	Treatment Capacity	Storage Location(s)	Date Changed
		NONE				

* Were appropriate procedures used to receive approval for use of dispersants in accordance with the NCP (40 CFR 300.910) and the Area Contingency Plan (ACP), where applicable? _____(Y/N).

Name and State of On-Scene Coordinator (OSC) authorizing use

Date Authorized

FIGURE 4.2 (Cont'd)

FACILITY RESPONSE EQUIPMENT App. F, Section 1.3.2 to 40 CFR (Cont'd)	
Date of Last Update:	Last Inspection or Response Equipment Test Date:
Inspected By:	Last Deployment Drill Date:
Inspection Frequency:	Deployment Frequency:

DISPERSANT DISPENSING EQUIPMENT (App. F, Section 1.3.2.4, to 40 CFR 112)

Type/Year	Operational Status	Capacity	Storage Location(s)	Response Time
	NONE			

SORBENTS (App. F, Section 1.3.2.5, to 40 CFR 112)

Brand Name/Type	Operational Status	Size / Quantity	Storage Location(s)
Varies/Absorbent Boom	Ready	5"/200 ft	Boom House
Varies/Absorbent Pad	Ready	18 x 18/29 Bundles	Boom House
Varies/Absorbent material	Ready	40 lbs/49 Bags	Boom House

HAND TOOLS (App. F, Section 1.3.2.6, to 40 CFR 112)

Type/Year	Operational Status	Quantity	Storage Location(s)
	See Primary Water Recovery Equipment List		

COMMUNICATION EQUIPMENT (App. F, Section 1.3.2.7, to 40 CFR 112)

Type/Year	Operational Status	Quantity	Operating Frequency and Channel and/or Cell No.	Storage Location(s)/ Number
	NONE DEDICATED TO EMERGENCY RESPONSE			

FIGURE 4.2 (Cont'd)

FACILITY RESPONSE EQUIPMENT App. F, Section 1.3.2 to 40 CFR (Cont'd)	
Date of Last Update:	Last Inspection or Response Equipment Test Date: Used Dai
Inspected By: See inspection documentation on the following pages	Last Deployment Drill Date: N/A
Inspection Frequency: See inspection documentation on the following pages	Deployment Frequency: N/A

FIRE FIGHTING* AND PERSONNEL PROTECTIVE EQUIPMENT (App. F, Section 1.3.2.8, to 40 CFR 112)			
Type/Year	**Operational Status**	**Quantity**	**Storage Location(s)**
Various sizes ranging from 2.5, to 150 LB Fire extinguishers (Type A,B, C)/Varies	Ready	455	Throughout Terminal
3,000 GPM National Foam Truck[Need]	Ready	1	Fire House
1,000 GPM National Foam Truck/[Need]	Ready	1	Fire House
Trailer with 500 GAL AFFF ATC Foam	Ready	1	Fire House

*The Facility can rely on sufficient local firefighting resources and the Terminal Manager is the Designated individual at the Facility to liaison with the Fire Department on products stored onsite.

FACILITY RESPONSE EQUIPMENT App. F, Section 1.3.2 to 40 CFR (Cont'd)	
Date of Last Update:	Last Inspection or Response Equipment Test Date: Used Daily
Inspected By:	Last Deployment Drill Date:
Inspection Frequency:	Deployment Frequency:

OTHER EQUIPMENT(App. F, Section 1.3.2.9, to 40 CFR 112)			
Type/Year	**Operational Status**	**Quantity**	**Storage Location(s)/Number**
	See Primary Water Recovery Equipment List on following page.		

FIGURE 4.2 (Cont'd)

PRIMARY WATER RECOVERY EQUIPMENT LIST

PRIMARY WATER RECOVERY EQUIPMENT															
Equipment	**Boom Reel**	**Boom House**	**Spill Boat**	**Maintenance Bldg.**	**Contractor Site**	**Firehouse**	**Ship Dock #3**	**Ops Bldg.**	**Spill Trailer**	**3 Boom Reels**	**Drum Bldg.**	**Fire House**	**Maintenance**	**Contractor Onsite**	**Total**
	GP											PAS			GP/PAS
Boom	1500'									1500'					3000'
22# Dan Forth Anchor w/chain		5	1												6
40# Dan Forth Anchor w/chain		2													2
18" float		6													6
1" sch 80 pipe A53B (3' lengths)		21'													21'
1/2" nylon rope (grey - attached to anchors)		48'													48'
1/2" nylon rope (red)		360'	120'												480'
1/2" nylon rope (green)		120'	60'												180'
pipe driver		1													1
pole hooks - 6' aluminum		2													2
5" absorbent boom		200'									200'	150'			550'
Absorbent pads		29 bundles													29 Bundles
Absorbent material		49 bags													49 Bags
Shovels		10									15				25
Rakes		10									5				15
1988 Front End Loader				1											1
2007 Backhoe					1										1
1997 Cherry Picker					1										1
2005 Fire Truck						1									1
1995 Boston Whaler Boat							1								1
2005 GMC Vacuum Truck								1							1
1976 Sea Ark John Boat									1						1
1995 Mercury Outboard Motorboat									1						1
Boom Bouy											3				3
Stake Driver											1				1
Life Vests											3				3
Floating Lights											3				3
Cotton Rope											1				1
Duct Tape											3				3
Barrier Tape											1				1
Boat Plug											2				2
Tow Bridge											3				3
Boom Attachment											4				4
Tie Downs											3				3
Shackles											2				2
Anchors											2				2
Wooden Stakes											12				12
1/4" Poly Rope											1				1
5/8" Poly Rope											1				1
Orange Traffic Cones											4				4
Spill Pads											10 Bundles	15 Bundles			25 Bundles
8" absorbent boom											200'				200'
Utility Knife											1				1
Sledge Hammer											1				1
Foam Nozzle												2			2
Pry Bar												1			1
10' Scuttle Hole Ladder												1			1
Gaft Hook												1			1
Generator												1			1
20lb. ABC												1			1
2 1/2" Fog Nozzle/Sprinkler Ext												N/A			N/A
HazMat												2			2
Foam Inductor												2			2
5" Stortz Tee												1			1
3" to 2-1/2" Fitting												1			1
6" Caps												2			2
Stortz to 1-1/2" Female												4			4
Misc. 4" & 5" Fittings												8			8
Hose 2-1/2"												N/A			N/A
Hose 1-1/2"												N/A			N/A
Hose 5"												N/A			N/A
SCBA												6			6
SCBA Masks												6			6
Hose Clamps												2			2
Hose Couplings												2			2
Hose Squeegee												1			1
Foam Transfer Kits												3			3
Ax												2			2
6" Strainer												1			1
Bolt Cutter												1			1
Portable Fire Monitors/Hose												N/A			N/A
Fire Hose (Rack) 1-3/4"												N/A			N/A
Fire Hose (Rack) 2-1/2"												N/A			N/A
Fans												2			2
Backboards												5			5
Body Harness												2			2
Lanyards												2			2
C-Collar Kit												1			1
Spider Strap, Reeves Sleeve												1			1
Tank Fall Protection Device												3			3
SCBA Extra Bottles												3			3
5" Hose												1			1
Strainers												2			2
Rechargable Light												1			1
Chocks												2			2
Nozzles 1-1/2" & 2-1/2"												12			12
Reducer 2-1/2" & 1-1/2												3			3
Tool Kit												2			2
Mallets												3			3
Hydrant Wrench												5			5
Spanner Wrench												9			9
Stortz Wrench												8			8
Gated Wye 2-1/2" & 1-1/2"												2			2
Female to Female 2-1/2"												4			4
Male to Male 2-1/2"												4			4
Misc. Gaskets												4			4
Hazard Tape												1			1
Start Triage Box												1			1
First Aid Kit												1			1
Oz Unit												1			1
Safety Belts												2			2
Sutphen Fire Truck												1			1
Long Tractor													1		1
D&H Crane 20 ton													1		1
Chevy C-60 PLL													1		1
JCB Rubber Tire Backhoe														1	1
Case Power & Equip Rubber Tire Backhoe														1	1
Case Power & Equip Dozer, 450														1	1

FIGURE 4.3
RESPONSE EQUIPMENT TESTING/DEPLOYMENT
(App. F, Sec.1.3.3, to 40 CFR 112)

Date of Last Update: _____

Last inspection or Response Equipment Test Date:	
Inspection Frequency:	Quarterly
Last Deployment Drill Date:	
Deployment Frequency:	Semi Annual
Oil Spill Removal Organization Certification (if applicable):	

FIGURE 5.3

CONTRACTED RESPONSE RESOURCES

The following tables outline the various response equipment/resources available from the Oil Spill Removal Organizations as required by the Oil Pollution Act of 1990.

USCG CLASSIFIED OIL SPILL REMOVAL ORGANIZATION (OSRO)							
OSRO Name	Response Time	Environment Type	Facility Classification Level				High Volume
			MM	W1	W2	W3	
OMI Environmental Solutions	0.5 - 1 Hour	River/Canal	Y	Y	Y	Y	Yes
		Inland	Y	Y	Y	Y	
Horizon Environmental	0.5 - 1 Hour	River/Canal	Y	Y	Y		
		Inland	Y				
Phoenix Pollution Control & Environmental Services	0.5 - 1 Hour	River/Canal	Y	Y	Y		
		Inland	Y				

FIGURE 1.3

FACILITY DIAGRAMS

Site Plan Diagram

Galena Park Terminal Plot Plan (88-EHS-0197)

Site Drainage Diagram

Galena Park Terminal Drainage System (GP-50-213-PP-102)

Galena Park Terminal Drainage System (GP-50-213-PP-102E)

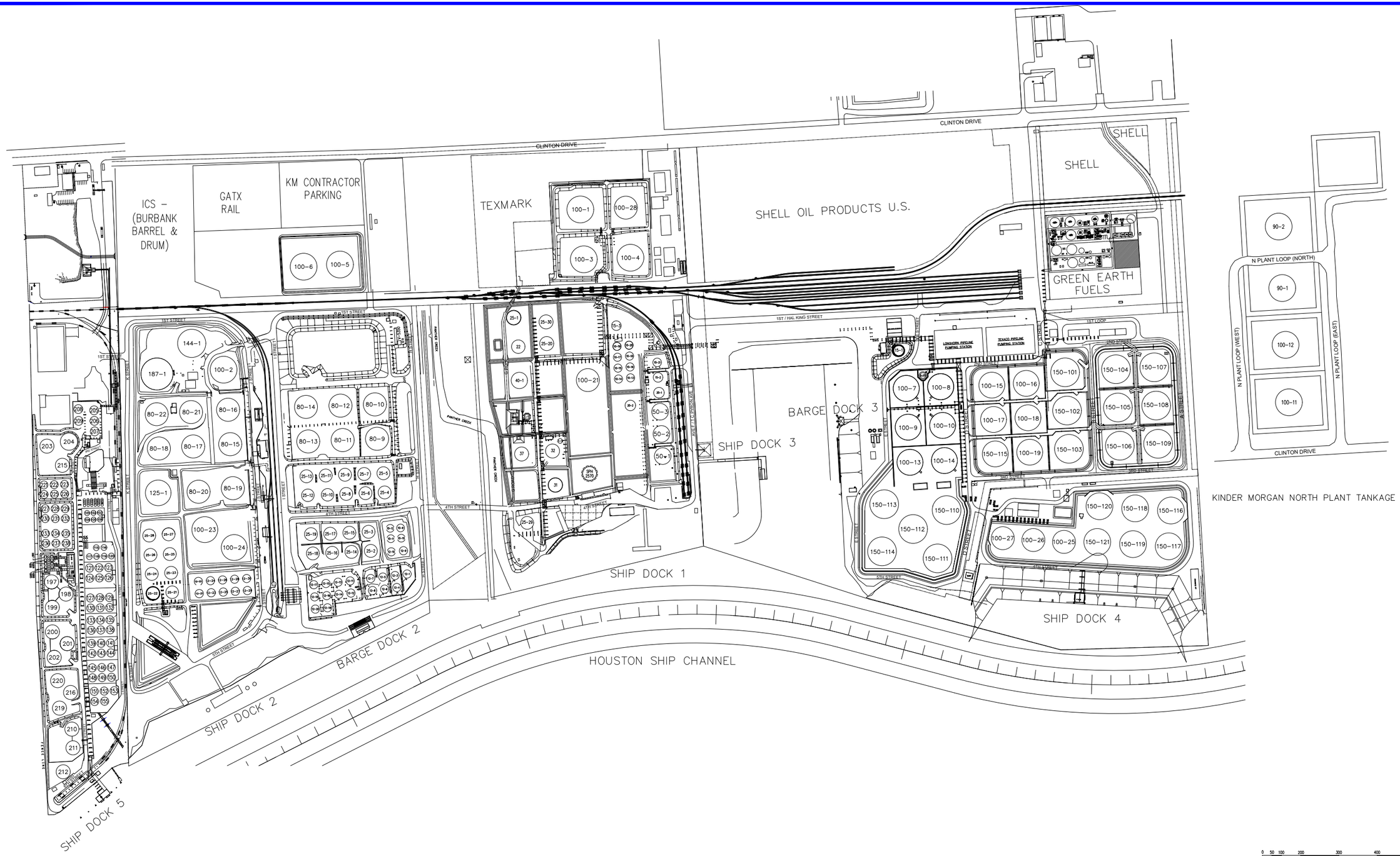
Galena Park Terminal Drainage System (GP-50-213-PP-102N)

Galena Park Terminal Drainage System (GP-50-213-PP-102C)

Galena Park Terminal Drainage System (GP-50-213-PP-102S)

Site Evacuation Diagram

Galena Park Plot Plan (88-FPP-CIMA)



KINDER MORGAN NORTH PLANT TANKAGE

0 50 100 200 300 400 500

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

& WEST CHEMICAL PLANT

PRO. REV.	PRO. NO.	
2		
PRO. DATE	PRO. INSPECTOR	PRO. MANAGER

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		2	ADDED KERERA & EASTON C5 TANKS	06–23–21	JLM	RK	LL
		1	IMPORTED TO EDMS SYSTEM	09–23–16	JLM	JGO	RJH
		B	ADDED ROAD NAMES	06–06–17	JLM	JG	RJH
		A	ISSUED FOR REVIEW	03–17–15	JLM	RJH	RJH

KINDER MORGAN

DRAWN J L MORRIS

CHECKED RJH

APPROVED RJH PROJ. ENGR.

APPROVED RJH REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

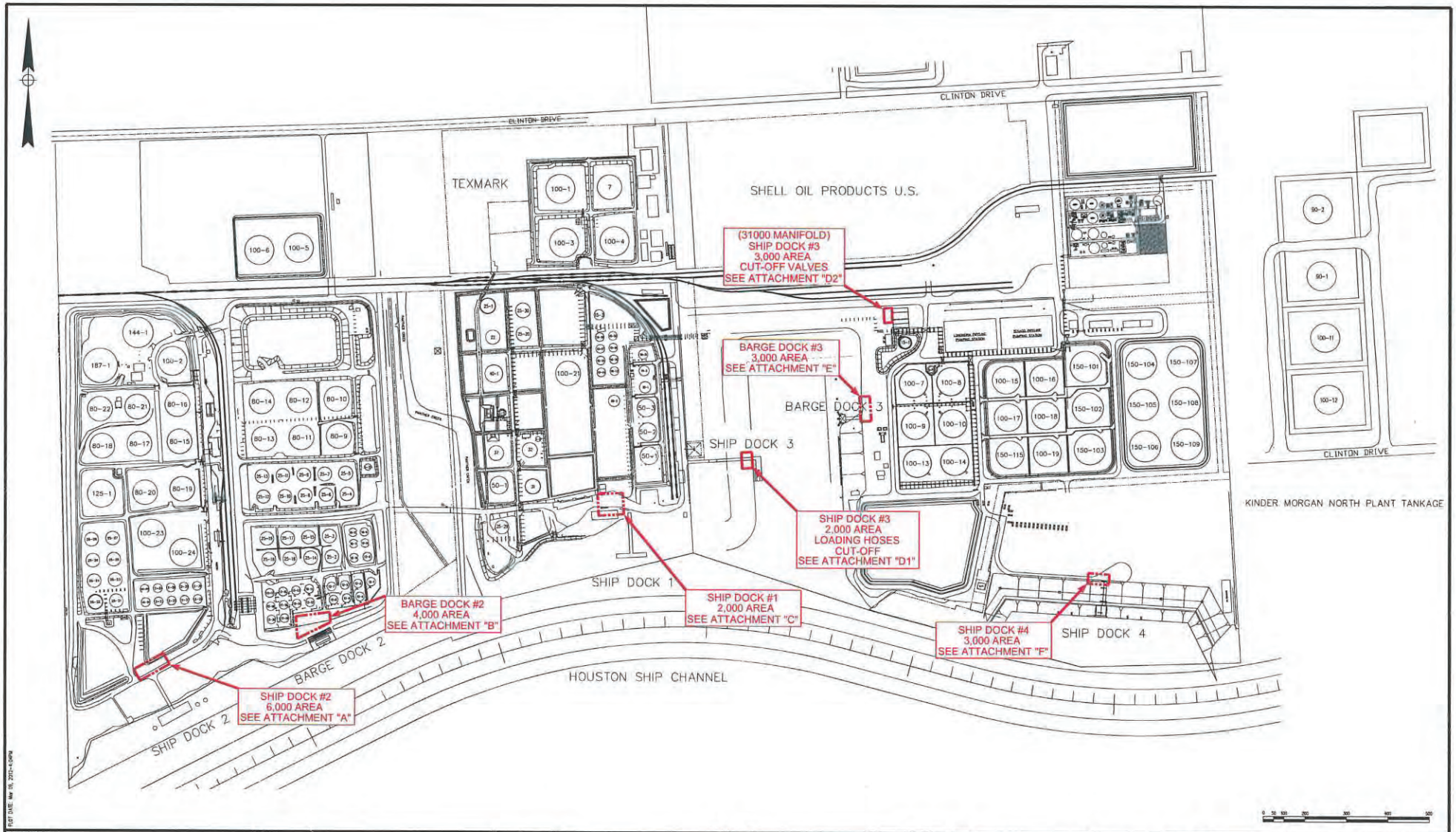
GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

& WEST CHEMICAL PLANT

DWG. NO.		REV. NO.
88–EHS–0197		2
SCALE	TERMINAL	DATE
NONE	88	03–17–15



PLOT DATE: May 09, 2012-4:04PM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		A	ISSUED FOR REVIEW	03-09-12	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED PROJ. ENGR.
APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

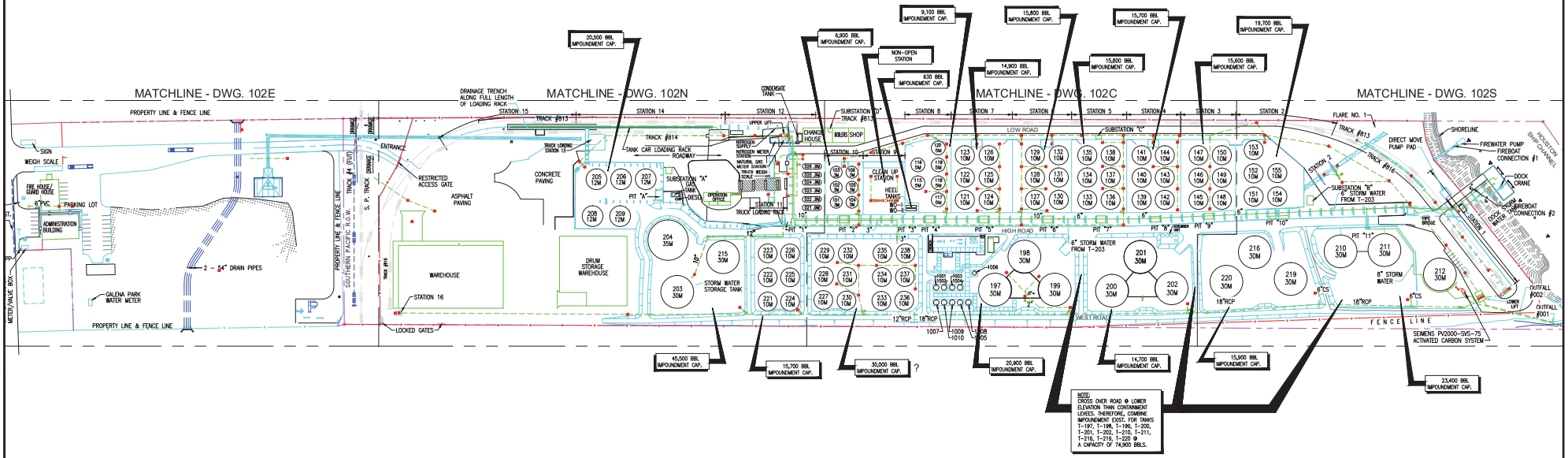
PLOT PLAN

US COAST GUARD – JURISDICTIONAL SYSTEMS

906 CLINTON DRIVE, GALENA PARK, TEXAS 77547

DWG. NO. 88-MS-0157

SCALE NONE | TERMINAL 88 | DATE 03-09-2012



LEGEND

- FUTURE TANKAGE
- DRAINAGE SYSTEM LINES
- DRAINAGE SYSTEM FORCE MAIN
- CB CATCH BASIN
- P PUMP

No.	Revision	Date	By	App.
B	REVISED IMPOUNDMENT CAPACITIES & ADDED OUTFALL #002	[illegible]	J.M.	A.B.
A	ISSUED FOR APPROVAL	[illegible]	J.M.	A.B.

Drawing Number	Reference Drawings
102E	DRAINAGE SYSTEM – ENTRY SECTION
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 8602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By: J.MACIAS Date: 11-07-05 Project Manager: A. BRALY Date:

Checked By: A. BRALY Date: Approved by: Date:

Engineer Job No.: 1630-Vd Vopak Engineer: A. BRALY Date:

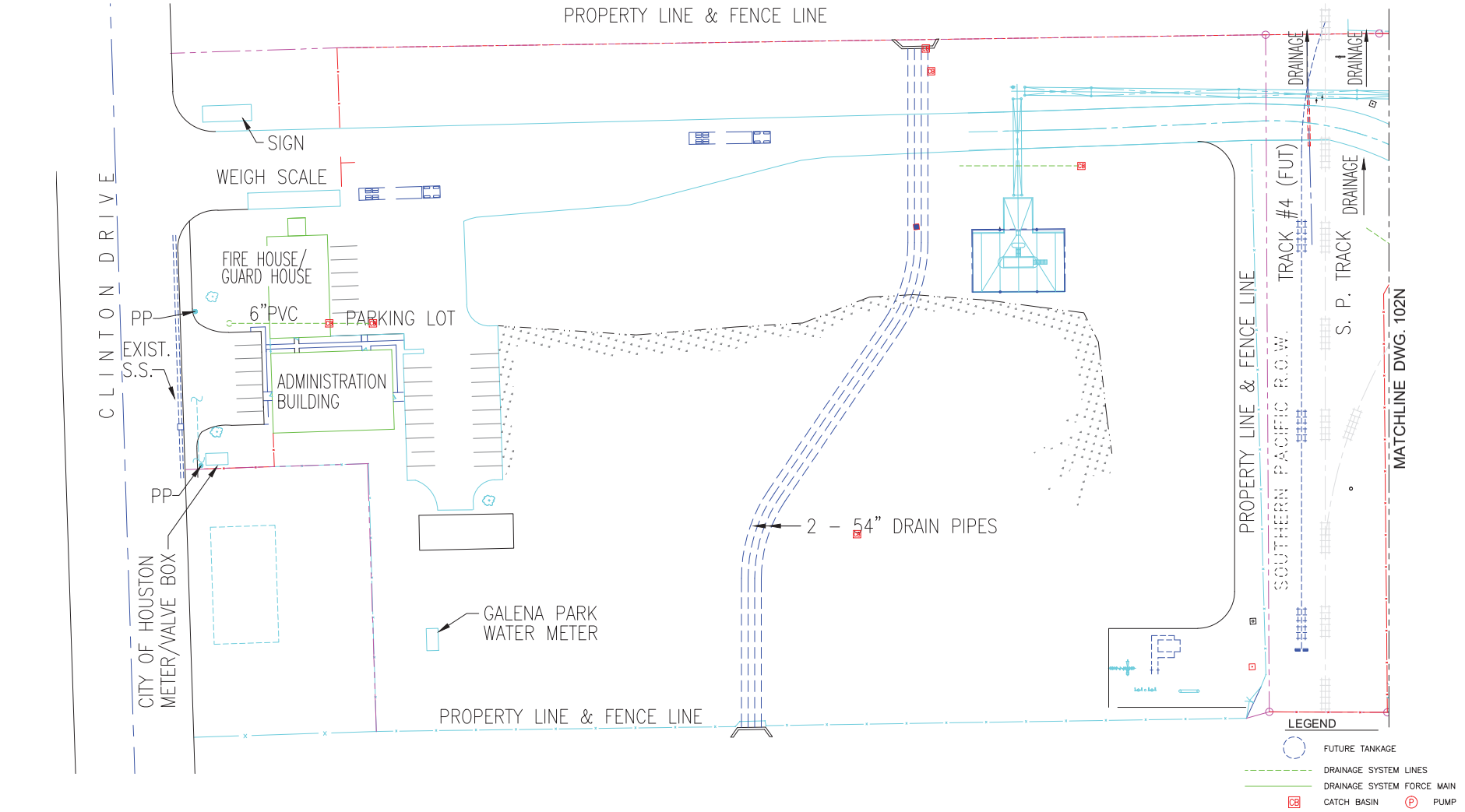
Vopak

GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: OVERALL SITE PLAN

Drawing Scale: 1" = 100.0' Graphic Scale: 0 50 100 Drawing Number: GP-50-213-PP-102-Rev 1



No.	Revision	Date	By	App.
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 9602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By:	Date:	Project Manager:	Date:
J.MACIAS	10-25-05	A. BRALY	
Checked By:	Date:	Approved by:	Date:
A. BRALY	10-25-05		
Engineer Job No.:		Vopak Engineer:	Date:
1630-Vd		A. BRALY	

Vopak

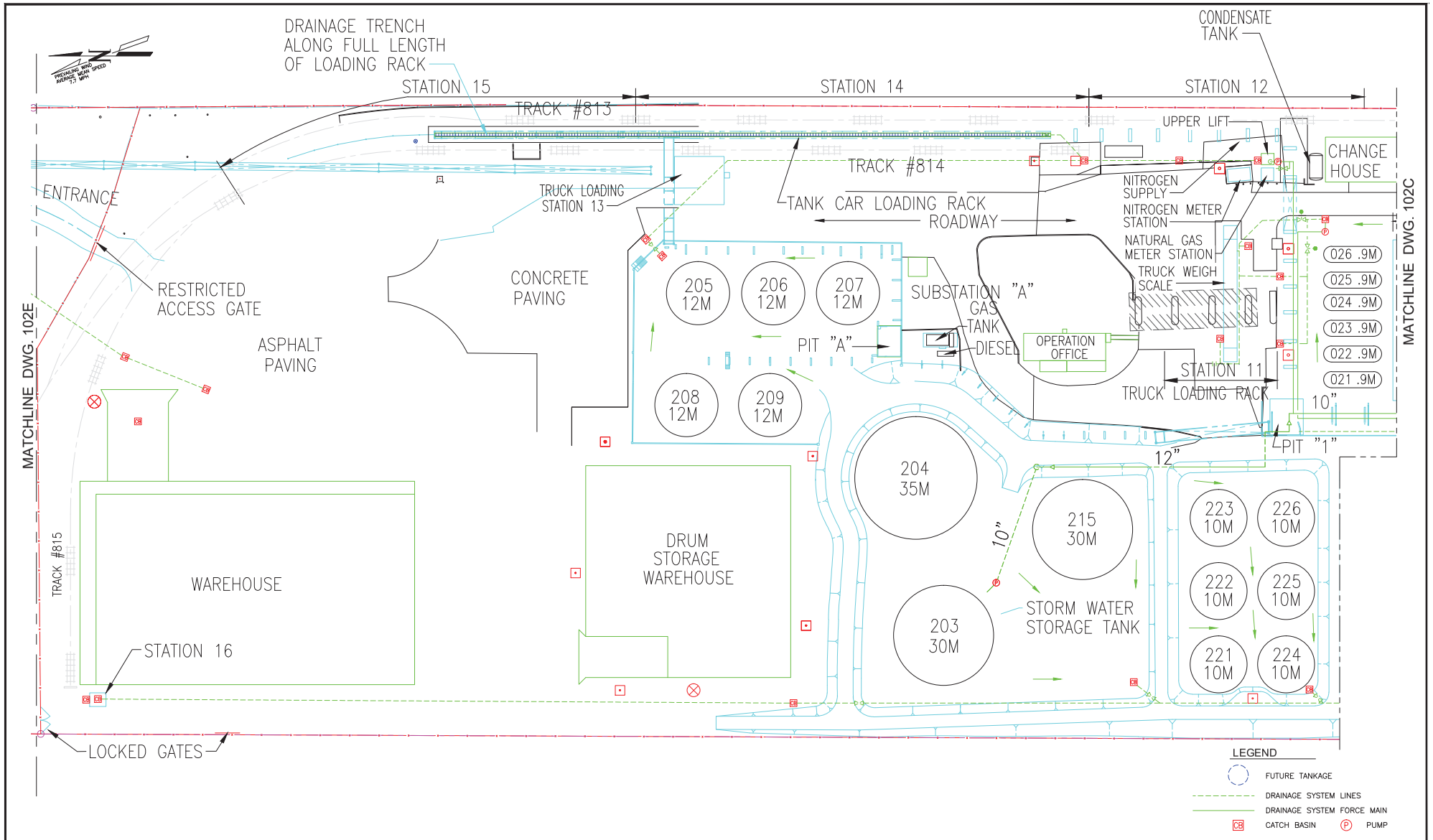
GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL ENTRY SECTION

Drawing Scale: 1" = 30.0' Graphic Scale: 30 0 60

Drawing Number: GP-50-213-PP-102E-Rev A



No.	Revision	Date	By	App.
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102E	DRAINAGE SYSTEM – ENTRY SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 9602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By: J.MACIAS | Date: 11-03-05 | Project Manager: A. BRALY | Date:

Checked By: A. BRALY | Date: | Approved by: | Date:

Engineer Job No.: 1630-Vd | Vopak Engineer: A. BRALY | Date:

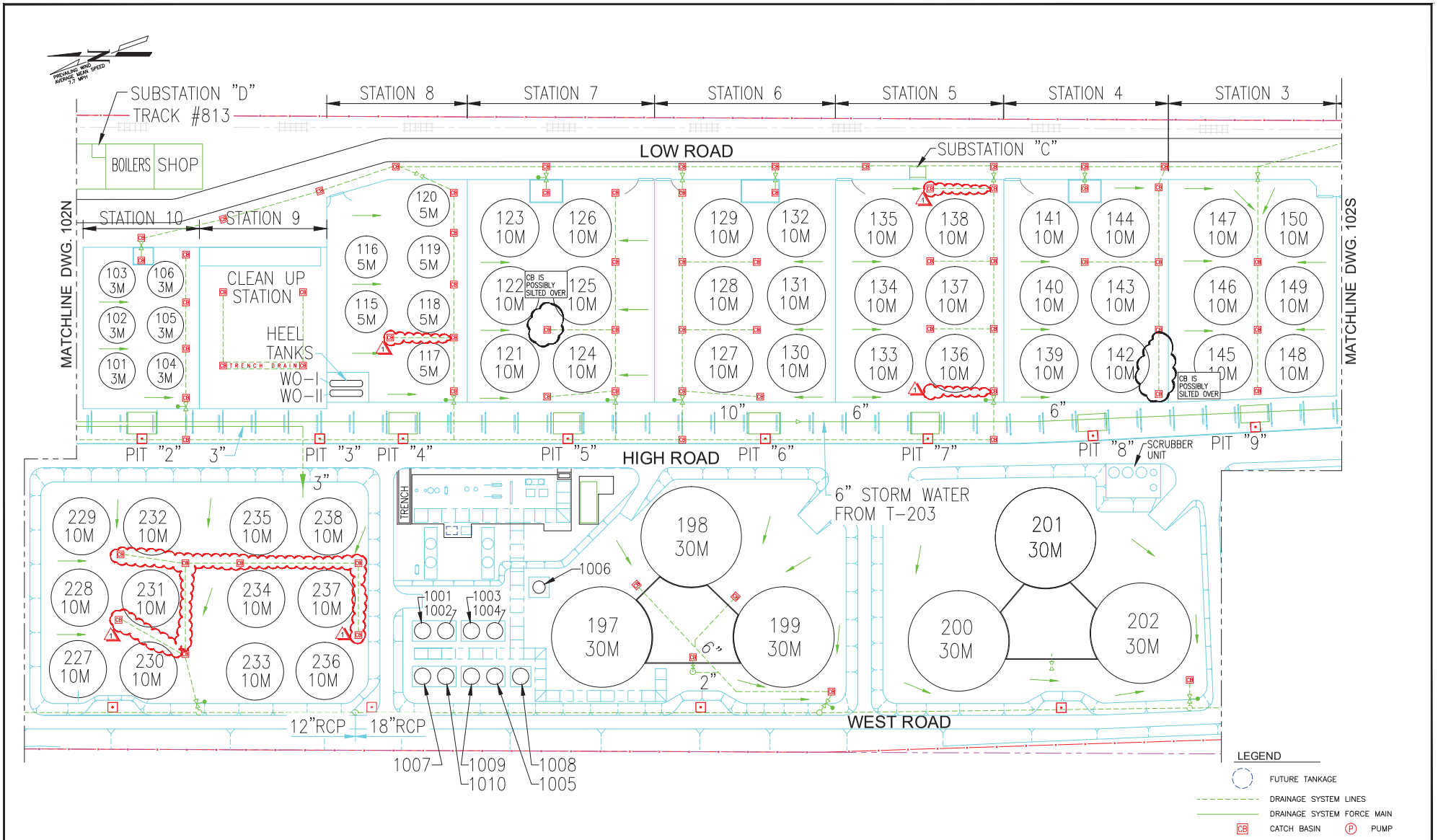
Vopak

GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL NORTHERN SECTION

Drawing Scale: 1" = 30.0' | Graphic Scale: 30 0 30 60 | Drawing Number: GP-50-213-PP-102N-Rev A



No.	Revision	Date	By	App.
1	ADDED CATCH BASINS & DRAINAGE LINES, REMOVED 1 C.B.			
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102E	DRAINAGE SYSTEM – ENTRY SECTION
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 8602 Spencer Highway La Porte, Texas 77571 Ph # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By:	Date:	Project Manager:	Date:
J.MACIAS	11-3-05	A. BRALY	
Checked By:	Date:	Approved by:	Date:
A. BRALY			
Engineer Job No.:		Vopak Engineer:	Date:
1630-Vd		A. BRALY	

Vopak

GALENA PARK TERMINAL, INC.

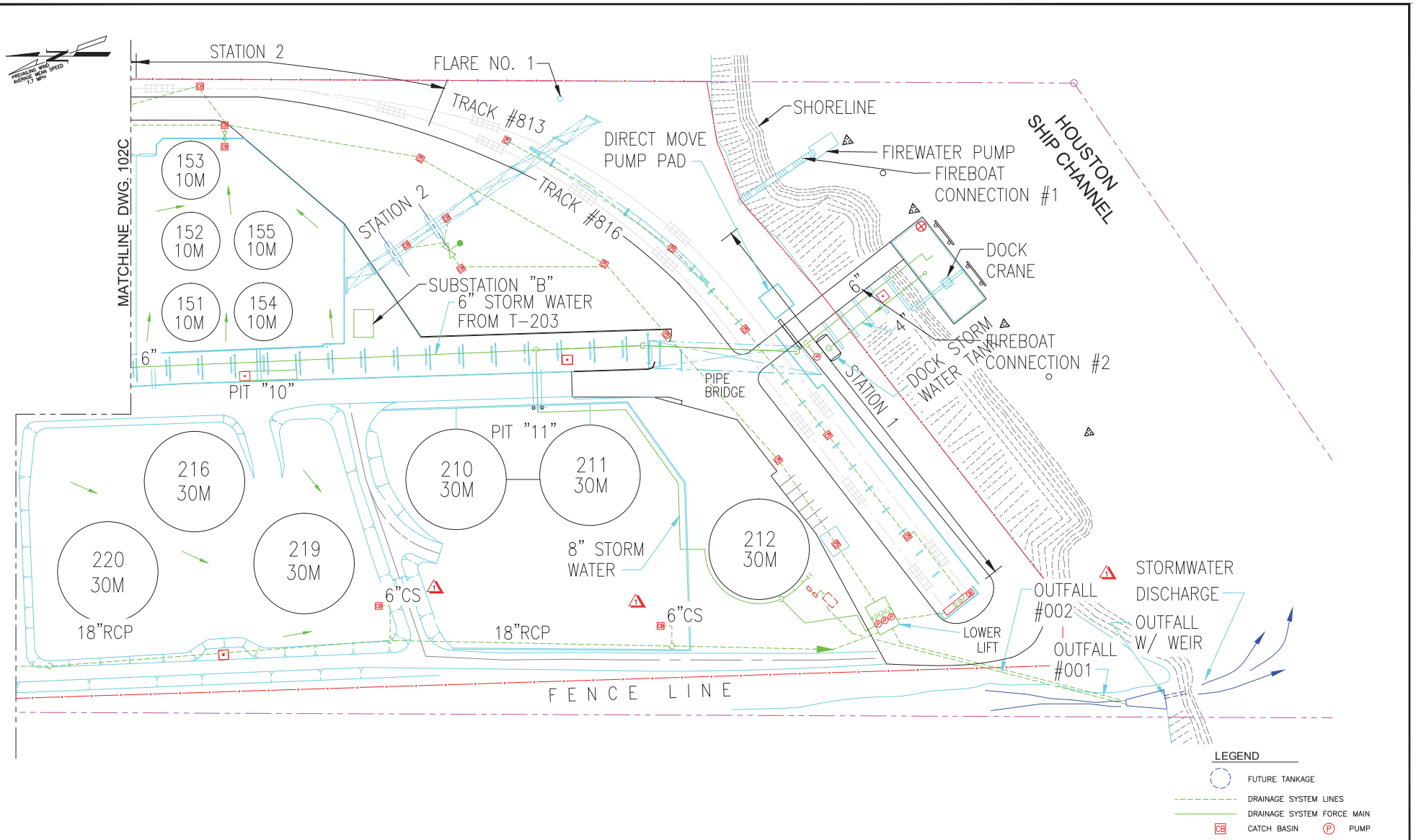
Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL CENTRAL SECTION

Drawing Scale: 1" = 30.0'

Graphic Scale: 30 0 30 60

Drawing Number: GP-50-213-PP-102C-Rev 1



No.	Revision	Date	By	App.
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102E	DRAINAGE SYSTEM – ENTRY SECTION
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION

Engineer:

Design By: H & M DESIGN, INC. 9602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By: J.MACIAS | Date: 11-3-05 | Project Manager: A. BRALY | Date:

Checked By: A. BRALY | Date: | Approved by: | Date:

Engineer Job No.: 1630-Vd | Vopak Engineer: A. BRALY | Date:

Vopak

GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL SOUTHERN SECTION

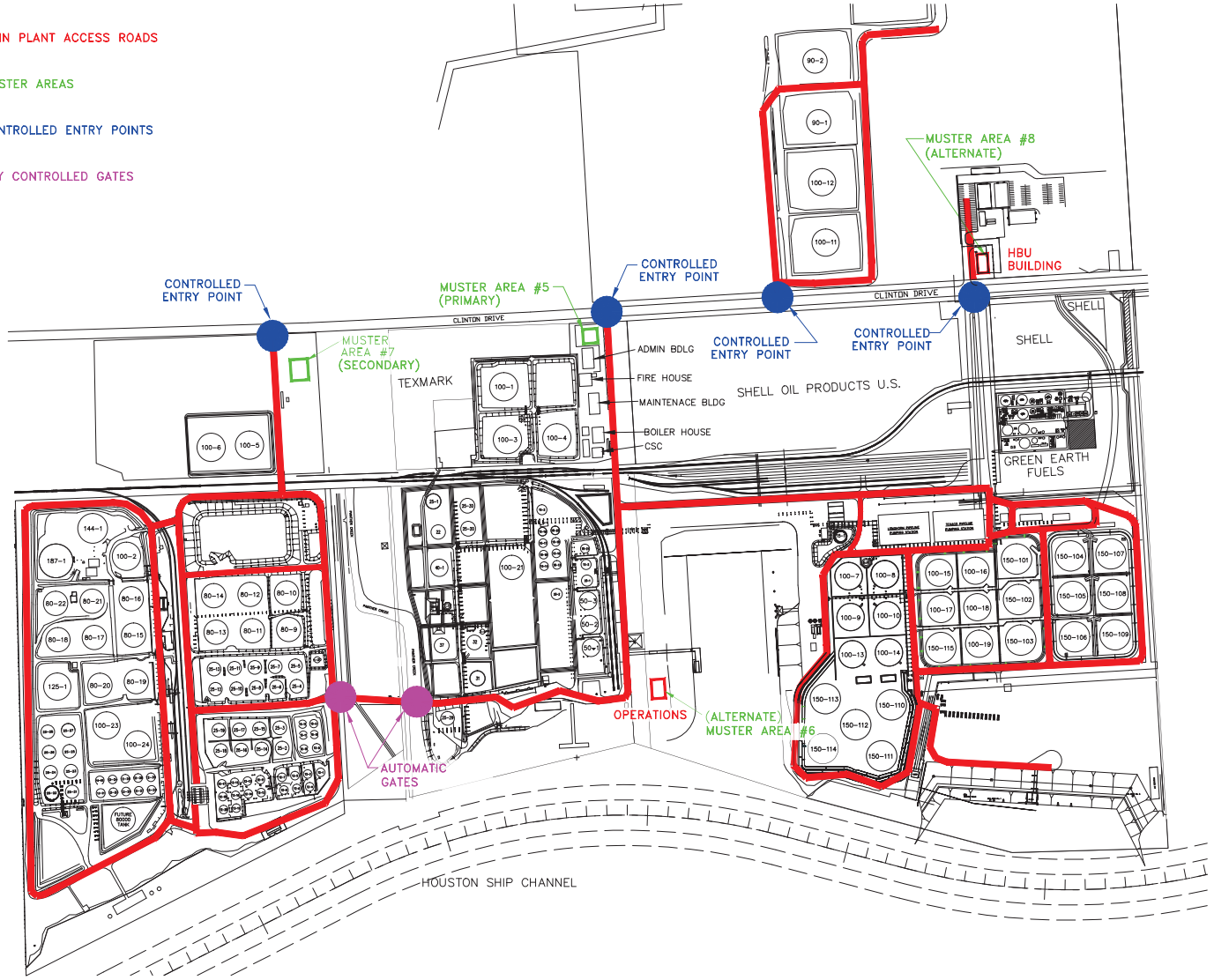
Drawing Scale: 1" = 30.0' | Graphic Scale: 30 0 60 | Drawing Number: GP-50-213-PP-102S-Rev A

MAIN PLANT ACCESS ROADS

MUSTER AREAS

CONTROLLED ENTRY POINTS

KEY CONTROLLED GATES



WHEN ALARM SOUNDS :

1. STOP ALL WORK.
2. SHUT DOWN VEHICLES AND EQUIPMENT.
3. WAIT FOR INSTRUCTIONS.

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		A	GENERAL UPDATES	06-14-13	JLM	MG	MN

KINDER MORGAN

DRAWN S. MARTIN
CHECKED AC
APPROVED PROJ. ENGR.
APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL AND WEST PLANTS

EVACUATION ROUTES

DWG. NO. 88-FPP-CIMA

SCALE NTS | TERMINAL 88 | DATE 12-14-10

INTEGRATED CONTINGENCY PLAN

Kinder Morgan Liquid Terminals LLC



Prepared for:

Kinder Morgan Liquid Terminals LLC
Galena Park Terminal
906 Clinton Drive
Galena Park, TX 77547

Prepared by:



http://midstreamcrm.com

TABLE OF CONTENTS

Regulatory Cross-references are included at the end of this Plan.

Page

ERAP

FOREWORD

Title Page FWD-1
Table of Contents FWD-2
List of Plan Holders FWD-5
Record of Revisions FWD-7

1.0 PURPOSE AND SCOPE

1.1 Plan Purpose/Objectives 1-1
1.2 Format and Scope of Plan 1-1
1.3 Plan Distribution Procedures 1-2
1.4 Plan Review and Update Procedures 1-3
1.5 Regulatory Compliance 1-5
Figure 1.1 Facility Information 1-7
Figure 1.2 Area Map 1-18
Figure 1.3 Facility Diagrams 1-19

2.0 DISCOVERY

2.1 Discovery Procedures 2-1
2.2 Emergency/Incident Classification 2-2
Figure 2.1 Response Levels 2-4
2.3 Initial Notification 2-7
2.4 Evacuation 2-7
Evacuation Diagram 2-10
2.5 Facility Response Equipment/Resources 2-11
2.6 Experts and Consultants 2-11
2.7 Volunteers 2-11
2.8 Communications 2-11
2.8.1 Central Communications System 2-11
2.8.2 Communications Equipment 2-12
2.8.3 Communications Types 2-12

3.0 NOTIFICATIONS

3.1 Internal Notifications 3-1
Internal Notification Sequence 3-2
3.2 External Notifications 3-3
External Notification Sequence 3-4
Figure 3.1 Qualified Individuals 3-5
Figure 3.2 Emergency Response Team 3-6

Page

Figure 3.3 Oil Spill Removal Organizations 3-12
Figure 3.4 Additional Response Resources 3-13
Figure 3.5 Required Notifications 3-14
Figure 3.6 Other Potential Required Notifications 3-18
Figure 3.7 Fire, Police, Hospitals, Air Medical Service 3-20
Figure 3.8 Media Notifications 3-21
Figure 3.9 Other Public/Industry Contacts 3-22
Figure 3.10 Notification Data Sheet 3-23

4.0 INITIAL RESPONSE

4.1 Emergency Response Team Activation 4-1
4.2 Incident Specific Response Actions 4-1
4.3 Product Specific Response Considerations 4-4
Figure 4.1 Flammable Liquids 4-5
4.4 Facility Response Equipment/Resources 4-6
Figure 4.2 Facility Response Equipment 4-7
Figure 4.3 Response Equipment Testing/Deployment 4-11
4.5 Air Monitoring 4-12
4.6 Decontamination 4-12
4.7 Personal Protective Equipment 4-13

5.0 SUSTAINED ACTIONS

5.1 Introduction 5-1
Planning P 5-4
5.2 Qualified Individual 5-5
5.3 Emergency Response Team (ERT) 5-6
5.4 Incident Management Organization 5-7
5.5 KM Crisis Support Team (CST) 5-7
5.6 Incident Command System 5-8
5.7 Unified Command 5-9
Figure 5.1 Emergency Response Team – Command Structure 5-11
Figure 5.2 Incident Management Organization 5-12
Figure 5.3 Contracted Response Resources 5-13
Figure 5.4 USCG OSRO Classifications 5-14
Figure 5.5 OSRO Contracts 5-17

6.0 TERMINATION AND FOLLOW-UP

6.1 Objectives 6-1
Figure 6.1 Response Process 6-2
6.2 Lessons Learned 6-3
6.3 Follow-up Actions 6-3
6.4 Disposal Plan 6-3

APPENDICES

Page

Appendix A Spill Impact Considerations A-1

Appendix B Worst Case Discharge Analysis B-1

Appendix C Hazard Evaluation C-1

Appendix D ICS Roles and Responsibilities D-1

Appendix E Training and Exercises E-1

Appendix F ICS and Other Miscellaneous Forms F-1

Appendix G Maps and Diagrams G-1

Appendix H Regulatory Correspondence H-1

Appendix I Regulatory Certifications I-1

Appendix J Other Supporting Documentation J-1

Glossary of Terms/Acronyms Glossary/Acronyms-1

Regulatory Cross Reference ..... Cross Ref-1

List of Plan Holders

Copy #	Plan Holder
1	Kinder Morgan Liquid Terminals Galena Park Terminal 916 North Witter Pasadena, TX 77506 Attn: Adam Walton
2	Kinder Morgan Liquid Terminals Galena Park Terminal 906 Clinton Drive Galena Park, TX 77547 Attn: Dock Copy
3	Kinder Morgan Liquid Terminals 1001 Louisiana Street, Suite 1000 Houston, TX 77002 Attn: Danielle Stephens
4	United States Coast Guard Sector Houston-Galveston 13411 Hillard Street Houston, TX 77034 Attn: Facilities Branch
5 (Electronic)	U. S. Environmental Protection Agency - Region 6 Oil Team - 6SF-EO 1201 Elm Street, Suite 500 Dallas, TX 75270-2102 [redacted](files less than 20MB)
6, 7 (2 Electronic copies)	Office of Pipeline Safety Pipeline and Hazardous Material Safety Administration U.S. Department of Transportation 1200 New Jersey Avenue SE-I-22-321 Washington, DC 20590 If 5 MGs or lower send email to: [redacted] Attn: Mr. David Lehman
8 (Electronic)	This copy removed from circulation

List of Plan Holders (Cont'd)

Copy #	Plan Holder
9 (Electronic)	Galena Park LEPC 1302 Keene St Galena Park, TX 77547
10 (Electronic)	Galena Park Emergency Manager Attn: Jorge Flores 2000Clinton Drive Galena Park, TX 77547
11 (Electronic)	Galena Park Fire Department Attn: Fire Marshal 1713 Second ST Galena Park, TX 77547
12 (Electronic)	Bayshore Medical Center Attn: Emergency Manager 4000 Spencer Hwy Pasadena, TX 77504
13 (Electronic)	Midstream Compliance & Response Management, LLC 25420 Kuykendahl Road, Ste. C400 The Woodlands, TX 77375 Attn: Project Manager
14 (Electronic)	Railroad Commission of Texas Oversight and Safety Division - Pipeline Safety Dept. P.O. Box 12967 Austin, TX 78711-2967 Attn: Mr. Jim Osterhaus

Note: Documentation on Arrangements with Local Authorities is located in Agency Correspondence.

Record of Revisions

Instructions for Assigning Revision Number

- The first two digits are the year followed by a decimal
- The second two digits are the month followed by a decimal
- The third digit(s) are the number of versions for that month. This will start at one for the first version of every month.

Example: 17.05.1 (Date of Issuance – May 2017

Date	Revision Number	Description of Changes	Changed Pages	Person Making Change(s)
May 2017	17.05.01	New Plan Development	Entire Plan	Midstream CRM
October 2017	17.10.01	USCG requested revisions	ERAP-17, ERAP-19, ERAP-26 thru ERAP-40 & inserts, FWD-3, FWD-7, 3-14, 3-16, Section 4, 5-3, App. F, Cross Ref-10, Cross Ref-12, Cross Ref-14, Cross Ref-16	Midstream CRM
April 2018	18.04.1	Update QIs and internal personnel, Addition of EAP	ERAP-3, ERAP-5, ERAP-8, ERAP-9, ERAP-11, FWD-7, 1-7, 1-11, 3-5, 3-6, 3-8, Appendix J	Midstream CRM
June 2018	18.06.1	Addition of OSRO and miscellaneous revisions	ERAP-5, ERAP-6, ERAP-8, ERAP-9, ERAP-13, ERAP-39, FWD-5 thru FWD-7, 1-11, 3-2, 3-5, 3-6, 3-10, 5-13 thru 5-17 & add Horizon Environmental, Appendix H	Midstream CRM
March 2019	19.03.1	Update QIs and miscellaneous revisions	ERAP-3, ERAP-5, ERAP-8, ERAP-9, ERAP-13, ERAP-21, ERAP-39, FWD-6, FWD-7, 1-7, 1-11, 2-2, 2-3, 2-8, Add directions to hospital behind Evacuation Diagram, 3-5, 3-6, 3-10, 3-18, 5-13, 5-17 & new LOIs, C-1, C-26, J-1 & EAP Pages 4, 6, 8, 9, App. B	Midstream CRM
August 2019	19.08.1	Personnel and miscellaneous revisions	ERAP-10, ERAP-16, ERAP-31, FWD-5, FWD-7, 2-8, 3-7, 3-13	Midstream CRM
June 2021	21.06.1	Addition of Bullet Tank and miscellaneous revisions	ERAP cover, ERAP-4, ERAP-5, ERAP-8 thru ERAP-42, FWD-3, FWD-7, 1-9 thru 1-13, 1-19 and replace plot plan, 3-5 thru 3-23, 5-17 & inserts, Appendix C, G-1 and replace plot plan	Midstream CRM

1.0 PURPOSE AND SCOPE

1.1 PLAN PURPOSE/OBJECTIVES

The purpose of this Integrated Contingency Plan ("Plan") is to assist the Galena Park Terminal ("Facility") personnel prepare for and respond quickly and safely to an incident at the Facility involving fires, explosions, or any planned or unplanned sudden or non-sudden release of petroleum products, hazardous materials, hazardous waste or hazardous waste constituents into air, soil, or surface water. The Plan provides techniques and guidelines for achieving an efficient, coordinated and effective response to an incident which may occur at the Facility.

The specific objectives of the Plan are to:

- Establish an Emergency Response Team, assign individuals to fill the positions on the team and define the roles and responsibilities of team members.
- Define notification, activation, and mobilization procedures to be followed when an incident occurs.
- Define organizational lines of responsibility to be adhered to during a response operation.
- Ensure compliance with certain federal, state, and local regulatory requirements. A summary of the applicable regulations addressed by this plan is provided in Section 1.5.
- Ensure consistency with the National Contingency Plan and Area Contingency Plan(s) for the area of operation.

1.2 FORMAT AND SCOPE OF PLAN

This Plan has been developed under the general guidance published in the Federal Register by the EPA entitled "The National Response Team's Integrated Contingency Plan" (61 FR 28642). The NRT guidance was developed in conjunction with the Environmental Protection Agency, Department of Transportation (U.S. Coast Guard, Research and Special Programs Administration, replaced by PHMSA), Department of the Interior (Minerals Management Service, replaced by BSSE), and the Department of Labor (Occupational Safety and Health Administration). This guidance also provides for state and local contingency planning requirements to be incorporated into the Plan.

This Plan contains prioritized procedures for the Facility personnel to mitigate or prevent any discharge resulting from operations. Facility spill mitigation procedures and response guidelines are provided in Section 4.0 for discharges that could result from any of the following scenarios:

- Tank overfill/failure
- Piping rupture/leak
- Explosion and/or fire
- Equipment failure (e.g. pumping system failure, relief valve failure, etc.)

1.2 FORMAT AND SCOPE OF PLAN (Cont'd)

These scenarios could result in the following discharge volumes:

Worst Case Discharge Planning Volumes		
EPA	**USCG**	**DOT PHMSA**
167,142 BBL	5,351 BBL	15,941 BBL (DOT Pipeline) 50,143 BBL (DOT Breakout Tank) 35 BBL (Largest Historical DOT Discharge)

The worst case discharge volume is utilized in calculating the planning volume for response resources. The planning volume is used to determine the necessary on-water recovery capacity to respond within the three tiered response times. The identified oil spill recovery devices should be capable of arriving at the scene of a discharge within the time specified in Appendix B. Appendix B of this Plan demonstrates a series of calculations and planning volume determinations based on the regulation. The inclusion of these calculations is for demonstration of the response planning volumes and response capability necessary for on-water and on-shore recovery requirements as the result of the discharge scenarios outlined in the table above.

1.3 PLAN DISTRIBUTION PROCEDURES

Distribution will be handled in the following manner:

- Distribution of the Plan is controlled by the number on the front cover. A List of Plan Holders is included in the Foreword to facilitate control.

- Company personnel who may be called upon to provide assistance during discharge response activities will have access to a copy of the Plan for their use and training.

- It is the responsibility of any person holding a copy of the Plan to ensure that the copy is transferred to their replacement in the event of reassignment or change in responsibility.

- The respective regulatory agencies will also be distributed a copy of the Plan as noted in the List of Plan Holders located in the Foreword.

1.4 PLAN REVIEW AND UPDATE PROCEDURES

Annual Review/Update

The Facility will coordinate the following Plan review and update procedures.

- At least once each year, review and make appropriate revisions as required by operational or organizational changes.

- At least once each year, review and make appropriate revisions as required by changes in the names and telephone numbers detailed in Section 3.0.

- Gulf Liquids EHS will coordinate the word processing, publication, and distribution efforts of completing the revisions and maintaining the Plan.

- Plan review opportunities may occur during Response Team Tabletop Exercises or actual emergency responses that includes:
  - Post-drill or incident evaluations
  - Follow-up changes to be implemented
  - Time table for implementation

Incorporation of Plan Revisions

The **Plan Holder,** immediately upon receipt of any revisions, shall:
- ***Review and insert the revised pages into the Plan.***
- Discard the obsolete pages.

Agency OPA 90 Requirements

The Facility shall revise and resubmit revised portions of the Plan for each change that may materially affect the response to a Worst Case Discharge, including:

CONDITIONS REQUIRING CHANGES	EPA	USCG	DOT PHMSA
A change in the facility's configuration that materially alters the information included in the	✔	✔	✔
A change in the type of oil (petroleum oil group) handled, stored, or transferred/ transported that materially alters the required response resources.	✔	✔	✔
A change in the name(s) or capabilities of the oil spill removal organization.		✔	✔
A material change in capabilities of the oil spill removal organization(s) that provide equipment and personnel to respond to discharges of oil.	✔		✔
A material change in the facility's spill prevention and response equipment or	✔	✔	✔

1.4 PLAN REVIEW AND UPDATE PROCEDURES (Cont'd)

Agency OPA 90 Requirements (Cont'd)

CONDITIONS REQUIRING CHANGES	EPA	USCG	DOT PHMSA
Any other changes that materially affect the implementation of the Plan.	✔	✔	✔
A change in the name of the Oil Spill Removal		✔	✔
A change in the listings of economically important or environmentally sensitive areas identified in the applicable ACP in effect six (6) months prior to the plan		✔	✔

- **EPA** – Requires any significant changes that materially may affect the response to a Worst Case Discharge to be submitted within 60 days of the change to the EPA's Regional Office [40 CFR 112.20(d)(1)]. If the Facility is a significant and substantial harm facility, EPA will review the Plan periodically (not to exceed five years). The Facility will submit non-material changes to EPA as the revisions occur.

- **USCG** - Revisions must be sent to the appropriate USCG Sector location in a timely manner. A full review of the plan must be conducted annually within 30 days prior to the previous plan approval letter from the COTP. The revisions should be accompanied by a cover letter containing a detailed listing of all revisions. If, during this annual review no revisions are required, the Facility will indicate the completion of the annual review on the Record of Revisions in Foreword.

- **DOT/PHMSA** - The Facility shall revise and resubmit significant changes to the Pipeline Response Plans Officer within 30 days. The operator will review the Plan in full at last every five years from the date of the last submission date and resubmit the Plan to the OPS. A complete plan must be submitted to PHMSA within this five year review period or whenever there are new or different operating conditions or information that would substantially affect the implementation of the plan. PHMSA may require revisions to this Plan at any time if deficiencies are found under their applicable regulations or during an actual response.

- **Timing for Submitting Revisions** - When submitting revisions to the applicable agencies, always include the Facility identification number (see the top of Figure 1.1) with the revisions. The applicable agencies require revisions to be submitted as follows if any of the changes fall into the categories listed above.

1.4 PLAN REVIEW AND UPDATE PROCEDURES (Cont'd)

OSHA Emergency Action Plan Elements (Section 1-3 and Appendix E) will be reviewed with each employee covered by the plan when:

- Plan is developed or employee is assigned initially to a job.
- Employee's responsibilities under the plan change,
- Plan is changed.

Amendment of EPA RCRA Contingency Plan Elements

- Changes requiring amendment may include:
  - Applicable regulations are revised.
  - Plan fails in an emergency.
  - The Facility changes – in its design, construction, operation, maintenance, or other circumstances (e.g. expansion, type or quantity of waste handled) – in a way that materially increases the potential for fires, explosions, or releases of hazardous waste, or hazardous waste constituents, or changes the response necessary in an emergency.
  - Emergency Coordinator(s) change.
  - Emergency Equipment List changes.

1.5 REGULATORY COMPLIANCE

The development, maintenance, and utilization of this Plan implements company policy and addresses the following regulatory requirements and guidelines:

- Federal Oil Pollution Act of 1990: U.S. EPA Final Rule for Non-Transportation Related On-shore Facilities as published in 40 CFR Part 112.20.
- Federal Oil Pollution Act of 1990: U.S. Coast Guard Final Rule for Marine Transportation Related Facilities as published in 33 CFR Part 154.
- Federal Oil Pollution Act of 1990: U.S. DOT Final Rule for Transportation Related On-shore Facilities as published in 49 CFR 194.
- U.S. EPA Resources Conservation and Recovery Act (RCRA) Regulation as published in 40 CFR Part 265.50-265.56.
- OSHA's Emergency Action Plan Regulation as published in 29 CFR 1910.38(a).
- OHSA's Emergency Response Plan as published in 29 CFR 1910.120(q)(1-2).
- Texas General Land Office: Discharge Prevention and Response Plan as published in 31 TAC 19.13.

1.5 REGULATORY COMPLIANCE (Cont'd)

This Plan is consistent with the most recent version of the applicable Area Contingency Plans (ACPs). The applicable ACPs for the Facility are:

- US Environmental Protection Agency - Region VI, Regional Integrated Contingency Plan
- U.S. Coast Guard – Central Texas Coastal Zone Area Contingency Plan

This Plan is consistent with the most recent version of the National Contingency Plan (NCP). The NCP for the Facility is:

- U.S. Environmental Protection Agency; National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule.

FIGURE 1.1

INFORMATION SUMMARY

Kinder Morgan Galena Park Terminal	
Facility Name / Location:	Galena Park Terminal 906 Clinton Drive Galena Park, Texas 77547 (713) 254-4023 (24 Hr.) (713) 472-7660 (Fax)
EPA FRP ID#	FRP-06-TX-00024
USCG Facility ID #: **MISLE**:	HOUWF042 6227455
DOT OPS Tracking #:	1506
Lat / Long:	29° 43' 56" N / 95° 13' 34" W
County:	Harris
Maps / Diagrams:	Area Location Map Provided in Figure 1.2 Facility Diagram Provided in Figure 1.3.
Landside Directions:	From George Bush Intercontinental Airport: Head west on N Terminal Rd. Slight right onto John F Kennedy Blvd. Merge onto North Sam Houston Pkwy E E/Sam Houston Tollway E/Texas 8 Beltway E via the ramp on the left to US-59 E. Take the exit onto U-59 S toward Houston, Take the exit onto I-610 E. Take exit 28 for Clinton Dr. Turn left onto Clinton Dr. (Destination will be on the right.) From William P Hobby Airport: Head northeast on Hobby Airport Loop. Continue onto Broadway St. Turn right onto Bellfort St. Turn left onto Gulf Fwy. Take the ramp on the left onto I-45 N. Take exit 40B to merge onto I-610 E toward TX-225/Pasadena. Take exit 28 for Clinton Dr. Turn right onto Clinton Dr. Make a U-Turn. (Destination will be on the right.)
Waterside Directions:	From the 610 bridge on Buffalo Bayou, proceed east 2.89 miles to the location. The Facility dock is immediately east of Panther Creek before reaching the Washburn Tunnel.

FIGURE 1.1

INFORMATION SUMMARY

Kinder Morgan Galena Park Terminal (Cont'd)	
Certification:	The Company grants full authority to the designated Qualified and Alternate Qualified Individuals to implement the Facility Response Plan and to: ● Activate and engage in contracting with oil spill removal organizations, ● Act as liaison with the pre-designated Federal On-Scene Coordinator (FOSC), and ● Obligate funds required to carry out response activities. The Company certifies that the Plan meets the requirements of subpart F of part 154.
Wellhead Protection Area:	No (Source, Sean Ables, TCEQ, at 512-239-1758)
Date of Facility Start up:	1935
24 Hour Contact Information:	See below (Qualified Individual)

FIGURE 1.1

INFORMATION SUMMARY

Kinder Morgan Galena Park Terminal (Cont'd)

Dates and Types of Substantial Expansion:

1933	GATX purchased Central Plant property from Texaco (approximately 70 tanks)
1960	Dale Moore Annex (West Plant) was purchased; GATX has since built 78 tanks in the West Plant.
1982	1 North and East Plants were purchased for Texaco (13 Tanks)
1998	Constructed (4) 100,000 BBL tanks in East Plant for oil storage
2001	Kinder Morgan purchased GATX Terminals Corporation (domestic operations).
2002	Demolished 3- 80,000 BBL and 2 118,000 BBL tanks. Constructed 2 – 90,000 BBL and 2-100,000 BBL tanks
2006	Constructed 2- 100,000 BBL tanks, 8 tanks central plant
2007	Constructed (2) 100,000 BBL tanks West Plant
2008	Constructed (7) 100,000 BBL tanks East Plant, Constructed manifold # 33 and began first half of # 3400 manifold, Constructed # 4 ship dock
2009	Constructed (7) 150,000 BBL tanks East Plant, Constructed manifold # 3500 and completed second half of # 3400 manifold, Constructed # 3 Barge dock, Construction begun on (1) 125,000 BBL tank West Plant
2010	Completed construction of 125-1
2010	Added # 3 Barge Dock fire pump
2010	Demolished waste water tank 5-20
2011	Constructed (1) 15,000 BBL tank 15-3
2012	Demolished Tank 7, 80,000 BBL Tank.
2013	Begin construction (5) – 150,000 BBL tanks
2014	Installed five (5) 150,000 bbl. tanks
October 2014	Installed first of 9-1 tanks
February 2015	Purchased Vopak
March 2015	Last of 9 tanks installed
Sep 2015	Tank 100-20 in Service
Aug 2016	New section on VCU's added and expansion to increase max loading rates across KM Docks to Marine VCU's.
June 2021	Added Butane Sphere

FIGURE 1.1

INFORMATION SUMMARY

Kinder Morgan Galena Park Terminal (Cont'd)	
Number of Oil Storage Containers	**Maximum Oil Storage Capacity**
265 (Aboveground Storage Tanks)	439,145,011 (Gal)(Aboveground Storage Tanks)
3 (Drum/Tote Storage Areas)	165 (Gal)(Drum/Tote Storage Areas)
0 (Buried Storage Tanks)	0 (Gal)(Buried Storage Tanks)
62 (Manufacturing and Operational)	3,300 (Gal)(Manufacturing and Operational)
0 (Surface Impoundments)	0 (Gal)(Surface Impoundments)

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Kinder Morgan Galena Park Terminal (Cont'd)	
Owner / Operator	
Owner: Kinder Morgan Liquid Terminals LLC 1001 Louisiana St., Suite 1000 Houston, Texas 77002 (713) 369-9000	**Operator:** Kinder Morgan Liquid Terminals LLC 906 Clinton Drive Galena Park, Texas 77547 (713)-254-4023
Dun and Bradstreet Number: 035123850	**NAICS Code:** 493190
Qualified Individuals*	
Qualified Individual: Alex Rendon Operations Director Office: (346) 352-5923 Cell: (281) 678-4653 Training: ICS Training	***Alt. Qualified Individual:*** Corey McGuire Operations Manager Office: (713) 654-6042 Cell: (832) 963-4373 Training: ICS Training
Environmental Sensitivities and Waterways	
Distance to Navigable Water: 0 – ¼ mile ✓ ¼ – ½ mile ____ ½ - 1 miles ____ > 1 mile ____	
Nearest Protected Waterway or Environmentally Sensitive Area: Houston Ship Channel (Buffalo Bayou)	

**Home addresses and phone numbers for QIs and AQIs not listed in this Plan for security reasons.*

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Description of Operations (EPA)

Description of Operation:

- Bulk liquid product is transported into the terminal facility via tank truck, railcar, pipeline, barge or ship. It is unloaded dockside through pipelines leading directly to the storage tanks. The product is transported from the facility via tank truck, railcar, pipeline, barge or ship.
- The Facility is a bulk refined petroleum product storage terminal.
- The number and volumes of tanks at the facility are identified in Appendix C.
- The facility utilizes five (5) ship and three (3) barge docks.
- The Facility operates 24 hours per day, seven days per week.
- The Facility's Worst Case Discharge amount: 167,142 Bbls (EPA)

Date of Initial Storage: 1935

Products Handled:

- Petroleum Products (Oil Groups 1-3)

Note: All facility SDS located and maintained online: http://kmonline/ehs/Pages/sdsvault.aspx

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Description of Operations (USCG)

General Operation:

The Galena Park Terminal is a bulk liquid storage terminal. The terminal stores a variety of refined petroleum products in large, above ground storage tanks. The Kinder Morgan Pasadena Terminal utilizes six (6) docks as follows: Ship Dock #1, #2, #3, and #4 and #5 Docks #2 and #3.

Dock Details:

Maximum loading rate to a vessel: 10,000 bph

The following table describes the type and maximum size of vessels which can call on each dock.

Dock Name/Number	Type of Vessel	Number and Maximum Size of Vessel
S/D #1	Cargo Ship	1-750' Ship
	Tank Ship	1-300' Barge
	Tank Barge	2-300' Barges
S/D #2	Cargo Ship	1- 850' Ship
	Tank Ship	2- 300' Barges
B/D #2	Tank Barge	4-300' Barges
S/D #3 B/D #1	Cargo Ship	1- 850' Ships
	Tank Ship	2- 300' Barges
	Tank Barge	2-300' Barges
B/D #3	Tank Barge	2- 300' Barges
S/D #4	Cargo Ship	1- 750' Ship
	Tank Ship	1- 750' Ship
S/D #5	Tank Barge	1 – 750' Barge
	Cargo Ship	1 – 850' Ship

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Description of Operations (DOT PHMSA)

General Information:

- This Plan is written in English and understood by personnel responsible for carrying out this plan.
- The Galena Park Terminal is a Single Response Zone located in Harris County, Texas.

Line Section ID	Length	Diameter	Product	County	State
16" LCRC	1,056'	16"	Refined Product	Harris	Texas
8" ARCO	1,056'	8"	Refined Product	Harris	Texas
KMET 3100	2,112	20"	Refined Product	Harris	Texas
KMET 3400	2,112	20"	Refined Product	Harris	Texas

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Description of Operations (DOT PHMSA) (Cont'd)

Breakout Tank	Capacity	Product	County	State
12-30	504,000	Transmix	Harris	TX
15-1	630,000	Transmix	Harris	TX
15-3	630,000	Transmix	Harris	TX
80-9	3,360,000	Naphtha	Harris	TX
80-10	3,360,000	Iso-Octane Pure	Harris	TX
80-11	3,360,000	High Sulfur Nat Gas	Harris	TX
80-12	3,360,000	Biodiesel	Harris	TX
80-13	3,360,000	Naphtha	Harris	TX
80-14	3,360,000	Iso-Octane	Harris	TX
80-15	3,360,000	Gasoline Blendstock	Harris	TX
80-16	3,360,000	Alkylate	Harris	TX
80-17	3,360,000	Reformate	Harris	TX
80-18	3,360,000	HPG	Harris	TX
80-19	3,360,000	Mixed Xylene	Harris	TX
90-1	3,780,000	Alkylate	Harris	TX
90-2	3,780,000	Alkylate	Harris	TX
100-1	4,200,000	MTBE	Harris	TX
100-2	4,200,000	Gas Blend Spring	Harris	TX
100-3	4,200,000	Alkylate	Harris	TX
100-4	4,200,000	MTBE	Harris	TX
100-5	4,200,000	Alkylate	Harris	TX
100-6	4,200,000	Light Naphtha	Harris	TX
100-7	4,200,000	ULSD	Harris	TX
100-8	4,200,000	ULSD	Harris	TX
100-9	4,200,000	Alkylate	Harris	TX
100-10	4,200,000	Gasoline Blendstock	Harris	TX

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Description of Operations (DOT PHMSA) (Cont'd)

Breakout Tank	Capacity	Product	County	State
100-11	4,200,000	Alkylate	Harris	TX
100-12	4,200,000	Alkylate	Harris	TX
100-13	4,200,000	Gasoline Blendstock	Harris	TX
100-14	4,200,000	Gasoline Blendstock	Harris	TX
100-15	4,200,000	Cat Gasoline	Harris	TX
100-16	4,200,000	Naphtha	Harris	TX
100-17	4,200,000	Gasoline Blendstock	Harris	TX
100-18	4,200,000	Gasoline Blendstock	Harris	TX
100-19	4,200,000	Naphtha	Harris	TX
100-25	4,200,000	Gasoline Blendstock	Harris	TX
100-26	4,200,000	Gasoline Blendstock	Harris	TX
100-27	4,200,000	Gasoline Blendstock	Harris	TX
100-28	4,200,000	Gasoline Blendstock	Harris	TX
125-1	5,250,000	Light Naphtha	Harris	TX
144-1	6,048,000	Natural Gasoline	Harris	TX
150-101	6,300,000	Gasoline Blendstock	Harris	TX
150-102	6,300,000	Conventional Gas	Harris	TX
150-103	6,300,000	Alkylate	Harris	TX
150-104	6,300,000	Gasoline Blendstock	Harris	TX
150-105	6,300,000	Naphtha	Harris	TX
150-106	6,300,000	Raffinate	Harris	TX
150-107	6,300,000	Alkylate	Harris	TX
150-108	6,300,000	Gasoline Blendstock	Harris	TX
150-109	6,300,000	Gasoline Blendstock	Harris	TX
150-110	6,300,000	Unleaded Regular Gas	Harris	TX
150-111	6,300,000	Raffinate	Harris	TX
150-112	6,300,000	Reformate	Harris	TX

FIGURE 1.1

INFORMATION SUMMARY (Cont'd)

Description of Operations (DOT PHMSA) (Cont'd)

Breakout Tank	Capacity	Product	County	State
150-113	6,300,000	Light Naphtha	Harris	TX
150-114	6,300,000	Unleaded Regular Gas	Harris	TX
150-115	6,300,000	Alkylate	Harris	TX
150-116	6,300,000	Gasoline Blendstock	Harris	TX
150-117	6,300,000	Gasoline Blendstock	Harris	TX
150-118	6,300,000	Gasoline Blendstock	Harris	TX
150-119	6,300,000	Gasoline Blendstock	Harris	TX
150-120	6,300,000	Gasoline Blendstock	Harris	TX
150-121	6,300,000	Gasoline Blendstock	Harris	TX
187-1*	7,019,964	Iso-Octane	Harris	TX

* Worst Case Discharge

FIGURE 1.2

AREA MAP

Galena Park Terimnal General Facility Overview Map

Kinder Morgan Galena Park Terminal
General Facility Overview Map
Intergrated Contingency Plan

KINDER MORGAN

The Response Group
Emergency Response | Pre-Planning & Support
281-880-5000

Scale: 1:12,500

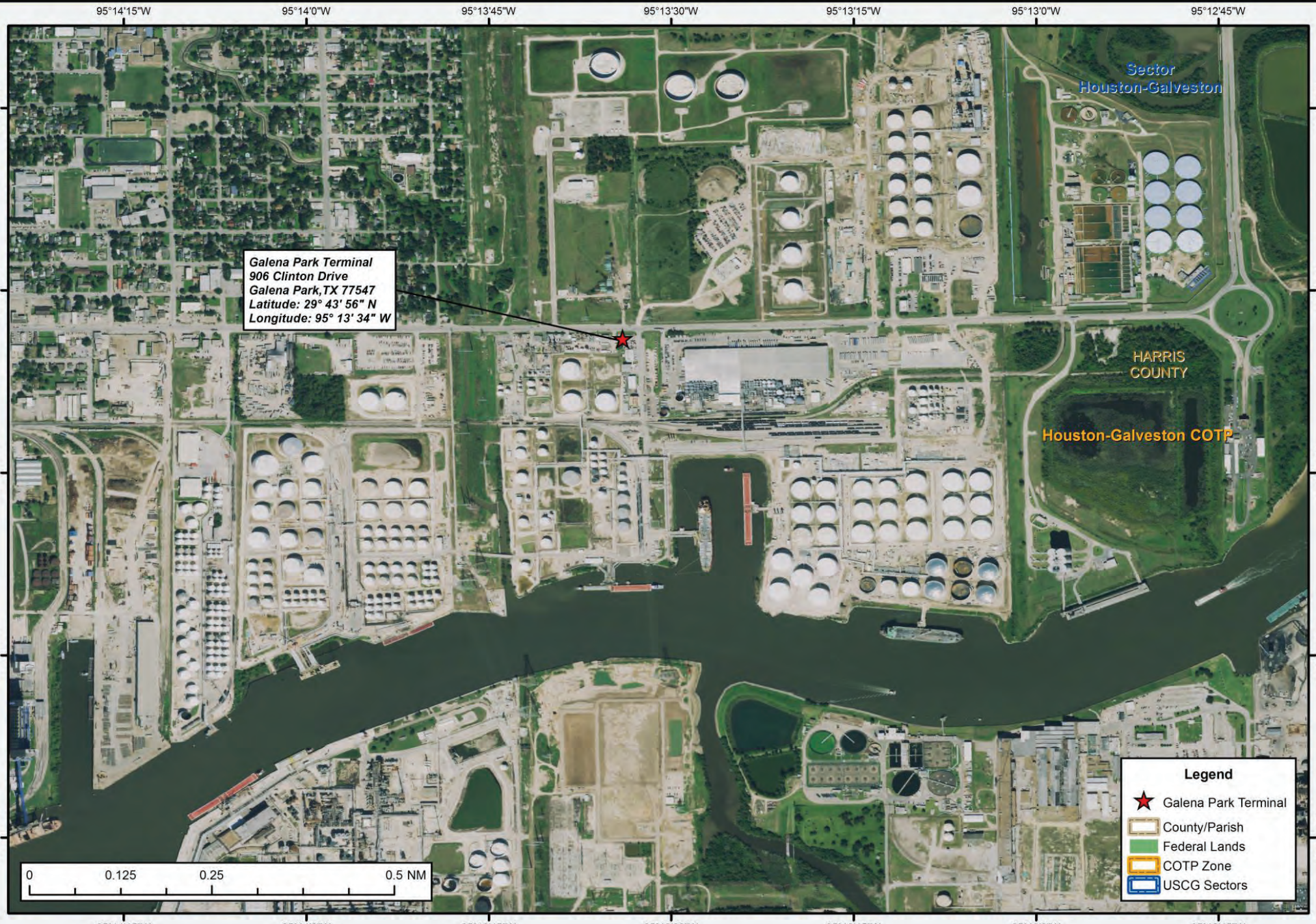


FIGURE 1.3

FACILITY DIAGRAMS

Site Plan Diagram

Galena Park Terminal Plot Plan (88-EHS-0197)

Site Drainage Diagram

Galena Park Terminal Drainage System (GP-50-213-PP-102)

Galena Park Terminal Drainage System (GP-50-213-PP-102E)

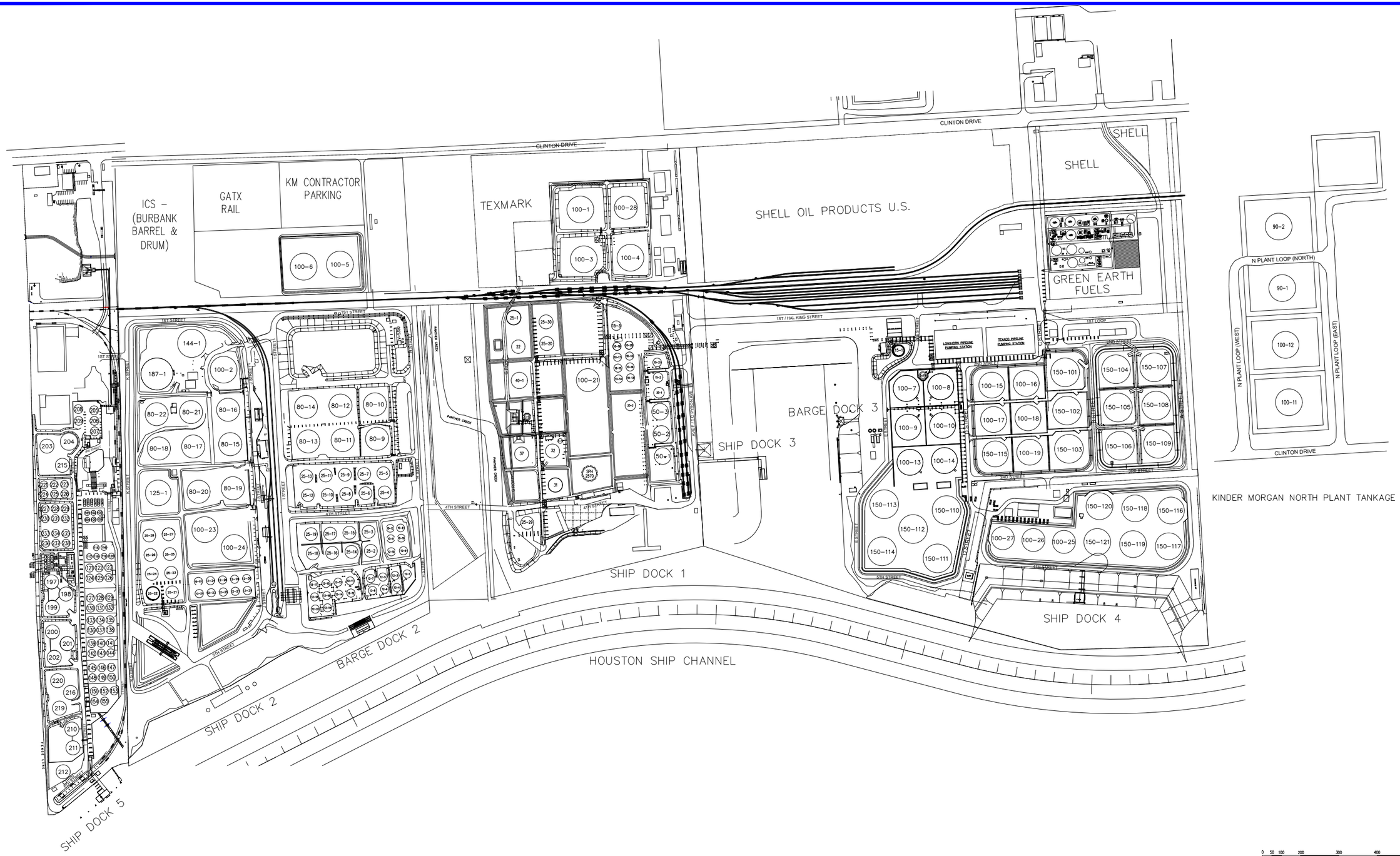
Galena Park Terminal Drainage System (GP-50-213-PP-102N)

Galena Park Terminal Drainage System (GP-50-213-PP-102C)

Galena Park Terminal Drainage System (GP-50-213-PP-102S)

Site Evacuation Diagram

Galena Park Plot Plan (88-FPP-CIMA)



KINDER MORGAN NORTH PLANT TANKAGE

0 50 100 200 300 400 500

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

& WEST CHEMICAL PLANT

PRO. REV.	PRO. NO.	
2		
PRO. DATE	PRO. INSPECTOR	PRO. MANAGER

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		2	ADDED KERERA & EASTON C5 TANKS	06–23–21	JLM	RK	LL
		1	IMPORTED TO EDMS SYSTEM	09–23–16	JLM	JGO	RJH
		B	ADDED ROAD NAMES	06–06–17	JLM	JG	RJH
		A	ISSUED FOR REVIEW	03–17–15	JLM	RJH	RJH

KINDER MORGAN

DRAWN J L MORRIS

CHECKED RJH

APPROVED RJH PROJ. ENGR.

APPROVED RJH REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

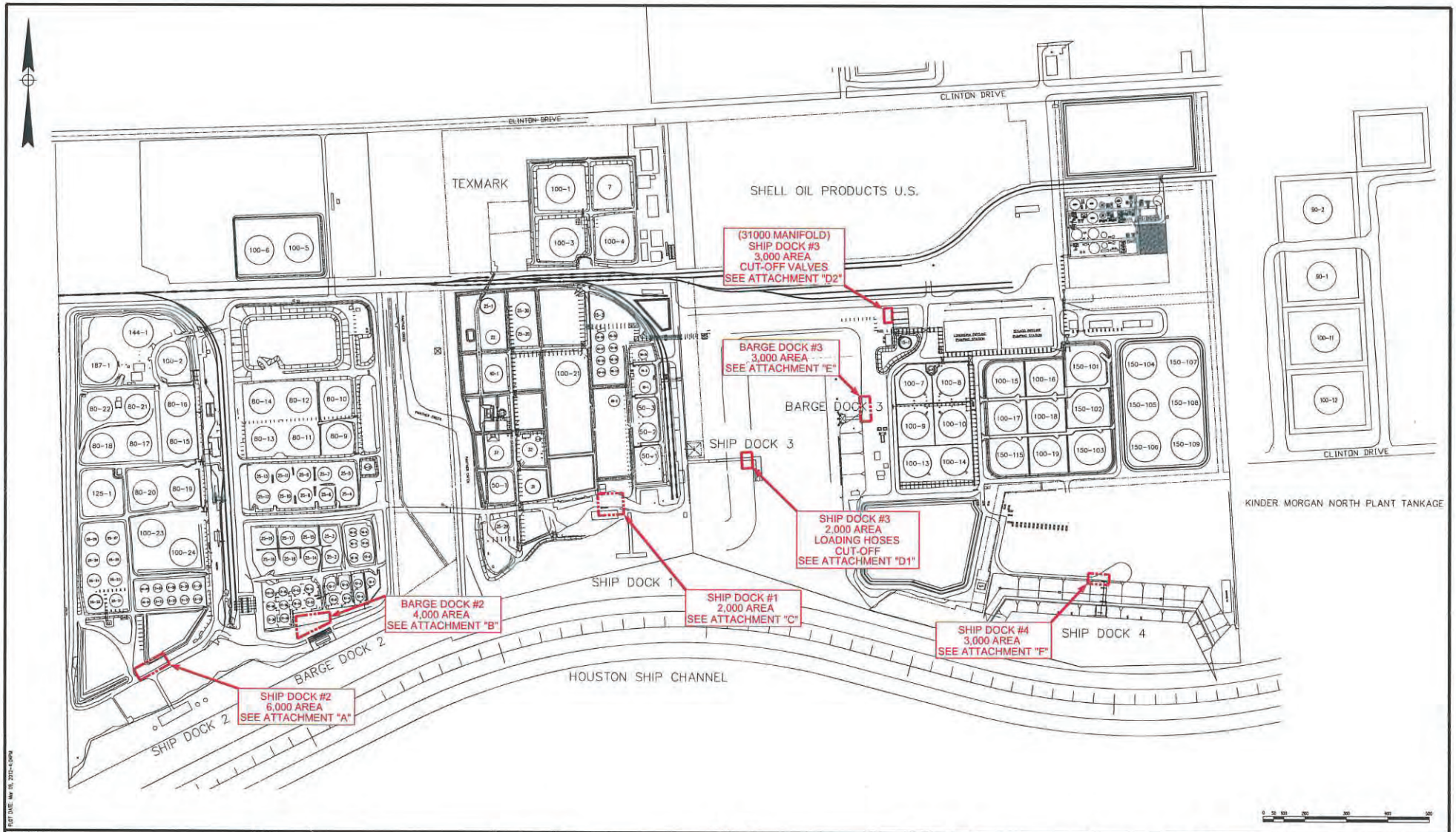
GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

& WEST CHEMICAL PLANT

DWG. NO.		REV. NO.
88–EHS–0197		2
SCALE	TERMINAL	DATE
NONE	88	03–17–15



PLOT DATE: May 09, 2012-4:04PM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		A	ISSUED FOR REVIEW	03-09-12	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED PROJ. ENGR.
APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

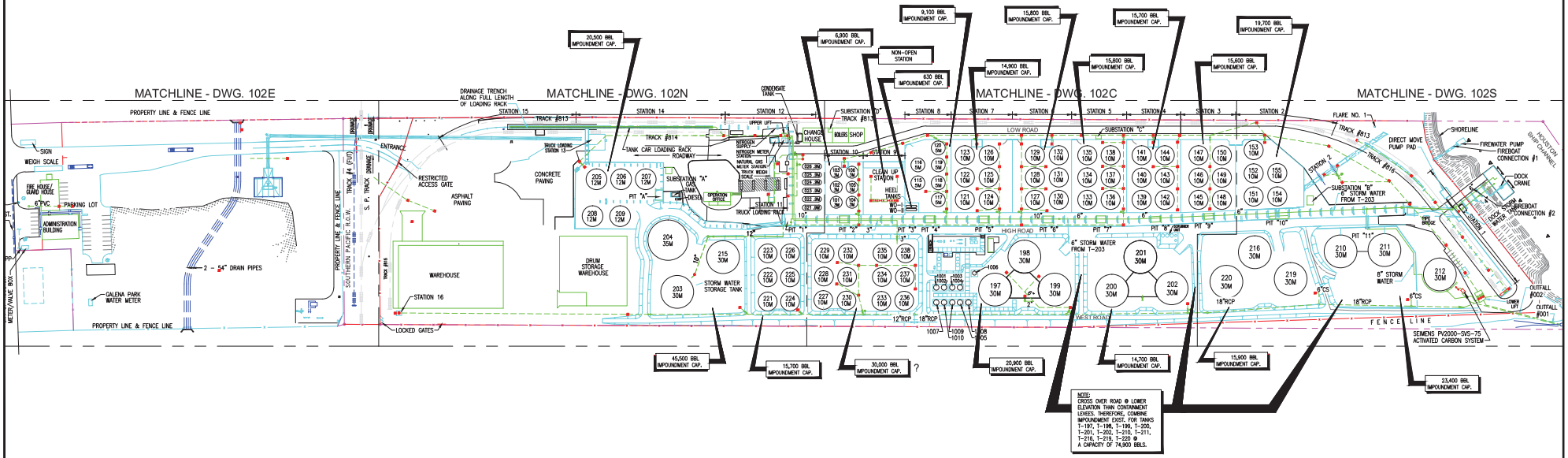
PLOT PLAN

US COAST GUARD – JURISDICTIONAL SYSTEMS

906 CLINTON DRIVE, GALENA PARK, TEXAS 77547

DWG. NO. 88-MS-0157

SCALE NONE | TERMINAL 88 | DATE 03-09-2012



LEGEND

- FUTURE TANKAGE
- DRAINAGE SYSTEM LINES
- DRAINAGE SYSTEM FORCE MAIN
- CB CATCH BASIN
- P PUMP

No.	Revision	Date	By	App.
B	REVISED IMPOUNDMENT CAPACITIES & ADDED OUTFALL #002	[illegible]	J.M.	A.B.
A	ISSUED FOR APPROVAL	[illegible]	J.M.	A.B.

Drawing Number	Reference Drawings
102E	DRAINAGE SYSTEM – ENTRY SECTION
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 8602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By: J.MACIAS Date: 11-07-05 Project Manager: A. BRALY Date:

Checked By: A. BRALY Date: Approved by: Date:

Engineer Job No.: 1630-Vd Vopak Engineer: A. BRALY Date:

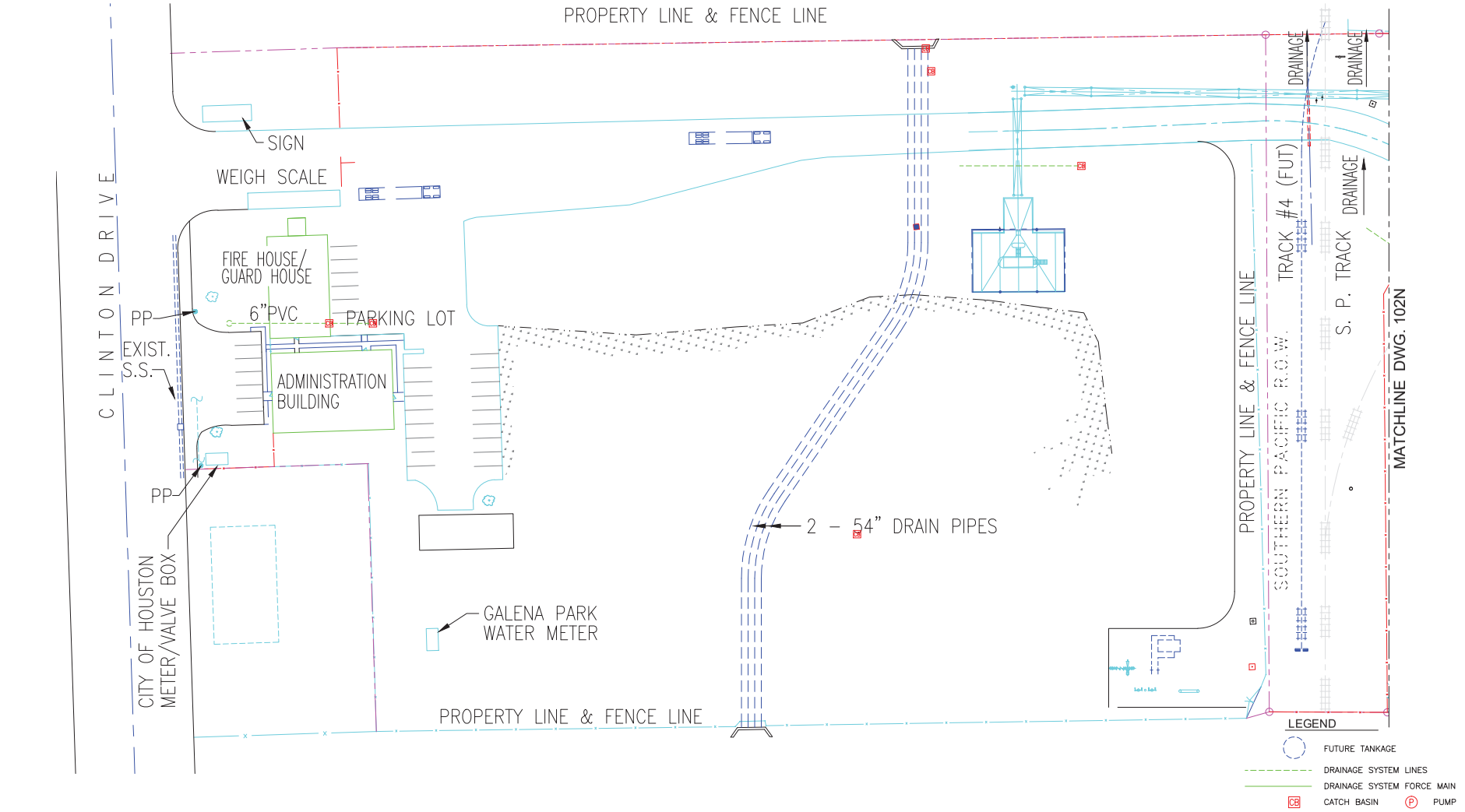
Vopak

GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: OVERALL SITE PLAN

Drawing Scale: 1" = 100.0' Graphic Scale: 0 50 100 Drawing Number: GP-50-213-PP-102-Rev 1



No.	Revision	Date	By	App.
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 9602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By:	Date:	Project Manager:	Date:
J.MACIAS	10-25-05	A. BRALY	
Checked By:	Date:	Approved by:	Date:
A. BRALY	10-25-05		
Engineer Job No.:		Vopak Engineer:	Date:
1630-Vd		A. BRALY	

Vopak

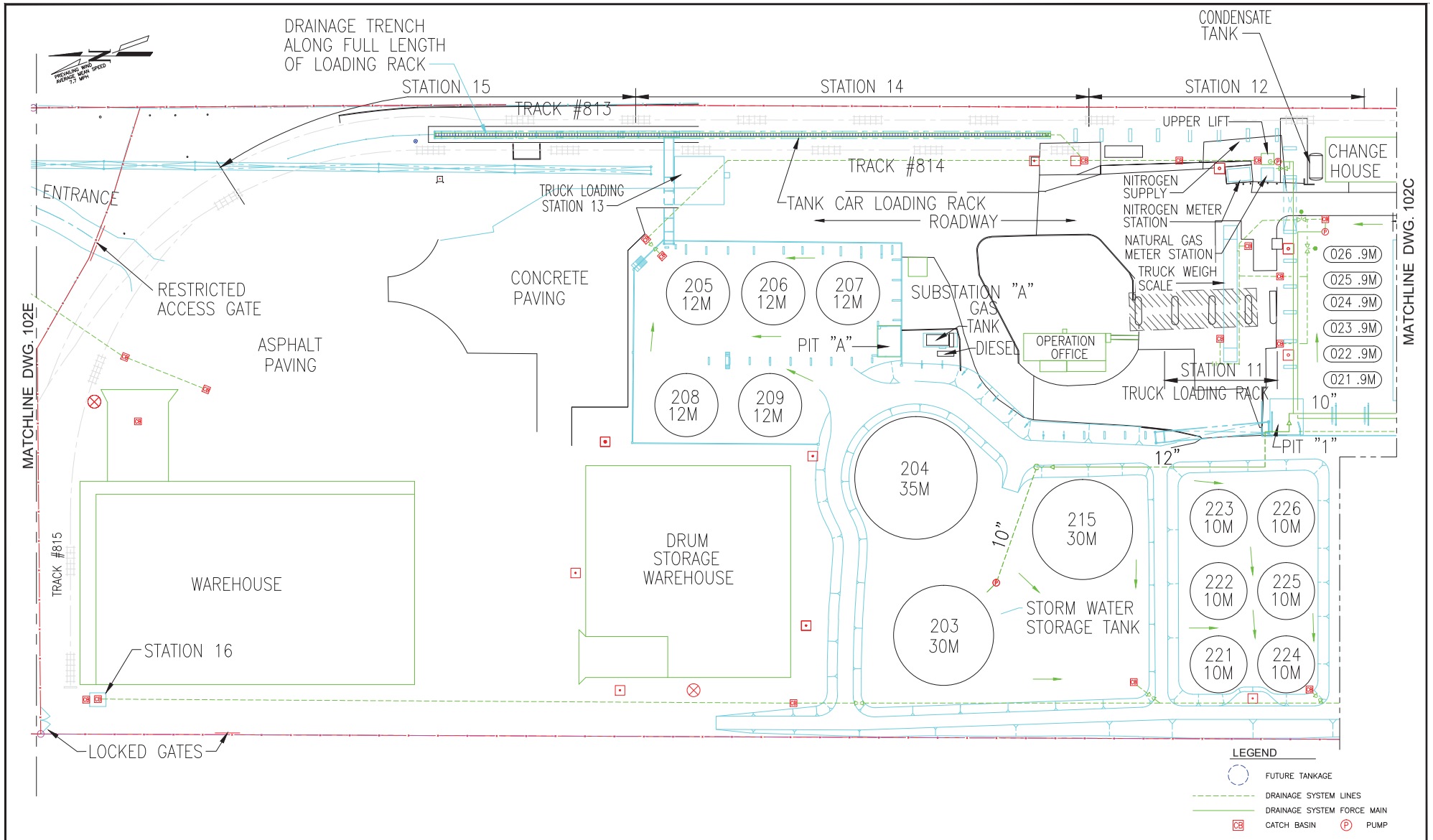
GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL ENTRY SECTION

Drawing Scale: 1" = 30.0' Graphic Scale: 30 0 60

Drawing Number: GP-50-213-PP-102E-Rev A



No.	Revision	Date	By	App.
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102E	DRAINAGE SYSTEM – ENTRY SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 9602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By: J.MACIAS | Date: 11-03-05 | Project Manager: A. BRALY | Date:

Checked By: A. BRALY | Date: | Approved by: | Date:

Engineer Job No.: 1630-Vd | Vopak Engineer: A. BRALY | Date:

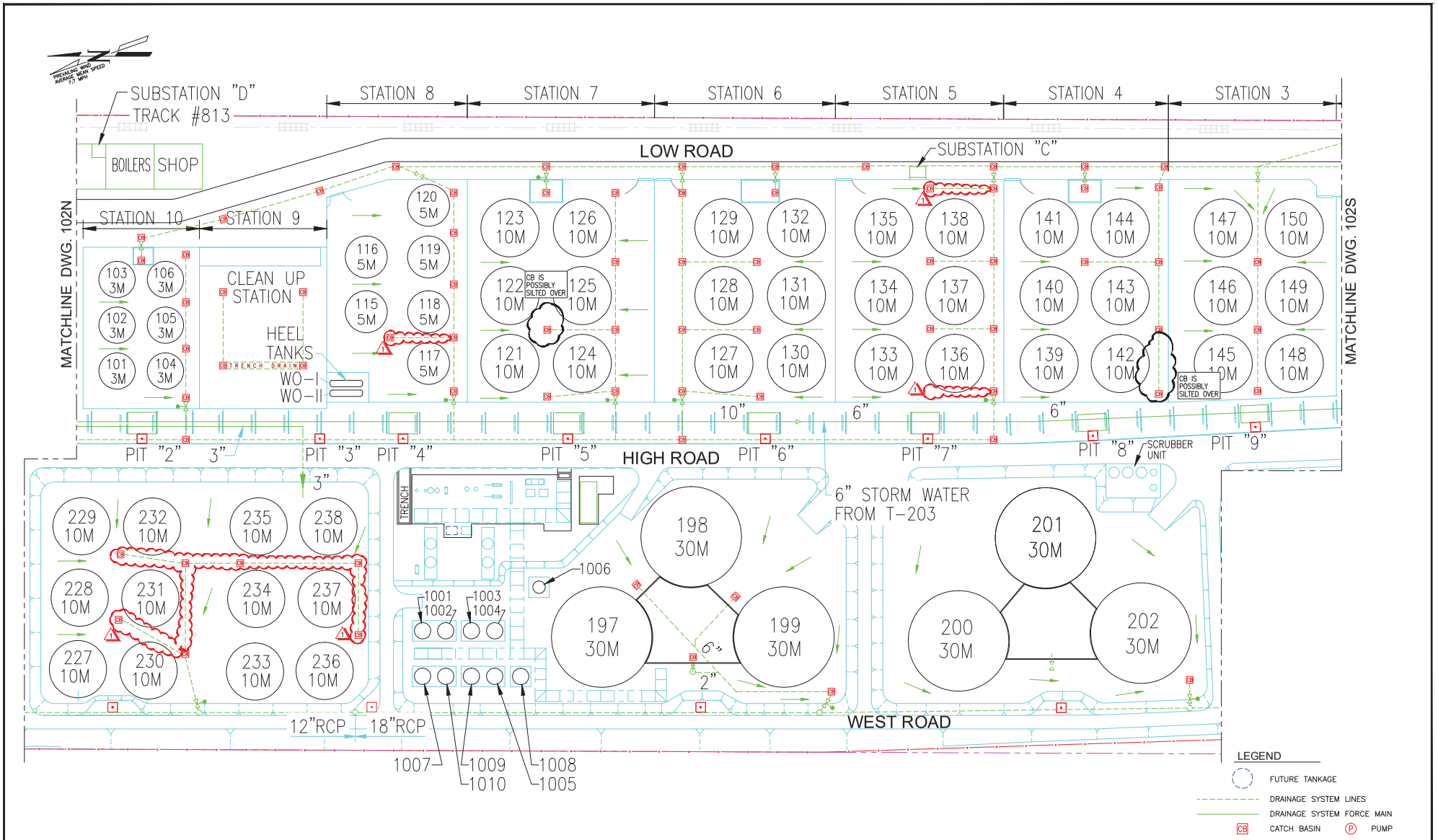
Vopak

GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL NORTHERN SECTION

Drawing Scale: 1" = 30.0' | Graphic Scale: 30 0 30 60 | Drawing Number: GP-50-213-PP-102N-Rev A



No.	Revision	Date	By	App.
1	ADDED CATCH BASINS & DRAINAGE LINES, REMOVED 1 C.B.			
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102E	DRAINAGE SYSTEM – ENTRY SECTION
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102S	DRAINAGE SYSTEM – SOUTHERN SECTION

Engineer:

Design By: H & M DESIGN, INC. 8602 Spencer Highway La Porte, Texas 77571 Ph # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By:	Date:	Project Manager:	Date:
J.MACIAS	11-3-05	A. BRALY	
Checked By:	Date:	Approved by:	Date:
A. BRALY			
Engineer Job No.:		Vopak Engineer:	Date:
1630-Vd		A. BRALY	

Vopak

GALENA PARK TERMINAL, INC.

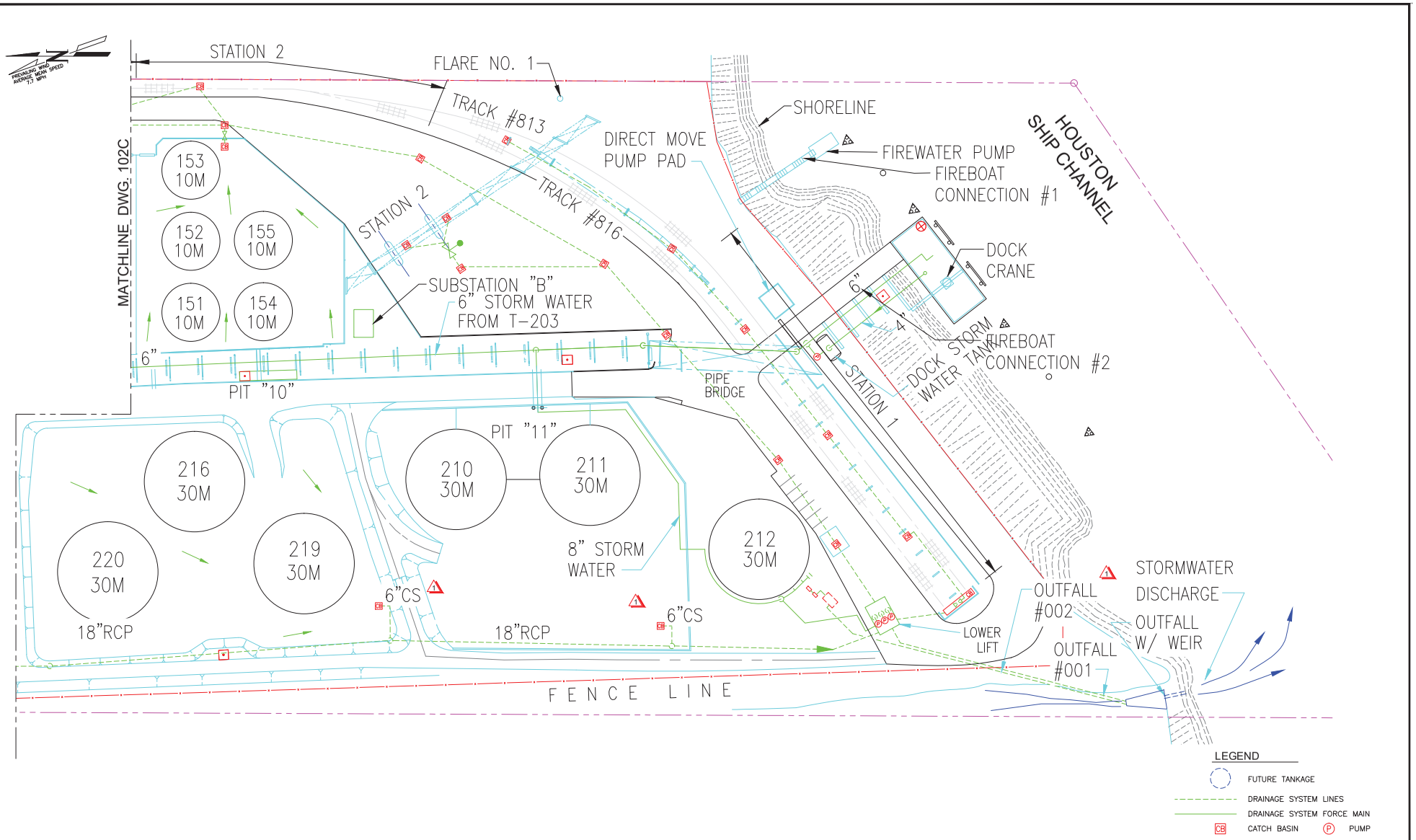
Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL CENTRAL SECTION

Drawing Scale: 1" = 30.0'

Graphic Scale: 30 0 30 60

Drawing Number: GP-50-213-PP-102C-Rev 1



No.	Revision	Date	By	App.
A	ISSUED FOR APPROVAL		J.M.	A.B.

Drawing Number	Reference Drawings
102	DRAINAGE SYSTEM – OVERALL
102E	DRAINAGE SYSTEM – ENTRY SECTION
102N	DRAINAGE SYSTEM – NORTHERN SECTION
102C	DRAINAGE SYSTEM – CENTRAL SECTION

Engineer:

Design By: H & M DESIGN, INC. 9602 Spencer Highway La Porte, Texas 77571 Ph. # (281) 930-8750 Fax # (281) 930-8711 E-mail: hm@hmdesigninc.com

Drawn By: J.MACIAS | Date: 11-3-05 | Project Manager: A. BRALY | Date:

Checked By: A. BRALY | Date: | Approved by: | Date:

Engineer Job No.: 1630-Vd | Vopak Engineer: A. BRALY | Date:

Vopak

GALENA PARK TERMINAL, INC.

Project Title: DRAINAGE SYSTEM

Drawing Title: SITE PLAN - TERMINAL SOUTHERN SECTION

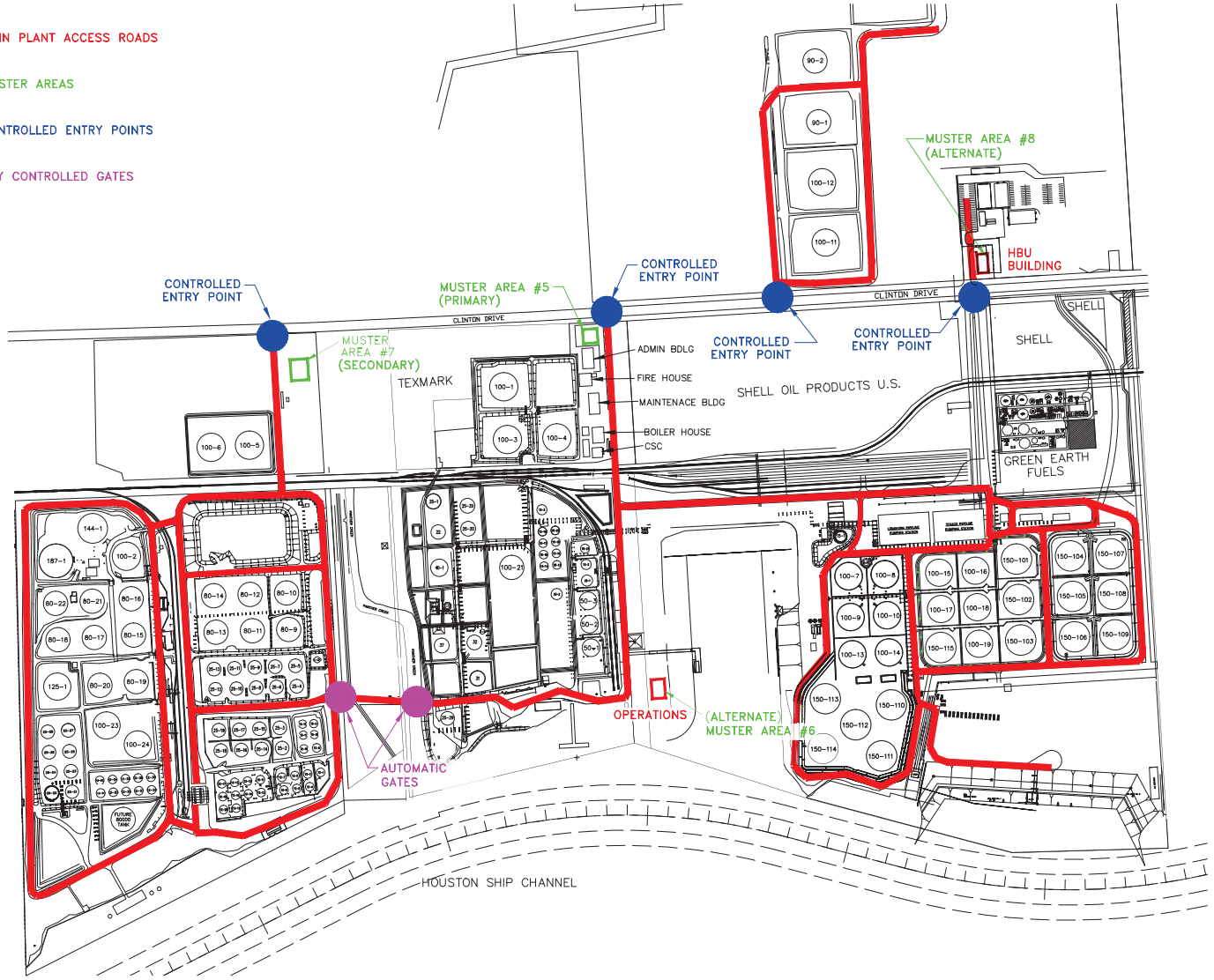
Drawing Scale: 1" = 30.0' | Graphic Scale: 30 0 60 | Drawing Number: GP-50-213-PP-102S-Rev A

MAIN PLANT ACCESS ROADS

MUSTER AREAS

CONTROLLED ENTRY POINTS

KEY CONTROLLED GATES



WHEN ALARM SOUNDS :

1. STOP ALL WORK.
2. SHUT DOWN VEHICLES AND EQUIPMENT.
3. WAIT FOR INSTRUCTIONS.

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		A	GENERAL UPDATES	06-14-13	JLM	MG	MN

KINDER MORGAN

DRAWN S. MARTIN
CHECKED AC
APPROVED PROJ. ENGR.
APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL AND WEST PLANTS

EVACUATION ROUTES

DWG. NO. 88-FPP-CIMA

SCALE NTS | TERMINAL 88 | DATE 12-14-10

2.0 DISCOVERY

2.1 DISCOVERY PROCEDURES

The following actions are taken by personnel immediately upon becoming aware of a discharge or emergency incident, before the Emergency Response Team (ERT) (described in Section 5.0) is formed and functioning. Timely implementation of these initial steps is of the utmost importance because they can greatly affect the overall response operation.

Initial Response Actions to Consider

INITIAL RESPONSE ACTIONS – SUMMARY[1]

Personnel and Public Safety is first priority

1) Warn personnel – Enforce safety and security measures.

2) Stop the product flow – Secure pumps, close valves, etc. remotely (not within spill area).

3) Eliminate sources of ignition - Shut off motors, electrical circuits, open flames, etc. and isolate sources of ignition.

4) Initiate containment – Activate Fire Department and/or OSRO, as necessary, to respond to fire and/or begin active containment measures.

5) Notify National Response Center – EHS Representative typically makes agency notifications.

6) Notify other agency notifications – EHS Representative typically makes agency notifications.

7) Notify other Internal and/or External, as appropriate.

[1] Recommended form detailing immediate actions from Appendix F to 40 CFR Part 112, Section 1.7.1.2A.

Timely implementation of these initial steps is of the utmost importance because they can greatly affect the overall response operation.

It is important to note that these actions are intended only as guidelines. The appropriate response to a particular incident may vary depending on the nature and severity of the incident and on other factors that are not readily addressed. Note that, without exception, personnel and public safety is first priority.

2.2 EMERGENCY/INCIDENT CLASSIFICATION

It is important to properly classify the emergency level to ensure a proper response. The emergency level of the incident will affect the notifications and the initial response to the incident.

2.2.1 Level 0 Response

A Level 0 response is an event that:

- Requires immediate response by the Emergency Response Team but does not result in any injuries
- Involves little or no property damage
- Has little or no environmental impact
- Attracts no media attention
- Requires only routine or no reporting to regulatory agencies
- Is easily handled by the Emergency Response Team

A Level 0 response however, could develop into a Level 1 or Level 2 response if not immediately controlled (see Figure 2.1).

2.2.2 Level 1 Response/Emergency Response Line (ERL) Conference Call

A Level 1 response is a more significant event that may:

- Involve injuries to an employee, contractor or the general public
- Result in property damage greater than $5,000
- Involve a fire, explosion or environmental impact
- Involve local media attention
- Likely be reportable to some federal, state or local agencies

For the most part, Level 1 responses are within the capability of Emergency Response Team, but may require certain corporate resources to help mitigate the problem or conduct subsequent investigations. A Level 1 response can quickly escalate to a Level 2 response if not mitigated (see Figure 2.1).

2.2 EMERGENCY/INCIDENT CLASSIFICATION (Cont'd)

2.2.3 Level 2 Response/ERL Plus Conference Call

A Level 2 response is a major event that may include:

- Fatalities or serious injuries to employees or the public
- Extensive property damage or environmental impact
- Regional or national media attention
- Involvement of federal regulatory agencies.

Response to a Level 2 or Level 3 response requires significant additional resources/support beyond what may be locally available.

FIGURE 2.1

RESPONSE LEVELS

Level 0	Level 1	Level 2
No regulatory notification is required	Unplanned notification of a local, state or federal agency is required Un-permitted or un-scheduled release of product, other material or substance, or chemical spill that requires reporting to a governmental agency	
No continuing or potential harm to human life or property Involves (or potentially involves) the occurrence of an "Abnormal Operation" on the pipeline system Involves customer concerns with a low impact	Any product or chemical release, harmful substance or threatened release, into a river, stream, creek, pond or other water body Evacuations or unplanned road closures that result in significant impact to the public	Major operations disruption or unplanned lengthy shutdown (could include "Safety Related Conditions") Service interruption to a wholesale customer, town distribution system, government installation or industrial plant Significant media or public attention
Any personal injury that requires a physician's emergency treatment but that does not require formal hospital admittance Any employee or contractor injury that could involve lost time from work Any employee injury that involves the administering of first aid Involves a significant near miss with injury/illness implications (employee or contractor) Employee fatality due to an off-the-job incident Involves employee lost work time due to an off-the-job incident	Any employee or contractor injury or illness that requires in-patient hospitalization as the result of work-related activities involving Company equipment and/or facilities	The death of employee(s) or contract employee(s) as the result of work-related activities involving Company equipment or facilities Any fatality or injury to a member of the public

FIGURE 2.1

RESPONSE LEVELS (Cont'd)

Level 0	Level 1	Level 2
Estimated property damage is less than $5,000	Any incident where the estimated property damage to Company equipment, vehicles or facilities; or Company's portion of the repairs, cost, spill remediation and/or emergency response, or product lost is likely to be greater than $5,000	
	Any fire not intentionally set, including but not limited to, any unintentional ignition of hazardous Liquids (products, HVLs, HVPs, etc.) and minor fires, such as small grass fires, transformer poles, small pumps, or single piece of electrical equipment	Major fire, rupture or explosion that involves Company equipment or facilities
Involves a significant near miss with operations and maintenance implications (including ROW)	Evidence of a non-notified excavation on the ROW by a third party	
Theft, Fraud or Misuse of company property by an employee Theft <$25,000 by an external party	Theft >$25,000 by an external party	
	Regulatory (DOT, OSHA, FERC or EPA, TSB or state/local equivalents) inquiry or involvement in any of the above-listed events, including regulatory agency representative(s) on site Unannounced agency inspections directly related to compliance with their associated regulations (e.g., PHMSA, OSHA, EPA, TSB, state, etc) that are not of the routine nature. Routine unannounced inspections that do not require ERL notification, include, but are not limited to, IRS, Air Quality, USCG, HazMat Waste, and although not an Agency per se, Orthodox Union Rabbi visits, In the case of an agency visit for a specific discipline (Air, Waste, Water, product quality, etc.) the specific support department should be notified directly.	

FIGURE 2.1

RESPONSE LEVELS (Cont'd)

Level 0	Level 1	Level 2
	Security Incidents, which include: ○ Suspicious surveillance of a facility with indications of criminal/terrorist activities ○ Bomb threats ○ Persons making hostile threats against the company or company personnel ○ Security breach where someone is found in the facility ○ Suspicious package found at the facility or suspicious mail delivered to the facility ○ Theft of chemicals or hazardous materials in quantities sufficient to result in loss of life if used as a weapon (e.g.; propane cylinders, any volume of ammonium nitrate, bulk quantities of HAZMAT) A Company Security event which meets any one of the following: ○ Change in Homeland Security Advisory System (HSAS) Threat Level or Maritime Security (MARSEC) Level ○ Credible threat information that would affect Kinder Morgan assets ○ Significant security incident at a Kinder Morgan facility ○ Event that requires a meeting of Corporate Security Committee (CSC) to strategize on countermeasure or response to a threat or incident	Significant security event that involves: sabotage, violent attacks on or destruction of property and people, hijackings/hostage taking, intentional release of chemical/ biological/ radioactive agents A major Company Security event which meets any one of the following criteria: ○ Management directions based on change in the HSAS Threat Level ○ Credible threat information that can be shared outside of CSC and management personnel ○ Major security incident at a Kinder Morgan facility
	Any Level 0 incident where there is any uncertainty about meeting reporting criteria.	

Note: Response actions will vary depending on the nature and severity of the incident and on other factors that are not readily addressed here. Without exception, personnel and public safety is first priority. The following initial actions should be considered when responding to any emergency. More detailed incident specific response actions are included in Section 4.

2.3 INITIAL NOTIFICATION

The typical notification responsibilities for each person potentially involved in the initial response are listed below:

Person Discovering Discharge, Fire, or Release to the Environment *(Air, Water, or Soil)*

_____ Immediately Notify **Terminal Manager/Qualified Individual** (contact information is listed in Figure 3.1).
_____ Activate the ERT**,** as the situation demands (contact information is listed in Figure 3.2).

Qualified Individual

_____ **Activate local responders** (fire, police, medical, etc.) and/or **emergency response contractors** (see Figure 3.3) as the situation warrants.
_____ Make other Internal or External notifications as required.

2.4 EVACUATION

In case of an emergency evacuation, some or all of the following steps are taken, depending on type of emergency and circumstances:

_____ Sound alarm or give verbal alarm by radio/cell phone or in person.
_____ Call 911.
_____ Initiate emergency shutdown procedures.
_____ Shutdown product transfer operations.
_____ Proceed to the Evacuation Regrouping Area/Muster Point for Roll Call.

Factors affecting the evacuation include:

Location of Stored Materials

The large bulk storage tanks are located in the North, East, Central and West Plant containment areas.

Hazard Imposed by Spilled Material

The hazard imposed is flammability. Refer to Safety Data Sheet (SDS) for health risks and response measures for treatment when exposed.

Spill Flow Direction

A large spill leaving secondary containment would flow by sheet flow to the nearest outfall, which would discharge into the Houston Ship Channel.

Prevailing Wind Direction and Speed

The prevailing wind direction is out of the North at 8 to 9 mph from January to April and out of the southeast at 6 to 8 mph from May to December.

2.4 EVACUATION (Cont'd)

Water Currents, Tides, or Wave Conditions (if applicable)

Water currents, tides, or wave conditions are not applicable because there no over water evacuation.

Arrival of Route of Emergency Response Personnel and Response Equipment

Emergency response personnel and equipment arrive via Clinton Drive.

Evacuation Routes

All evacuation routes lead to one of four muster areas. The primary Muster Area #1 located on Clinton Drive. There are three alternate muster areas designated as Muster Area #2 through #4 as the situation dictates.

Alternate Routes of Evacuation

Primary and alternate routes are interchangeable and identified on Evacuation Diagram.

Transportation of Injured Personnel Nearest Emergency Medical Facility

Head north toward Clinton Dr. Take N. Shaver St. to Westside Dr. in Pasadena. Turn left onto Westside Dr. Turn left onto Spencer Hwy. Drive to your destination. Bayshore Medical Center, 4000 Spencer Hwy, Pasadena, TX 77504.

Location of Alarm/Notification Systems

Audible alarm is activated from Gate 1 of the Security Building. Radios are main form of emergency notification and are usually used prior to alarm activation. The Whelen alarm system has very specific instructions as described below:

- The alarm system should be tested each week at 15:00 Wednesday in concurrence with the Galena Park test.
- Whoever completes the test needs to fill in the test log indicating the date, time, and who completed the test along with any comments.
- If there is a problem with the alarm system, contact the Fire & Safety coordinator ASAP at (361) 726-1614 (Adam Walton).
- Weekly alarm test: Press test button & send button. You should hear an audio stating that it is a test along with four horns and an all clear.
- Emergency alarm: Press emergency button & send button. You should hear an audio stating that there is an emergency proceed to the evacuation point and await further instructions.
- Shelter in place: Press shelter in place button & send button. You should hear a horn, an audio stating to shelter in place and another horn.
- Lightning: Press lightning button & send button. You should hear a horn then an audio stating we are under a lightning advisory cease all work, then another horn.

2.4 EVACUATION (Cont'd)

Location of Alarm/Notification Systems (Cont'd)

- All Clear: Press all clear button & send button. You should hear a horn, then an audio stating this is an all clear, then another horn.
- PA: To use the PA press the PA button & send. Key up the microphone and speak slowly and clearly. This will last for 45 seconds. Anything longer you will need to repeat PA and send.
- Loss of power: In the event we have a loss of power we need to power up the black box and the digital receiver on top of the black box.

Centralized Check-In Area for Evacuation Validation

The evacuation assembly areas for the Facility area designated as Muster Area #1 - #4. The muster points are located on the Evacuation Diagram.

Mitigation Command Center

The HBU 405 Clinton Drive, Galena Park will be the initial Command Post.

Location of Shelter-In-Place

The shelter-in-place location will be wherever you are, in a building with the AC turned off or in a turned off vehicle.

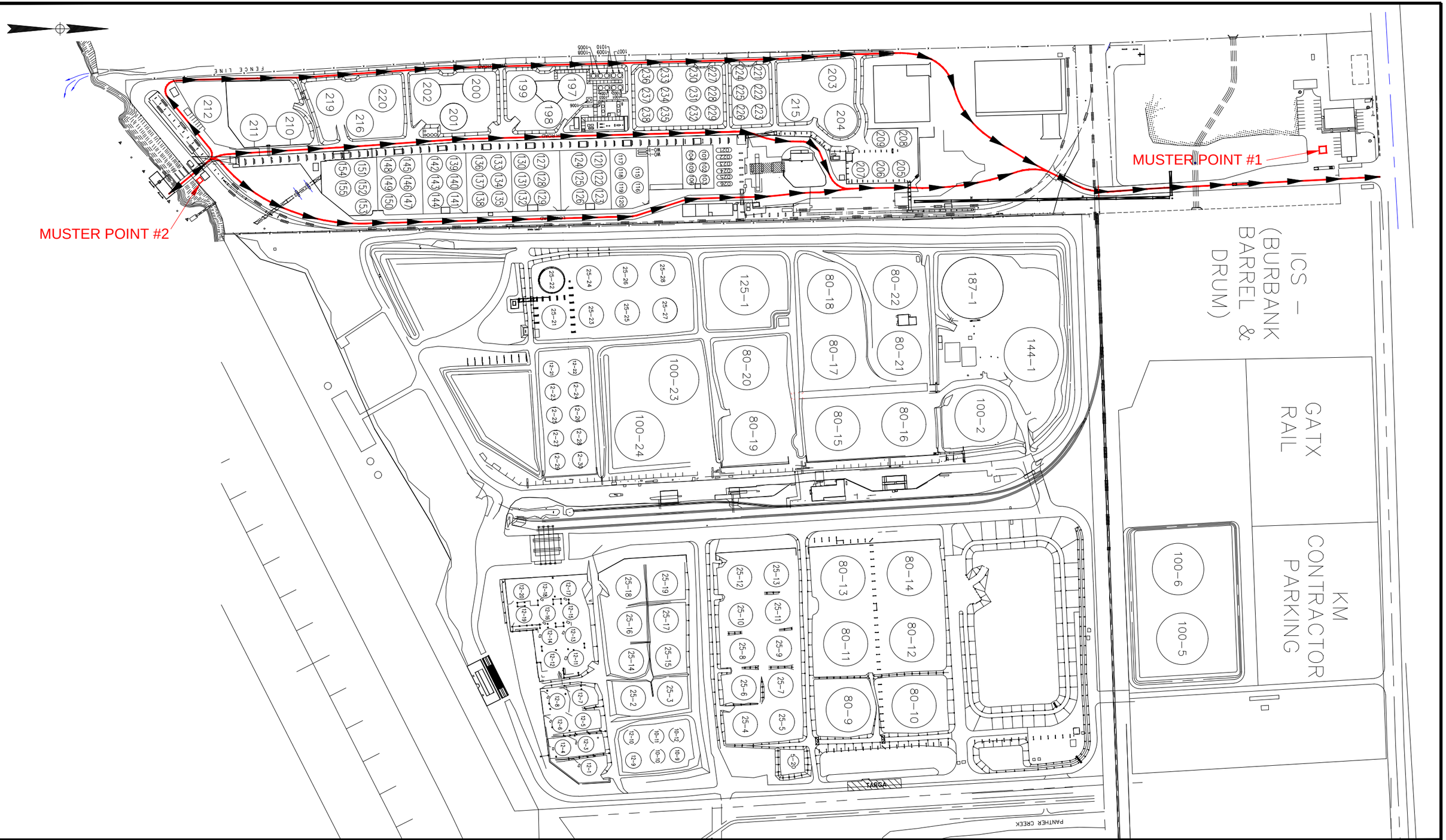
Employees Performing Rescue and Medical Duties during Evacuation

- Perform search of affected area, if personnel are missing and it is safe to do so.
- Account for all personnel.
- Report results of accountability to IC.
- Immediately call 911, if a medical emergency is discovered, and provide them with your name and location of the medical emergency.
- Do not move the injured person except in cases of immediate danger.
- Apply first aid to the level to which you have been trained.
- Await EMS and support ambulance personnel, as instructed.

Community Evacuation Plan

Harris County, Office of Homeland Security and Emergency Management has a community evacuation plan. The following agencies are in charge of community evacuations: Galena Park LEPC, Galena Park Fire Department, Galena Park Police Department, and the Harris County Sheriff Department.

Evacuation Diagram



NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	ISSUED FOR REVIEW	04–17–15	JLM	MG	MG

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED MG
APPROVED RJH ENGR. MGR.
APPROVED AJR REG. ENGR. MGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

MUSTER AREAS & EVACUATION ROUTES

WEST CHEMICAL PLANT

DWG. NO. 88–MS–0198

SCALE NONE | TERMINAL 88 | DATE 04–17–2015

PLOT DATE: Apr 17, 2015 – 3:02pm LOCATION:I:\CAD\GALENAP\MS\88-MS-0198.DWG

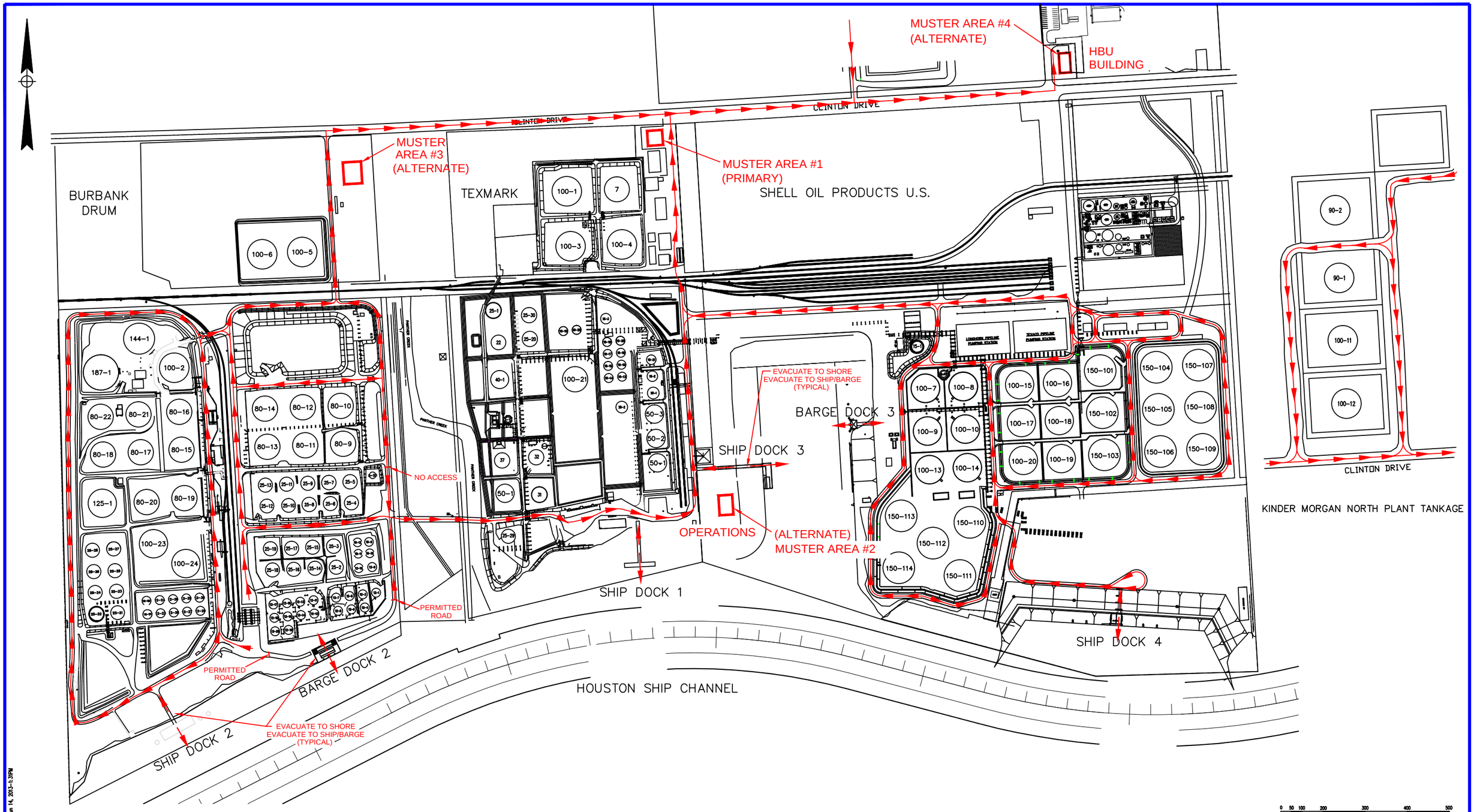


FIGURE 3.1

PLOT DATE: Jun 14, 2013–1:31PM

CONTRACTOR BLOCK

NOTES

THIS DRAWING SUPERCEDES DWG. D–88–1–4302C

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	GENERAL UPDATES	06–14–13	JLM	MG	MN
A	ISSUED FOR REVIEW	09–01–10	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED JA PROJ. ENGR.
APPROVED PA REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

MUSTER AREAS & EVACUATION ROUTES

NORTH, EAST, CENTRAL, AND WEST PLANTS

DWG. NO. 88–MS–0143

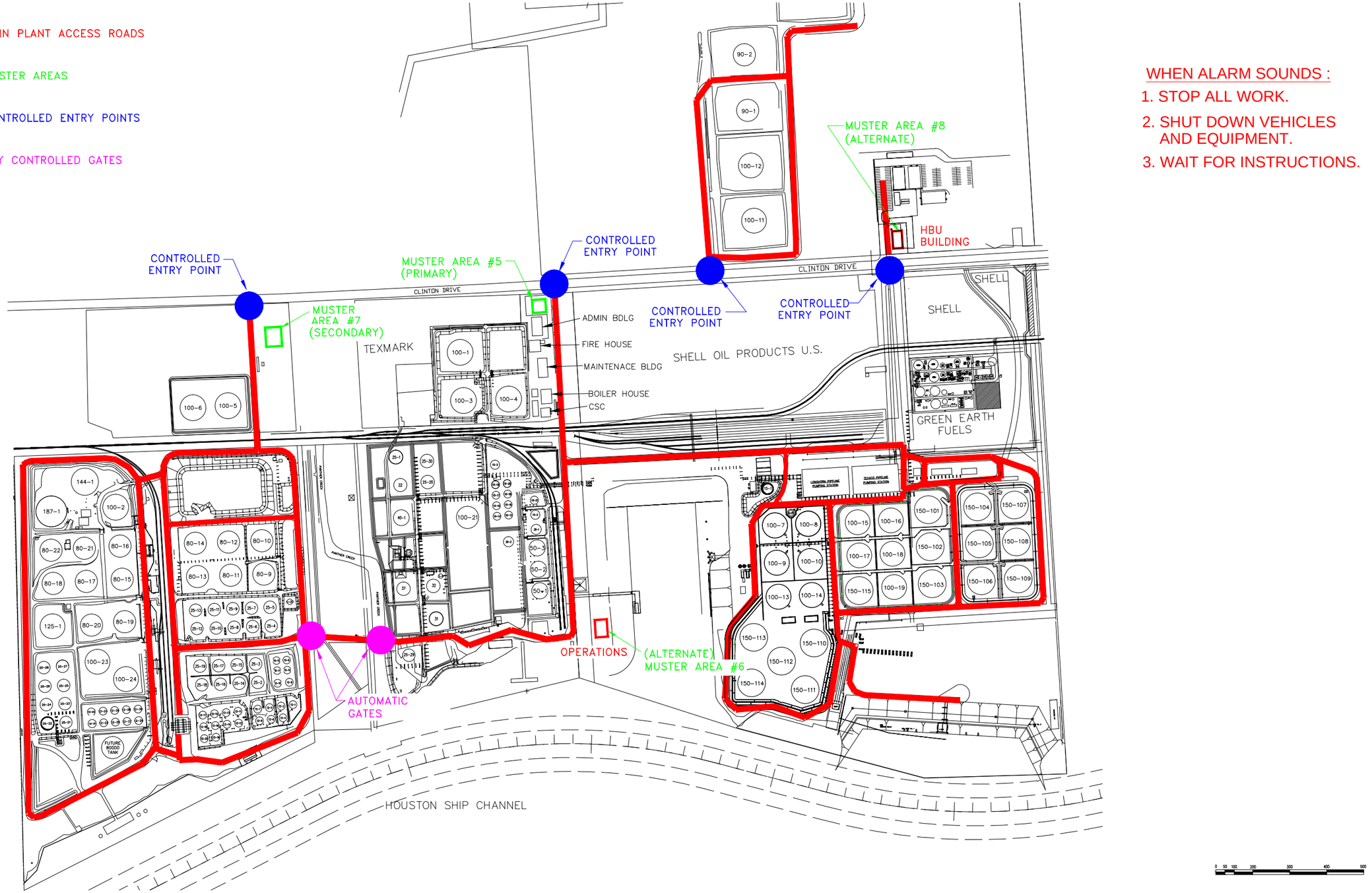
SCALE NONE | TERMINAL 88 | DATE 09–01–2010

MAIN PLANT ACCESS ROADS

MUSTER AREAS

CONTROLLED ENTRY POINTS

KEY CONTROLLED GATES



WHEN ALARM SOUNDS :

1. STOP ALL WORK.
2. SHUT DOWN VEHICLES AND EQUIPMENT.
3. WAIT FOR INSTRUCTIONS.

0 50 100 200 300 400 500

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	GENERAL UPDATES	06-14-13	JLM	MG	MN

KINDER MORGAN

DRAWN S. MARTIN
CHECKED AC
APPROVED _____ PROJ. ENGR.
APPROVED _____ REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST,CENTRAL AND WEST PLANTS

EVACUATION ROUTES

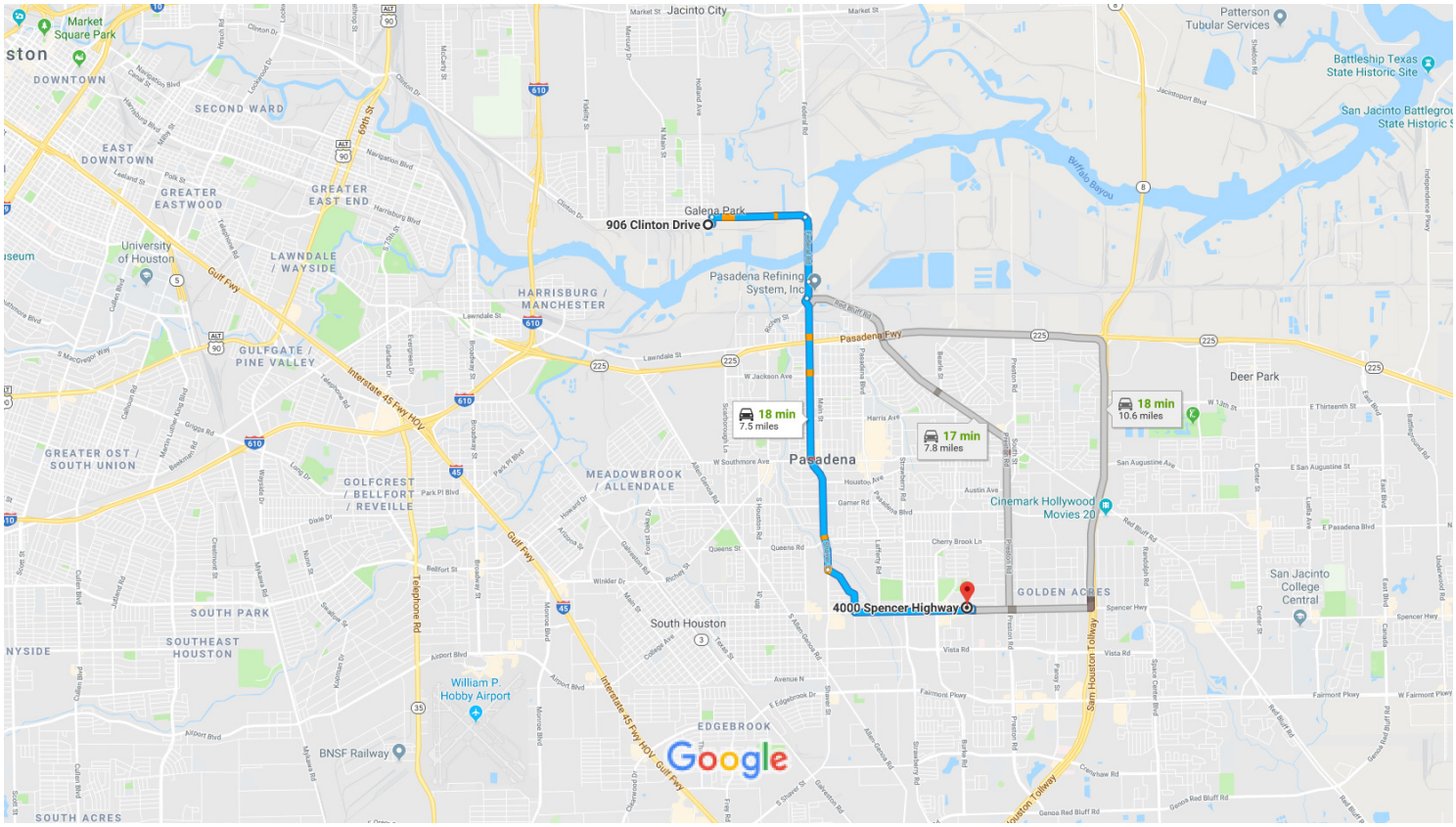
DWG. NO. 88-FPP-CIMA

SCALE NTS | TERMINAL 88 | DATE 12-14-10

Google Maps

906 Clinton Dr, Galena Park, TX 77547 to 4000 Spencer Highway, Pasadena, TX

Drive 7.5 miles, 18 min



Map data ©2019 Google 1 mi

via Red Bluff Rd and Preston Rd	Fastest route, the usual traffic	17 min 7.8 miles
via N Shaver St		18 min 7.5 miles
via Sam Houston Tollway S		18 min 10.6 miles

2.5 FACILITY RESPONSE EQUIPMENT/RESOURCES

The Facility's response equipment is identified in Section 4.4. The Company has contracts in place with Oil Spill Removal Organizations and other clean-up contractors that are deployed, as necessary. Figure 5.3 lists the contracted Oil Spill Removal Organizations.

The Qualified individual has the authority to activate other Company resources or that of private contractors and other experts and consultants, as the situation demands.

2.6 EXPERTS AND CONSULTANTS

The Company maintains relationships with various environmental and technical consultants that can provide support in the event of an emergency incident. These consultants can provide expertise and support in the areas of emergency response management, environmental services, site assessment, permitting, waste treatment, recycling, dewatering, hazardous waste disposal, and remediation.

2.7 VOLUNTEERS

Volunteers will not be utilized by the Company for the response operations. All volunteers will be referred to the State or Federal On-Scene Coordinator, excluding mutual aid agreements.

2.8 COMMUNICATIONS

Effective and efficient communications systems are essential for emergency response at every level. The communications system will be utilized to gather information and current status reports as well as to provide coordination and direction to widely separated work groups involved in search, containment/ diversion, repair, traffic control, public control or evacuation, and restoration.

2.8.1 Central Communications System

Prearranged communication channels are of the utmost importance in dealing with Company emergencies. The notification procedures and telephone contacts documented in Section 3.0 will be reviewed in accordance with the earlier documented updating procedures. The predetermined communications channels include the following:

- A list of emergency telephone numbers for internal management and emergency response personnel.
- A list of emergency telephone numbers for various external resources such as the fire and police department, medical, and regulatory agencies.
- A list of emergency telephone numbers for contract response resources.

2.8 COMMUNICATIONS (Cont'd)

2.8.2 Communications Equipment

Field communications during a spill response to a small or medium discharge will be handled via the existing Company communications network. This network will utilize existing radios, landlines, cell phones, facsimile (fax) machines, and computers and will be maintained by Company personnel. In the event of a Worst Case Discharge, field communications will be enhanced with other Company and contract resources as the situation demands.

2.8.3 Communications Types

Telephone (Conventional) – Conventional land-line telephones are the most effective means of communication for regulatory and advisory notifications during a spill response operation. Additional telephone lines can be installed in the event of a prolonged response operation.

Telephone (Cellular) – Cellular telephones allow for added mobility and response effectiveness. Cellular phones are commonly maintained by certain Company personnel. Additional cellular phones can be secured in the event of a prolonged response operation.

Fax Machines – Fax machines allow for a rapid transfer of information/ documentation such as status reports/updates, written notifications, and purchase orders.

Computers – Computers are commonly used in networks which allow access to various other locations and Company personnel. Computers also speed the consolidation of information and preparation of written report.

Radios – Handheld and vehicle mounted radio sets are the most effective means of communication for the field response operation. The units are battery operated, multi-channeled, and have a typical range that will cover the area of the response operation. Additional radio sets and battery packs/charges will be necessary in the event of a prolonged response operation.

Satellite Phone - Satellite phones connect to geosynchronous orbiting satellites rather than cell towers on the earth's surface and provide phone service when cell towers are down.

3.0 NOTIFICATIONS

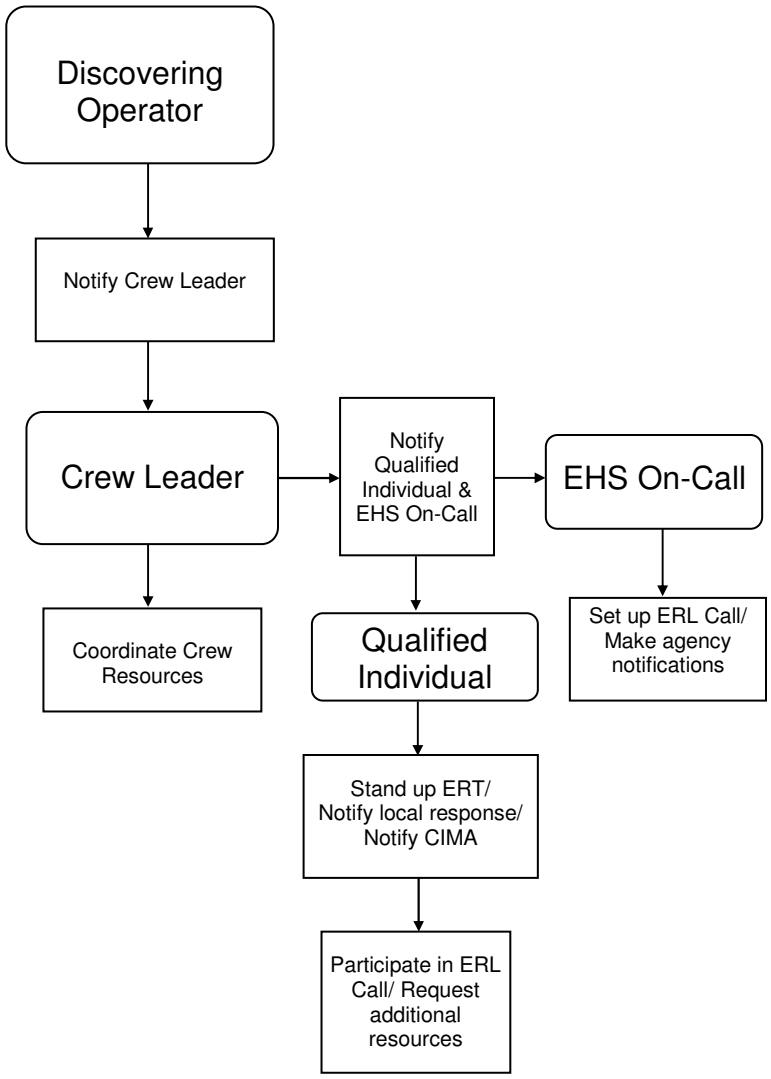
This Section is a guide for notification procedures that should be implemented immediately after discovering an emergency incident. Internal and external notifications are described separately for clarification purposes only. All notifications are of extreme importance and must be completed in a timely manner.

3.1 INTERNAL NOTIFICATIONS

The following internal notifications should be made for each emergency incident to the extent that the incident demands. In no event shall notification be delayed because the immediate supervisor cannot be reached. Authorization is given to bypass management levels if necessary to provide timely notification to appropriate management. The typical notification responsibilities for each person potentially involved in the initial response are listed below.

All emergency incidents will require some notification. The emergency category of the incident will affect the notifications and the initial response to the incident. It is important to properly classify the emergency category to ensure proper notifications and response.

INTERNAL NOTIFICATION SEQUENCE



3.2 EXTERNAL NOTIFICATIONS

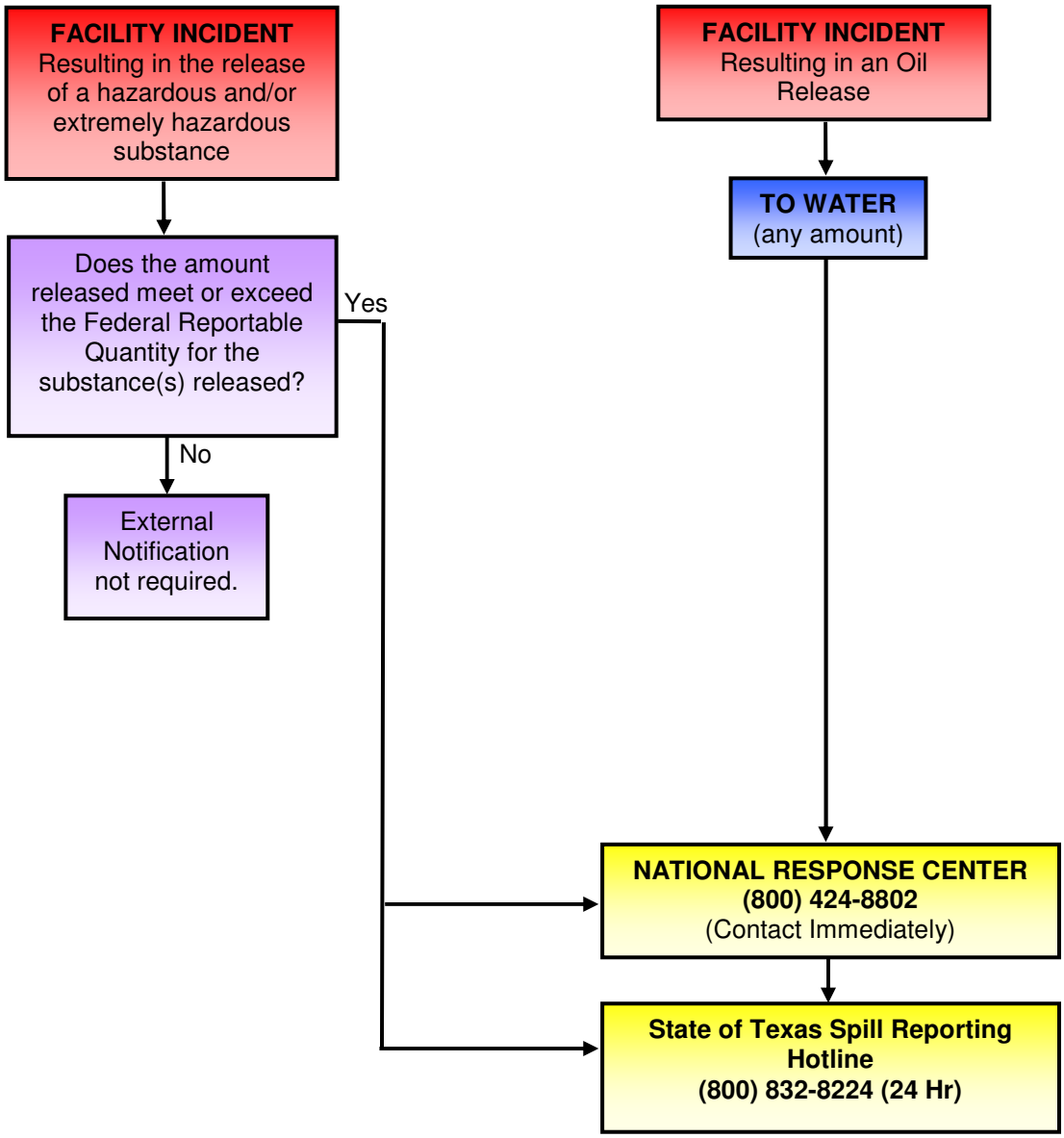
Depending on the type and level of incident, certain external notification may be necessary. Responsibilities for each person potentially involved in the external notifications are listed below.

Company Personnel

- Notify all regulatory/governmental agencies and other external organizations (contact information is listed in Figures 3.5 through 3.9).

- Document the release using the Notification Data Sheet (Figure 3.10).

EXTERNAL NOTIFICATION FLOWCHART



Note: See Figure 3.5 for additional Required Notifications.

FIGURE 3.1

QUALIFIED INDIVIDUALS

QUALIFIED INDIVIDUALS[1] (App. F, Sec. 1.3.1.1.2, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Qualified Individual/ Operations Director	Alex Rendon	(281) 678-4653	(346) 352-5923	1 Hour
Alt. Qualified Individual/ Alt Ops Chief/Operations Manager	Corey McGuire	(832) 963-4373	(713) 654-6042	1 Hour

[1] Training and training dates stored with the training group and are available upon request. Contact Alison Bess 832-900-5063.
[2] See Section 5.0, 5.2 Qualified Individual for Responsibility during response action.

FIGURE 3.2

EMERGENCY RESPONSE TEAM

EMERGENCY RESPONSE TEAM[1] (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
IC/General Manager	Marlin Collins	(713) 882-2368		
Alt IC/ Operations Director	Alex Rendon	(281) 678-4653	(346) 325-5923	
PIO/Director of Communications	Lexey Long	(361) 935-0738		
ISO/Regional EHS Manager	Scott Eady	(281) 216-7451		
Alt ISO/Manager-EHS	Greg Allen	(713) 447-8856	(713) 920-8409	
Ops Chief/Operations Director	Alex Rendon	(281) 678-4653		
Alt Ops Chief/Operations Manager	Corey McGuire	(832) 963-4373	(713) 654-6042	
Planning Chief/ Engineering Director	Mike Dugger	(713) 213-6975	(713) 450-7495	
Planning Chief/ Engineering Manager	Allen Rhodes	(713) 201-8762		
Documentation Leader/Sr. Admin	Marla Tarwater	(832) 463-4787		
Situation Leader/Maint. Manager	Brian Bernelle	(281) 714-1473		
Resource Unit Leader/ Manager-EHS	Greg Allen	(713) 447-8856	(713) 920-8409	
Finance Chief/ Accounting Director	Teresa Tran	(713) 530-7899	(832) 900-5041	
Alt Finance Chief/ Commercial VP	Clay Jeffirs	(903) 280-4088		
Logistics Chief/ Purchasing Manager	Tiffany Campbell	(713) 248-9082		
Alt Logistics Chief/Sr. Buyer	Chris Hokanson	(908) 447-9709	(713) 420 -6739	

[1] Training records located with the training group. Contact Alison Bess 832-900-5063.
[2] See Section 5.0, 5.3 Emergency Response Team (ERT) for Responsibility during response action.

FIGURE 3.2

EMERGENCY RESPONSE TEAM (Cont'd)

EMERGENCY RESPONSE TEAM[1] (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders	Antonio Delapaz	(832) 971-1738		1 Hour
	Brandn Thaden	(832) 414-5964		1 Hour
	Brandon Rogers	(281) 254-4362		1 Hour
	Cayden Cunniff	(817) 721-4917		1 Hour
	Cesar Salinas	(409) 682-7059		1 Hour
	Chase Brown	(832) 657-2770		1 Hour
	Corey McGuire	(832) 963-4373		1 Hour
	Daniel Cortez	(713) 295-0948		1 Hour
	Davy Malone	(281) 630-1212		1 Hour
	Gabe Delarosa	(409) 293-7327		1 Hour
	Ivo Ngala	(347) 852-5400		1 Hour
	Jason Everett	(713) 498-8932		1 Hour
	John Washington	(832) 414-2677		1 Hour
	Johnny Kennedy	(713) 204-5280		1 Hour
	Jonathan Marquez	(832) 922-3700		1 Hour
	Jonathan Monjares	(713) 670-4612		1 Hour
	Jose Brose	(832) 860-0899		1 Hour
	Kevin Bowyer	(713) 515-2106		1 Hour
	Matthew Clark	(281) 844-8837		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	Michael Hicks	(713) 306-7122		1 Hour
	Philip Hasette	(361) 343-1381		1 Hour
	Philip Zanco	(281) 967-3894		1 Hour
	Ralph Romo	(760) 684-0368		1 Hour
	Ramon (Ray) Solinas	(713) 367-3092		1 Hour
	Rod Guidry	(713) 292-8310		1 Hour
	Ronald Fort	(832) 803-8129		1 Hour
	Roy Torres	(832) 868-9249		1 Hour
	Selso Licerio	(713) 997-9995		1 Hour
	Steven Ball	(832) 445-9416		1 Hour
	Steven Sandefer	(713) 582-7985		1 Hour
	Tyler Sargent	(832) 710-1852		1 Hour
	Wil Trainer	(832) 329-5812		1 Hour
	Phillip Wyrick	(832) 326-7156		1 Hour
	Michael Whittaker	(713) 455-1231		1 Hour
	Daniel Lott	(832) 878-0977		1 Hour
	Spencer Carraway	(832) 840-6338		1 Hour
	Jeffery (Mike) Melton	(832) 495-8192		1 Hour
	Reggie Latchie	(832) 361-8825		1 Hour
	Adam Solis	(832) 606-7981		1 Hour
	JaCorey Shepherd	(936) 465-5487		1 Hour
	Curtis Carr	(281) 229-2532		1 Hour
	Daniel Lopez	(832) 784-1830		1 Hour
	Darwin (Troy) Thomas	(936) 433-4535		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	David Koetter	(281) 409-6841		1 Hour
	David Rangel	(832) 514-8780		1 Hour
	Dustin Fuselier	(409) 739-0025		1 Hour
	Eduardo (Eddie) Meza	(832) 387-8108		1 Hour
	James (Jim) Haskins	(832) 265-6085		1 Hour
	Juan Banda	(281) 513-6492		1 Hour
	Matthew Cleburn	(713) 857-6523		1 Hour
	Robert (Bobby) Papendorf	(832) 707-7934		1 Hour
	Tony Wood	(281) 387-9510		1 Hour
	David Followell	(832) 221-1434		1 Hour
	Greg Allen	(713) 447-8856		1 Hour
	Aarion Fogle	(832) 209-0525		1 Hour
	Adrian Zamora	(832) 722-0701		1 Hour
	Alex Rendon	(281) 678-4653		1 Hour
	Alfredo Encinia	(713) 253-4329		1 Hour
	Barry Shepherd	(832) 725-1907		1 Hour
	Bill Helms	(832) 288-5881		1 Hour
	Charles Jackson	(832) 984-1510		1 Hour
	David Rodriguez Jr.	(281) 838-7120		1 Hour
	Donnie Martinez	(832) 724-0060		1 Hour
	Dwight Harrell	(504) 251-4647		1 Hour
	Freddy Gonalez	(832) 795-8062		1 Hour
	Gerald Nielsen	(832) 527-4976		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (Cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	Harry Antonopoulos	(713) 505-9040		1 Hour
	Jacob Pickle	(903) 987-0686		1 Hour
	James Lovern	(832) 338-6778		1 Hour
	Joe Anderson	(713) 855-5309		1 Hour
	Joseph Lee	(832) 244-1109		1 Hour
	Juan Gomez	(832) 712-7160		1 Hour
	Julian Gonzalez	(832) 745-8144		1 Hour
	Keith Cormier	(832) 335-4852		1 Hour
	Kevin Baker	(281) 910-8252		1 Hour
	Kevin Black	(936) 581-2578		1 Hour
	Luis Gamez	(281) 989-1352		1 Hour
	Mario Jennings	(916) 494-4134		1 Hour
	Mark Gray	(281) 515-7982		1 Hour
	Mathew Gonzalez	(832) 830-4178		1 Hour
	Max Turner	(832) 232-2277		1 Hour
	Michael Fatic	(346) 279-7598		1 Hour
	Michael Paine	(281) 386-9531		1 Hour
	Michael Sellers	(281) 795-1408		1 Hour
	Nicolas Anderson	(832) 570-5903		1 Hour
	Patrick Snow	(832) 433-8440		1 Hour
	Paul Garza	(832) 221-8173		1 Hour
	Roberto Luna	(281) 832-9499		1 Hour
	Ronald Ramirez	(281) 725-1029		1 Hour
	Stephen Hammer	(713) 582-2245		1 Hour

FIGURE 3.2

EMERGENCY RESPONSE TEAM (Cont'd)

EMERGENCY RESPONSE TEAM[1] (Cont'd) (App. F, Sec. 1.3.1.1.3, to 40 CFR 112)				
POSITION/TITLE[2]	**NAME**	**24 HR PHONE**	**ALTERNATE PHONE(S)**	**RESPONSE TIME**
Responders (Cont'd)	Rudy Roacha	(832) 240-9089		1 Hour
	Tim Tolley	(281) 382-1507		1 Hour
	Matt Myers	(832) 707-3009		1 Hour
	Roberto Galindo	(713) 505-5228		1 Hour
	Gene Powell	(346) 352-5956		1 Hour

FIGURE 3.3

OIL SPILL REMOVAL ORGANIZATIONS

USCG CLASSIFIED OIL SPILL REMOVAL ORGANIZATIONS (OSRO)			
COMPANY	**RESPONSE TIME**	**LOCATION**	**TELEPHONE**
OMI Environmental Solutions	.5 – 1 Hour	450 Preston Ave Pasadena, TX 77503	(800) 645-6671
Horizon Environmental	.5 – 1 Hour	2407 Albright Dr. Houston, TX 77017	(866) 609-6208
Phoenix Pollution Control & Environmental Services	0.5 – 1 Hour	7111 Decker Dr. Baytown, TX 77520	(281) 838-3400

FIGURE 3.4

ADDITIONAL RESPONSE RESOURCES

ADDITIONAL RESPONSE RESOURCES		
Planning and Incident Support		
COMPANY	**LOCATION**	**TELEPHONE**
Midstream Compliance & Response Management, LLC	The Woodlands, Texas / Gilmer, TX	(713) 398-6241

FIGURE 3.5

REQUIRED NOTIFICATIONS

REQUIRED NOTIFICATIONS	
NATIONAL RESPONSE CENTER (NRC)	
c/o United States Coast Guard (CG-5335) - Stop 7581 2100 2nd Street, SW Washington, DC 20593-0001	(800) 424-8802 (24 Hr.) (202) 267-2675 (Day Phone)
REPORTING REQUIREMENTS (40 CFR 300.300(b)) TYPE: Any discharge or sighting of oil on navigable waters. (40 CFR 110.6 and 33 CFR 153.203) VERBAL: Immediately (not later than one (1) hour of confirmed discovery to meet 49 CFR 195.52(a). See DOT notification for follow-up NRC notification criteria within 48 hours.) WRITTEN: If an RQ limit is reached, refer to state requirements for written report requirements. NOTE: A call to the NRC must also be made for spills or releases of hazardous substances that meet or exceed their RQ.	
USCG SECTOR HOUSTON-GALVESTON*	
13411 Hillard St. Houston, TX 77034	(281) 464-4854 (24 Hr.)
REPORTING REQUIREMENTS (33 CFR 153.203, 40 CFR 300.300(b)) TYPE: Any oil discharge that has impacted or threatens to impact navigable waters or release of hazardous substances in an amount equal to or greater than the reportable quality. VERBAL: Notification to the USCG is typically accomplished by the call to the NRC. WRITTEN: If an RQ limit is reached, refer to state requirements for written report requirements. NOTE: A call to the NRC must also be made for spills or releases of hazardous substances that meet or exceed their RQ. *If direct reporting to the NRC is not practicable, reports may be made to the USCG or EPA predesignated OSC for the geographic area where the discharge occurs. (40 CFR 300.300(b))	

FIGURE 3.5

REQUIRED NOTIFICATIONS (Cont'd)

REQUIRED NOTIFICATIONS (Cont'd)	
US EPA REGION 6 EMERGENCY RESPONSE*	
1201 Elm Street, Suite 500 Dallas, TX 75270	(800) 424-8802 (24 Hr.) (800) 887-6063 (Non-Emergency) (214) 665-2200 (Non-Emergency)
REPORTING REQUIREMENTS (40 CFR 300.300(b), App. F, Sec. 1.3.1.1, to 40 CFR) TYPE: Any oil discharge that has impacted or threatens to impact navigable waters or release of hazardous substances in an amount equal to or greater than the reportable quality. VERBAL: Notification to the EPA is typically accomplished by the call to the NRC. WRITTEN: As requested by the agency. Within 15 days after an incident involving a RCRA hazardous waste, submit Figure 3.10 to the Regional Administrator. NOTE: *If direct reporting to the NRC is not practicable, reports may be made to the USCG or EPA predesignated OSC for the geographic area where the discharge occurs. (40 CFR 300.300(b))	
STATE OF TEXAS SPILL REPORTING HOTLINE/TEXAS STATE EMERGENCY RESPONSE COMMISSION (TERC)	
Texas Commission of Environmental Quality 12100 Park 35 Circle Austin, Texas 78753	(800) 832-8224 (24 hr.) (512) 239-0400
REPORTING REQUIREMENTS: CITATION: 40 CFR 355.40; App. F, Sec.1.3.1.1.7, to 40 CFR 112; 30 TAC 327 TYPE: All spills of oil or petroleum products into water AND spills on land that meet or exceed 5 barrels or more. VERBAL: Immediately WRITTEN: Within 30 working days of the discovery of a reportable discharge or spill, the person responsible must submit written information to the appropriate TCEQ regional office describing the details and supporting the adequacy of the response. NOTE: The documentation must contain one of the following: 1) Information from the initial notification (see Fig 2.4), and a statement that the response to the discharge or spill has been completed and a description of how the action was conducted (See *Additional Information* below). 2) A request for an extension of time to complete the response, along with the reasons for the request, and a projected work schedule outlining the time required to complete the response action. Proceed according to the projected schedule unless otherwise notified by the appropriate TCEQ regional director. 3) A statement and explanation that the discharge or spill response has not been, and is not expected to be, completed within the maximum allowable extension (six months from the date of the discharge or spill), along with a projected work schedule.	

FIGURE 3.5

REQUIRED NOTIFICATIONS (Cont'd)

REQUIRED NOTIFICATIONS (Cont'd)	
DEPARTMENT OF TRANSPORTATION (FOR DOT JURISDICTIONAL FACILITIES*)	
Office of Pipeline Safety Pipeline and Hazardous Material Safety Administration 1200 New Jersey Avenue SE-E-22-321 Washington, District Of Columbia 20590	(800) 424-8802 (24 Hr.) (202) 267-2675 (24 Hr.) (202) 267-1322 (Fax) (202) 366-4566

REPORTING REQUIREMENTS:

TYPE: In addition to the reporting of accidents to the NRC as noted below, a written accident report (PHMSA Form 7000-1, via the online PHMSA Portal, and provided on in Appendix F) must be submitted for releases resulting in any of the following:

1. Explosion or fire not intentionally set by the operator.
2. Release of five gallons or more of hazardous liquid or carbon dioxide, except that no report is required for a release of less than five barrels resulting from a pipeline maintenance activity if the release is:
   a. not one described under the NRC's reporting conditions;
   b. confined to Company property or pipeline right-of-way; and
   c. cleaned up promptly.
3. death of any person.
4. personal injury necessitating hospitalization.
5. estimated property damage, including cost of cleanup and recovery, value of lost product, and damage to the property of the operator or others, or both, exceeding $50,000.

VERBAL: Call to the NRC, within one (1) hour of confirmed discovery and within 48 hours revise or confirm initial report, meets the required verbal notification under DOT reporting requirement.

WRITTEN: As soon as practicable, an accident meeting any of the above criteria must be reported via the PHMSA Portal at the following link: UR https://portal.phmsa.dot.gov/portal

Note: In the event that the link does not direct you to the site, paste the URL into your browser.

FIGURE 3.5

REQUIRED NOTIFICATIONS (Cont'd)

REQUIRED NOTIFICATIONS (Cont'd)	
LOCAL EMERGENCY PLANNING COMMITTEES (LEPC)	
Galena Park LEPC PO Box 971 Galena Park, Texas 77547	(281) 224-9321 (24 Hr.)
REPORTING REQUIREMENTS TYPE: Any release of a hazardous or extremely hazardous substance in an amount equal to or greater than the reportable quantity. VERBAL: Immediately WRITTEN: If requested NOTE:	

FIGURE 3.6

OTHER POTENTIAL REQUIRED NOTIFICATIONS

OTHER POTENTIAL REQUIRED NOTIFICATIONS	
OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA)	
A. Maceo Smith Federal Building 525 Griffin Street, Suite 602 Dallas, Texas 75202	(972) 850-4145 (Region 6 Office) (800) 321-6742 (24 Hr.)
REPORTING REQUIREMENTS TYPE: Fatality from a work related incident or the inpatient hospitalization, amputation, or loss of an eye as a result of a work related incident. VERBAL: Within 8 Hr. (death) and 24 Hr. (others). WRITTEN: As requested by the Agency. NOTE: The verbal notification requires the establishment name; location of the work-related incident; time of the work-related incident; type of reportable event (i.e., fatality, in-patient hospitalization, amputation, or loss of an eye); number and names of employees who suffered a fatality, in-patient hospitalization, amputation, or loss of an eye; contact person and his or her phone number; and brief description of the work-related incident.	
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), REGION 12	
Houston, Texas	(713) 767-3500 (Day Phone)
REPORTING REQUIREMENTS TYPE: Reportable releases to State of Texas - Reporting Hotline VERBAL: Courtesy Call WRITTEN: See State of Texas Spill-Reporting Hotline for details NOTE: N/A	
TEXAS GENERAL LAND OFFICE - AUSTIN	
1700 Congress Ave. Austin, Texas 78701	(800) 998-4456 (24 Hr.) (512) 463-5256 (Day Phone)
REPORTING REQUIREMENTS TYPE: Reportable releases to coastal waters. VERBAL: Immediately. WRITTEN: As the agency may request depending on circumstances. NOTE: N/A	

FIGURE 3.6

OTHER POTENTIAL REQUIRED NOTIFICATIONS (Cont'd)

OTHER POTENTIAL REQUIRED NOTIFICATIONS (Cont'd)	
TEXAS PARKS AND WILDLIFE DEPARTMENT	
Austin, Texas	(800) 792-1112 (24 Hr.)
REPORTING REQUIREMENTS TYPE: Impact to State Park VERBAL: Immediately WRITTEN: As agency may request. NOTE: Provides expertise.	
U.S. FISH AND WILDLIFE SERVICE	
Houston, Texas	(800) 344-9453 (24 Hr.) (281) 286-8282 (Day Phone)
REPORTING REQUIREMENTS TYPE: Impact to endangered or threatened species. VERBAL: Immediately. WRITTEN: As agency may request. NOTE: Provides expertise.	

FIGURE 3.7

FIRE, POLICE, HOSPITALS, AIR MEDICAL SERVICE

FIRE, POLICE, HOSPITALS, AIR MEDICAL SERVICE		
DIAL 911 for All Police, Fire, and Ambulance Emergencies		
SERVICE	**LOCATION**	**TELEPHONE**
Houston HCA Southeast	Pasadena, Texas	(713) 359-2000
Harris County Fire Marshal	Houston, Texas	(281) 436-8000
Harris County Sheriff's Dept.	Houston, Texas	(713) 221-6000
Texas State Police	Austin, Texas	(512) 424-2000
Galena Park Fire Department	Galena Park, Texas	911 / (713) 674-5311
Galena Park Police Department	Galena Park, Texas	(713) 675-3471

FIGURE 3.8

MEDIA NOTIFICATIONS

MEDIA NOTIFICATIONS		
MEDIA OUTLET	**LOCATION**	**TELEPHONE**
National Weather Service	League City, Texas	(281) 337-5074
KIAH-TV Ch 39	Houston, Texas	(713) 435-2954
KPRC-TV Ch 2 NBC	Houston, Texas	(713) 778-4910
KRIV-TV Ch 26 FOX	Houston, Texas	(713) 479-2600
KTMD-TV Ch 48 (Spanish)	Houston, Texas	(713) 783-5863
KTRK-TV Ch 13 ABC	Houston, Texas	(713) 666-8711
KXLN-TV Ch 45 (Spanish)	Houston, Texas	(713) 662-4545
KKHH 95.7 FM / 650 AM	Houston, Texas	(713) 881-5100
KILT 100.3 FM/ 610 AM	Houston, Texas	(713) 390-5458
KQBT 93.7 FM CBS	Houston, Texas	(713) 212-5937
KPRC 950 AM NBC	Houston, Texas	(713) 212-5772
KQUE 102.9 FM / KNUZ 1230	Houston, Texas	(713) 390-5300
KTRH 740 AM	Houston, Texas	(713) 212-8740
KWWJ 1360 AM	Baytown, Texas	(281) 837-8777

FIGURE 3.9

OTHER PUBLIC/INDUSTRY CONTACTS

OTHER PUBLIC/INDUSTRY CONTACTS		
NAME/COMPANY	**LOCATION**	**TELEPHONE**
North Star Midstream	Galena Park, TX	(713) 277-7000 (24 Hr.)
ICS	Galena Park, TX	(713) 675-0941
VOPAK	Galena Park, TX	(281) 604-6000
Reliant Energy	Houston, TX	(713) 207-7777 (866) 222-7100

FIGURE 3.10

NOTIFICATION DATA SHEET

Date: _____ ***Time:*** _____

INCIDENT DESCRIPTION

Reporter's Full Name: _____ ***Position:*** _____
Day Phone Number: _____ ***Evening Phone Number:*** _____
Company: Kinder Morgan Liquid Terminals ***Organization Type:*** _____
Facility Address : 906 Clinton Drive, Galena Park, Texas 77547 ***Owner's Address:*** 1001 Louisiana St., Suite 1000, Houston, Texas 77002
Facility Latitude: 29° 43' 56" N ***Facility Longitude:*** -95° 13' 34" W
Spill Location: _____
(if not at Facility) _____
Responsible Party's Name: _____ ***Phone Number:*** _____
Responsible Party's Address: _____
Source and/or cause of discharge: _____
Nearest City: Galena Park
County: Harris ***State:*** Texas ***Zip code:*** 77506
Section: _____ ***Township:*** _____ ***Range:*** _____ ***Borough:*** _____
Distance from City: _____ ***Direction from City:*** _____
Container Type: _____ ***Container Storage Capacity:*** _____
Facility Oil Storage Capacity: 440,685,253 ***Units of Measure:*** Gallons
Material:

Material/CHRIS Code	Water Impact (*YES or NO*)	Quantity into Water

RESPONSE ACTION(S)

Action(s) taken to Correct, Control, or Mitigate Incident: _____
Number of Injuries: _____ ***Number of Deaths:*** _____
Evacuation(s): _____ ***Number Evacuated:*** _____
Damage Estimate: _____
More information about impacted medium: _____

CALLER NOTIFICATIONS

National Response Center (NRC): (800) 424-8802 or (202) 267-2675
Additional Notifications (Circle all applicable): ***USCG*** ***EPA*** ***State*** ***Other***

ADDITIONAL INFORMATION

Any information about the incident not recorded elsewhere in this report: _____

NOTE: DO NOT DELAY NOTIFICATION PENDING COLLECTION OF ALL INFORMATION.

4.0 INITIAL RESPONSE

4.1 EMERGENCY RESPONSE TEAM ACTIVATION

- Upon hearing the notification that a spill has occurred, all available, on-duty ERT members will immediately and without further notification, leave their normal job assignment (as conditions permit) and respond to the up-wind side of the emergency. The most qualified responding on-duty ERT member will serve as the ICS Operations Section Chief overseeing all tactical emergency response activities in the initial response. Additional members of the ERT will assume the various ICS positions based on the specifics of the incident and their capabilities.

4.2 INCIDENT SPECIFIC RESPONSE ACTIONS

Spill or Leak / Failure of Manifold / Mechanical Loading Arm / Transfer Equipment / Hoses / Piping Rupture / Piping Leak (both under pressure and not under pressure) / Equipment Failure

- Shut down pumping equipment.
- Close upstream and downstream block valves.
- Ensure that all drainage valve(s) are "closed".
- Mitigate spreading of the product, as the situation demands. Potential containment strategies include:
  - Earthen dike/berm
  - Ditching
  - Spreading sorbent material over the spill
- Prevent the spill from entering the waterways, sewer, etc. to the greatest extent possible, from a safe distance.
- Utilize Air Monitoring Equipment to assure that areas are safe to enter for continued response operations.
- Return the line/rack to service when repairs are complete.
- Clean up spilled product to eliminate possible environmental problems. Be alert for underground cables.
- Inform local operators such as utilities, telephone company, railway.
- If the spill escapes the containment area, review the location of socio-economic and environmentally sensitive areas identified in ICP Appendix A and the ESMs Figure A.2. Determine which of these may be threatened by the spill and direct the response operation to these locations. Initiate protection and recovery actions.
- Complete follow-up and written reporting, as the situation demands.

Storage Tank Leak / Tank Overfill / Tank Failure

- Shut down all product movement operations and isolate the tank.
- Ensure that the containment area/dike walls drainage valve(s) is "closed".
- If near tank bottom, consider filling tank with water and maintain water bottom to suspend the discharge.
- Utilize Air Monitoring Equipment to assure that areas are safe to enter for continued response operations.
- Block drainage of spilled material from traveling offsite.

4.2 INCIDENT SPECIFIC RESPONSE ACTIONS (Cont'd)

Storage Tank Leak / Tank Overfill / Tank Failure (Cont'd)

- Stop all traffic in hazardous area (inside and outside of property boundaries), as the situation demands.
- Remove product from containment/dike area (at a sump or in a low area).
- If applicable, process remaining product through the separator system.
- Empty tank as soon as possible.
- Clean up product spill to eliminate any possible environmental problems. Be alert for underground cables.
- Inform local operators such as utilities, telephone company, railway.
- If necessary, call one (1) of the approved waste removal companies to remove the remaining sludge and residue from the containment area. Contact the Environmental Manager, if necessary, to coordinate the removal of waste from the Facility for disposal.
- If the spill escapes the containment area, review the location of socio-economic and environmentally sensitive areas identified in Appendix A. Determine which of these may be threatened by the spill and direct the response to these locations. Initiate protection and recovery actions.
- Complete follow-up and written reporting, as the situation demands.

Leak or Spill at the Vehicle Refueling Area

- Evacuate personnel from the truck loading/unloading area, as the situation demands.
- Shut down all loading/unloading operations, pump motors and valves.
- Guard against all source of ignition.
- Stop all traffic from entering the affected area.
- If a line leaks, close off riser valves and/or tank valves.
- Clean area as appropriate with vacuum equipment, sorbent material, or flush (with water) all remaining product into the separator system.
- Turn off all vehicles.

Vapor Cloud (Massive Spill, Line Rupture, etc.)

- The person who discovers the vapor cloud will sound the alarm and notify the supervisor on duty and vacate the area.
- **Remember: the only proper action in the presence of a vapor cloud is to get away from it. Do not shut off electrical equipment.**
- All personnel will report to the evacuation muster point for roll call and further instructions.
- After all personnel have been accounted for, the Plant Manager or the Area Supervisor will initiate the following actions as deemed necessary:
  - Shut down transfer and blending operations.
  - Evacuation of adjacent property.
  - Only the fire department will be permitted to enter the plant.
- Contact the appropriate agencies and potentially affected neighbors (refer to Figure 3.5 – 3.9).

4.2 INCIDENT SPECIFIC RESPONSE ACTIONS (Cont'd)

Explosions and/or Fire

INDIVIDUAL DISCOVERING THE FIRE - (All Employees)

In the event that a fire response is required, the following actions should be taken, in order:

NOTE: If the situation warrants, and your personal safety is ensured, initial efforts to extinguish small incipient stage fires may prove to the best action. In these situations, if you believe that your personal safety is not at risk, and you can take interim measures to mitigate a situation while the Fire Department is deploying - do so.

- Notify the Management (any level).
  - Acknowledge information and switch all emergency communications to an alternate channel.
  - Shut down or secure all operations.
  - Note time of call.
  - Sound the emergency siren, contact the local fire department.
  - Have staff member check weather for any changes in wind direction.
- Account for contractors and Company personnel.
- IC mobilize to scene.
  - Check wind direction - approach from upwind.
  - Confirm and conduct a preliminary assessment of the situation upon arrival at the scene.
  - Evaluate scene for potential hazards (i.e., overhead power lines, obstacles wind direction).
  - Determine what product is involved and have SDS pulled and reviewed for PPE and firefighting instructions.
- Assemble Company personnel at the Command Post.
  - Fill positions (as required) in the Incident Management System.
  - If not already present, notify IC, Safety Officer, and Operations Chief.
  - Have fire pumps started and on standby (if applicable).
  - Initiate internal and external notifications in accordance with the fire and other.
- Eliminate any sources of ignition in the immediate area.
  - Shut down pumps and any movement into/ out of area.
  - Shut down contractor activity.
  - Stop traffic flow into and out of area.
  - Adjacent tank pumps and motors.
  - Be aware of static electricity.
- Establish objectives and priorities based on this assessment:
  - The Fire Department should quickly get water on the fire and cooling water on adjacent assets.
  - Be aware of overhead power lines, DO NOT flow water near them.
  - Find a way to get water to the fire quickly and safely (i.e., monitors, hydrants, truck).
  - Water will quickly fill the dike area.
  - Evaluate the water usage and determine whether or not to open/ close the internal and external dike drains.

4.3 PRODUCT SPECIFIC RESPONSE CONSIDERATIONS

The following emergency response guide(s) may be used by first responders during the initial phases of a hazardous material incident. Note: Safety data sheets meeting the requirements of 29 CFR 1910.1200 and 33 CFR 154.310(a)(5) are maintained separately at the Facility.

FIGURE 4.1

FLAMMABLE LIQUIDS
(e.g. Gasoline, Diesel, Naphtha)

The following information is intended to provide the initial responder(s) with data that may be useful in making quick decisions and executing prompt response actions. The information is intended for guideline purposes only.

HAZARD IDENTIFICATION / RECOGNITION

GUIDE NO. 128	• HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. • Vapors may form explosive mixtures with air. • Vapors may travel to source of ignition and flash back. • Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). • Vapor explosion hazard indoors, outdoors or in sewers. • Those substances designated with a "P" may polymerize explosively when heated or involved in a fire. • Runoff to sewer may create fire or explosion hazard. • Containers may explode when heated. • Many liquids are lighter than water. • Substance may be transported hot.

HEALTH

- Move victim to fresh air. Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions.

PUBLIC SAFETY

- Isolate spill or leak area immediately for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering area

EVACUATION	**Large Spill** □ Consider initial downwind evacuation for at least 300 meters (1,000 feet). **Fire** □ If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (½ mile) in all directions; also, consider initial evacuation for 800 meters (½ mile) in all directions.

Information excerpted from the *2016 Emergency Response Guidebook*.

4.4 FACILITY RESPONSE EQUIPMENT / RESOURCES

The Facility relies on contracted OSROs and / or Company response equipment that can be brought from other facility within the Houston Operations area. The supply of response equipment located at the Facility is identified below.

FIGURE 4.2

FACILITY RESPONSE EQUIPMENT (App. F, Section 1.3.2 to 40 CFR 112)	
Date of Last Update:	Last Inspection or Response Equipment Test Date:
Inspected By:	Last Deployment Drill Date:
Inspection Frequency:	Deployment Frequency:

SKIMMERS/PUMPS (App F, Sec. 1.3.2(1), to 40 CFR 112)

Type/Model/ Year	Operational Status	Quantity	Capacity bbl/day	Daily Effective Recovery Rate	Storage Location(s)	Date Fuel Last Changed
		NONE				

BOOM (App F, Sec. 1.3.2(2), to 40 CFR 112)

Type/Model/ Year	Operational Status	Number	Size (Length)	Containment Area	Storage Location(s)
Containment Boom/Unk/Unk	Ready	1	1,500 ft	Varies with configuration	Boom Reel

CHEMICAL DISPERSANTS* (App. F, Section 1.3.2.3, to 40 CFR 112)

Type	Operational Status	Amount	Date Purchased	Treatment Capacity	Storage Location(s)	Date Changed
		NONE				

* Were appropriate procedures used to receive approval for use of dispersants in accordance with the NCP (40 CFR 300.910) and the Area Contingency Plan (ACP), where applicable? _____(Y/N).

Name and State of On-Scene Coordinator (OSC) authorizing use

Date Authorized

FIGURE 4.2 (Cont'd)

FACILITY RESPONSE EQUIPMENT App. F, Section 1.3.2 to 40 CFR (Cont'd)	
Date of Last Update:	Last Inspection or Response Equipment Test Date:
Inspected By:	Last Deployment Drill Date:
Inspection Frequency:	Deployment Frequency:

DISPERSANT DISPENSING EQUIPMENT (App. F, Section 1.3.2.4, to 40 CFR 112)

Type/Year	Operational Status	Capacity	Storage Location(s)	Response Time
	NONE			

SORBENTS (App. F, Section 1.3.2.5, to 40 CFR 112)

Brand Name/Type	Operational Status	Size / Quantity	Storage Location(s)
Varies/Absorbent Boom	Ready	5"/200 ft	Boom House
Varies/Absorbent Pad	Ready	18 x 18/29 Bundles	Boom House
Varies/Absorbent material	Ready	40 lbs/49 Bags	Boom House

HAND TOOLS (App. F, Section 1.3.2.6, to 40 CFR 112)

Type/Year	Operational Status	Quantity	Storage Location(s)
	See Primary Water Recovery Equipment List		

COMMUNICATION EQUIPMENT (App. F, Section 1.3.2.7, to 40 CFR 112)

Type/Year	Operational Status	Quantity	Operating Frequency and Channel and/or Cell No.	Storage Location(s)/ Number
	NONE DEDICATED TO EMERGENCY RESPONSE			

FIGURE 4.2 (Cont'd)

FACILITY RESPONSE EQUIPMENT App. F, Section 1.3.2 to 40 CFR (Cont'd)	
Date of Last Update:	Last Inspection or Response Equipment Test Date: Used Dai
Inspected By: See inspection documentation on the following pages	Last Deployment Drill Date: N/A
Inspection Frequency: See inspection documentation on the following pages	Deployment Frequency: N/A

FIRE FIGHTING* AND PERSONNEL PROTECTIVE EQUIPMENT (App. F, Section 1.3.2.8, to 40 CFR 112)			
Type/Year	**Operational Status**	**Quantity**	**Storage Location(s)**
Various sizes ranging from 2.5, to 150 LB Fire extinguishers (Type A,B, C)/Varies	Ready	455	Throughout Terminal
3,000 GPM National Foam Truck[Need]	Ready	1	Fire House
1,000 GPM National Foam Truck/[Need]	Ready	1	Fire House
Trailer with 500 GAL AFFF ATC Foam	Ready	1	Fire House

*The Facility can rely on sufficient local firefighting resources and the Terminal Manager is the Designated individual at the Facility to liaison with the Fire Department on products stored onsite.

FACILITY RESPONSE EQUIPMENT App. F, Section 1.3.2 to 40 CFR (Cont'd)	
Date of Last Update:	Last Inspection or Response Equipment Test Date: Used Daily
Inspected By:	Last Deployment Drill Date:
Inspection Frequency:	Deployment Frequency:

OTHER EQUIPMENT(App. F, Section 1.3.2.9, to 40 CFR 112)			
Type/Year	**Operational Status**	**Quantity**	**Storage Location(s)/Number**
	See Primary Water Recovery Equipment List on following page.		

FIGURE 4.2 (Cont'd)

PRIMARY WATER RECOVERY EQUIPMENT LIST

PRIMARY WATER RECOVERY EQUIPMENT															
Equipment	**Boom Reel**	**Boom House**	**Spill Boat**	**Maintenance Bldg.**	**Contractor Site**	**Firehouse**	**Ship Dock #3**	**Ops Bldg.**	**Spill Trailer**	**3 Boom Reels**	**Drum Bldg.**	**Fire House**	**Maintenance**	**Contractor Onsite**	**Total**
					GP							PAS			GP/PAS
Boom	1500'									1500'					3000'
22# Dan Forth Anchor w/chain		5	1												6
40# Dan Forth Anchor w/chain		2													2
18" float		6													6
1" sch 80 pipe A53B (3' lengths)		21'													21'
1/2" nylon rope (grey - attached to anchors)		48'													48'
1/2" nylon rope (red)		360'	120'												480'
1/2" nylon rope (green)		120'	60'												180'
pipe driver		1													1
pole hooks - 6' aluminum		2													2
5" absorbent boom		200'									200'	150'			550'
Absorbent pads		29 bundles													29 Bundles
Absorbent material		49 bags													49 Bags
Shovels		10									15				25
Rakes		10									5				15
1988 Front End Loader				1											1
2007 Backhoe					1										1
1997 Cherry Picker					1										1
2005 Fire Truck						1									1
1995 Boston Whaler Boat							1								1
2005 GMC Vacuum Truck								1							1
1978 Sea Ark John Boat									1						1
1995 Mercury Outboard Motorboat									1						1
Boom Bouy											3				3
Stake Driver											1				1
Life Vests											3				3
Floating Lights											3				3
Cotton Rope											1				1
Duct Tape											3				3
Barrier Tape											1				1
Boat Plug											2				2
Tow Bridge											3				3
Boom Attachment											4				4
Tie Downs											3				3
Shackles											2				2
Anchors											2				2
Wooden Stakes											12				12
1/4" Poly Rope											1				1
5/8" Poly Rope											1				1
Orange Traffic Cones											4				4
Spill Pads											10 Bundles	15 Bundles			25 Bundles
8" absorbent boom											200'				200'
Utility Knife											1				1
Sledge Hammer											1				1
Foam Nozzle												2			2
Pry Bar												1			1
10' Scuttle Hole Ladder												1			1
Gaft Hook												1			1
Generator												1			1
20lb. ABC												1			1
2 1/2" Fog Nozzle/Sprinkler Ext.												N/A			N/A
HazMat												2			2
Foam Inductor												2			2
5" Storlz Tee												1			1
3" to 2-1/2" Fitting												1			1
6" Caps												2			2
Storlz to 1-1/2" Female												4			4
Misc. 4" & 5" Fittings												8			8
Hose 2-1/2"												N/A			N/A
Hose 1-1/2"												N/A			N/A
Hose 5"												N/A			N/A
SCBA												6			6
SCBA Masks												6			6
Hose Clamps												2			2
Hose Couplings												2			2
Hose Squeegee												1			1
Foam Transfer Kits												3			3
Ax												2			2
8" Strainer												1			1
Bolt Cutter												1			1
Portable Fire Monitors/Hose												N/A			N/A
Fire Hose (Rack) 1-3/4"												N/A			N/A
Fire Hose (Rack) 2-1/2"												N/A			N/A
Fans												2			2
Backboards												5			5
Body Harness												2			2
Lanyards												2			2
C-Collar Kit												1			1
Spider Strap, Reeves Sleeve												1			1
Tank Fall Protection Device												3			3
SCBA Extra Bottles												3			3
5" Hose												1			1
Strainers												2			2
Rechargable Light												1			1
Chocks												2			2
Nozzles 1-1/2" & 2-1/2"												12			12
Reducer 2-1/2" & 1-1/2												3			3
Tool Kit												2			2
Mallets												3			3
Hydrant Wrench												5			5
Spanner Wrench												9			9
Storlz Wrench												8			8
Gated Wye 2-1/2" & 1-1/2"												2			2
Female to Female 2-1/2"												4			4
Male to Male 2-1/2"												4			4
Misc. Gaskets												4			4
Hazard Tape												1			1
Start Triage Box												1			1
First Aid Kit												1			1
Oz Unit												1			1
Safety Belts												2			2
Sutphen Fire Truck												1			1
Long Tractor													1		1
D&H Crane 20 ton													1		1
Chevy C-60 PLL													1		1
JCB Rubber Tire Backhoe														1	1
Case Power & Equip Rubber Tire Backhoe														1	1
Case Power & Equip Dozer, 450														1	1

FIGURE 4.3

RESPONSE EQUIPMENT TESTING/DEPLOYMENT
(App. F, Sec.1.3.3, to 40 CFR 112)

Date of Last Update: _____

Last inspection or Response Equipment Test Date:	
Inspection Frequency:	Quarterly
Last Deployment Drill Date:	
Deployment Frequency:	Semi Annual
Oil Spill Removal Organization Certification (if applicable):	

4.5 AIR MONITORING

During an incident in which oil or hazardous material has been spilled or potentially could affect the response, prior to engaging in any spill response activity, air monitoring should be conducted in the affected area.

It is imperative that all air monitoring equipment is operated and their data interpreted by trained personnel thoroughly familiar with the equipment.

- The air monitoring equipment should be calibrated before and after every use using the equipment manufacturer's recommended procedures and standards.
- Air monitoring measurements which are to be made prior to entry into the spill area include:
  - Lower Explosive Limit (LEL)
  - Oxygen content
- LEL readings above 10% require immediate evacuation of the area and elimination of ignition sources.
- Oxygen readings below 19.5% require the use of air supplied respiratory protection.
- Where unknown and multiple contaminants may be present, instrument readings should be interpreted conservatively.

The Incident Commander is responsible for industrial hygiene monitoring in the post discovery period and may refer to the Safety Officer.

4.6 DECONTAMINATION

Establishing "Exclusion (Hot)", "Contamination Reduction Zone (Warm)", and "Support (Cold)" zones are required to prevent the removal of contaminants from the contaminated area by response personnel and activities as well as unauthorized entry into contaminated areas.

- Regardless of the decontamination facilities available, all efforts to minimize personnel exposure should be taken.
- Decontamination facilities should be positioned prior to employee/ contractor entrance to areas where the potential for exposure to contamination exists. The appropriate Safety Data Sheets (SDS) are available to aid health professionals treating the injured parties. SDS are separately maintained at the Facility.
- Decontamination facilities should be designed to prevent further contamination of the environment and should have a temporary storage area for items that will be reused in the contaminated area.
- Particular attention should be paid to personal hygiene prior to eating, drinking, or smoking.

4.7 PERSONAL PROTECTIVE EQUIPMENT

The following represents OSHA/EPA designated PPE levels for responding to emergencies, post emergency cleanup sites, and/or Temporary Storage and Disposal (TSD) sites. The responder's PPE should be chosen based on his/her level of training and assigned job duties.

Personal Protective Equipment (PPE)	
LEVEL A • Self-Contained Breathing Apparatus (SCBA) (worn inside suit) • Encapsulated Chemical Protective Suit • Chemical Protective Gloves • Chemical Protective Boots • Hard Hat	**LEVEL B** • SCBA (worn outside suit) • Chemical Protective Suit w/Hood • Chemical Protective Boots • Chemical Protective Gloves • Hard Hat
LEVEL C • Air Purifying Respirator (APR) • APR Y2 Face / Full Face • Hard Hat • Glasses (worn with Y2 face APR) • Chemical Protective Boots • Chemical Protective Gloves • Chemical Protective Suit/Tyvek	**LEVEL D** • Hard Hat • Safety Glasses • Work Uniform / Clothes • Leather Gloves • Safety Boots • Flame Retardant Clothing (FRC)
MODIFIED LEVEL C Same as Level C except no APR requirements.	

5.0 SUSTAINED ACTIONS

5.1 INTRODUCTION

This section describes the processes for managing transition from the initial emergency response to sustained actions. The Emergency Response Team (ERT) will continue to maintain key functions during a sustained event but support will be provided through other corporate resources and contracted support.

The key to an effective emergency response is a rapid, coordinated, tiered response by the affected facility, and the Company consistent with the magnitude of an incident. The USCG Incident Management Handbook (IMH) contains an in-depth description of all ICS positions, ICS development, response objectives and strategies, command responsibilities, ICS specific glossary/acronyms, resource typing, the Incident Action Plan (IAP) process, and meetings.

Additional support personnel, local emergency services providers, mutual aid partners and/or emergency services contractors can called to respond to the Facility, as required. To support sustained and ongoing operations of a complex emergency, managers, supervisors and tactically trained and qualified emergency response personnel from other facilities may also be called upon for assistance by the Incident Commander.

5.1.1 Incident Action Plan

Emergency response activities are planned and coordinated through the use of an Incident Action Plan (IAP) which is developed for each Operational Period of a response by the Incident Management Team. For small responses, an ICS 201 (Incident Briefing Form), may be used as the IAP and, for all incidents, the ICS 201 will serve as the initial IAP (see Appendix F - ICS and Other Miscellaneous Forms).

5.1 INTRODUCTION (Cont'd)

5.1.1 Incident Action Plan (Cont'd)

For larger or more complex incidents, a more complete IAP will be necessary. These IAPs are generally created through the completion and compilation of several standard ICS forms. These forms include, but are not limited to:

NIMS ICS Forms		
ICS Form #	**Form Title**	**Prepared By**
IAP	Cover Sheet	Documentation Unit Leader
ICS-201-CG	Incident Briefing	Incident Commander (IC)
ICS-202-CG	Response Objectives	Planning Section Chief (Planning)
ICS-203-CG	Organization Assignment List	Resources Unit Leader (Planning)
ICS-204-CG	Assignment List	Resources Unit Leader (Planning)
ICS-204a-CG	Assignment List Attachment	Resources Unit Leader (Planning)
ICS-205-CG	Incident Radio Communications Plan	Communications Unit Leader (Logistics)
ICS-205A-CG	Communications List	Communications Unit Leader (Logistics)
ICS-206-CG	Medical Plan	Medical Unit Leader (Logistics)
ICS-207-CG	Incident Organization Chart	Resources Unit (Planning)
ICS-208-CG	Site Safety and Health Plan	Safety Officer
ICS-209-CG	Incident Status Summary	Situation Unit Leader (Planning)
ICS-210-CG	Status Change Card	Communications Center (Logistics)
ICS-211-CG	Check-In List	Resources Unit (Planning)
ICS211-p-CG	Check-In List (Personnel)	Resources Unit (Planning)
ICS-213-CG	General Message	Any message originator
ICS-213 RR-CG	Resource Request Message	Any message originator
ICS-214-CG	Unit Log	All sections and units
ICS-214a-CG	Individual Log	All sections and units
ICS-215-CG	Operational Planning Worksheet	Operations Section Chief (Operations)
ICS-217	Radio Frequency Assignment Worksheet	Communications Unit (Logistics)
ICS-218	Support Vehicle Inventory	Ground Support Unit (Logistics)
ICS-220-CG	Air Operations Summary	Operations Section Chief or Air Branch Director (Operations)
ICS-221-CG	Demobilization Check-Out	Demobilization Unit (Planning)
ICS-230-CG	Daily Meeting Schedule	All sections and units
ICS-231-CG	Meeting Summary	All sections and units
ICS-232	Resources at Risk Summary	Situation Unit Leader (Planning)
ICS-232a-CG	ACP Site Index	Situation Unit Leader (Planning)
ICS-233	Incident Open Action Tracker	Planning Section Chief (Planning)
ICS-234-CG	Work Analysis Matrix	Operations Section Chief (Operations)

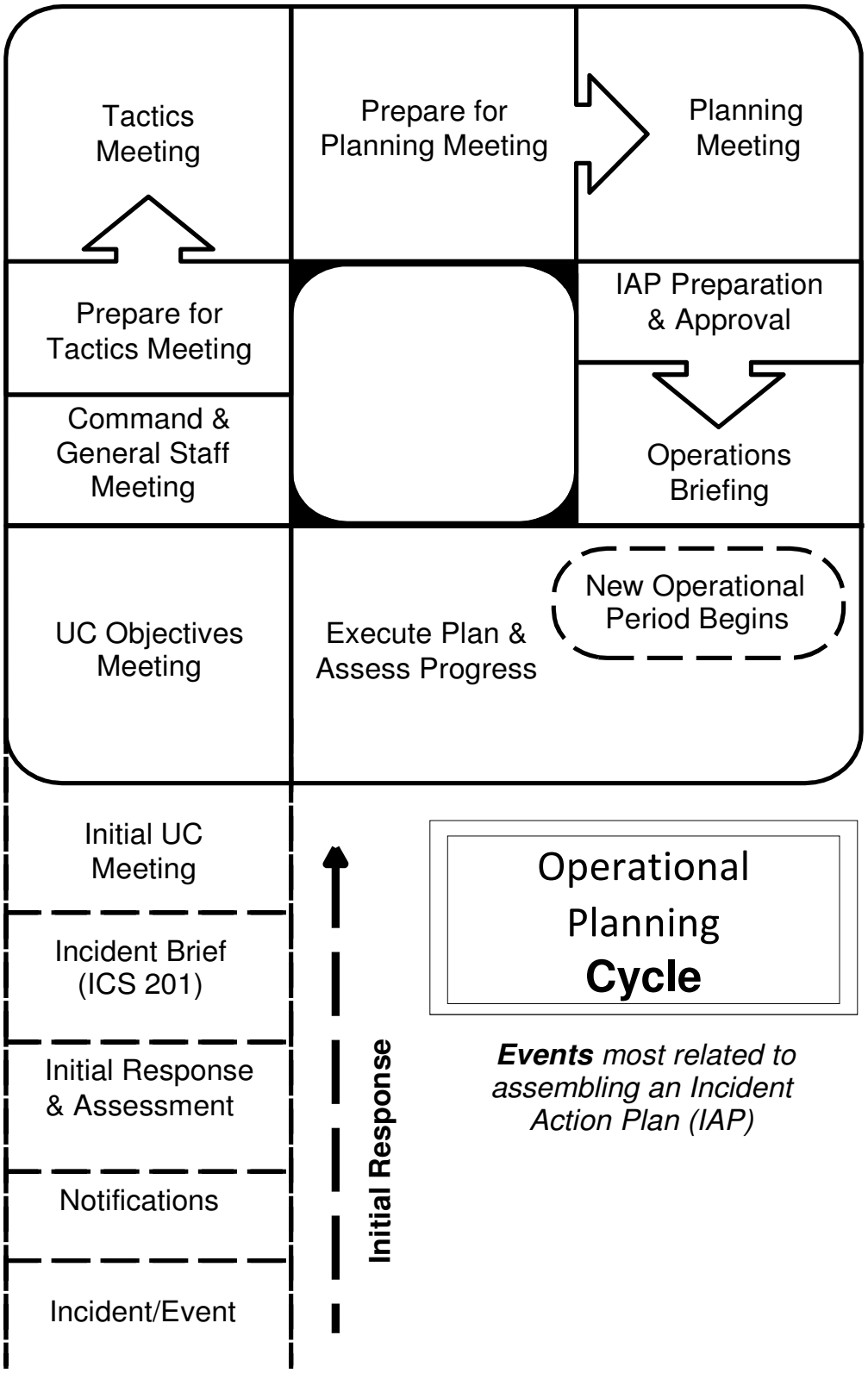
5.1 INTRODUCTION (Cont'd)

5.1.2 Site Safety Plan

Site Safety Plans (SSP) are required by OSHA (29 CFR1910.120(b)(4)) for all hazardous waste operations. The SSP should address all on-site operations and hazardous as well as on-site emergency procedures. A template for use in producing an SSP is provided in Appendix F.

The SSP is typically prepared by the Safety Officer and approved by the Incident Commander or the Unified Command. All personnel must be familiar with the contents of the SSP and the SSP must be updated as conditions, operations and hazards associated with the response change.

PLANNING P


Tactics Meeting
Prepare for Planning Meeting
Planning Meeting
Prepare for Tactics Meeting
IAP Preparation & Approval
Command & General Staff Meeting
Operations Briefing
UC Objectives Meeting
Execute Plan & Assess Progress
New Operational Period Begins
Initial UC Meeting
Incident Brief (ICS 201)
Initial Response & Assessment
Notifications
Incident/Event
Initial Response
Operational Planning Cycle
Events most related to assembling an Incident Action Plan (IAP)

5.2 QUALIFIED INDIVIDUAL

The Qualified Individual (QI) is responsible for the full implementation of the Integrated Contingency Plan, and is trained for these responsibilities. The Alternate Qualified Individual (AQI) provides relief to the QI, as needed. The QI is responsible for implementing response plans, directing response operations, and resolving internal conflicts that arise during response operations either directly or through the use of qualified designees. The QI or alternate must speak fluent English, be located in the United States, available on a 24-hour basis, and able to arrive at the Facility in a reasonable time.

It is the responsibility of the QI or his/her designee to coordinate with the Federal On-Scene Coordinator (FOSC) and State On-Scene Coordinator (SOSC) throughout the response.

DUTIES OF	
Qualified Individual (QI) include:	**Emergency Coordinator include:**
Activate internal alarms and hazard communication systems to notify all Facility personnel. Notify all response personnel, as needed. Identify the character, exact source, amount, and extent of the release, as well as the other items needed for notification. Notify and provide necessary information to the appropriate Federal, State, and Local authorities with designated response roles, including the National Response Center (NRC), State Emergency Response Commission (SERC), and local response agencies. Assess the possible hazards to human health and the environment due to the release. This assessment must consider both the direct and indirect effects of the release (i.e., the effects of any toxic, irritating, or asphyxiating gases that may be generated, or the effects of any hazardous surface water runoffs from water or chemical agents used to control fire and heat-induced explosion). Assess the interaction of the spilled substance with water and/or other substances stored at the Facility.	Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and Notify appropriate State or local agencies with designated response roles if their help is needed. Identify the character, exact source, amount, and areal extent of any released materials whenever there is release, fire, or explosion. Where assessment indicates that evacuation of local areas may be advisable: Notify appropriate local authorities. Be available to help appropriate officials decide whether local areas should be evacuated; and Immediately notify either the government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their 24-hour toll free number 800/424-8802). Assess possible hazards to human health or the environment that may result from the release, fire, or explosion.

5.2 QUALIFIED INDIVIDUAL (Cont'd)

DUTIES OF	
Qualified Individual (QI) include:	**Emergency Coordinator include:**
Assess and implement prompt removal actions to contain and remove the substance released. Coordinate rescue and response actions as previously arranged with all response personnel. Activate and engage in contracting with oil spill removal organizations (OSRO). Use authority to immediately access Company funding to initiate cleanup activities. Direct cleanup activities until properly relieved of this responsibility. Arrangements will be made to ensure that the Qualified Individual (QI) or the Alternate Qualified Individual (AQI) is available on a 24-hour basis and is able to arrive at the Facility in a reasonable time. Act of liaison with the predesignated Federal On-Scene Coordinator (OSC). Be located within the United States, speak English fluently, familiar with the implementation of the plan, and trained in the responsibilities of the duties. The AQI shall replace the QI in the event of his/her absence and have the same responsibilities and authority.	Take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers. Monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, as appropriate, where operations stopped in response to a fire, explosion or release. Provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the Facility immediately after the emergency. Ensure that, in the affected area(s): No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

5.3 EMERGENCY RESPONSE TEAM (ERT)

The number of positions/personnel required to staff the ERT will depend on the size and complexity of the incident. The duties of each position may be performed by the IC directly or delegated as the situation demands. The IC is always responsible for directing the response activities and will assume the duties of all the primary positions until the duties can be delegated to other qualified personnel.

5.4 INCIDENT MANAGEMENT ORGANIZATION

The Company Incident Management Organization effectively integrates two elements - the on-scene Emergency Response Team (ERT), and the longer term Incident Management Team (IMT.) Each of these elements has predefined roles and responsibilities summarized below.

- **Emergency Response Team (ERT)**. The ERT consists of Company personnel, industrial mutual aid and environmental contractor's units operating at the scene of an emergency under the command of the On-Scene Commander. Depending upon the nature of the incident, emergency response team operations could include firefighting, HAZMAT, medical, oil spill response, technical rescue and scene safety.

- **Incident Management Team (IMT) (e.g., Command Staff, Planning, Logistics, and Finance Sections).** Consists of other Company personnel who are responsible for managing the overall emergency response, addressing corporate, external and governmental notifications and supporting emergency and process control operations in the field. Some of these roles may be contracted out to capable third party companies that are specialized in this field.

The key to an effective emergency response is a rapid, coordinated, tiered response by the ERT/IMT and the Oil Spill Removal Organization (OSRO), consistent with the magnitude of an incident.

5.5 KM CRISIS SUPPORT TEAM (CST)

Kinder Morgan (KM) has established a Crisis Support Plan (CSP) to assist local field groups in responding to crises in their areas. In addition to typical emergencies such as releases, fires, and explosions, the plan may be used to address the response to less obvious crises such as negative media, national security threats and natural disasters that affect the overall well-being of KM.

During most emergencies and crises, the local facility response plan provides the appropriate immediate response. If the situation warrants, the Crisis Support Plan would be implemented to supplement local response activities by using personnel (called the Crisis Support Team (CST)) in the Houston, Texas; Orange, California; Lakewood, Colorado; and/or Alpharetta, Georgia offices – all of which can operate 24 hours per day when activated.

The focus of the KM Crisis Support Team (CST) is to augment the company's various existing emergency response plans and capabilities with additional resources, equipment, and crisis response planning, at the KM management level. The CSP provides the mechanism for activating the KM CST and affiliated Crisis Support Center.

5.6 INCIDENT COMMAND SYSTEM

The Incident Command System is intended to be used as an emergency management tool to aid in mitigating all types of emergency incidents. This system is readily adaptable to very small emergency incidents as well as more significant or complex emergencies. The Incident Command System utilizes the following criteria as key operational factors:

- Assigns overall authority to one individual
- Provides structured authority, roles and responsibilities during emergencies
- The system is simple and familiar, and is used routinely at all incidents
- Communications are structured
- There is a structured system for response and assignment of resources
- The system provides for expansion, escalation, and transfer/transition of roles and responsibilities
- The system allows for "Unified Command" where agency involvement at the command level is required.

Effective establishment and utilization of the Incident Command System during response to all types of emergencies can:

- Provide for increased safety
- Shorten emergency mitigation time by providing more effective and organized mitigation
- Cause increased confidence and support from Local, State, and Federal public sector emergency response personnel
- Provide a solid cornerstone for emergency planning efforts.

The Incident Command structure outlined in the IMH is shown in Figure 5.1. A description of each ICS position, the primary responsibilities, and pre-emergency planning activities are provided in Appendix D.

5.7 UNIFIED COMMAND

As a component of an ICS, the Unified Command (UC) is a structure that brings together the Incident Commanders of all major organizations involved in the incident to coordinate an effective response while still meeting their own responsibilities. The UC links the organizations responding to the incident and provides a forum for the Responsible Party and responding agencies to make consensus decisions. Under the UC, the various jurisdictions and/or agencies and responders may blend together throughout the organization to create an integrated response team. The ICS process requires the UC to set clear objectives to guide the on-scene response resources.

Multiple jurisdictions may be involved in a response effort utilizing Unified Command. These jurisdictions could be represented by any combination of:

- Geographic boundaries
- Government levels
- Functional responsibilities
- Statutory responsibilities

The participants of Unified Command for a specific incident will be determined taking into account the specifics of the incident and existing response plans and/or decisions reached during the initial meeting of the UC. The UC may change as the incident progresses, in order to account for changes in the situation.

5.7.1 Role of Federal On-Scene Coordinator (FOSC):

Federal On-Scene Coordinators (FOSCs) are the federal officials predesignated by EPA and the USCG to coordinate response resources. The FOSC, either directly or through his or her staff, monitors, provides technical assistance, and/or directs federal and potentially responsible party (PRP) resources. As the state and local responder's gateway to the resources of the NRS, it is the FOSC's responsibility to provide access to resources and technical assistance that may not otherwise be available to a community. Under the NCP, if federal involvement is necessary because state and local resources have been exceeded, the FOSC is obligated to coordinate the use of these resources to protect public health and the environment. During an oil or hazmat incident, EPA will usually provide FOSCs in the inland zone, and the USCG will generally provide FOSCs in the coastal zone, which become part of a Unified Command System with the responsible party.

5.7.2 Unified Command Responsibilities:

The UC is responsible for overall management of an incident. The UC directs incident activities and approves and releases resources. The UC structure is a vehicle for coordination, cooperation and communication that is essential to an effective response.

5.7 UNIFIED COMMAND (Cont'd)

5.7.2 Unified Command Responsibilities (Cont'd):

UC representatives must be able to:

- Agree on common incident objectives and priorities
- Have the capability to sustain a 24-hour-7-day-a-week commitment to the incident
- Have the authority to commit agency or Company resources to the incident
- Have the authority to spend agency or Company funds
- Agree on an incident response organization
- Agree on the appropriate Command and General Staff assignments
- Commit to speak with "one voice" through the Public Information Officer or Joint Information Center
- Agree on logistical support procedures
- Agree on cost-sharing procedures

FIGURE 5.1

EMERGENCY RESPONSE TEAM - COMMAND STRUCTURE

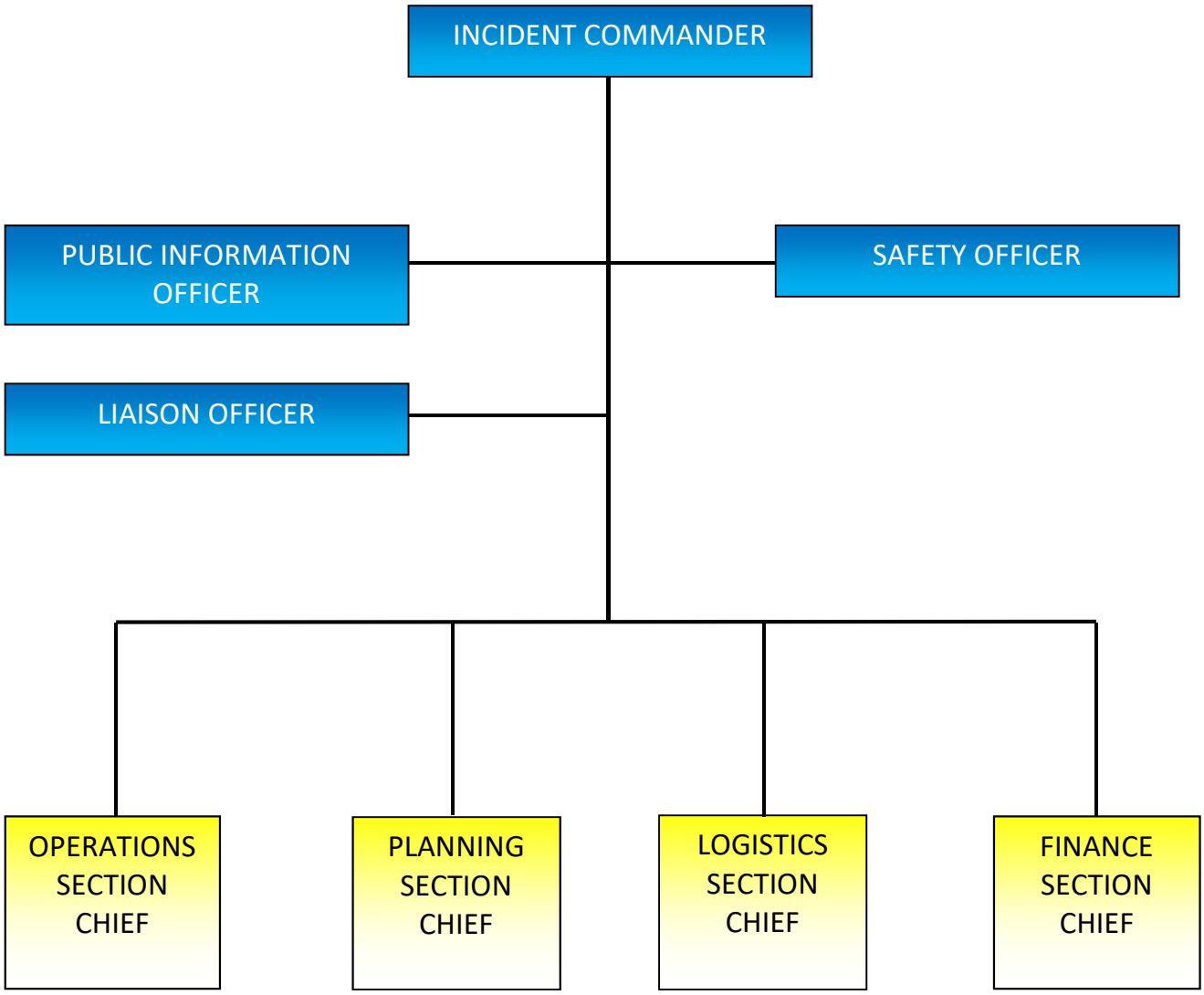


FIGURE 5.2

INCIDENT MANAGEMENT ORGANIZATION
(Inland or Coastal Oil Spills)

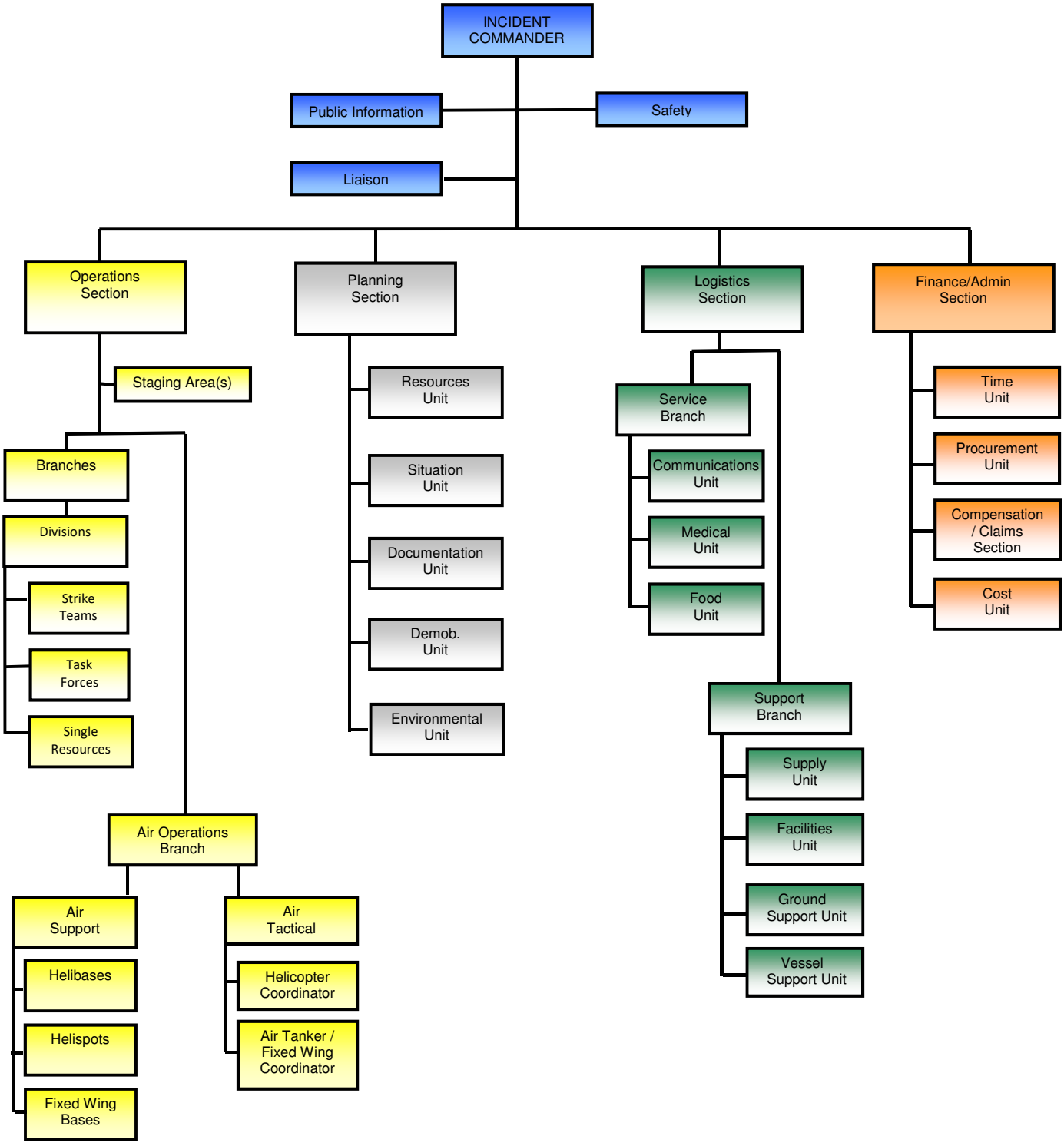


FIGURE 5.3

CONTRACTED RESPONSE RESOURCES

The following tables outline the various response equipment/resources available from the Oil Spill Removal Organizations as required by the Oil Pollution Act of 1990.

USCG CLASSIFIED OIL SPILL REMOVAL ORGANIZATION (OSRO)							
OSRO Name	Response Time	Environment Type	Facility Classification Level				High Volume
			MM	W1	W2	W3	
OMI Environmental Solutions	0.5 - 1 Hour	River/Canal	Y	Y	Y	Y	Yes
		Inland	Y	Y	Y	Y	
Horizon Environmental	0.5 - 1 Hour	River/Canal	Y	Y	Y		
		Inland	Y				
Phoenix Pollution Control & Environmental Services	0.5 - 1 Hour	River/Canal	Y	Y	Y		
		Inland	Y				

FIGURE 5.4

USCG OSRO CLASSIFICATIONS

The USCG has classified OSROs according to their response capabilities, within each Captain of the Port (COTP) zone, for vessels and for facilities in four types of environments. Response capabilities are rated MM, W1, W2, or W3 as described below.

MINIMUM EQUIPMENT REQUIREMENTS FOR OSRO CLASSIFICATIONS			
Classification	**Resource Quantity Guidelines[2, 3]**	**Maximum Facility Response Times**	**Maximum Vessel Response Times**
Rivers/Canals[1]			
MM	Protective Boom: 4,000*ft EDRC: 1,200 bbls TSC: 2,400 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports: 12 hours Other Ports: 24 hours
W1	Protective Boom: 25,000*ft EDRC: 1,875 bbls TSC: 3,750 bbls	High Volume Ports: 12 hours Other Ports: 24 hours	High Volume Ports: 12 hours Other Ports: 24 hours
W2	Protective Boom: 25,000*ft EDRC: 3,750 bbls TSC: 7,500 bbls	High Volume Ports: 30 hours Other Ports: 36 hours	High Volume Ports: 36 hours Other Ports: 48 hours
W3	Protective Boom: 25,000*ft EDRC: 7,500 bbls TSC: 15,000 bbls	High Volume Ports: 54 hours Other Ports: 60 hours	High Volume Ports: 60 hours Other Ports: 72 hours
Great Lakes			
MM	Protective Boom: 6,000*ft EDRC: 1,250 bbls TSC: 2,400 bbls	All Ports: 6 hours	All Ports: 12 hours
W1	Protective Boom: 30,000*ft EDRC: 6,250 bbls TSC: 12,500 bbls	All Ports: 12 hours	All Ports: 18 hours
W2	Protective Boom: 30,000*ft EDRC: 12,500 bbls TSC: 25,000 bbls	All Ports: 36 hours	All Ports: 42 hours
W3	Protective Boom: 30,000*ft EDRC: 25,000 bbls TSC: 50,000 bbls	All Ports: 60 hours	All Ports: 66 hours

FIGURE 5.4

USCG OSRO CLASSIFICATIONS (Cont'd)

The USCG has classified OSROs according to their response capabilities, within each Captain of the Port (COTP) zone, for vessels and for facilities in four types of environments. Response capabilities are rated MM, W1, W2, or W3 as described below.

MINIMUM EQUIPMENT REQUIREMENTS FOR OSRO CLASSIFICATIONS			
Classification	**Resource Quantity Guidelines[2, 3]**	**Maximum Facility Response Times**	**Maximum Vessel Response Times**
Inland[1]			
MM	Protective Boom: 6,000*ft EDRC: 1,200 bbls TSC: 2,400 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports: 12 hours Other Ports: 24 hours
W1	Protective Boom: 30,000*ft EDRC: 12,500 bbls TSC: 25,500 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports: 12 hours Other Ports: 24 hours
W2	Protective Boom: 30,000*ft EDRC: 25,000 bbls TSC: 50,000 bbls	High Volume Ports: 30 hours Other Ports: 36 hours	High Volume Ports: 36 hours Other Ports: 48 hours
W3	Protective Boom: 30,000*ft EDRC: 50,000 bbls TSC: 100,000 bbls	High Volume Ports: 54 hours Other Ports: 60 hours	High Volume Ports: 60 hours Other Ports: 72 hours
Nearshore			
MM	Protective Boom: 8,000*ft EDRC: 1,200 bbls TSC: 2,400 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports: 12 hours Other Ports: 24 hours
W1	Protective Boom: 30,000*ft EDRC: 12,500 bbls TSC: 25,000 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports: 12 hours Other Ports: 24 hours
W2	Protective Boom: 30,000*ft EDRC: 25,000 bbls TSC: 50,500 bbls	High Volume Ports: 30 hours Other Ports: 36 hours	High Volume Ports: 36 hours Other Ports: 48 hours
W3	Protective Boom: 30,000*ft EDRC: 50,000 bbls TSC: 100,000 bbls	High Volume Ports: 54 hours Other Ports: 60 hours (for open ocean, plus travel time from shore)	High Volume Ports: 60 hours Other Ports: 72 hours (for open ocean, plus travel time from shore)

FIGURE 5.4

USCG OSRO CLASSIFICATIONS (Cont'd)

The USCG has classified OSROs according to their response capabilities, within each Captain of the Port (COTP) zone, for vessels and for facilities in four types of environments. Response capabilities are rated MM, W1, W2, or W3 as described below.

MINIMUM EQUIPMENT REQUIREMENTS FOR OSRO CLASSIFICATIONS			
Classification	**Resource Quantity Guidelines[2, 3]**	**Maximum Facility Response Times**	**Maximum Vessel Response Times**
Offshore			
MM	Protective Boom: 6,000*ft EDRC: 1,200 bbls TSC: 2,400 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports 12 hours Other Ports: 24 hours
W1	Protective Boom: 15,000*ft EDRC: 12,500 bbls TSC: 25,500 bbls	High Volume Ports: 24 hours Other Ports: 48 hours	High Volume Ports 24 hours Other Ports: 48 hours
W2	Protective Boom: 15,000*ft EDRC: 25,000 bbls TSC: 50,000 bbls	High Volume Ports: 30 hours Other Ports: 36 hours	High Volume Ports 36 hours Other Ports: 48 hours
W3	Protective Boom: 15,000*ft EDRC: 50,000 bbls TSC: 100,000 bbls	High Volume Ports: 54 hours Other Ports: 60 hours	High Volume Ports 60 hours Other Ports: 72 hours
Open Ocean			
MM	Protective Boom: 0*ft EDRC: 1,200 bbls TSC: 2,400 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports 12 hours Other Ports: 24 hours
W1	Protective Boom: 0*ft EDRC: 12,500 bbls TSC: 25,500 bbls	High Volume Ports: 6 hours Other Ports: 12 hours	High Volume Ports 12 hours Other Ports: 24 hours
W2	Protective Boom: 0*ft EDRC: 25,000 bbls TSC: 50,000 bbls	High Volume Ports: 30 hours Other Ports: 36 hours	High Volume Ports 36 hours Other Ports: 48 hours
W3	Protective Boom: 0*ft EDRC: 50,000 bbls TSC: 100,000 bbls	High Volume Ports: 54 hours Other Ports: 60 hours	High Volume Ports 60 hours Other Ports: 72 hours

1. Rivers/canals include bodies of water, including the Intracoastal Waterway and other bodies artificially created for navigation, confined within an inland area and having a project depth of 12 feet (3.66 meters).
2. EDRC stands for "effective daily recovery capacity," or the calculated recovery capacity of oil recovery devices determined by using a formula that takes into account limiting factors such as daylight, weather, sea state, and emulsified oil in the recovered material.
3. TSC stands for "temporary storage capacity," meaning sufficient storage capacity equal to twice the EDRC of an OSRO. Temporary storage may include inflatable bladders, rubber barges, certified barge capacity, or other temporary storage that can be utilized on scene at a spill response and which is designed and intended for the storage of flammable or combustible liquids. It does not include vessels or barges of opportunity for which no pre-arrangements have been made. Fixed shore- based storage capacity, ensured available by contract or other means, will be acceptable.

* In addition, 1,000 feet of containment boom plus 300 feet per skimming system.

FIGURE 5.5

OSRO CONTRACTS

OMI Environmental Solutions

Horizon Environmental

Phoenix Pollution Control & Environmental Services

131 Keating Drive
Belle Chasse, LA 70037

Phone: (504) 394-6110
Fax: (504) 392-8977

April 29, 2021

Kinder Morgan
11821-1-10 East Freeway
Houston, TX 77029

RE: Letter of Intent – Agreement for Emergency Spill Response
Pasadena, KMET, JSTR, and Galena Park Terminals

Dear Mr. Allen,

Thank you for the opportunity to be of service to **Kinder Morgan.** ***OMI Environmental Solutions (Oil Mop)*** can provide emergency response services to your facilities on a 24-hour basis and, depending on availability and proximity of our facilities to the incident, in compliance with AMPD requirements, can respond to your location with emergency response equipment and personnel within one (1) hour. All of our response resources are listed within our United States Coast Guard ("USCG") Oil Spill Removal Organization ("OSRO") Classification. Our resources are maintained and exercised annually in accordance with the USCG PREP and OPA 90 readiness guidelines, and ***Oil Mop*** is listed as an MM through W3 Company with the USCG. Per 33 CFR 154.1045 paragraphs (c)(1) and (c)(2), all time and equipment requirements will be met for the worst-case discharge. ***OMI Environmental Solutions*** is also listed with the USCG as a Non-Floating Oils OSRO, and per 33 CFR 154.1045 paragraph (d), can meet vessel and facility on-scene response time requirements.

All of ***Oil Mop's*** response resources, maintenance and training records are available for inspection by **Kinder Morgan** upon request. ***Oil Mop*** will provide response services to **Kinder Morgan** on an immediate basis. In the event ***Oil Mop*** is unable to provide immediate response services for any reason whatsoever, ***Oil Mop*** will subcontract and/or assign the work to be performed hereunder. Response times will vary due to facility/vessel location.

The response agreement covers a five (5) year period, starting in **April 2021** through **April 2026.**

24-Hour Emergency Response Hotline

1-800-645-6671

This Letter of Intent will provide proof of our intention to respond with all available resources. Please reference the Master Service Agreement with ***OMI Environmental Solutions*** for Terms and Conditions.

Again, thank you for the opportunity to be of service to **Kinder Morgan.** If we can be of any further assistance, please feel free to call at any time.

Sincerely,

Neil Montgomery
Contracts Manager

HORIZON
environmental

5/21/2021

Kinder Morgan Galena Park Terminal
Attn: Mr. Lance Wiley
906 Clinton Drive
Galena Park, TX 77547

RE: Letter of Intent - Emergency Response Capabilities

Dear Lance:

Anderson Pollution Control, Inc. d/b/a Horizon Environmental is pleased to offer our emergency response resources Kinder Morgan for Galena Park and Pasadena Locations listed below:

400 N Jefferson St. Pasadena, TX 77506-Jefferson Street Truck Rack (JSTR)
901 Light Company Rd. Pasadena, TX 77506-Kinder Morgan Export Terminal (KMET)
906 Clinton Drive Galena Park, TX 77547-Galena Park Terminal
1420 North Winter St. Pasadena, TX 77502-Pasadena/North Dock Terminal

Horizon Environmental can have the necessary resources to the geographic area that contains the terminal within the time frame intended by OPA 90. Horizon Environmental resources will be provided based upon availability at the time of notification. All of our facilities are manned with 40 hour HAZWOPER trained personnel that are capable of responding to oil spills.

Should you have any questions or comments regarding these provisions please feel free to contact me at the Horizon Environmental 24 Hour Emergency Response Hotline: (866) 609-6208 or by e-mail at davian.ploger@horizon-environ.com

Best Regards,

Davian M. Ploger
President/COO

2407 Albright Drive Houston, TX 77017
Tel. (281) 479-5300 • Fax. (713) 947-3802 • info@horizon-environ.com
www.horizon-environ.com

Phoenix
Pollution Control &
Environmental Services, Inc.

January 4, 2021

Kinder Morgan Inc

1420 N Witter St
Pasadena, TX 77502

1500 Clinton Dr.
Galena Park, TX 77547

901 Light Company Rd.
Pasadena, TX 77506

400 Jefferson Rd.
Pasadena, TX 77503

13609 Industrial Rd.
Houston, TX 77015
Greens Port Gate #5

Attention: Darren Allen
[redacted]

Reference: 2021 P.R.E.P Report/ Letter of Intent to Respond

Dear Mr. Allen,

Phoenix Pollution Control and Environmental Services, Inc (Phoenix) is pleased to offer our emergency response resources in the event of an environmental emergency to your facilities.

Phoenix will be able to respond to an Average Most Probable Discharge release with the necessary resources and within the time-frame intended by OPA 1990. Phoenix resources will be provided based upon availability at the time of notification. All of Phoenix personnel are qualified and are capable of responding to oil and/or a Hazardous Material spill.

In regard to the Preparedness for Response Exercise Program (P.R.E.P.) requirements of Response Plan Holders under OPA-90, Phoenix is a U.S.C.G. certified Oil Spill Removal Organization (OSRO #206), a Certified Discharge Cleanup Organization (DCO) by the Texas General Land Office, and is an active Oil Spill/ Hazardous Material response company that exercises and utilize its spill response equipment on a regular basis.

Phoenix has a standard on-going training program for all of their response personnel. This training includes, but is not limited to, 40-hour Hazwoper, 8-Hour Refresher, Incident Command System, and Confined Space Entry. Phoenix as standard business practice, maintain complete maintenance records on all of their response equipment. If you require more details or wish to review our preventative maintenance or safety training records, please call us at 281.838.3400.

Phoenix maintains an active Drug, Alcohol and Background Check program, and is a member of:

- ISNetWorld
- PICS Contractor
- PICS
- Avetta
- DISA

Finally, we are available to participate in drills using our equipment, at your facility. I have attached our Equipment List, the current Emergency Response Rate Schedule, and a list of spill and drill activity for last year. Thank you for listing us on your OPA-90 Response Plan and we stand ready to respond for you if needed. To learn more about the other services that Phoenix offers, we urge you to visit our web site www.phoenixpollution.com

Sincerely,

PHOENIX POLLUTION CONTROL & ENVIRONMENTAL SERVICES, INC.

Reese Majoue

Reese Majoue
281.838.3400 Main 24/7/365
281.424.7748 Fax
281.914.1031 Cell

Attachment: 2020 Sample of Response/Deployment
Equipment List
2021 Emergency Response Rates

6.0 TERMINATION AND FOLLOW-UP

6.1 OBJECTIVES

The Incident Commander remains in charge until the emergency phase of the incident is over. Termination should be based on whether the release is no longer an immediate threat to: life, property, or the environment.

Criteria that should be applied include:

- The material causing the hazard is contained and no longer a threat to public receptors or sensitive environments (e.g. endangered/threatened species).

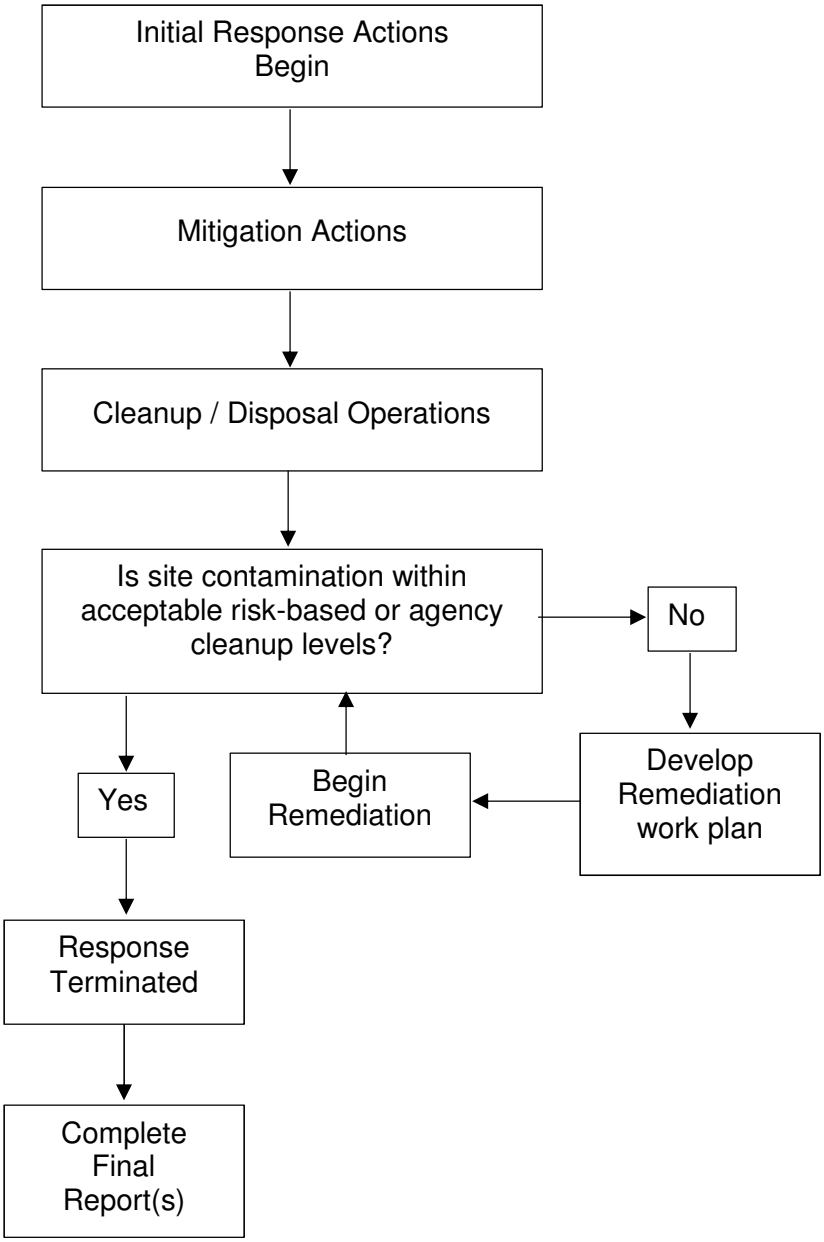
- Cleanup/Disposal Operations and Demobilization are complete.

- Sampling has confirmed contamination is within agency cleanup levels and site remediation is not required.
  - Where cleanup levels are not attained and remediation is required, the site enters the remediation phase.
  - Develop remediation work plan.
  - Begin remediation until desired cleanup levels are achieved.

- Agency and company final report(s) are filed.

FIGURE 6.1

RESPONSE PROCESS



6.2 LESSONS LEARNED

The review should involve answering the following questions:

- What was the cause of the emergency?
- Was it preventable? If so, how?
- Were inadequate or incorrect orders given or actions taken?
- What improvements to response actions or procedures should be implemented?
- Was the Integrated Contingency adequate for the response?

Use the Exercise, Drill, and Incident Evaluation log in Appendix F to document the findings.

6.3 FOLLOW-UP ACTIONS

What improvements or enhancements should be implemented?

- Training
- Procedures
- Response Actions
- Integrated Contingency Plan

Ensure changes are made by assigning a responsible party to each action item and a required completion date.

6.4 DISPOSAL PLAN

WASTE MANAGEMENT

The Facility has an environmental management system in place to ensure that wastes are properly characterized, evaluated, managed, and disposed of in accordance with state and federal requirements. All permits required to transport or dispose of recovered materials will be obtained by the organizations contracted for transportation or disposal.

OVERVIEW

A major oil spill response would generate significant quantities of waste materials ranging from oily debris and sorbent materials to sanitation water and used batteries. All these wastes need to be classified and separated (i.e., oily, liquid, etc.), transported from the site, and treated and/or disposed of at approved disposal sites. Each of these activities demands that certain health and safety precautions be taken, which are strictly controlled by federal and state laws and regulations.

6.4 DISPOSAL PLAN (Cont'd)

WASTE CLASSIFICATION

Solid Wastes

A solid waste is defined as any discarded material provided that it is not specifically excluded under the regulations. These exclusions cover materials such as domestic sewage and mixtures of sewage discharged through a sewer system or industrial wastewater point source discharges.

A discarded material is any material which is abandoned (disposed of, burned or incinerated) or accumulated, stored or treated prior to being abandoned. A discarded material is also any material recycled or any material considered inherently waste like. Recycled material is considered solid waste when used in a manner constituting disposal, placed on land or burned for energy recovery.

A solid waste may be considered a hazardous waste. A solid waste, as defined above, may be a hazardous waste if it is not excluded from regulation and is either a listed hazardous waste or exhibits the characteristics of a hazardous waste. A solid waste exhibits the characteristics of a hazardous waste if it exceeds the thresholds established in determining the following:

1) ignitability
2) corrosivity
3) reactivity
4) toxicity

A solid waste may also become a hazardous waste if it is mixed with a listed hazardous waste or, in the case of any other waste (including mixtures), when the waste exhibits any of the characteristics identified above.

Oily - Liquid Wastes

Oily liquid wastes (i.e., oily water and emulsions) that would be handled, stored, and disposed of during response operations are very similar to those handled during routine storage and transfer operations. The largest volume of oily liquid wastes would be produced by recovery operations (e.g., through the use of vacuum devices or skimmers). In addition, oily water and emulsions would be generated by vehicle operations (e.g., spent motor oils, lubricants, etc.), and equipment cleaning operations.

Non-Oily - Liquid Wastes

Response operations would also produce considerable quantities of non-oily liquid wastes. Water and other non-oily liquid wastes would be generated by the storage area and stormwater collection systems, vessel and equipment cleaning (i.e., water contaminated with cleaning agents), and office and field operations (i.e., sewage, construction activities).

6.4 DISPOSAL PLAN (Cont'd)

WASTE CLASSIFICATION (Cont'd)

Oily - Solid/Semi-Solid Wastes

Oily solid/semi-solid wastes that would be generated by containment and recovery operations include damaged or worn-out booms, disposable/soiled equipment, used sorbent materials, saturated soils, contaminated beach sediments, driftwood, and other debris.

Non-Oily - Solid/Semi-Solid Wastes

Non-oily solid/semi-solid wastes would be generated by emergency construction operations (e.g., scrap, wood, pipe, and wiring) and office and field operations (i.e., refuse). Vessel, vehicle, and aircraft operations also produce solid wastes.

WASTE HANDLING

A primary concern in the handling of recovered oil and oily debris is contaminating unaffected areas or re-contaminating already cleaned areas. Oily wastes generated during the response operations would need to be separated by type and transferred to temporary storage areas and/or transported to incineration or disposal sites. Proper handling of oil and oily wastes is imperative to ensure personnel health and safety.

Safety Considerations

Care would be taken to avoid or minimize direct contact with oily wastes. All personnel handling or coming into contact with oily wastes would wear protective clothing. A barrier cream can be applied prior to putting on gloves to further reduce the possibility of oily waste absorption. Safety goggles would be worn by personnel involved in waste handling activities where splashing might occur. Any portion of the skin exposed to oily waste would be washed with soap and water as soon as possible. Decontamination zones would be set up during response operations to ensure personnel are treated for oil exposure.

Waste Transfer

During response operations, it may be necessary to transfer recovered oil and oily debris from one point to another several times before the oil and oily debris are ultimately recycled, incinerated or disposed of at an appropriate disposal site. Depending on the location of response operations, any or all of the following transfer operations may occur:

- From portable or vessel-mounted skimmers into flexible bladder tanks, storage tanks of the skimming vessel itself, or a barge.
- Directly into the storage tank of a vacuum device.
- From a skimming vessel or flexible bladder to a barge.
- From a vacuum device storage tank to a barge.

6.4 DISPOSAL PLAN (Cont'd)

WASTE HANDLING (Cont'd)

Waste Transfer (Cont'd)

- From a barge to a tank truck.
- From a tank truck to a processing system (e.g., oil/water separator).
- From a processing system to a recovery system and/or incinerator.
- Directly into impermeable bags that, in turn, are placed in impermeable containers.
- From containers to trucks.

There are four general classes of transfer systems that may be employed to affect oily waste transfer operations:

- **Pumps:** Rotary pumps, such as centrifugal pumps, may be used when transferring large volumes of oil, but they may not be appropriate for pumping mixtures of oil and water. The extreme shearing action of centrifugal pumps tends to emulsify oil and water, thereby increasing the viscosity of the mixture and causing low, inefficient transfer rates. The resultant emulsion would also be more difficult to separate into oil and water fractions. Lobe or "positive displacement" pumps work well on heavy, viscous oils, and do not emulsify the oil/water mixture. Double-acting piston and double acting diaphragm pumps are reciprocating pumps that may also be used to pump oily wastes.

- **Vacuum Systems**: A vacuum truck may be used to transfer viscous oils but they usually pick up a very high water/oil ratio.

- **Belt/Screw Conveyors:** Conveyors may be used to transfer oily wastes containing a large amount of debris. These systems can transfer weathered debris laden oil either horizontally or vertically for short distances (i.e., 10 feet) but are bulky and difficult to set up and operate.

- **Wheeled Vehicles:** Wheeled vehicles may be used to transfer liquid wastes or oily debris to storage or disposal sites. These vehicles have a limited transfer volume (i.e., 100 barrels) and require good site access.

Table 1 provides a comparative evaluation of 15 types of transfer systems that could be available for transfer operations.

6.4 DISPOSAL PLAN (Cont'd)

WASTE STORAGE

Interim storage of recovered oil, oily and non-oily waste would be considered to be an available means of holding the wastes until a final management method is selected. In addition, the segregation of wastes according to type would facilitate the appropriate method of disposal. The storage method used would depend upon:

- The type and volume of material to be stored.
- The duration of storage.
- Access.

During an oil spill incident, the volume of oil that can be recovered and dealt with effectively depends upon the available storage capacity. Typical short-term storage options are summarized in Table 2. The majority of these options can be used either onshore or offshore. If storage containers such as bags or drums are used, the container must be clearly marked and/or color-coded to indicate the type of material/waste contained and/or the ultimate disposal option. Bladder or pillow tanks would be acceptable, if the available space can support the weight of both the container and the product.

Fuel barges may be the best option for temporary storage of oil recovered in open waters. Depending on size, these vessels may be able to hold up to 6,000 barrels of oil and water. The barge deck can be used as a platform for operating oil spill clean-up equipment and storing containment boom.

Empty barges have four to six feet draft which would increase when these barges are filled with oil or loaded with cargo. Consequently, they may not be able to enter shallow, nearshore waters.

It may be difficult to offload recovered oil stored inside barges. Due to natural forces which affect spilled oil, recovered oil may be very viscous or emulsified, rather than free-flowing. It may be necessary to use steam to heat viscous oil before pumping it from the barge.

Steel or rubber tanks can be used to store oil recovered near the shoreline. To facilitate offloading, demulsifiers may be used to break emulsions prior to placing the recovered substance into the barges or storage tanks.

Use of any site for storage is dependent on the approval of the local authorities. The following elements affect the choice of a potential storage site:

- Geology and Soil Type
- Ground water.
- Flooding and Proximity to Surface Water
- Slope.
- Covered material.

6.4 DISPOSAL PLAN (Cont'd)

WASTE STORAGE (Cont'd)

- Capacity.
- Climatic factors.
- Land use.
- Toxic air emissions.
- Security.
- Access.
- Public contact.

Temporary storage sites should use the best achievable technology to protect the environment and human health. They should be set up to prevent leakage, contact, and subsequent absorption of oil by the soil. The sites should be bermed (1 to 1.5 meters high) and double lined with plastic or visqueen sheets 6-10 millimeters or greater in thickness, without joints, prior to receiving loose and bagged debris. The edges of the sheet should be weighted with stones or earth to prevent damage by wind, and the sheet should be placed on a sand layer or an underfelt thick enough to prevent piercing. A reinforced access area for vehicles at the edge of the site should be provided. In addition, the oily debris should be covered by secured visqueen or tarps and an adequate stormwater runoff collection system for the size and location of the site would be utilized. Additionally, the sites should be at least 3 meters above mean sea level.

Oily debris can be hauled to approved temporary storage sites in visqueen lined trucks or other vehicles. Burnable, non-burnable, treatable and re-usable materials can be placed in well defined separate areas at temporary storage sites.

When the last of the oily debris leaves a temporary storage site, the ground protection would be removed and disposed of with the rest of the oily debris. Any surrounding soil which has become contaminated with oil would also be removed for disposal or treatment. If the soils were removed for treatment, they may be replaced if testing proves acceptable levels have been achieved. Treatment and remediation is encouraged when feasible. The temporary storage should be returned to its original condition.

WASTE DISPOSAL

Techniques for Disposal of Recovered Oil

Recovery, reuse, and recycling are the best choices for remediation of a spill, thereby reducing the amount of oily debris to be bermed onsite or disposed of at a solid waste landfill. Treatment is the next best alternative. There are some limitations and considerations in incinerating for disposal. Environmental quality of incineration varies with the type and age of the facility. Landfilling is the last option. Final disposal at a solid or dangerous waste landfill is the least environmentally sound method of dealing with a waste problem such as oily debris.

6.4 DISPOSAL PLAN (Cont'd)

WASTE DISPOSAL (Cont'd)

Techniques for Disposal of Recovered Oil (Cont'd)

During an oil spill incident, the Company would consult with the federal and state On Scene Coordinator (OSC) to identify the acceptable disposal methods and sites appropriately authorized to receive such wastes. The identification of suitable waste treatment and disposal sites would be used to develop an Incident Disposal Plan, which must be authorized by the U.S. Coast Guard and/or the EPA. An Incident Disposal Plan would include predesignated interim storage sites, segregation strategies, methods of treatment and disposal for various types of debris, and the locations/contacts of all treatment and disposal site selections. Onsite treatment/disposal will be preferred.

In order to obtain the best overall Incident Disposal Plan, a combination of methods should be used. There is no template or combination of methods that can be used in every spill situation. Each incident should be reviewed carefully to ensure an appropriate combination of disposal methods are employed.

The different types of wastes generated during response operations would require different disposal methods. To facilitate the disposal of wastes, they should be separated by type for temporary storage, transport and disposal. Table 3 lists some of the options that would be available to segregate oily wastes. The table also depicts methods that may be employed to separate free and/or emulsified water from the oily liquid waste.

The following is a brief discussion of some disposal techniques available for recovered oil and oily debris.

Recycling

This technique entails removing water from the oil and blending the oil with uncontaminated oil. Recovered oil can be shipped to refineries provided that it is exempt from hazardous waste regulations. There it can be treated to remove water and debris, and then blended and sold as a commercial product.

6.4 DISPOSAL PLAN (Cont'd)

WASTE DISPOSAL (Cont'd)

Incineration

This technique entails the complete destruction of the recovered oil by high temperature thermal oxidation reactions. There are licensed incineration facilities as well as portable incinerators that may be brought to a spill site. Incineration may require the approval of the local Air Pollution Control Authority. Factors to consider when selecting an appropriate site for onsite incineration would include:

- Proximity to recovery locations.
- Access to recovery locations.
- Adequate fire control.
- Approval of the local air pollution control authorities.

In Situ Burning/Open Burning

Burning techniques entail igniting oil or oiled debris and allowing it to burn under ambient conditions. These disposal techniques are subject to restrictions and permit requirements established by federal, state and local laws. They would not be used to burn PCBs, waste oil containing more than 1,000 parts per million of halogenated solvents, or other substances regulated by the EPA. Permission for *in situ* burning may be difficult to obtain when the burn takes place near populated areas.

As a general rule, *in situ* burning would be appropriate only when atmospheric conditions will allow the smoke to rise several hundred feet and rapidly dissipate. Smoke from burning oil will normally rise until its temperature drops to equal the ambient temperature. Afterwards, it will travel in a horizontal direction under the influence of prevailing winds.

Landfill Disposal

This technique entails burying the recovered oil in an approved landfill in accordance with regulatory procedures. Landfill disposal of free liquids is prohibited by federal law in the United States.

Non-burnable debris which consists of oiled plastics, gravel and oiled seaweed, kelp, and other organic material may be transported to a licensed, lined, approved municipal or private landfill and disposed of in accordance with the landfill guidelines and regulations. Landfill designation would be planned only for those wastes that have been found to be unacceptable by each of the other disposal options (e.g., waste reduction, recycling, energy recovery). Wastes would be disposed of only at company approved disposal facilities.

TABLE 1

COMPARATIVE EVALUATION OF OIL SPILL TRANSFER SYSTEMS

CHARACTERISTICS OF TRANSFER SYSTEMS	CENTRIFUGAL PUMP	LOBE PUMP	GEAR PUMP	INTERMESCHING SCREW	VALVE PUMP	FLEXIBLE IMPELLER	SCREW/AUGER PUMP	PROGRESSING CAVITY	PISTON PUMP	DIAPHRAGM PUMP	AIR CONVEYOR	VACUUM TRUCK	PORTABLE VACUUM PUMP	CONVEYOR BELT	SCREW CONVEYOR	WHEELED VEHICLES
High Viscosity Fluids	1	5	5	5	3	2	5	5	5	3	5	4	4	5	4	5
Low Viscosity Fluids	5	2	2	2	3	4	1	3	3	4	5	5	5	1	1	5
Transfer Rate	5	2	1	1	3	4	1	2	2	3	4	5	3	2	2	2
Debris Tolerance																
° Silt/Sand	5	3	1	1	1	4	5	5	3	4	5	5	5	5	5	5
° Gravel/Particulate	5	2	1	1	1	2	5	3	2	3	5	5	4	5	4	5
° Seaweed/Stringy Matter	2	3	4	3	2	2	4	4	3	3	4	4	3	5	4	5
Tendency to Emulsify Fluids	1	4	3	3	3	3	5	5	2	5	5	5	5	5	5	5
Ability to Run Dry	5	3	2	1	2	3	4	3	3	2	5	5	5	4	3	
Ability to Operate Continuously	5	3	2	2	2	3	3	3	4	4	3	3	3	3	2	4
Self Priming	1	3	2	2	2	5	1	5	4	4	5	5	5	5	5	
Suction/Head	2	3	2	2	3	4	1	5	5	2	5	4	3			
Back Pressure/Head	1	5	5	5	4	3	4	5	2	4	1	1	1	3	3	
Portability	5	3	3	2	4	4	3	2					2	1	1	
Ease of Repair	5	3	2	2	3	4	3	2	3	5	1	1	2	3	2	3
Cost	5	B	2	2	3	3	1	2	3	5	1	1	2	2	2	3
Comments	E,J	B	B	B,J		F	A	B	B,D	A,C,D	F,G,I	F,G,I	F,G			G,H,I

KEY TO RATINGS: 5 = Best; 1 = Worst

KEY TO COMMENTS:

A. Normally require remote power sources, thus are safe around flammable fluids.
B. Should have a relief valve in the outlet line to prevent bursting hoses.
C. Air powered units tend to freeze up in sub-freezing temperatures.
D. Units with work ball valves are difficult to prime.
E. Some remotely powered types are designed to fit in a tanker's butterworth hatch.
F. Can also pump air at low pressure.
G. Transfer is batch-wise rather than continuous.
H. Waste must be in separate container for efficient transfer.
I. Transportable with its own prime mover.
J. High shear action tends to emulsify oil and water mixtures.

TABLE 2

TEMPORARY STORAGE METHODS

CONTAINER	ONSHORE	OFFSHORE	SOLIDS	LIQUIDS	NOTES
Barrels	x	x	x	x	May require handling devices. Covered and clearly marked.
Tank Trucks	x	x		x	Consider road access. Barge-mounted offshore.
Dump/Flat Bed Trucks	x		x		May require impermeable liner and cover. Consider flammability of vapors at mufflers.
Barges		x	x	x	Liquids only in tanks. Consider venting of tanks.
Oil Storage Tanks	x	x		x	Consider problems of large volumes of water in oil.
Bladders	x	x		x	May require special hoses or pumps for oil transfer.

TABLE 3

OILY WASTE SEPARATION AND DISPOSAL METHODS

TYPE OF MATERIAL	SEPARATION METHODS	DISPOSAL METHODS
LIQUIDS		
Non-emulsified oils	Gravity separation of free water	Incineration Use of recovered oil as refinery/production facility feedstock
Emulsified oils	Emulsion broken to release water by: ● heat treatment ● emulsion breaking ● chemicals ● mixing with sand ● centrifuge ● filter/belt press	Use of recovered oil as refinery/production facility feedstock
SOLIDS		
Oil mixed with sand	Collection of liquid oil leaching from sand during temporary storage Extraction of oil from sand by washing with water or solvent Removal of solid oils by sieving	Incineration Use of recovered oil as refinery/production facility feedstock Direct disposal Stabilization with inorganic material Degradation through land farming or composting
TYPE OF MATERIAL	**SEPARATION METHODS**	**DISPOSAL METHODS**
Oil mixed with cobbles or pebbles	Screening Collection of liquid oil leaching from materials during temporary storage Extraction of oil from materials by washing with water or solvent	Incineration Direct Disposal Use of recovered oil as refinery/production facility feedstock
Oil mixed with wood, seaweed and sorbents	Screening Collection of liquid oil leaching from debris during temporary storage Flushing of oil from debris with water	Incineration Direct disposal Degradation through land farming or composting for oil mixed with seaweed or natural sorbents
Tar balls	Separation from sand by sieving	Incineration Direct disposal

TABLE 4

WASTE DISPOSAL OPTIONS
(App. F, Sec. 1.7.2.1(1)-(7), to 40 CFR 112)

MATERIAL:	POTENTIAL OPTION:
Recovered Product	Refining of Fuel Blending
Contaminated Soil	Land Treatment, Landfill
Contaminated Equipment	Protect equipment by bagging & Decon equipment
Personal Protective Equipment	Incineration, Landfill
Decontamination solutions	Identify contaminate(s) and determine treatment
Adsorbents	Fuel blending, Incineration, Landfill
Spent Chemicals	Special Handling, Storage, Treatment

TABLE 5

SAMPLE DISPOSAL PLAN LOG
(App. F, Sec. 1.7.2.2, to 40 CFR 112)

Material	Disposal Facility	Location	RCRA Permit/Manifest
1.			
2.			
3.			
4.			
5.			
6.			

APPENDIX A

SPILL IMPACT CONSIDERATIONS

A.1 Critical Areas to Protect A-2

A.2 Environmental/Socio-Economic Sensitivities A-2

A.3 Wildlife Protection and Rehabilitation A-3
A.3.1 Endangered/Threatened Species A-3
A.3.2 Wildlife Rescue A-4
A.3.3 Search and Rescue – Points to Consider A-4

A.4 Staging Areas A-5

A.5 Vulnerability Analysis A-5

A.6 Containment and Recovery of Spilled Product A-9
A.6.1 Spill on Land (Soil Surfaces) A-9
A.6.2 Spill in Inland Urban Areas A-10
A.6.3 Spill on Pond or Calm or Slow-Moving Water A-11
A.6.4 Spill on Stream which Flows into a Pond A-12

A.7 Shoreline and Habitat Response Zone Cleanup A-13

A.8 Alternative Response Strategies A-13
Figure A.1 Endangered/Threatened Species Listing A-14
Figure A.2 Environmental Sensitivity Maps A-16

A.1 CRITICAL AREAS TO PROTECT

The critical areas to protect are classified as having high, moderate, or low sensitivity to oil. Because a shoreline's sensitivity and type can change over time, the Shoreline Cleanup Assessment Team (SCAT) should perform on-site confirmations of sensitivity levels at the time of a spill. The Federal, State, and Local authorities will further clarify these categories at the time of the response. The categories are defined as follows:

HIGH SENSITIVITY

- Areas that are high in productivity, abundant in many species, extremely sensitive, difficult to rehabilitate, or inhabited by threatened or endangered species.
- Areas that consist of forested areas, bush/grassy areas, wooded lake areas, freshwater marshes, wildlife sanctuaries/refuges, and vegetated river and stream banks with vegetation present.

MODERATE SENSITIVITY

- Areas of moderate productivity, somewhat resistant to the effects of oiling.
- Areas that consist of degraded marsh habitat, clay/slit banks with vegetated margins, and gravel/cobble beaches.

LOW SENSITIVITY

- Areas of low productivity, man-made structures, and/or high energy.
- Areas that consist of gravel, sand, or clay material, barren/ rocky riverbanks and lake edges, man-made structures, and concrete/ compacted earthen drainage ditches.

A.2 ENVIRONMENTAL/SOCIO-ECONOMIC SENSITIVITIES

Environmental/Socio-economic sensitive areas are of extreme importance and must be considered when planning a response effort. Protection of the health and safety of the public and the environment, as well as the protection of the various socio-economic sensitivities, must also be promptly addressed in order to mitigate the extent of damage and minimize the cost of the clean-up effort.

All environmental and socio-economic sensitive areas are worthy of protection, but must be prioritized during a response effort. When making decisions on which areas to designate as collection areas and which to protect, the following sources may be consulted:

A.2 ENVIRONMENTAL/SOCIO-ECONOMIC SENSITIVITIES (Cont'd)

- U.S. Fish and Wildlife Services and related state agencies
- Applicable Area Contingency Plans
- Maps showing environmentally sensitive areas
- Other industry and private experts.

The Environmental and socio-economic sensitive areas in the vicinity of the Facility have been broken down into specific categories and identified in this Section.

Priority consideration will be given to those areas in the immediate vicinity of the Facility property. Specific actions that will be considered (as appropriate) include:

- Containment of the spill as close as possible to Facility property.
- Protection of shoreline areas to minimize environmental impact.
- Protection of the public boat ramps and private marinas.
- Protection of Public Parks.
- Protection of neighboring facility docks.
- Protection of the water intakes.
- Protection of fleeted vessels/barges in the area.

To further clarify the location of the sensitive areas of concern, details are provided in Section A.5 and Environmental Sensitivity Maps (Figure A.2) are provided later in this Section.

A.3 WILDLIFE PROTECTION AND REHABILITATION

The Company will work with Federal, State, and Local agency personnel to provide labor and transportation to retrieve, clean, and rehabilitate birds and wildlife affected by an oil spill, as necessary. Oversight of wildlife preservation activities and coordination with Federal, State and Local agencies during an oil spill is the responsibility of the Incident Commander.

Special consideration should be given to the protection and rehabilitation of endangered species and other wildlife and their habitat in the event of an oil spill and subsequent response. Jurisdictional authorities should be notified and worked with closely on all response/clean-up actions related to wildlife protection and rehabilitation. Laws with significant penalties are in place to ensure appropriate protection of these species.

A.3.1 Endangered/Threatened Species

The U.S Fish and Wildlife Services (USFWS) and related state agencies classify the status of various wildlife species in the potentially effected states. A summary of critical birds, reptiles, mammals, and plant species status as related to the Facility's operating areas (area of the highest oil spill potential) is presented in Figure A.1 and are as current as of the publication date of this plan.

A.3 WILDLIFE PROTECTION AND REHABILITATION (Cont'd)

A.3.2 Wildlife Rescue

The Company will work with Federal, State, and Local agency personnel to provide labor and transportation to retrieve, clean, and rehabilitate wildlife affected by an oil spill, as the situation demands.

The following are items that should be considered for wildlife rescue and rehabilitation during a spill response:

- Bird relocation can be accomplished using a variety of deterrents, encouraging birds to avoid spill impacted areas. Care must be taken to avoid taking actions that could be construed as disturbing wildlife instead of being a deterrent.
  - Use of visual stimuli, such as inflatable bodies, owls, stationary figures, or helium balloons, etc.
  - Use of auditory stimuli, such as propane cannons, recorded sounds, or shell crackers.
  - Use of herding with aircraft, boats, vehicles or people (as appropriate)
  - Use of capture and relocation

A.3.3 Search and Rescue – Points to Consider

- **Company involvement should be limited to offering assistance as needed or requested by the agencies.**

- Prior to initiating any organized search and rescue plan, **authorization must be obtained from the appropriate Federal/State agency.**

- **Initial search and rescue efforts, if needed, should be left up to the appropriate agencies.** They have the personnel, equipment, and training to immediately begin capturing contaminated wildlife.

- With or without authorization, it must be anticipated that volunteer citizens will aid distressed/contaminated wildlife on their own. It is important to communicate to the public that it may be illegal to handle wildlife without express authority from appropriate agencies. Provisions should be made to support an appropriate wildlife rehabilitation organization; however, **no support should be given to any unauthorized volunteer rescue efforts.**

- The regulatory agencies and response personnel should be provided the name and location of a qualified rehabilitator in the event contaminated wildlife is captured.

- Resources and contacts that can assist with wildlife rescue and rehabilitation are provided in Section 3.0. This list includes:
  - Outside rehabilitation organizations
  - Local regulatory agencies

A.4 STAGING AREAS

When establishing personnel and equipment staging areas for a response to a discharge, the following criteria should be evaluated:

- Access to waterborne equipment launching facilities and/or land equipment.
- Access to open space for staging/deployment of heavy equipment and personnel.
- Access to public services utilities (electricity, potable water, public phone, restroom and washroom facilities, etc.)
- Access to the environmental and socio-economically sensitive areas that are projected for impact.

A.5 VULNERABILITY ANALYSIS (App F, Sec. 1.4.2 to 40 CFR 112)

Water Intakes

Water intakes are a critical resource and may be vulnerable to spills. Water intakes located within the planning distance are shown in the following table:

WATER INTAKE	LOCATION / DISTANCE	SITE ISSUE
NRG - Deepwater	0.0 Miles	In emergencies where power supply is interrupted, please notify as quickly as possible.
Armco Inc.	2.57 Miles	No site issues.
Phillips 66 Corporation	2.81 Miles	No site issues.
Ethyl Corporation	3.7 Miles	No site issues.
Coopers Marine Service Inc.	4.36 Miles	In emergencies were barge shipments are interrupted, please notify as quickly as possible.
Oiltanking of Texas Inc.	6.02 Miles	In emergencies where pipeline shipments may be involved, please notify as quickly as possible.
Vopak - Deer Park	7.89 Miles	No site issues.
Baywood Country Club	9.08 Miles	No site issues.
Southwestern Barge Fleet Service	10.4 Miles	In emergencies where barge shipments are interrupted, please notify as quickly as possible.
NRG - Sam Bertram	10.21 Miles	No site issues.
Western Towing Co.	10.64 Miles	No site issues.

Personnel or agencies associated with these intakes should be notified and these areas should be given special attention during any spill.

A.5 VULNERABILITY ANALSIS (App F, Sec. 1.4.2 to 40 CFR 112) (Cont'd)

Residential Areas (App F, Sec. 1.4.2(4) to 40 CFR 112)

The nearest residential area is approximately 0.25 mile east northeast of the Facility. At 13-15 miles downstream, multiple neighborhoods on the east shore of Burnet Bay and Crystal Bay could be impacted. The likely impacts to these areas are higher traffic volumes due to emergency response activities in the area and potentially the need to evacuate. Any evacuation efforts for these areas will be coordinated by the local emergency assistance agencies (police department, fire department, etc.).

Schools (App F, Sec. 1.4.2(2), to 40 CFR 112)

Schools, like residential areas may be affected in various ways. These may include but are not limited to, higher traffic volumes, evacuations, and possible exposure. Schools located within the planning distance (15 miles) and the 0.5-mile potential evacuation recommended by the 2016 Emergency Response Guidebook are shown in the following table:

SCHOOLS	LOCATION/DISTANCE	SITE ISSUE
Galena Park High School	1000 Keene St., Galena Park, TX 77547/0.8 mile Northeast	Evacuation could affect the school.

Any evacuation efforts for these school(s) will be coordinated by the local emergency assistance agencies (police department, fire department, etc.).

Medical Facilities (App F, Sec. 1.4.2(3), to 40 CFR 112)

No hospitals are located within planning distance and the 0.5 mile evacuation zone

Businesses (App F, Sec. 1.4.2(5), to 40 CFR 112)

A release could impact property and disrupt business activities. The immediate area surrounding the Facility is for the most part commercialized. The listing of businesses in the area is extensive. A partial list of businesses located within the planning distance is shown in the following table:

BUSINESSES	LOCATION/DISTANCE	SITE ISSUE
Kinder Morgan Export Terminal	901 Light Company Road Pasadena, TX	Where offsite impact could affect the facility, notify as appropriate.
Pasadena Refining System, Inc.	111 Red Bluff Rd., Pasadena, TX	Where offsite impact could affect the facility, notify as appropriate.

A.5 VULNERABILITY ANALSIS (App F, Sec. 1.4.2 to 40 CFR 112) (Cont'd)

Businesses (App F, Sec. 1.4.2(5), to 40 CFR 112) (Cont'd)

BUSINESSES	LOCATION/DISTANCE	SITE ISSUE
Chevron Phillips Chemical	1400 Jefferson Rd, Pasadena, TX	Where offsite impact could affect the facility, notify as appropriate.
Ethyl Corporation	1000 N. South St., Pasadena, TX	Where offsite impact could affect the facility, notify as appropriate.
Stolthaven	15602 Jacintoport Blvd., Houston, TX	Where offsite impact could affect the facility, notify as appropriate.
Oiltanking Houston	15631 Jacintoport Blvd., Houston, TX	Where offsite impact could affect the facility, notify as appropriate.
Jacintoport International LLC	16398 Jacintoport Blvd., Houston, TX	Where offsite impact could affect the facility, notify as appropriate.
Albemarle Corp.	2500 N. South St., Pasadena, TX	Where offsite impact could affect the facility, notify as appropriate.

Any evacuation efforts for these areas will be coordinated by the local emergency assistance agencies (police department, fire department, etc.).

Wetlands and other Sensitive Environments (App F, Sec. 1.4.2(5), to 40 CFR 112)

Based on U.S. Fish and Wildlife Service National Wetland Inventory Data, marshes and wetlands exist downstream from the Facility near Galveston Bay. Those sensitive areas that potentially could be affected by a release from the Facility are discussed in the following sections. The Wetlands Map (Figure A.3) details wetlands data from the U.S. Fish and Wildlife Service's National Wetlands Inventory. Flora and fauna are always present and are sensitive to the effects of a pollution incident. All environmental areas deserve protection from pollution, but they must be prioritized during a response so as to protect the most sensitive and susceptible areas to pollution.

Fish and Wildlife (App F, Sec. 1.4.2(7), to 40 CFR 112)

During a response situation, the USFWS and applicable state agencies should be contacted for information regarding wetlands and other sensitive environments. Upon contact, the agencies will be able to: identify and establish priorities for fish and wildlife, wetlands, and other sensitive environments requiring protection from any direct or indirect effects from a discharge. Fish found in the Houston Ship Channel include: catfish, trout, gafftop, red drum, and jackfish. Wildlife found in area could include: ducks, geese, egrets, ibis, raccoons, and squirrels.

A.5 VULNERABILITY ANALSIS (App F, Sec. 1.4.2 to 40 CFR 112) (Cont'd)

Lakes, Streams and Other Water Bodies (App F, Sec. 1.4.2(8), to 40 CFR 112)

The following waterbodies could be impacted by a release from the Facility within the planning distance:

WATER BODIES	
Buffalo Bayou/Houston Ship Channel	Scott Bay
Vince Bayou	Upper San Jacinto Bay
Greens Bayou	Tubbs Bay
Burnet Bay	Galveston Bay

Endangered Flora and Fauna (App F, Sec. 1.4.2(9), to 40 CFR 112)

The endangered flora and fauna that may be potentially impacted by a discharge originating at the Facility are detailed in Figure A.1. USFWS and applicable state agencies will be contacted for information regarding endangered species.

Recreational Areas (App F, Sec. 1.4.2(10), to 40 CFR 112)

The following recreational areas could be impacted by a release from the Facility within the planning distance:

RECREATIONAL AREAS
San Jacinto State Park – Approx. 9 miles downstream
River Terrace Park – Approx. 11 miles downstream
Bayland Park Marina – Approx. 15 downstream

Transportation Routes (air, land, and water) (App F, Sec. 1.4.2(11), to 40 CFR 112)

There are various public roadways and waterways which may be potentially affected by a discharge originating from the Facility.

TRANSPORTATION ROUTES	LOCATION/DISTANCE	SITE ISSUE
Clinton Drive	0.0 Mile (Adjacent to Facility)	Transportation/Commerce
Houston Ship Channel	0.1 Miles (South)	Transportation/Commerce

The local emergency assistance agencies (police department, fire department, etc.) and the U.S. Coast Guard (as applicable) would be contacted for traffic control in the area of the discharge.

A.5 VULNERABILITY ANALSIS (App F, Sec. 1.4.2 to 40 CFR 112) (Cont'd)

Utilities (App F, Sec. 1.4.2(12), to 40 CFR 112)

No utility should not be affected by an oil spill incident from the Facility. Any notification or evacuation efforts necessary will be coordinated by the local emergency assistance agencies (police department, fire department, etc.), State Police, U.S. Coast Guard, and other agencies as the situation demands.

Other Areas of Economic Importance (App F, Sec. 1.4.2(13), to 40 CFR 112)

There are no other areas of economic importance within the planning distance.

A.6 CONTAINMENT AND RECOVERY OF SPILLED PRODUCT (App F, Sec. 1.7.1.1(1), to 40 CFR 112)

General descriptions of various specific response techniques that may be applied during a response effort are discussed below. The Company's responders are free to use all or any combination of these methods as incident conditions require, provided they meet the agency approval, appropriate safety standards and other requirements relative to the situation encountered. Data was obtained from reports, manuals and pamphlets prepared by the American Petroleum Institute, Environmental Protection Agency and the United States Coast Guard. The most effective cleanup of a product spill will result from an integrated combination of clean-up methods. Each operation should complement and assist related operations and not merely transfer spillage problems to areas where they could be more difficult to handle.

The spill should be assessed as soon as possible to determine the source, extent and location of travel. Terrain and other physical conditions downgradient of the spill site will determine the methods of control at a point in advance of the moving product. Often, the bulk of a spill can be contained at a single location or a few key locations in the immediate vicinity of the source point. When possible, the execution of this type of initial containment strategy helps confine a spill to a relatively limited area.

A.6.1 Spill on Land (Soil Surfaces)

- **Confinement Methods**

  Product (rainbow sheen) can be trapped in ditches and gullies by earth dams. Where excavating machinery is available, dams can be bulldozed to contain lakes of product. Dams, small and large, should be effectively employed to protect priority areas such as inlets to drains, sewers, ducts and watercourses. These can be constructed of earth, sandbags, absorbents, or any other effective method. If time does not permit a large dam, many small ones can be made, each one holding a portion of the spill as it advances. The terrain will dictate the placement of the dams. If the spill is minor, natural dams or earth absorption will usually stop the product before it advances a significant distance. Cleanup is the main concern in such situations.

A.6 CONTAINMENT AND RECOVERY OF SPILLED PRODUCT (Cont'd)

A.6.1 Spill on Land (Soil Surfaces) (Cont'd)

- **Removal Methods**

  The recovery and removal of free product (rainbow sheen) from soil surfaces is a difficult job. The best approaches at present seem to be:

  - Removal with suction equipment to tank truck if concentrated in volumes large enough to be picked up.
  - Small pockets may have to be dipped up by hand.

A.6.2 Spill in Inland Urban Areas

Oil spills in urban areas can greatly impact recreational use, human health, wildlife habitat(s), and potential beach or park closures. Manmade structures along waterways require unique protection strategies. Manmade structures could include vertical shore protection structures such as seawalls, piers, and bulkheads, as well as riprap revetments and groins, breakwaters, and jetties. Vertical structures can be constructed of concrete, wood, and corrugated metal. They usually extend below the water surface, although seawalls can have beaches or riprap in front of them. These structures are very common along developed shores, particularly in harbors, marinas, and residential areas.

The range in degree of exposure to waves and currents varies widely, from very low in dead-end canals, to very high on offshore breakwaters. Boat wakes can generate wave energy in otherwise sheltered areas.

Maintaining shipping or other kinds of vessel traffic through navigation channels or waterways during a spill response is a difficult consideration because there is usually economic and political pressure to re-establish normal operations as soon as possible. For these reasons, recovery efforts must be coordinated through the Unified Command to ensure the cooperation of all parties involved.

- **Confinement Methods**

  In harbor areas, oil can often be contained by a vessel of opportunity or a dedicated Oil Spill Response Vessel (OSRV) using containment booms and skimmers. Optimum conditions for recovery operations would be with currents of 3 knots or less. The facility could also deploy boom from shore to contain and concentrate product in the vicinity of the release point until the product can be removed.

A.6 CONTAINMENT AND RECOVERY OF SPILLED PRODUCT (Cont'd)

A.6.3 Spill on Pond or Calm or Slow-Moving Water

- **Confinement Methods**

  A calm or slow-moving water offers the best conditions for removal of product from water. Although the removal is no easy task, the pond presents the favorable conditions of low or no current and low or no waves.

  The movement of product on a pond is influenced mainly by wind. The product will tend to concentrate on one shore, bank or inlet. Booms should be set up immediately to hold the product in the confined area in the event of a change in wind direction.

  If the spill does not concentrate itself on or near a shore (no wind effect), then a sweeping action using boats and floating booms will be necessary.

  The essential requirement for this operation is that it be done very slowly. The booms should be moved at not more than 40 feet per minute. Once the slick is moved to a more convenient location (near shore), the normal operations of removal should begin.

  If the slick is small and thin (rainbow effect) and not near the shoreline, an absorbent boom instead of a regular boom should be used to sweep the area very slowly and absorb the slick. The product may not have to be moved to the shoreline.

- **Removal Methods**

  If the confined slick is thick enough, regular suction equipment may be used first; however, in most instances, a floating skimmer should be used.

  If the floating skimmer starts picking up excess water (slick becomes thin), drawing the boom closer to the bank as product is removed will also keep film of product thicker. However, when the slick becomes too thin, the skimmer should be stopped and an absorbent applied (with a boat if necessary) to remove the final amounts. The floating skimmer (if speed is a must) or hand skimmers (if water is shallow enough) or both can be used to pick up the product-soaked absorbent. Before pumping the product-soaked absorbent with a floating skimmer, ensure that the absorbent in question can be pumped and will not harm the pump. Several types are nonabrasive to pump internals. If the floating skimmer is used first, the product–soaked absorbent/water mixture should be pumped into a tank truck.

A.6 CONTAINMENT AND RECOVERY OF SPILLED PRODUCT (Cont'd)

A.6.3 Spill on Pond or Calm or Slow-Moving Water (Cont'd)

A better method of retrieving the product-soaked absorbent is to draw it in as close to the shore as possible with the booms used to confine the product initially. The absorbent can then be hand skimmed from the water surface and placed in drums, on plastic sheets or in lined roll-off boxes. It should then be disposed of by acceptable means.

The final rainbow on the surface can be removed with additions of more absorbent.

A.6.4 Spill on Stream which Flows into a Pond

In certain locations where streams (small and large ones) flow into ponds at relatively short distances, it is conceivable that a spill could reach the pond before containment and recovery operations are set up. If time permits for containment operations to be set up on the stream in question, it then would be handled as described above depending upon the stream size involved.

However, if product in the stream is near the pond site or if product is flowing into the pond with a significant amount yet to arrive, a different containment should be employed.

- **Confinement Methods**

  Product on a stream flowing into a pond should be boomed as close to the entrance as possible. The boom should be positioned on the pond at an angle to the residential stream current so as to direct the surface water to a slower moving area. The area where the product is being deflected should be enclosed by booms to contain it. An additional boom for sweeping the product to the bank will be required. This area of containment should not have a current velocity of more than 1/2 knot (0.8 ft./sec.), preferably less.

- **Removal Methods**

  The removal of product from the pond's surface would be handled as described earlier.

  For sizable releases, collected product will usually be pumped into tank trucks and transported to a storage facility.

A.7 SHORELINE AND HABITAT RESPONSE ZONE CLEANUP

Spills in Manmade Canal

Exposed, Solid Man-made Structures

- **Description**
  - These are solid, man-made structures such as docks or piers.
  - Many structures are constructed of concrete, wood, or metal.
  - They are built to protect the shore from erosion by waves, boat wakes, and currents.
  - Attached animals and plants are sparse to moderate.
- **Predicted Oil Behavior**
  - Oil readily adheres to the dry, rough surfaces, but it does not adhere to wet substrates.
  - The most resistant oil would remain as a patchy band at or above the high-water mark.
- **Response Considerations**
  - Cleanup is usually not required.
  - High-pressure water spraying may be conducted to remove risks of contamination to people or vessels or to improve aesthetic.

A.8 ALTERNATIVE RESPONSE STRATEGIES

There are no pre-approved response options for inland spills within the United States. All spill team members will be informed that detergents or other surfactants are prohibited and any plans to use dispersants or in-situ burn by the Company will be submitted to the Federal On-Scene Coordinator for Regional Response Team approval prior to such action being taken.

FIGURE A.1

ENDANGERED/THREATENED SPECIES

(The following list of species is taken from the Texas Parks and Wildlife Department Website http://tpwd.texas.gov/gis/rtest/)

Harris County, Texas

AMPHIBIANS		
Status	Species Name	Scientific Name
E	Houston toad	*Anaxyrus houstonensis*
BIRDS		
T	American Peregrine Falcon	*Falco peregrinus anatum*
T	Bald Eagle	*Haliaeetus leucocephalus*
T	Peregrine Falcon	*Falco peregrinus*
E	Red-cockaded Woodpecker	*Picoides borealis*
T	White-faced Ibis	*Plegadis chihi*
T	White-tailed Hawk	*Buteo albicaudatus*
E	Whooping Crane	*Grus americana*
T	Wood Stork	*Mycteria americana*
FISHES		
T	Creek chubsucker	*Erimyzon oblongus*
E	Smalltooth sawfish	*Pristis pectinata*
MAMMALS		
T	Louisiana black bear	*Ursus americanus luteolus*
T	Rafinesque's big-eared bat	*Corynorhinus rafinesquii*
E	Red wolf	*Canis rufus*
MOLLUSKS		
T	Louisiana pigtoe	*Pleurobema riddellii*
T	Sandbank pocketbook	*Lampsilis satura*
T	Texas pigtoe	*Fusconaia askewi*

FIGURE A.1 (Cont'd)

ENDANGERED/THREATENED SPECIES

(The following list of species is taken from the Texas Parks and Wildlife Department Website http://tpwd.texas.gov/gis/rtest/)

Harris County, Texas

REPTILES		
Status	Species Name	Scientific Name
T	Alligator snapping turtle	*Macrochelys temminckii*
T	Green sea turtle	*Chelonia mydas*
E	Kemp's Ridley sea turtle	*Lepidochelys kempii*
E	Leatherback sea turtle	*Dermochelys coriacea*
T	Loggerhead sea turtle	*Caretta caretta*
T	Texas horned lizard	*Phrynosoma cornutum*
T	Timber rattlesnake	*Crotalus horridus*
PLANTS		
E	Texas prairie dawn	*Hymenoxys texana*

E = Endangered

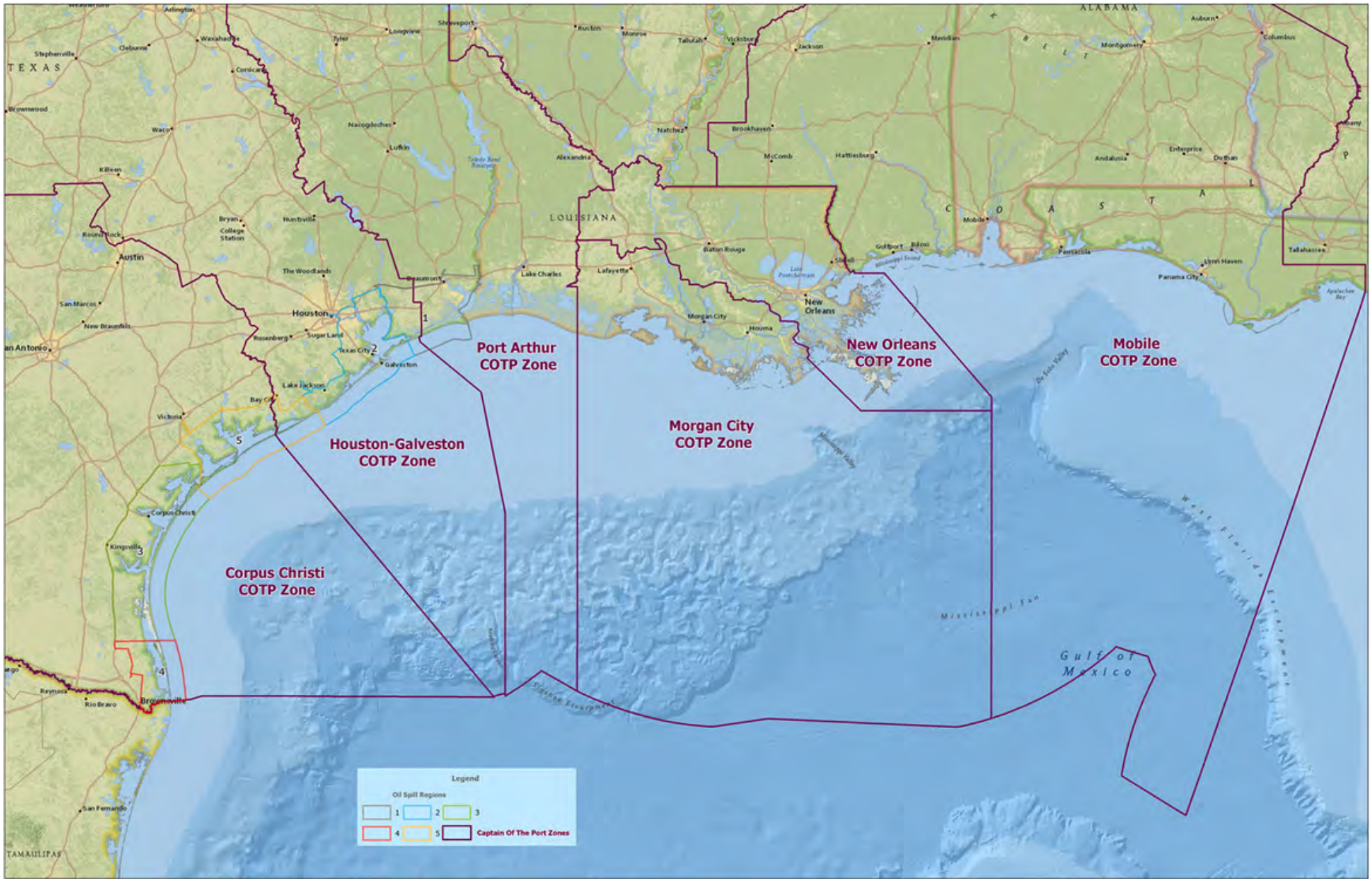
T = Threatened

FIGURE A.2

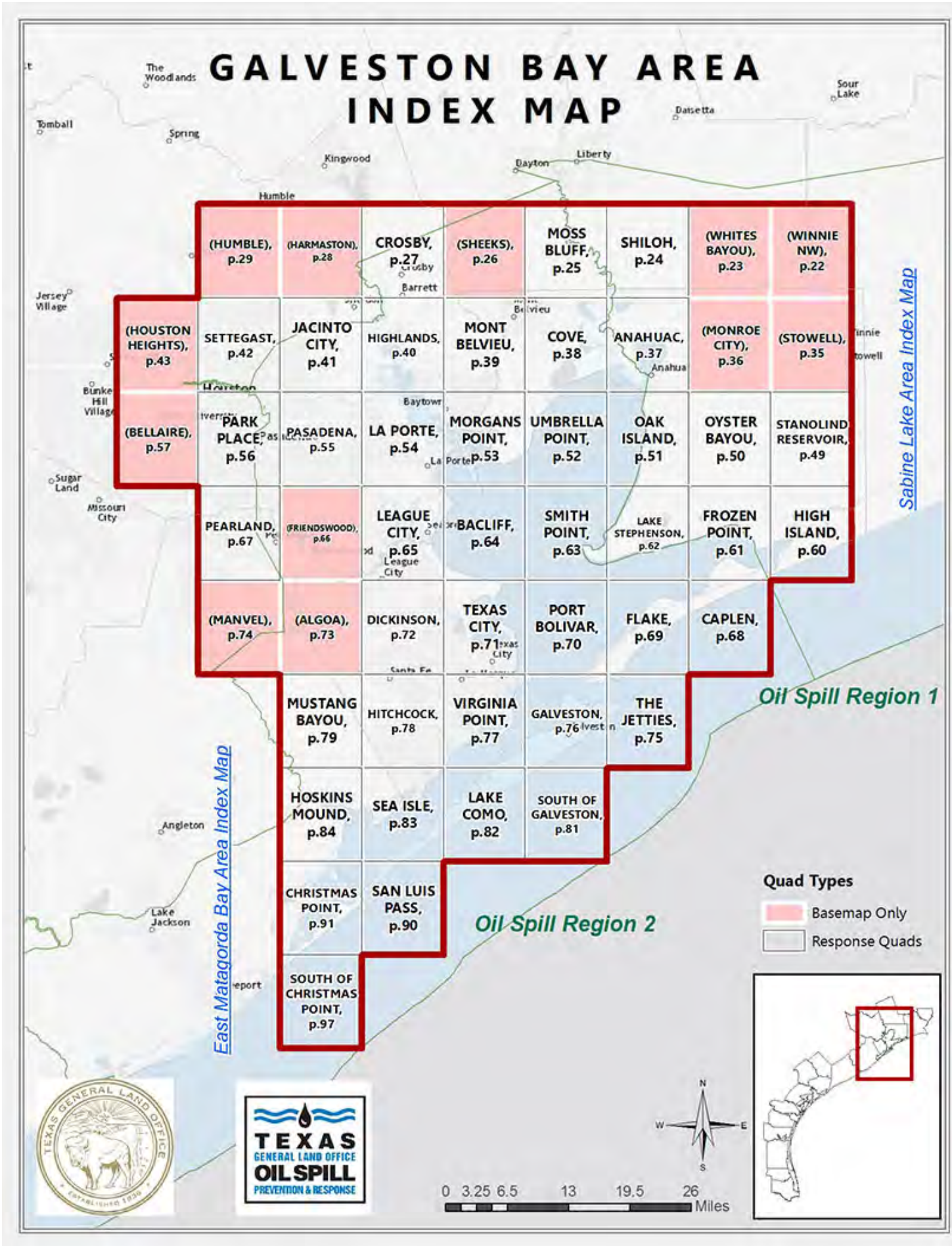
ENVIRONMENTAL SENSITIVITY MAPS

These maps are to be utilized as guidelines only. During a real response effort, Federal, State, and Local agencies should be contacted to provide further assistance in the proper identification and protection of the various environmental and socio-economic sensitive areas.

The Company places maximum priority upon the protection of the environment that may be endangered and the immediate commitment of response resources to protect all sensitive and endangered areas.



Port Arthur COTP Zone
Houston-Galveston COTP Zone
Corpus Christi COTP Zone
Morgan City COTP Zone
New Orleans COTP Zone
Mobile COTP Zone
Legend
Oil Spill Regions
1
2
3
4
5
Captain Of The Port Zones
TEXAS
LOUISIANA
ALABAMA
Houston
Austin
New Orleans
Brownsville
Gulf of Mexico


GALVESTON BAY AREA INDEX MAP
(HUMBLE), p.29
(HARMASTON), p.28
CROSBY, p.27
(SHEEKS), p.26
MOSS BLUFF, p.25
SHILOH, p.24
(WHITES BAYOU), p.23
(WINNIE NW), p.22
(HOUSTON HEIGHTS), p.43
SETTEGAST, p.42
JACINTO CITY, p.41
HIGHLANDS, p.40
MONT BELVIEU, p.39
COVE, p.38
ANAHUAC, p.37
(MONROE CITY), p.36
(STOWELL), p.35
(BELLAIRE), p.57
PARK PLACE, p.56
PASADENA, p.55
LA PORTE, p.54
MORGANS POINT, p.53
UMBRELLA POINT, p.52
OAK ISLAND, p.51
OYSTER BAYOU, p.50
STANOLIND RESERVOIR, p.49
PEARLAND, p.67
(FRIENDSWOOD), p.66
LEAGUE CITY, p.65
BACLIFF, p.64
SMITH POINT, p.63
LAKE STEPHENSON, p.62
FROZEN POINT, p.61
HIGH ISLAND, p.60
(MANVEL), p.74
(ALGOA), p.73
DICKINSON, p.72
TEXAS CITY, p.71
PORT BOLIVAR, p.70
FLAKE, p.69
CAPLEN, p.68
MUSTANG BAYOU, p.79
HITCHCOCK, p.78
VIRGINIA POINT, p.77
GALVESTON, p.76
THE JETTIES, p.75
HOSKINS MOUND, p.84
SEA ISLE, p.83
LAKE COMO, p.82
SOUTH OF GALVESTON, p.81
CHRISTMAS POINT, p.91
SAN LUIS PASS, p.90
SOUTH OF CHRISTMAS POINT, p.97
Sabine Lake Area Index Map
East Matagorda Bay Area Index Map
Oil Spill Region 1
Oil Spill Region 2
Quad Types
Basemap Only
Response Quads
The Woodlands
Tomball
Spring
Kingwood
Dayton
Liberty
Humble
Sour Lake
Daisetta
Jersey Village
Bunker Hill Village
Sugar Land
Missouri City
Angleton
Lake Jackson
Crosby
Barrett
Baytown
La Porte
League City
Texas City
Anahuac
N
W
E
S
0 3.25 6.5 13 19.5 26
Miles
TEXAS GENERAL LAND OFFICE OIL SPILL PREVENTION & RESPONSE

PASADENA

(JACINTO CITY, p.41)

Click Here or Scroll Down for Associated Map Data

Click on the Geographic Response Plan Target to View the ICS Form

(PARK PLACE, p.56)

(LA PORTE, p.54)

(FRIENDSWOOD, p.66)

North Latitude

West Longitude

95°15'0"W · 95°14'0"W · 95°13'0"W · 95°12'0"W · 95°11'0"W · 95°10'0"W · 95°9'0"W · 95°8'0"W

29°45'0"N · 29°44'0"N · 29°43'0"N · 29°42'0"N · 29°41'0"N · 29°40'0"N · 29°39'0"N · 29°38'0"N

Galena Park · Hunting Bayou · Panther Creek · Washburn Tunnel · Cotton Patch Bayou · Sims Bayou · Little Vince Bayou · Vince Bayou · Berry Bayou · Greens Bayou · BUFFALO BAYOU · Boggy Basin · Boggy Bayou · Armand Bayou

Deepwater Power Plant

PASADENA · DEER PARK · South Houston · HOUSTON

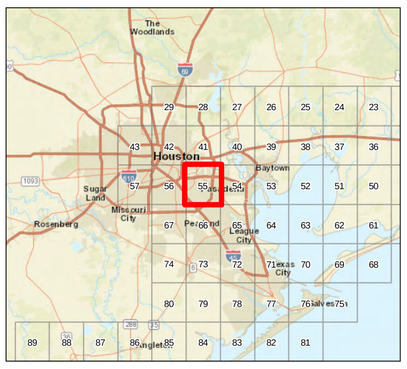
Red Bluff Village Shopping Center · Saint Pius Convent · Market Center Shopping Center · Southmore Hospital · Pasadena Oaks Shopping Center · Allendale Shopping Center · Pasadena Plaza Shopping Center · Pasadena Bay Shore Hospital · Pasadena Little Theater · Bible Institute of Texas · Red Bluff General Hospital · Texas Chiropractic College · Genoa Airport

55-A · 55-B · 55-C · 55-D · 55-E · 55-F · 55-G

1117 · 1123 · 1124 · 1128 · 1134 · 1136 · 1137 · 1140 · 1142 · 1145 · 1152 · 1153 · 1159 · 1160 · 1163 · 1165 · 1167 · 1169 · 1175 · 1176

2046 · 4054 · 4055 · 4056 · 4057 · 4058 · 4061 · 4062 · 6043 · 6057 · 6073 · 6075 · 6078 · 6084

0029 · 0739 · 0491 · 0761 · 0764 · 0641



Oil Spill Planning and Response Atlas

2016

The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map is not suitable for navigational purposes and does not purport to depict boundaries of private and public land.

Miles: 0 · 0.5 · 1

Nautical Miles: 0 · 0.5 · 1

Feet: 0 · 2,500 · 5,000

Kilometers: 0 · 1 · 2

Depth Soundings in Feet

Human Use Features

- Boat Ramp
- Facility
- Heliport
- Water Intake
- Geographic Response Plan

Priority Protection Areas

Map Base Layers

- Bays
- Salt and Brackish Marshes
- Beach or Tidal Flat
- Exposed Lake Shore
- Freshwater Marshes
- Swamps and Flooded Woodlands
- Willow Thickets
- Lake / Pond
- Perennial River
- County Boundary
- City Limits

Species Icons Within Map Quad

- Amphibian T/E
- Mammal T/E
- Turtle T/E
- Plant T/E
- Fish
- Gull/Tern
- Wading

ENVIRONMENTAL SENSITIVITY INDEX

- 10D Mangroves and Woody Vegetation
- 10C Freshwater Swamps
- 10B Freshwater Marshes
- 10A Salt and Brackish Water Marshes
- 9 Sheltered Tidal Flats
- 8C Sheltered Rocky/Karst Shores
- 8D Sheltered Scarps
- 8B Sheltered Riprap Structures
- 8A Sheltered Solid Manmade Structures
- 7 Exposed Tidal Flats
- 6B Exposed Riprap Structures
- 6A Gravel or Shell Beaches
- 5 Mixed Sand and Gravel or Shell Beaches
- 4 Coarse-Grained Sand Beaches
- 3B Scraps and Steep Slopes in Sand
- 3A Fine-Grained Sand Beaches
- 2B Wave-Cut Clay Platforms
- 2A Scraps and Steep Slopes in Clay
- 1 Exposed Walls and Other Solid Structures

Quadrant: PASADENA

Map # :55

Biological Information for this quadrant represents known concentration areas of occurrence.

Biological Resources

Bird

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
0029	Gulls			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-

Fish

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
0491	Rainwater killifish			-	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUN	-	-	-	-
	Sailfin molly			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	Blue catfish			-	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
	Smallmouth buffalo			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC

Marine Mammal

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molting
0739	West Indian manatee	S/F	E/E	VERY-RARE						X	X	X					-	-	-	-

Reptile

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
0761	Kemp's ridley sea turtle	S/F	E/E	COMMON				X	X	X	X	X	X	X	X		-	-	-	APR-NOV	-
0764	Houston toad	S/F	E/E	-	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUN	FEB-JUN	-	JAN-DEC	JAN-DEC

Human Use Resources

Boat Ramp	RARNUM	NAME	CONTACT	CONTACT INFO
	2046	Magellan		

Facility	RARNUM	NAME	CONTACT	CONTACT INFO
	1117	Magellan Galena Park Terminal	Robert Silva	713-330-2775
	1123	Enterprise Products Operating LLC, Pasadena Facility	Lewis Brown	281-385-4200
	1124	Ballard Exploration Company, Inc.; Houston Ship Channel Facility	Ben Yoesel	936-334-6097
	1128	Galena Park Marine Terminal	David Clark	713-450-7243
	1134	Rentech Nitrogen Pasadena, LLC	Robert Brown	713-920-5300
	1136	Stolthaven Houston Inc.	Randy Jones	281-860-6856
	1137	Ethyl Corporation- Houston Plant	Antonio Salinas	713-740-1155
	1140	Enterprise Crude Galena Park	Terry Hutson	800-331-3381
	1142	Galena Park Terminal	Marlin Collins	713-450-7443
	1145	Pasadena Terminal	Ian Jorgensen	713-920-8450
	1152	Intercontinental Terminals Company - Pasadena	Carl Holley	832-780-6699
	1153	Pasadena Refining System, Inc. (PRSI)	Mark Berlinger	713-472-2461
	1159	Kinder Morgan Texas Terminals East (Ferro)	Robert Bradbury	281-900-2597
	1160	Mosaic Crop Nutrition, LLC	Brady Breaux	832-763-0705
	1163	Watco Transloading LLC Terminals	Greg Jackson	713-373-6267
	1165	Houston Refining LP	Plant Shift Superintendent	713-321-4211
	1167	Marathon Pipeline - Pasadena Station	John Hunt	800-537-6644
	1169	Shell Pipeline Co. L.P. - LaPorte Response Zone	Peyton Ross	800-852-3602
	1175	Explorer Pipeline	Rick Wright	888-497-3661
	1176	Magellan Pipeline	Erin Brantley	800-720-2417

Heliport	RARNUM	NAME	CONTACT	CONTACT INFO
	6043	ETHYL CORP	2TX9	PASADENA, TX 77503
	6057	SHELL DEER PARK REFINERY	TE28	HOUSTON, TX 77032
	6073	POLICE	XS37	
	6075	MEMORIAL HOSPITAL	TS88	PASADENA, TX 77502
	6078	3321 WESTSIDE	XS38	
	6084	HL&P SOUTH HOUSTON HELISTOP	5TX3	HOUSTON, TX 77251

Water Intake	RARNUM	NAME	CONTACT	CONTACT INFO
	4054	ARMCO INC.		
	4055	PHILLIPS 66 COMPANY		
	4056	ETHYL CORPORATION		
	4057	MOBIL OIL CORP		
	4058	OILTANKING OF TEXAS INC.		
	4061	PAKTANK CORP-GALENA PARK TERM		
	4062	HOUSTON L&P CO-DEEPWTR		

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-A	Paadena	11325	55	Harris

13. Site Information: Cotton Patch Bayou Marsh

Marsh restoration inside Cotton Patch Bayou. The marsh is seperated from the bayou by a private bridge with two drain tubes. These drains could be boomed to isolate the marsh. East of Kinder Morgan Pasadena.

14. Latitude From: 29 44' 02"N To:

15. Longitude From: 95 11' 58"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	8 NM	Multiple Types

19. Directions From Local Sector

Take I-610 north to SH 225, go East. Exit Pasadena Blvd. Proceed North. Turn left on Red Bluff. Right on N. Witter. Proceed to bayou.

20. Closest Airport: Houston Hobby (HOU)

21. Closest Helo Spot: Houston Hobby (HOU)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority N/A

Environmental N/A

Economic N/A

24. Width of inlet in ft. 20'

25. Water depth in ft. 0'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom across drain pipes to prevent migration into the marsh.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action as vessels pass. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-B	Pasadena	11325	55	Harris

13. Site Information: Cotton Patch Bayou

Entrance to Cotton Patch Bayou. Cotton Patch Bayou is a small bayou east of Kinder Morgan Pasadena Barge Dock 3. Across channel from Red marker 160.

14. Latitude From:	To:
29 44' 09"N	
15. Longitude From:	**To:**
95 12' 12"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	8 NM	Multiple Types

19. Directions From Local Sector

Take I-610 north to SH 225, go East. Exit Pasadena Blvd. Proceed North. Turn left on Red Bluff. Right on N Witter. Proceed North to bayou.

20. Closest Airport

Houston Hobby (HOU)

21. Closest Helo Spot

Houston Hobby (HOU)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority N/A

Environmental N/A

Economic High

24.Width of inlet 330' in ft.

25. Water depth in ft. 17'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom entrance to prevent migration of oil into or out of Cotton Patch Bayou

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action as vessels pass. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-C	Pasadena	11325	55	Harris

13. Site Information: Hunting Bayou
Entrance to Hunting Bayou. Hunting Bayou extends from the Houston Ship Channel toward Jacinto City. Boom could be anchored to mostly grassy banks. Red channel marker 160.

14. Latitude From:	To:
29 44' 18"N	
15. Longitude From:	**To:**
95 12' 19"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	8 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to IH-10 east. Exit Federal Rd. Proceed South to bayou.

20. Closest Airport
Houston Hobby

21. Closest Helo Spot
Houston Hobby

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

24.Width of inlet 450' in ft.
25. Water depth in ft. 6'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom across mouth to prevent migration inland.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action as vessels pass. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-D	Pasadena	11325	55	Harris

13. Site Information: Vince Bayou
Entrance to Vince Bayou. Vince Bayou is a narrow, shallow and seldom used bayou extending from the Houston Ship Channel southward into Houston. Protective boom would need to be anchored into mud/grass banks.

14. Latitude From: 29 43' 28"N To:

15. Longitude From: 95 13' 26"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	8.5 miles	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East. Exit N. Richey St. Proceed North to bayou.

20. Closest Airport
Houston Hobby HOU)

21. Closest Helo Spot
Houston Hobby (HOU)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

24.Width of inlet 200' in ft.
25. Water depth in ft. 12'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Deploy boom to prevent entrance or exit of oil into or out of Vince Bayou

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action as vessels pass. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-E	Pasadena	11325	55	Harris

13. Site Information: Panther Creek

Entrance to Panther Creek. Panther Creek starts at the Houston Ship Channel and proceeds into downtown Galena Park. Located on west side of Kinder Morgan Galena Park facility

14. Latitude From: 29 43' 35"N To:

15. Longitude From: 95 13' 43"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	8.5 miles	Multiple Types

19. Directions From Local Sector

Take I-610 north to Clinton Drive. Proceed East to Kinder Morgan Galena Park facility.

20. Closest Airport: Houston Hobby (HOU)

21. Closest Helo Spot: Houston Hobby (HOU)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority N/A

Environmental N/A

Economic High

24. Width of inlet in ft. 50'

25. Water depth in ft. 3'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom across entrance to prevent migration of oil into or out of Panther Creek

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action as vessels pass. Debris is a common occurrence. Watch out for transients known to frequent the area. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-F	Pasadena	11325	55	Harris

13. Site Information: Simms Bayou

Entrance to Sims Bayou. It can be reached in 5-10 minutes by boat from MSO Houston-Galveston. The bayou extends several miles into Houston with mostly 30 degree grass banks. At the entrance there are piers on either side that boom could be attached to. M

14. Latitude From: 29-43-04N To:

15. Longitude From: 95-14-36W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	9 miles	Multiple Types

19. Directions From Local Sector

Take I-610 north to SH 225, go East. Exit Lawndale. Access through Port of Houston New Manchester docks.

20. Closest Airport
Houston Hobby (HOU)

21. Closest Helo Spot
Houston Hobby (HOU)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority	N/A
Environmental	N/A
Economic	High

24.Width of inlet in ft. 475'

25. Water depth in ft. 36'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom entrance to prevent oil from migrating into or out of Simms Bayou

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action as vessels pass. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
55-G	Pasadena	11325	55	Harris

13. Site Information: Greens Bayou Entrance

Entrance to Green's Bayou. Green's Bayou extends from the Houston Ship Channel northward into Jacinto City. The entrance is heavily commercialized. Debris is a common occurrence at the mouth. Red Channel Marker 152.

14. Latitude From:	To:
29 44' 51"N	
15. Longitude From:	**To:**
95 10' 05"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	7 NM	Multiple Types

19. Directions From Local Sector

Take I-610 north to IH-10 east. Exit Federal Rd. Turn left on Industrial Rd. Proceed to bayou.

20. Closest Airport

Houston Hobby (HOU)

21. Closest Helo Spot

Houston Hobby (HOU)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority N/A

Environmental N/A

Economic High

24.Width of inlet 600' in ft.

25. Water depth in ft. 32'

26. Current Medium

27. No. of Personnel 4

25. Booming Strategy **Recommendation**

Boom close to spill site to prevent migration.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

LA PORTE

(HIGHLANDS, p.40)

Click Here or Scroll Down for Associated Map Data

Click on the Geographic Response Plan Target to View the ICS Form

(PASADENA, p.55)

(MORGANS POINT, p.53)

(LEAGUE CITY, p.65)

95°7'0"W · 95°6'0"W · 95°5'0"W · 95°4'0"W · 95°3'0"W · 95°2'0"W · 95°1'0"W · 95°0'0"W

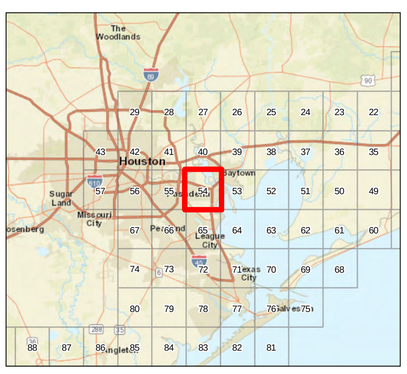
29°45'0"N · 29°44'0"N · 29°43'0"N · 29°42'0"N · 29°41'0"N · 29°40'0"N · 29°39'0"N · 29°38'0"N

North Latitude

West Longitude

Oil Spill Planning and Response Atlas 2016

The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map is not suitable for navigational purposes and does not purport to depict boundaries of private and public land.



Depth Soundings in Feet

Miles · Nautical Miles · Feet · Kilometers

Human Use Features

- Boat Ramp
- Facility
- Heliport
- Water Intake
- Geographic Response Plan

Priority Protection Areas

- HIGH
- LOW

Map Base Layers

- State Highway
- Railroads
- Airport Runways
- Road
- GIWW
- State Parks/WMA's
- County/Municipal Parks
- Oysters
- Bays
- Salt and Brackish Marshes
- Beach or Tidal Flat
- Exposed Lake Shore
- Freshwater Marshes
- Swamps and Flooded Woodlands
- Willow Thickets
- Lake / Pond
- Perennial River
- County Boundary
- City Limits

Species Icons Within Map Quad

- Turtle T/E
- Mammal T/E
- Benthic Marine
- Diving Bird
- Bivalve
- Gull/Tern
- Cephalopod
- Shorebird
- Crab
- Wading
- Shrimp
- Waterfowl
- Fish

ENVIRONMENTAL SENSITIVITY INDEX

- 10D Mangroves and Woody Vegetation
- 10C Freshwater Swamps
- 10B Freshwater Marshes
- 10A Salt and Brackish Water Marshes
- 9 Sheltered Tidal Flats
- 8C Sheltered Rocky/Karst Shores
- 8D Sheltered Scarps
- 8B Sheltered Riprap Structures
- 8A Sheltered Solid Manmade Structures
- 7 Exposed Tidal Flats
- 6B Exposed Riprap Structures
- 6A Gravel or Shell Beaches
- 5 Mixed Sand and Gravel or Shell Beaches
- 4 Coarse-Grained Sand Beaches
- 3B Scraps and Steep Slopes in Sand
- 3A Fine-Grained Sand Beaches
- 2B Wave-Cut Clay Platforms
- 2A Scraps and Steep Slopes in Clay
- 1 Exposed Walls and Other Solid Structures

54

Back To Map

Quadrant: LA PORTE

Map # :54

Biological Information for this quadrant represents known concentration areas of occurrence.

Habitat Priority Protection Areas

PPA ID	PRIORITY	POLY DESCRIPTION	BIRDS RANK	BIRDS DESCRIPTION	FISH RANK	FISH DESCRIPTION	WETLANDS RANK	WETLANDS DESCRIPTION
	HIGH	EXXON Baytown North Gate colonial waterbird rookery, colony code 600-163	High					
PPA0351	HIGH	Santa Anna Bayou marsh; part of San Jacinto State Park	MEDIUM	Year-round bird feeding area	HIGH	Nursery (shrimp, crab)		Some good quality low marsh and subsided areas
PPA0375	HIGH	North Alexander Island	HIGH	Best rookery in area (600-161); seasonal nesting for wading birds, cormorants				
PPA0388	LOW	Black Duck Bay			HIGH	Nursery		Fringe of smooth cordgrass
PPA0401	LOW	NW of Highway 146			HIGH	Nursery		Fringe marsh (smooth cordgrass, seashore paspalum)

Biological Resources

Bird

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
0017	Pelicans			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds			-	X	X	X	X	X		X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0024	Cormorants			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Grebes			HIGH	X	X	X	X	X	X			X	X	X	X	-	-	-
	Loons			HIGH	X	X	X	X	X					X	X	X	-	-	-
	Pelicans			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Gulls			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0026	Shorebirds			-	X	X	X	X	X		X	X	X	X	X	X	-	-	-
0027	Cormorants			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0028	Grebes			-	X	X	X	X	X	X			X	X	X	X	-	-	-
	Loons			-	X	X	X	X	X					X	X	X	-	-	-
	Gulls			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds			-	X	X	X	X	X		X	X	X	X	X	X	-	-	-
	Marsh birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0029	Gulls			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0267	Cormorants			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Grebes			HIGH	X	X	X	X	X	X			X	X	X	X	-	-	-
	Loons			HIGH	X	X	X	X	X					X	X	X	-	-	-
	Pelicans			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Gulls			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds			-	X	X	X	X	X		X	X	X	X	X	X	-	-	-
	Waterfowl			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-

Fish

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
0483	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
0491	Rainwater killifish			-	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUN	-	-	-	-
	Sailfin molly			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	Blue catfish			-	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
	Smallmouth buffalo			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
0500	Gizzard shad			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Atlantic croaker			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-JUN	JAN-DEC	JAN-DEC
	Bay anchovy			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-NOV	MAR-NOV	MAR-NOV	JAN-NOV	JAN-DEC
	Black drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Gafftopsail catfish			COMMON				X	X	X	X	X	X	X	X		APR-MAY	-	-	APR-NOV	APR-NOV
	Gulf menhaden			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Hardhead catfish			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAY-AUG	MAY-SEP	MAY-SEP	JUL-SEP	JAN-DEC
	Pinfish			COMMON				X	X	X	X	X					-	-	-	APR-AUG	-
	Red drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	SEP-NOV	JAN-DEC	JAN-DEC
	Sand seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Sheepshead			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JUL-APR*	JAN-DEC
	Southern flounder			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Southern kingfish			RARE								X	X	X			-	-	-	AUG-OCT	-
	Spot			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	FEB-NOV	JAN-DEC
	Spotted seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-OCT	APR-OCT	APR-OCT	SEP-NOV	JAN-DEC
	Striped mullet			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	White mullet			COMMON						X	X	X	X	X	X		-	-	-	JUN-NOV	-
	Gulf killifish			RARE	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	MAR-SEP	MAR-OCT	JAN-DEC	JAN-DEC
	Silver perch			RARE	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	NOV-NOV	JAN-DEC
	Silversides			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	MAR-AUG	MAR-AUG	JAN-DEC	JAN-DEC
	Alligator gar			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Blue catfish			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

Back To Map

Fish

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
	Smallmouth buffalo			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Spotted gar			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	APR-MAY	-	JAN-DEC	JAN-DEC
	Bay whiff			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	APR-SEP	JAN-DEC
	Spotfin mojarra			RARE							X	X					-	-	-	-	-
	Crevalle jack			COMMON			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	SEP-NOV
	Spanish mackerel			RARE									X	X	X		-	-	-	SEP-NOV	SEP-NOV
0505	Gizzard shad			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Atlantic croaker			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-JUN	JAN-DEC	JAN-DEC
	Atlantic sharpnose shark			-				X	X	X	X	X	X	X			JUN-JUN	MAY-JUN	JUN-OCT	-	APR-OCT
	Bay anchovy			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	JAN-DEC
	Black drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Bull shark			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	MAY-AUG	MAY-AUG	APR-NOV	JAN-DEC
	Gafftopsail catfish			COMMON			X	X	X	X	X	X	X	X			APR-MAY	-	-	APR-OCT	MAR-OCT
	Gulf menhaden			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Hardhead catfish			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAY-AUG	MAY-SEP	MAY-SEP	MAY-OCT	JAN-DEC
	Pinfish			RARE				X	X	X	X	X					-	-	-	APR-AUG	-
	Red drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	SEP-NOV	JAN-DEC	JAN-DEC
	Sand seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Sheepshead			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Southern flounder			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Southern kingfish			COMMON					X	X	X	X	X	X	X		-	-	-	MAY-NOV	-
	Spot			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	MAR-SEP	JAN-DEC
	Spotted seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-OCT	APR-OCT	APR-OCT	AUG-NOV	JAN-DEC
	Striped mullet			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	White mullet			COMMON						X	X	X	X	X			-	-	-	JUN-OCT	-
	Gulf killifish			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	MAR-SEP	MAR-OCT	JAN-DEC	JAN-DEC
	Silver perch			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	OCT-MAR*	JAN-DEC
	Silversides			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	MAR-AUG	MAR-AUG	JAN-DEC	JAN-DEC
	Atlantic spadefish			RARE							X	X	X	X			-	-	-	-	AUG-OCT
	Bay whiff			RARE	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	APR-APR	JAN-DEC
	Atlantic bumper			COMMON								X	X	X			-	-	-	-	AUG-OCT
	Blacktip shark			-			X	X	X	X	X	X	X	X	X		MAY-JUN	MAY-JUN	MAY-NOV	MAR-NOV	MAY-JUN
	Crevalle jack			COMMON			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	SEP-NOV
	Gulf butterfish			RARE	X	X	X	X	X							X	-	-	-	-	-
	Spanish mackerel			COMMON						X	X	X	X	X			-	-	-	JUN-OCT	JUN-OCT
0516	Gizzard shad			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Atlantic croaker			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-JUN	JAN-DEC	JAN-DEC
	Bay anchovy			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	JAN-DEC
	Black drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Gafftopsail catfish			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	APR-NOV	JAN-DEC
	Gulf menhaden			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Hardhead catfish			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAY-AUG	MAY-SEP	MAY-SEP	JUL-OCT	JAN-DEC
	Pinfish			COMMON			X	X	X	X	X	X	X				-	-	-	MAR-SEP	JUL-SEP
	Red drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	SEP-NOV	JAN-DEC	JAN-DEC
	Sand seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Sheepshead			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	NOV-JUN	JAN-DEC
	Southern flounder			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Spot			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	MAR-OCT	JAN-DEC
	Spotted seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-OCT	APR-OCT	APR-OCT	JUN-DEC	JAN-DEC
	Striped mullet			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	White mullet			COMMON				X	X	X	X	X	X				-	-	-	APR-SEP	-
	Gulf killifish			RARE	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	MAR-SEP	MAR-OCT	JAN-DEC	JAN-DEC
	Silver perch			RARE	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	OCT-JUN*	JAN-DEC
	Silversides			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	MAR-AUG	MAR-AUG	JAN-DEC	JAN-DEC
	Alligator gar			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Spotted gar			-	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	APR-MAY	-	JAN-DEC	JAN-DEC
	Atlantic spadefish			RARE						X	X	X	X				-	-	-	JUN-SEP	-
	Bay whiff			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	MAY-JUL	JAN-DEC
	Crevalle jack			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-

Invertebrate

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
0662	Brief squid			COMMON			X	X	X	X	X	X	X	X	X	X	MAR-DEC	MAR-DEC	MAR-DEC	MAR-DEC	MAR-DEC
	Blue crab			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	MAR-OCT	MAR-NOV	JAN-DEC	JAN-DEC
	Lesser blue crab			COMMON							X	X	X	X	X	X	-	-	-	JUL-OCT	SEP-DEC
	Brown shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	FEB-APR	APR-JAN	-
	Grass shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	White shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JUN-OCT	JUN-DEC	JAN-DEC
0663	Atlantic rangia			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	-	MAR-OCT	JAN-DEC	JAN-DEC
	Blue crab			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	MAR-OCT	MAR-NOV	JAN-DEC	JAN-DEC
	Lesser blue crab			COMMON				X	X	X	X	X	X	X			-	-	-	APR-OCT	-
	Brown shrimp			ABUNDANT		X	X	X	X	X	X	X	X	X	X		-	-	FEB-APR	APR-NOV	-
	Grass shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	White shrimp			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	APR-OCT	APR-DEC	JAN-DEC
0669	Brief squid			RARE					X	X							MAY-JUN	MAY-JUN	MAY-JUN	MAY-JUN	MAY-JUN

Back To Map

Invertebrate

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
	Blue crab			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	MAR-OCT	MAR-NOV	JAN-DEC	JAN-DEC
	Gulf stone crab			RARE	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Brown shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	FEB-APR	JAN-DEC	-
	Grass shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	White shrimp			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JUN-OCT	JAN-DEC	NOV-SEP
0689	Eastern oyster			REEF	X	X	X	X	X	X	X	X	X	X	X	X	MAR-DEC	MAR-DEC	-	-	JAN-DEC
	Brief squid			COMMON			X	X	X	X	X	X	X	X	X	X	MAR-DEC	MAR-DEC	MAR-DEC	MAR-DEC	MAR-DEC
	Blue crab			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	MAR-OCT	MAR-NOV	JAN-DEC	JAN-DEC
	Lesser blue crab			COMMON							X	X	X	X	X	X	-	-	-	JUL-OCT	SEP-DEC
	Brown shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	FEB-APR	APR-JAN	-
	Grass shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	White shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JUN-OCT	JUN-DEC	JAN-DEC
0690	Eastern oyster			UNCONSOLIDATED	X	X	X	X	X	X	X	X	X	X	X	X	MAR-DEC	MAR-DEC	-	-	JAN-DEC
	Brief squid			COMMON			X	X	X	X	X	X	X	X	X	X	MAR-DEC	MAR-DEC	MAR-DEC	MAR-DEC	MAR-DEC
	Blue crab			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	MAR-OCT	MAR-NOV	JAN-DEC	JAN-DEC
	Lesser blue crab			COMMON							X	X	X	X	X	X	-	-	-	JUL-OCT	SEP-DEC
	Brown shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	FEB-APR	APR-JAN	-
	Grass shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	White shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JUN-OCT	JUN-DEC	JAN-DEC

Marine Mammal

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molting
0739	West Indian manatee	S/F	E/E	VERY-RARE						X	X	X					-	-	-	-

Reptile

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
0761	Kemp's ridley sea turtle	S/F	E/E	COMMON				X	X	X	X	X	X	X	X		-	-	-	APR-NOV	-

Human Use Resources

	RARNUM	NAME	CONTACT	CONTACT INFO
Boat Ramp	2049	ExxonMobile		
	2066	Sylvan Beach Boat Ramp		[redacted]
Facility	RARNUM	NAME	CONTACT	CONTACT INFO
	1125	Cargill, Inc.- GOSC NA	Rashad Hart	281-452-0901
	1127	Vopak Terminal Deer Park	Clifton Ferrell	281-604-6045
	1133	Intercontinental Terminals Company	Carl Holley	281-884-0339
	1147	S. R. Bertron Electric Generating Station	Roger McConnell	281-867-2100
	1149	Exxonmobil Baytown Complex	Site Superintendent	281-834-5305
	1154	Battleground Oil Specialty Terminal Company (BOSTCO)	Pete Almaraz	281-946-1600
	1162	Enterprise Bertron Terminal	Aaron Schindler	800-530-1050
	1168	Lubrizol Deer Park Facility	Tanya Travis	281-479-2851
	1170	LyondellBasell Acetyls	Scott Snapp	713-209-1280
	1172	Shell Deer Park Refining Company	Edward Grosse	713-246-7301
	1177	Linde Gas La Porte Syngas Plant	Jake Leavins	713-767-4179
	1178	Intergulf Marine Facility	Joey King	281-474-4210
	1184	Morgan's Point Complex	Nicole Tebaldi	281.470.4901
	1195	Equistar Pipelines	Wolf Joseph	800-525-7516
Heliport	RARNUM	NAME	CONTACT	CONTACT INFO
	6047	LA PORTE PLANT	61TS	DEER PARK, TX 77536
	6066	RENTAL TOOLS	42TA	BLADENSBURG, MD 20710
	6079	SAN JACINTO COLLEGE CENTRAL CAMPUS	XS16	PASADENA, TX 77501
Water Intake	RARNUM	NAME	CONTACT	CONTACT INFO
	4053	PAKTANK CORPORATION-DEER PARK		
	4059	HOUSTON L&P-SAM BERTRAM		
	4068			

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement/vessel wake and submerged object.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-A	La Porte	11329	54	Harris

13. Site Information: Tucker Bayou
Entrance to Tucker Bayou is located on the south side of Buffalo Bayou west of San Jacinto Battleground State Park.

14. Latitude From: 29 44' 30" N To:

15. Longitude From: 95 06' 00" W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	3.4 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East. Exit Tidal Rd. Proceed to Tucker Bayou.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

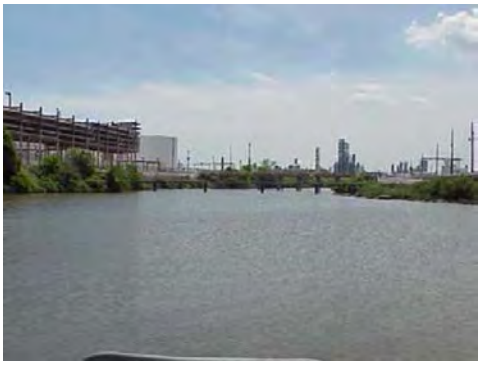
24. Width of inlet in ft. 300'
25. Water depth in ft. 4'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering or exiting Tucker Bayou

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement/vessel wake and submerged object.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-B	La Porte	11329	54	Harris

13. Site Information: Patrick Bayou
Entrance to Patrick Bayou is located on the south side of Buffalo Bayou south of Jacintoport

14. Latitude From:	To:
29 44' 17" N	
15. Longitude From:	To:
95 06' 40" W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East. Exit Tidal Rd. Proceed to bayou.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

24.Width of inlet 340' in ft.
25. Water depth in ft. 6'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering or exiting Patrick Bayou

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement/vessel wake and submerged object.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-C	La Porte	11329	54	Harris

13. Site Information: Ditch East of Patrick Bayou
Entrance is located on the south side of Buffalo Bayou east of Patrick Bayou.

14. Latitude From: 29 44' 19" N To:

15. Longitude From: 095 06' 30" W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	3.6 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East. Exit Tidal Rd. Proceed to ditch east of Patrick Bayou.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

24.Width of inlet in ft. 60'
25. Water depth in ft. 1'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering or exiting drainage ditch

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement/vessel wake and submerged object - shallow water.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-D	La Porte	11329	54	Harris

13. Site Information: Santa Anne Bayou Marsh
Entrance to San Jacinto Monument park marsh. Located on the southeast side of the San Jacinto Battleground StatePark - Bird habitat.

14. Latitude From:	To:
29 44' 28"N	
15. Longitude From:	**To:**
095 04' 01"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.25 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East to Independence Pkwy. Turn left. Access through state park.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority High
Environmental High
Economic N/A

24.Width of inlet in ft. 2500'
25. Water depth in ft. <1'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Area has frequent shoreline changes booming may be difficult. Note: CCA has prepositioned 200' of 18' boom at position 29-44-27N 095-04-06W.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement/vessel wake and submerged object.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-E	La Porte	11329	54	Harris

13. Site Information: Barnes Island cove
Un-named cove. Entrance is located southwest of Barnes Island in the northwest corner of Upper San Jacinto Bay.

14. Latitude From:	To:
29 43' 28"N	
15. Longitude From:	To:
095 03' 13"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.75 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East to Miller Cut -Off Rd. South to site.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic Low

24.Width of inlet 800' in ft.
25. Water depth in ft. 2'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering cove

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement/vessel wake and snakes.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-F	La Porte	11329	54	Harris

13. Site Information: Alexander Island

Alexander Island is located west of Baytown and east of Upper San Jacinto Bay. Area is high priority rookery area - nesting season is from February-August.

14. Latitude From:	To:
29 42' 40"N	
15. Longitude From:	To:
95 01' 23"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	5 NM	Multiple Types

19. Directions From Local Sector

Accessible by boat only. Just North of the Fred Hartman Bridge (Hwy 146)

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority	High
Environmental	High
Economic	Low

24.Width of inlet in ft. N/A

25. Water depth in ft. 1'

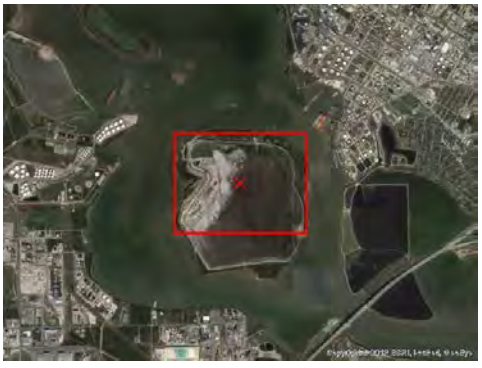
26. Current Medium

27. No. of Personnel 6

25. Booming Strategy **Recommendation**

Deploy protection and or diversion booming to minimize impact and divert product away from sensitive shoreline area around island.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-G	La Porte	11328	54	Harris

13. Site Information: Marsh East of DuPont Barge Dock
Shoreline East of DuPont barge dock. Located west of the Fred Hartman Bridge west of entrance to Lower San Jacinto Bay.

14. Latitude From: 29 41' 56"N To:

15. Longitude From: 095 01' 36"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Sylvan Beach Boat Ramp	5 NM	Multiple Types

19. Directions From Local Sector
Take I-610 north to SH 225, go East to Strang Rd. South to site.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic Low

24. Width of inlet in ft. 1000'
25. Water depth in ft. 1'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Consult with DuPont for access. Boom to prevent oil from entering or exiting marsh east of DuPont Barge Dock.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement. Shallow water

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-H	La Porte	11328	54	Harris

13. Site Information: Lower San Jacinto Bay

Entrance to Lower San Jacinto Bay. Located west of the Fred Hartman Bridge.

14. Latitude From:	To:
29 41' 57"N	
15. Longitude From:	**To:**
095 01' 28"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Sylvan Beach Boat Ramp	5 NM	Multiple Types

19. Directions From Local Sector

Take I-610 north to SH 225, go East to Strang Rd. South to site.

20. Closest Airport

La Porte Municipal Airport (T41)

21. Closest Helo Spot

La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Low

Environmental Low

Economic Low

24.Width of inlet 200' in ft.

25. Water depth in ft. 2'

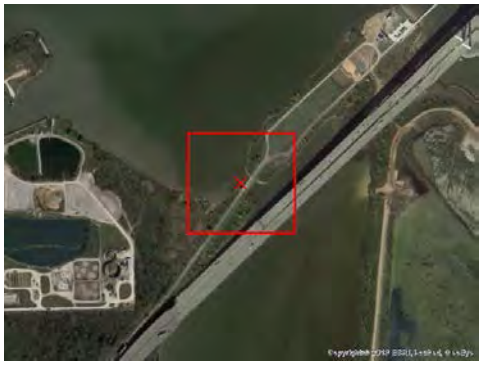
26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom to prevent oil from entering Lower San Jacinto Bay

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-I	La Porte	11328	54	Harris

13. Site Information: Barbors Cut Turning Basin Marsh
Located on the north side of the turning basin.

14. Latitude From: 29 41' 12"N To:

15. Longitude From: 095 00' 29"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Sylvan Beach Boat Ramp	3.5 NM	Multiple Types

19. Directions From Local Sector
Take I-610 south to Hwy 225 . Take Hwy 225 east until it ends at Hwy 146. Take Hwy 146 south Barbours Cut Rd. Go East.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

24.Width of inlet in ft. 2000'
25. Water depth in ft. 3'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom to prevent oil impact marsh inside Barbours Cut Terminal turning basin.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Shallow water. Water hazards include unmarked pilings throughout the area.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-J	La Porte	11328	54	Harris

13. Site Information: Blackwell Street Creek
Located between S Blackwell Street and Sandy Lane in Morgans Point.

14. Latitude From: 29 39' 46" N To:

15. Longitude From: 95 00' 04"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Sylvan Beach Boat Ramp	1.3 NM	Flat Bottom Boat

19. Directions From Local Sector
Take I-610 south to Hwy 225 . Take Hwy 225 east until it ends at Hwy 146. Take Hwy 146 south to Fairmont Parkway. Turn left on Fairmont Parkway. Turn left on Park Drive. Right on S. Blackwell St.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic Low

24.Width of inlet in ft. 250'
25. Water depth in ft. 2'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering creek.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Shallow water. Water hazards include unmarked pilings throughout the area.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-K	La Porte	11327	54	Harris

13. Site Information: Oak Grove Street Creek
Located between Oak Grove Street and S Brownell Street in Morgans Point.

14. Latitude From: 29 39' 34" N To:

15. Longitude From: 95 00' 17"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Sylvan Beach Boat Ramp	0.9 NM	Flat Bottom Boat

19. Directions From Local Sector
Take I-610 south to Hwy 225 . Take Hwy 225 east until it ends at Hwy 146. Take Hwy 146 south to Fairmont Parkway. Turn left on Fairmont Parkway. Turn left on Park Drive. Right on Oak Grove .

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic Low

24.Width of inlet in ft. 50'
25. Water depth in ft. 1'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering creek.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Shallow water. Water hazards include unmarked pilings throughout the area.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-L	La Porte	11327	54	Harris

13. Site Information: Little Cedar Bayou
Located between Sylvan Beach and the Houston Yacht Club North of South R Street in Shoreacres.

14. Latitude From: 29 38' 35"N To:

15. Longitude From: 95 00' 51"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Sylvan Beach Boat Ramp	0.5 NM	Flat Bottom Boat

19. Directions From Local Sector
Take I-610 south to Hwy 225 . Take Hwy 225 east until it ends at Hwy 146. Take Hwy 146 south to Fairmont Parkway. Turn left on Fairmont Parkway. Right on S Broadway St. Left on South R Street.

20. Closest Airport
La Porte Municipal Airport (T41)

21. Closest Helo Spot
La Porte Municipal Airport (T41)

22. Trustee/Contact Numbers

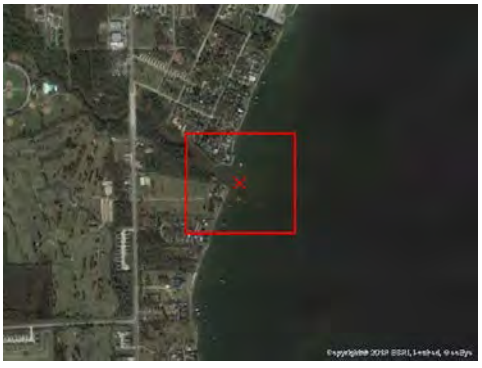
USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic Low

24.Width of inlet 350' in ft.
25. Water depth in ft. 1'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom to prevent oil from entering Little Cedar Bayou.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By: 30. Reviewed by (PSC) 31. Reviewed by (OSC):

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Responders should exercise caution due to frequent vessel movement.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-M	La Porte	11328	54	Harris

13. Site Information: Black Duck Bay

Located under the 146 Hwy at the entrance to Black Duck Bay.

14. Latitude From: 29-41-12 N To:

15. Longitude From: 095-00-29W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Bayland park boat ramp	1/2 mile	Multiple Types

19. Directions From Local Sector

Take I-610 south to Hwy 225 . Take Hwy 225 east until it ends at Hwy 146. Take Hwy 146 south to Fairmont Parkway. Turn left on Fairmont Parkway til it ends. Turn right on Bayshore Drive to the third driveway on the left - boat ramp entrance.

20. Closest Airport: La Porte Municipal Airport

21. Closest Helo Spot: La Porte Municipal Airport

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Low

Environmental Low

Economic Low

24. Width of inlet in ft. 200'

25. Water depth in ft. 2'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom to prevent oil entering or exiting Black Duck Bay

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: All approaches to Crystal are through shallow water.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
54-N	Highlands	11329	54	Harris

13. Site Information: Crystal Bay Marsh (SE)

This marsh is between Crystal Bay and Scott Bay in Baytown, Tx.

14. Latitude From:	To:
29 45' 08"N	

15. Longitude From:	To:
95 3' 06"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.5 NM	Airboat

19. Directions From Local Sector

610N to I-10E to Spur 330. East to Bayway Dr., exit right. Right onto W. Shreck St. Left onto Bayshore Dr. to marsh.

20. Closest Airport

Baytown Airport (HPY)

21. Closest Helo Spot

Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Low

Environmental Low

Economic N/A

24.Width of inlet 100' in ft.

25. Water depth in ft. <1'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom canals to prevent oil from entering marsh areas.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

HIGHLANDS

(CROSBY, p.27)

Click Here or Scroll Down for Associated Map Data

Click on the Geographic Response Plan Target to View the ICS Form

(JACINTO CITY, p.41)

(MONT BELVIEU, p.39)

(LA PORTE, p.54)

West Longitude

North Latitude

95°7'0"W · 95°6'0"W · 95°5'0"W · 95°4'0"W · 95°3'0"W · 95°2'0"W · 95°1'0"W · 95°0'0"W

29°52'0"N · 29°51'0"N · 29°50'0"N · 29°49'0"N · 29°48'0"N · 29°47'0"N · 29°46'0"N · 29°45'0"N

Gordon Lake · Rickett Lake · Faucet Lake · Barrett · Bluebell Lake · Muleshoe Lake · Heads Bend · McCracken Lake · Banana Bend · West Camp Lake · SAN JACINTO RIVER · George White Lake · Highlands Reservoir · Highlands · Bird Lake · Bear Bayou · Whites Lake · Grennel Slough · Bear Lake · Mantu · Lake Sandy · CHANNELVIEW · OLD RIVER · Lynchburg Reservoir · BURNET BAY · Houston Ship Channel · Carpenters Bayou · Jacintoport · BUFFALO BAYOU · Battleship Texas · San Jacinto Battleground State Historical Park · Santa Anna Bayou · Crystal Bay · McNair · BAYTOWN · Goose Creek · Coady · Lynchburg · Blue Gully

BEAUMONT HWY · US Business 90 · CROSBY FRWY · US Hwy 90 · BAYTOWN EAST FRWY · Interstate 10 · DECKER DR · FM 1942 · Coastal Industrial Water Authority Canal · CROSBY-HEIGHTSBERG RD · Spur 330 · Main St

0739 0492 · 0016 · 0017 · 0028 · 0761 · 0492 0739 · 0739 0492 · 0483 0739 0761 · 0761 0500 0663 0739

PPA 0221 · PPA 0244 · PPA 0257 · PPA 0269 · PPA 0296 · PPA 0299 · PPA 0323 · PPA 0330 · PPA 0333 · PPA 0334 · PPA 0351

40-A · 40-B · 40-C · 40-D · 40-E · 40-F · 40-G · 40-H · 40-I · 40-J · 40-K · 40-L · 40-M · 40-N · 40-O

2025 · 2026 · 2031 · 2032 · 2036 · 2037 · 2043 · 4037 · 4039 · 4041 · 4042 · 4045 · 4046 · 6016 · 6020 · 1093 · 1095 · 1096 · 1097 · 1099 · 1100 · 1101 · 1103 · 1105 · 1109 · 1110 · 1111 · 1115 · 1116

Human Use Features

- Boat Ramp
- Facility
- Heliport
- Water Intake
- Geographic Response Plan

Priority Protection Areas

- HIGH
- MEDIUM
- LOW

Map Base Layers

- Interstate Highway
- State Highway
- US Highway
- Railroads
- Road
- GIWW
- State Parks/WMA's
- Bays
- Salt and Brackish Marshes
- Intertidal Scrub/Shrub
- Beach or Tidal Flat
- Exposed Lake Shore
- Freshwater Marshes
- Swamps and Flooded Woodlands
- Willow Thickets
- Lake / Pond
- Tidally Influenced River
- Perennial River
- County Boundary
- City Limits

Species Icons Within Map Quad

- Turtle T/E
- Mammal T/E
- Benthic Marine
- Diving Bird
- Bivalve
- Gull/Tern
- Crab
- Raptor
- Shrimp
- Shorebird
- Fish
- Wading
- Waterfowl

ENVIRONMENTAL SENSITIVITY INDEX

- 10D Mangroves and Woody Vegetation
- 10C Freshwater Swamps
- 10B Freshwater Marshes
- 10A Salt and Brackish Water Marshes
- 9 Sheltered Tidal Flats
- 8C Sheltered Rocky/Karst Shores
- 8D Sheltered Scarps
- 8B Sheltered Riprap Structures
- 8A Sheltered Solid Manmade Structures
- 7 Exposed Tidal Flats
- 6B Exposed Riprap Structures
- 6A Gravel or Shell Beaches
- 5 Mixed Sand and Gravel or Shell Beaches
- 4 Coarse-Grained Sand Beaches
- 3B Scraps and Steep Slopes in Sand
- 3A Fine-Grained Sand Beaches
- 2B Wave-Cut Clay Platforms
- 2A Scraps and Steep Slopes in Clay
- 1 Exposed Walls and Other Solid Structures

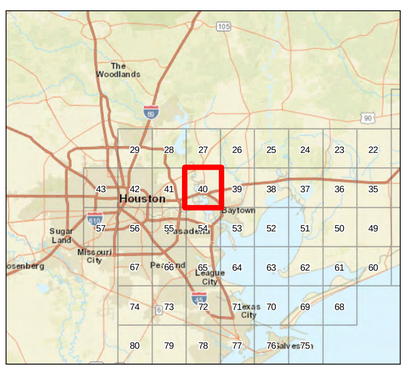
TEXAS GENERAL LAND OFFICE OIL SPILL PREVENTION & RESPONSE

NOAA · National Oceanic and Atmospheric Administration · U.S. Department of Commerce

Oil Spill Planning and Response Atlas

2016

The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map is not suitable for navigational purposes and does not purport to depict boundaries of private and public land.



Miles · Nautical Miles · Feet · Kilometers

Depth Soundings in Feet

Back To Map

Quadrant: HIGHLANDS

Map # :40

Biological Information for this quadrant represents known concentration areas of occurrence.

Habitat Priority Protection Areas

PPA ID	PRIORITY	POLY DESCRIPTION	BIRDS RANK	BIRDS DESCRIPTION	FISH RANK	FISH DESCRIPTION	WETLANDS RANK	WETLANDS DESCRIPTION
PPA0221	HIGH	George White Lake	MEDIUM	Egrets, herons, osprey			HIGH	Good quality fresh to intermediate marsh
PPA0244	MEDIUM	Fringe marshes along west shore of San Jacinto River			HIGH	Nursery	MEDIUM	Eroding and subsiding fresh marsh (arrowhead)
PPA0257	MEDIUM	South shore of Old River meander island	MEDIUM	Osprey perch, feeding area	HIGH	Nursery		
PPA0269	MEDIUM	Fringe marshes along San Jacinto River			HIGH	Nursery	MEDIUM	Marshhay cordgrass on spit
PPA0296	MEDIUM	Fringe marshes along San Jacinto River			HIGH	Nursery	MEDIUM	
PPA0299	LOW	Burnet and Crystal Bays			HIGH	Nursery; shrimp, crab concentrations in deeper water; juvenile seatrout		
PPA0323	MEDIUM	South shore of Old River meander island	MEDIUM		MEDIUM	Nursery	HIGH	Intertidal flat, brackish fringe marsh (smooth cordgrass, marsh-elder)
PPA0330	LOW	Marsh east of Lynchburg Landing			LOW	Nursery	MEDIUM	Thin fringe of smooth cordgrass
PPA0333	LOW	Mouth of Buffalo Bayou			HIGH	Nursery		
PPA0334	MEDIUM	South shore, Burnet Bay			HIGH	Nursery	HIGH	Thin fringe of smooth cordgrass
PPA0351	HIGH	Santa Anna Bayou marsh; part of San Jacinto State Park	MEDIUM	Year-round bird feeding area	HIGH	Nursery (shrimp, crab)		Some good quality low marsh and subsided areas

Biological Resources

Bird

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
0016	Osprey			-	X	X	X	X	X				X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0017	Pelicans			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds			-	X	X	X	X	X		X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
0028	Grebes			-	X	X	X	X	X	X			X	X	X	X	-	-	-
	Loons			-	X	X	X	X	X					X	X	X	-	-	-
	Gulls			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Terns			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shorebirds			-	X	X	X	X	X		X	X	X	X	X	X	-	-	-
	Marsh birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Wading birds			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Waterfowl			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-

Fish

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
0483	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
0491	Rainwater killifish			-	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUN	-	-	-	-
	Sailfin molly			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	Blue catfish			-	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
	Smallmouth buffalo			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
0492	Rainwater killifish			-	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUN	-	-	-	-
	Sailfin molly			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	Blue catfish			-	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	-	JAN-DEC
	Longnose gar			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Smallmouth buffalo			-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
0500	Gizzard shad			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Atlantic croaker			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-JUN	JAN-DEC	JAN-DEC
	Bay anchovy			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-NOV	MAR-NOV	MAR-NOV	JAN-NOV	JAN-DEC
	Black drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Gafftopsail catfish			COMMON				X	X	X	X	X	X	X	X		APR-MAY	-	-	APR-NOV	APR-NOV
	Gulf menhaden			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Hardhead catfish			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAY-AUG	MAY-SEP	MAY-SEP	JUL-SEP	JAN-DEC
	Pinfish			COMMON				X	X	X	X	X					-	-	-	APR-AUG	-
	Red drum			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	SEP-NOV	JAN-DEC	JAN-DEC
	Sand seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Sheepshead			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JUL-APR*	JAN-DEC
	Southern flounder			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Southern kingfish			RARE								X	X	X			-	-	-	AUG-OCT	-
	Spot			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	FEB-NOV	JAN-DEC
	Spotted seatrout			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-OCT	APR-OCT	APR-OCT	SEP-NOV	JAN-DEC
	Striped mullet			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Tarpon			RARE			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	-
	White mullet			COMMON						X	X	X	X	X	X		-	-	-	JUN-NOV	-
	Gulf killifish			RARE	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	MAR-SEP	MAR-OCT	JAN-DEC	JAN-DEC
	Silver perch			RARE	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	NOV-NOV	JAN-DEC
	Silversides			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	MAR-AUG	MAR-AUG	JAN-DEC	JAN-DEC
	Alligator gar			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Blue catfish			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

Back To Map

Fish

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
	Smallmouth buffalo			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Spotted gar			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	APR-MAY	-	JAN-DEC	JAN-DEC
	Bay whiff			COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	APR-SEP	JAN-DEC
	Spotfin mojarra			RARE							X	X					-	-	-	-	-
	Crevalle jack			COMMON			X	X	X	X	X	X	X	X	X		-	-	-	MAR-NOV	SEP-NOV
	Spanish mackerel			RARE									X	X	X		-	-	-	SEP-NOV	SEP-NOV

Invertebrate

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
0663	Atlantic rangia			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	-	MAR-OCT	JAN-DEC	JAN-DEC
	Blue crab			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	MAR-OCT	MAR-OCT	MAR-NOV	JAN-DEC	JAN-DEC
	Lesser blue crab			COMMON				X	X	X	X	X	X	X			-	-	-	APR-OCT	-
	Brown shrimp			ABUNDANT		X	X	X	X	X	X	X	X	X	X		-	-	FEB-APR	APR-NOV	-
	Grass shrimp			ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	White shrimp			HIGHLY-ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	APR-OCT	APR-DEC	JAN-DEC

Marine Mammal

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molting
0739	West Indian manatee	S/F	E/E	VERY-RARE						X	X	X					-	-	-	-

Reptile

RARNUM	NAME	S F	T E	CONC	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
0761	Kemp's ridley sea turtle	S/F	E/E	COMMON				X	X	X	X	X	X	X	X		-	-	-	APR-NOV	-

---

Human Use Resources

	RARNUM	NAME	CONTACT	CONTACT INFO
Boat Ramp	2025	Bass Hole Lakes		[redacted]
	2026	Banana Bend Park		[redacted]
	2031	Sassy Lady Tugboat Annie's		[redacted]
	2032	Lyondell/Equistar		
	2036	Riverside Inn Marina		[redacted]
	[redacted]	[redacted]		[redacted]
	2043	Baytown Nature Center		[redacted]
Facility	RARNUM	NAME	CONTACT	CONTACT INFO
	1093	Equistar Chemicals, L.P.	David Gray	281-452-8345
	1095	Glendale Boat Works, Inc.	Mel Cooper	281-452-7146
	1096	Sneed Shipbuilding, Inc.	Christian Minor	281-862-2266
	1097	Pelican Asphalt Co. LLC	Reggie Roberts	713-817-2683
	1099	SBS Facility	Scott Burnett	713-539-8227
	1100	K-Solv, LP.	Gary Weatherly	
	1101	Channel Shipyard Co. Inc.	Alan Bonds	281-424-1581
	1103	Harris County Precinct Two Lynchburg Ferry	David Starett	713-455-0062
	1105	Targa Terminals LLC--Channelview	Clay Riassetto	281-457-1348
	1109	San Jacinto Barge Repair, Inc.	Kyle Steger	281-785-3933
	1110	ACL Transportation Services, LLC	Jerry Torok	832-20504892
	1111	O'Rourke Marine Services, LP, LLP	Rusty Gallagher	281-695-1005
	1115	Kirby Inland Marine Channelview Barge Cleaning Facility	Steven Caruselle	281-960-9150
	1116	Houston Fuel Oil Terminal Company	Johnny Alaniz	281-452-3390
Heliport	RARNUM	NAME	CONTACT	CONTACT INFO
	6016	LPC	TA14	CHANNELVIEW, TX 77530
	6020	RED BARN	26TA	PASADENA, TX 77503
Water Intake	RARNUM	NAME	CONTACT	CONTACT INFO
	4037	BAYTOWN AREA WATER AUTHORITY		
	4039	WESTERN TOWING CO		
	4041	COOPERS MARINE SER INC'		
	4042	SOUTHWESTERN BARGE FLEET SER.		
	4045	CITY OF HOUSTON		
	4046			

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Very shallow water near the shoreline, airboats may be needed. Numerous tree stumps are located on the San Jacinto River. During periods of heavy rainfall the river current can be swift.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-A	Highlands	11329	40	Harris

13. Site Information: George White Lake

Entrance to George White Lake. George White Lake is a sensitive marsh area off of the San Jacinto River.

14. Latitude From: 29 49' 59.4"N To:

15. Longitude From: 95 3' 55"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Riverside Marina	3.0 NM	Flat Bottom Boat

19. Directions From Local Sector

610N to I-10E to Lynchburg Rd (Main St.). Go North to Highland Shores Dr. Turn Right. Marsh will be on the left.

20. Closest Airport

Baytown Airport (HPY)

21. Closest Helo Spot

Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Medium

Environmental Medium

Economic N/A

24.Width of inlet in ft. 300'

25. Water depth in ft. 6'

26. Current Slow

27. No. of Personnel 2

25. Booming Strategy **Recommendation**

Boom across entrance to prevent movement of oil into the marsh.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Very shallow water near the shoreline, airboats may be needed. Numerous tree stumps are located on the San Jacinto River. During periods of heavy rainfall the river current can be swift.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-B	Highlands	11329	40	Harris

13. Site Information: Rio Villa Marsh
Entrance to marsh. Marsh complex is a sensitive area off of the San Jacinto River. Concrete walkdown present.

14. Latitude From: 29 49' 34.4"N To:

15. Longitude From: 95 4' 24.9"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Riverside Marina	2.5 NM	Flat Bottom Boat

19. Directions From Local Sector
610N to I-10E to Sheldon Road. North on Sheldon to Wallisville Rd. Turn Right. At Rio Villa Dr. turn left. Proceed to marsh.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

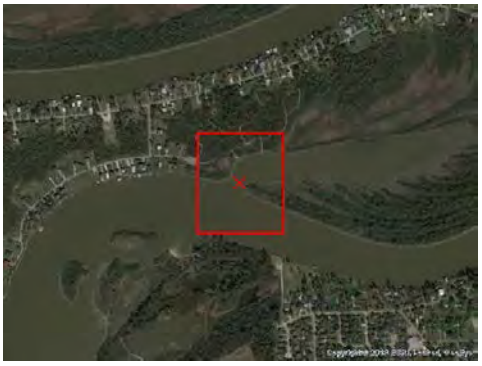
USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic N/A

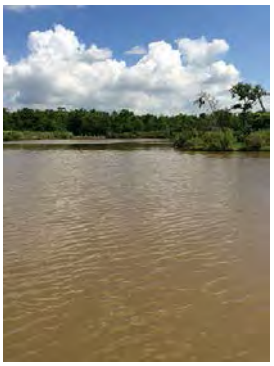
24.Width of inlet in ft. 300'
25. Water depth in ft. 6'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom across entrance to prevent movement of oil into the marsh.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Very shallow water near the shoreline, airboats may be needed. Numerous tree stumps are located on the San Jacinto River. During periods of heavy rainfall the river current can be swift.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-C	Highlands	11329	40	Harris

13. Site Information: Bear Bayou
Bear Bayou in San Jacinto River. Bear Bayou is a sensitive area just up the river from Lyondell. The bayou is full of stumps.

14. Latitude From: 29 49' 08"N To:

15. Longitude From: 95 5' 20"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Riverside Marina	2.0 NM	Flat Bottom Boat

19. Directions From Local Sector
610N to I-10E to Sheldon Road. North on Sheldon to Wallisville Rd. Turn Right. Proceed to river.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic N/A

24.Width of inlet in ft. 1100'
25. Water depth in ft. 2'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom shallows on west side of river to prevent movement of oil into the bayou. Bear Bayou is very shallow with numerous tree stumps.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Very shallow water near the shoreline, airboats may be needed. Numerous tree stumps are located on the San Jacinto River. During periods of heavy rainfall the river current can be swift.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-D	Highlands	11329	40	Harris

13. Site Information: Lyondell Basell Plant docks
Entrance to Lyondell Plant on San Jacinto River. This cut leads from the main channel of the San Jacinto River to the Lyondell Plant.

14. Latitude From:	To:
29 48' 58"N	
15. Longitude From:	**To:**
95 5' 34.2"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Riverside Marina	1.5 miles	Flat Bottom Boat

19. Directions From Local Sector
610N to I-10E to Sheldon Road. North on Sheldon to Lyondell facility

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic High

24.Width of inlet 450' in ft.
25. Water depth in ft. 15'
26. Current Slow
27. No. of Personnel 2

25. Booming Strategy **Recommendation**
Boom across entrance to prevent migration of oil into or out of facility.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Very shallow water near the shoreline, airboats may be needed. Numerous tree stumps are located on the San Jacinto River. During periods of heavy rainfall the river current can be swift.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-E	Highlands	11329	40	Harris

13. Site Information: San Jacinto River (RR Bridge)
RR Bridge above Riverside Marina. This railroad bridge spans the main channel of the San Jacinto River and is a good choke point to prevent product migration downstream.

14. Latitude From: 29 47' 58.4"N To:

15. Longitude From: 95 5' 21.4"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Riverside Marina	0.5 NM	Flat Bottom Boat

19. Directions From Local Sector
610N to I-10E to Monmouth Road. North on Monmouth Rd. to T in road. Turn left and take first right, Park Rd. Proceed down Park Rd. to River Road. Go left.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Medium
Environmental Medium
Economic N/A

24.Width of inlet in ft. 540'
25. Water depth in ft. 20'
26. Current Medium
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom to prevent oil from moving up or down the river.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Swift current has been noted on the San Jacinto River near I-10.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-F	Highlands	11329	40	Harris

13. Site Information: San Jacinto River Marsh (South I-10)
Marshes along east bank of I-10 in San Jacinto River. These marshes are along the east bank of the San Jacinto River just below I-10. There are some barrier islands that boom could be anchored to for protection of inner marshes.

14. Latitude From: 29 47' 25"N To:

15. Longitude From: 95 3' 46.6"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Riverside Marina	2 NM	Flat Bottom Boat

19. Directions From Local Sector
610N to I-10E to Lynchburg Rd. (Main St.)

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

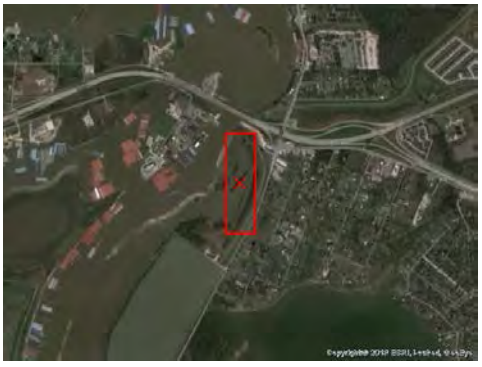
USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Medium
Environmental Medium
Economic High

24.Width of inlet in ft. 2000'
25. Water depth in ft. 1'
26. Current Medium
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Deploy boom to protect marsh

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: All approaches to Burnet Bay are through shallow water. Very shallow nearshore, airboats may be needed.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-G	Highlands	N/A	40	Harris

13. Site Information: Burnet Bay Marsh (East)
Burnet Bay- Marsh East of Lakeview Road. This sensitive marsh is along the northwest shore of Burnet Bay, West of Spring Bayou.

14. Latitude From: 29 45' 56"N To:

15. Longitude From: 95 4'47"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.5 NM	Airboat

19. Directions From Local Sector
610N to I-10E to Lynchburg Rd. Go South to Lakeview Dr. Turn left and proceed to marsh.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic N/A

24.Width of inlet in ft. 1000'
25. Water depth in ft. <1'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom with 1000' of boom to protect exposed fringe marsh and prevent the movement of oil into drainage canal.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: All approaches to Burnet Bay are through shallow water. Very shallow nearshore, airboats may be needed.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-H	Highlands	N/A	40	Harris

13. Site Information: Spring Bayou
Burnet Bay- Entrance to Spring Bayou. Spring Bayou is at the North end of Burnet Bay and leads into housing in Baytown. Along the banks are fringe marshes.

14. Latitude From: 29 46' 45"N To:

15. Longitude From: 95 3' 20"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.5 NM	Airboat

19. Directions From Local Sector
610N to I-10E to Lynchburg Rd. Go South to Center St., turn left. Proceed to Mable St., turn right..

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic N/A

24.Width of inlet in ft. 600'
25. Water depth in ft. 1'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom across entrance to prevent migration inland.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action from passing vessels.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-I	Highlands	11329	40	Harris

13. Site Information: Old River (HSC)

Entrance to Old River. This is where Old River joins the Houston Ship Channel. The area is congested with vessel traffic. At red channel marker 128. Potential staging and recovery locations along the West side of Old River.

14. Latitude From: 29 45' 53"N — To:

15. Longitude From: 95 5' 13"W — To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	1.5 NM	Multiple Types

19. Directions From Local Sector

610N to I-10E to Sheldon Road exit. Right on Sheldon Rd. to Market Street. Left on Market St. Right on De Zavalla.

20. Closest Airport: Baytown Airport (HPY)

21. Closest Helo Spot: Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Medium

Environmental Medium

Economic High

24. Width of inlet in ft. 1800'

25. Water depth in ft. 20'

26. Current Slow

27. No. of Personnel 4

25. Booming Strategy **Recommendation**

Boom across entrance to prevent oil from entering or exiting old river.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action from passing vessels. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-J	Highlands	11329	40	Harris

13. Site Information: Carpenters Bayou
Entrance to Carpenter's Bayou. This is where Carpenter's Bayou joins the Houston Ship Channel. The area is congested with vessel traffic.

14. Latitude From:	To:
29 45' 24.5"N	
15. Longitude From:	To:
95 5' 42"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	2.2 NM	Multiple Types

19. Directions From Local Sector
610N to I-10E to Sheldon Road exit. Right on Sheldon Rd. to Market Street. Left on Market St. Right on De Zavalla. Proceed to bayou.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority N/A
Environmental N/A
Economic High

24. Width of inlet in ft. 650'
25. Water depth in ft. 15'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom across entrance to prevent oil from entering or exiting Carpenters Bayou.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action from passing vessels. In security zone.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-K	Highlands	11329	40	Harris

13. Site Information: Battleship Texas State Park

Battleship Texas State Historic Park. The Battleship Texas is in a cut off the Houston Ship Channel. 400' containment boom is prestaged under walkway to Battleship.

14. Latitude From:	To:
29 45' 24"N	
15. Longitude From:	**To:**
95 5' 25"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	2 NM	Multiple Types

19. Directions From Local Sector

Take I-610 north to SH 225, go East. Exit Independence Pkwy. Proceed to park.

20. Closest Airport

La Porte Municipal (T41)

21. Closest Helo Spot

La Porte Municpal (T41)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Low

Environmental Low

Economic High

24.Width of inlet in ft. 500'

25. Water depth in ft. 23'

26. Current Slow

27. No. of Personnel 4

25. Booming Strategy **Recommendation**

Boom across entrance to prevent oil entering slip and adjacent marsh. Concrete culvert at back of slip leads to extensive marsh complex and special attention needs to be paid to tides and additional booming at culvert.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel

Operations Section Chief

Branch Director

Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: Crews operating along the shoreline of the ship channel should expect wake action from passing vessels.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-L	Highlands	11329	40	Harris

13. Site Information: San Jacinto River

Entrance to San Jacinto River. This is where the San Jacinto River joins the Houston Ship Channel. The area is congested with vessel traffic. In case of emergency Contact Lynchburg Ferry 281-424-3521

14. Latitude From:	To:
29 46' 00"N	
15. Longitude From:	**To:**
95 4' 47"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	1.75 NM	Multiple Types

19. Directions From Local Sector

610N to I-10E to Sheldon Road exit. Right on Sheldon Rd. to Market Street. Left on Market St. and look for park entrance on right.

20. Closest Airport

Baytown Airport (HPY)

21. Closest Helo Spot

Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk

Atlas Priority Low

Environmental Low

Economic High

24.Width of inlet 850' in ft.

25. Water depth in ft. 35'

26. Current Medium

27. No. of Personnel 4

25. Booming Strategy **Recommendation**

Deploy boom to prevent movement of oil into or out of the San Jacinto River.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: All approaches to Burnett Bay and Crystal Bay are through shallow water. Very shallow nearshore, airboats may be needed.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-M	Highlands	11329	40	Harris

13. Site Information: Baytown Nature Center
Baytown Nature Center Park west of Bayshore Road. This park is on an isthmus between Crystal and Burnet Bays. There is fringe marsh around most of it.

14. Latitude From: 29 45' 26"N To:

15. Longitude From: 95 3' 15"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.5 NM	Airboat

19. Directions From Local Sector
610N to I-10E to Spur 330. East to Bayway Dr., exit right. Right onto W. Shreck St. Right on Bayshore Dr. to park.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Medium
Environmental Medium
Economic N/A

24.Width of inlet in ft. N/A
25. Water depth in ft. shallow
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom with 1500' of boom to protect exposed fringe marsh.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: All approaches to Burnet Bay are through shallow water. Very shallow nearshore, airboats may be needed.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-N	Highlands	11329	40	Harris

13. Site Information: Freshwater Bayou

Burnet Bay- Entrance to Freshwater Bayou. Freshwater Bayou is at the Southeast corner of Burnet Bay and leads into the Point Royale subdivision. Along the banks are fringe marshes.

14. Latitude From:	To:
29 45' 40"N	
15. Longitude From:	**To:**
95 2' 39"W	

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.5 NM	Airboat

19. Directions From Local Sector

610N to I-10E to Spur 330. East to Bayway Dr., exit right. Right onto W. Shreck St to bayou.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic N/A

24. Width of inlet in ft. 450'
25. Water depth in ft. 4'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**

Boom across entrance to prevent oil movement into bayou and associated marsh.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

Back To Map

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachement with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks	

7. Assignments

SAFETY NOTE: All approaches to marsh are through shallow water. Very shallow nearshore, airboats may be needed.

8. Site Number:	9. Quad Name	10. NOAA Chart #	11. GLO Atlas Page #	12. County
40-O	Highlands	11329	40	Harris

13. Site Information: Baytown Nature Center marsh
Burnet Bay- Marsh at Brownwood Subdivision Nature Preserve. This sensitive marsh is along the south shore of Burnet Bay near Freshwater Bayou.

14. Latitude From: 29 45' 37"N To:

15. Longitude From: 95 2' 40"W To:

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
River Terrace Park	4.5 NM	Airboat

19. Directions From Local Sector
610N to I-10E to Spur 330. East to Bayway Dr., exit right. Right onto W. Shreck St to marsh.

20. Closest Airport
Baytown Airport (HPY)

21. Closest Helo Spot
Baytown Airport (HPY)

22. Trustee/Contact Numbers

USCG:	(281) 464-4800	RRC:	(713) 869-5001
USCG DUTY:	(800) 424-4800	TPWD:	(281) 842-8100
TGLO:	(800) 832-8224	NRDA:	(512) 463 -9309
TCEQ:	(713) 767-3563	USFWS:	(281) 286-8282

23. Resources at Risk
Atlas Priority Low
Environmental Low
Economic N/A

24.Width of inlet in ft. 1500'
25. Water depth in ft. 1'
26. Current Slow
27. No. of Personnel 4

25. Booming Strategy **Recommendation**
Boom with 1500' of boom to protect exposed fringe marsh.

AERIAL PHOTO



ON SITE PHOTO



29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Project Updated:

"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."

APPENDIX B

WORST CASE DISCHARGE ANALYSIS

Page

B.1 Discharge Calculations B-2
EPA
USCG
DOT PHMSA

B.2 Discharge Scenarios B-4
EPA/USCG Small Discharge B-4
EPA/USCG Medium Discharge B-7
EPA Worst Case Discharge B-10
PHMSA Worst Case Discharge B-15
USCG Worst Case Discharge B-16

B.3 Response Requirements B-17
Figure B.1 Response Planning Volume Calculations B-18

B.4 Planning Distance Calculation B-21

B.1 DISCHARGE CALCULATIONS

Regulatory planning standards require that potential discharge amounts be calculated in order to plan appropriately. Calculations are presented below:

EPA

Worst Case Discharge (WCD) = 100% of the largest single well at the facility.

WCD = 167,142 bbls

Medium Discharge = Discharge greater than 2,100 gallons (50 bbls) and less than or equal to 36,000 gallons (857 bbls) or 10% of the capacity of the largest tank, whichever is less and not to exceed the WCD.

Medium Discharge = 857 bbls

Small Discharge = A discharge of less than or equal to 2,100 gallons (50 bbls) and not to exceed the WCD.

Facility Small Discharge = 50 bbls

USCG

Facility WCD = 5,351 bbls

Maximum Most Probable Discharge (MMPD) = A discharge of 1,200 bbls or 10% of the WCD, whichever is less.

Facility MMPD = 95 bbls

Average Most Probable Discharge (MPD) = A discharge of 50 bbls or 1% of the WCD, whichever is less.

Facility AMPD = 10 bbls

B.1 DISCHARGE CALCULATIONS (Cont'd)

DOT PHMSA

Worst Case Discharge (WCD) = Largest volume (Bbls) of the following:

- Pipeline's maximum release time (hrs), plus the maximum shutdown response time (hrs), multiplied by the maximum flow rate (bph), plus the largest line drainage volume after shutdown of the line section.

WCD = 15,941 bbls (Pipeline)

--OR--

- Largest foreseeable discharge for the line section is based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective action or preventive action taken.

WCD = 35 bbls release from tank 150-42.

--OR--

Capacity of the single largest breakout tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system. Applicable adjustments for the largest tank at the Pipeline Facility including secondary containment include the following:

- Secondary containment capacity greater than 100% capacity of the largest tank and designed according to NFPA 30. **If yes, reduce by 50%.**
- Tank built, rebuilt and repaired according to API standard 620 / 650 / 653**. If yes, reduce by 10%**
- Overfill protection designed according to API RP 2350. **If yes, reduce by 5%.**
- Testing / cathodic protection designed according to API standard 650 / 651 / 653. **If yes, reduce by 5%.**

The maximum allowable credit is 70% of the volume of the largest tank (TK 187-1)

Facility WCD = 50,143 bbls

(167,142 bbls x 0.3) = 50,143 bbls (Breakout Tank) for a release from tank 187-1 .

B.2 DISCHARGE SCENARIOS

Small/Average Most Probable Discharge = 50 Bbls (EPA)/10 Bbls (USCG)

DISCHARGE SCENARIOS (App. F, Sec. 1.5, to 40 CFR 112)

App. F, Sec. 1.5.1.1, to 40 CFR 112			
Operations	Small (App. F, Sec. 1.5.1.1)	Medium (App. F, Sec. 1.5.1.1)	Worst Case (App. F, Sec. 1.5.2.1)
Loading & Unloading of Surface Transportation	X	X	
Facility Maintenance	X	X	
Facility Piping	X	X	
Pumping Stations & Sumps	X	X	
Oil Storage Tanks	X	X	X
Vehicle Refueling			
Age & Condition of facility components	0.0267 spills/yr Note 1	0.0267 spills/yr Note 1	0.0267 spills/yr Note 1

Note 1: Spill frequencies based on Federal Emergency Management Agency. (1989). *Handbook of Chemical Hazard Analysis Procedures*.

SMALL DISCHARGE SCENARIO (App. F, Sec. 1.5.1.2, to 40 CFR 112):

Scenario A and **Scenario B**:

Time: 0900

Weather conditions (App. F, Sec. 1.5.1.2.7, to 40 CFR 112): Thunderstorm with winds out of the west at 10 mph

Aquatic conditions (App. F, Sec. 1.5.1.2.7, to 40 CFR 112): 0.5 knots/hr.

NOTE: Although the scenario discussed will be limited to one of the above, the response steps and required action will be the same in all cases.

Scenario A (Facility Piping): 0900 Hours: The terminal operator making rounds in the containment area discovers a leak from Tank 25-19. The product is leaking from the transfer piping (Location of the material spilled - App. F, Sec. 1.5.1.2.5, to 40 CFR 112) into Panther Creek, which flows the Houston Ship Channel resulting in the discharge of 50-barrel of STAR-4. The likelihood that the discharge will travel offsite (App. F, Sec. 1.5.1.2.4, to 40 CFR 112) is high because the location of the discharge is the potentially Outfall-5 directly into Panther Creek. The probability of a chain reaction of failures (App. F, Sec. 1.5.1.2.9, to 40 CFR 112) is low due Facility inspections and the outfall is typically closed.

Scenario B (Tank): 0900 Hours: The terminal operator making rounds in the containment area discovers a leak from Tank 100-7. The product is leaking from a weld approximately 12 feet above the ground (Location of the material spilled - App. F, Sec. 1.5.1.2.5, to 40 CFR 112) into the vicinity of Barge Dock 3, which is connected to the Houston Ship Channel resulting in the discharge of 50-barrel of Ultra Low Sulfur Diesel (ULSD). The likelihood that the discharge will travel offsite (App. F, Sec. 1.5.1.2.4, to 40 CFR 112) is high because the location of the discharge is next to dock and Outfall-10. The probability of a chain reaction of failures (App. F, Sec. 1.5.1.2.9, to 40 CFR 112) is low due Facility inspections and the Facility would initiate emergency procedures to lower the product level below the level of the leaking tank weld.

B.2 DISCHARGE SCENARIOS (Cont'd)

Small/Average Most Probable Discharge = 50 Bbls (EPA)/10 Bbls (USCG) (Cont'd)

Estimated spill volume (App. F, Sec. 1.5.1.2.1, to 40 CFR 112)**:** 50 Bbls (2,100) gallons

Material discharged (App. F, Sec. 1.5.1.2.6, to 40 CFR 112): Scenario A: STAR-4; **Scenario B**: ULSD

Proximity to Downgradient wells and/or drinking water intakes (**App. F, Sec. 1.5.1.2.2, to 40 CFR 112):**

No downgradient wells and/or drinking water intakes were identified on the Houston Ship Channel (source: Texas Oil Spill Planning and Response Atlas).

Proximity to Downgradient waterways (Direction of spill pathway - App. F, Sec. 1.5.1.2.10, to 40 CFR 112):

The site drainage is towards the Houston Ship Channel, which flows into Galveston Bay.

Proximity to fish and wildlife and sensitive environments (App. F, Sec. 1.5.1.2.3, to 40 CFR 112):

The spill likely will reach the Ship Channel and impact fish and wildlife.

Time Event

Scenario A and B: 0900 Hours: Upon discovery, the operator notifies Facility management. The Terminal Manager initiates the Company's Emergency Response Line (ERL) Conference, activates the Facility's Integrated Contingency Plan, and contacts the Oil Spill Removal Organization (OSRO) to respond. The Terminal Manager functions as the Incident Commander (IC)/Qualified Individual (QI) until relieved by senior personnel. The OSRO, under the direction of the QI, will identify the location(s) and trajectory of the oil spill for deployment of containment, deflection, or exclusion booming downstream as appropriate (see App. A).

1000 Hours: The OSRO will mobilize to the potential boom location points (**Scenario A**: Panther Creek, near Ship Dock 1, 3, or 4 based on site conditions at the time; **Scenario B**: Barge Dock 3, Ship Dock 3, or Ship Dock 4, based on site conditions at the time) and initiate a deployment configuration that best supports the operating environment and available resources. The OSRO will place boom in the water using appropriate anchor system or mooring points.

1100 Hours: The OSRO will utilize vacuum trucks or appropriate recovery equipment to begin removal.

1130 Hours: The OSRO deploys additional boom downstream to capture any oil that may escape the primary boom or if the primary boom fails. If remediation equipment is required, it will be available from the OSRO during the cleanup operations (App. F, Sec. 1.5.1.2.8, to 40 CFR 112).

B.2 DISCHARGE SCENARIOS (Cont'd)

Small/Average Most Probable Discharge = 50 Bbls (EPA)/10 Bbls (USCG) (Cont'd)

Small Discharge Scenarios (Cont'd)

Response Requirement

The Facility shall identify sufficient resources, by contract or other approved means, to respond to a Small Discharge. The response resources shall, as appropriate, include:

- 1,000' of containment boom and a means of deploying it within one (1) hour of the discovery of a spill.
- Oil recovery devices with an effective daily recovery capacity (50 bbls/day) equal to the amount of oil discharged in a *Small Discharge* which is available at the Facility within two (2) hours of the detection of an oil discharge.
- Oil storage capacity (100 bbls) for recovered oily material equivalent to twice the effective daily recovery rate.

Facility Response Resources/Capability

The Facility will respond to a ***Small Discharge*** with the manpower detailed in Figures 3.1 – 3.4 as well as local contract resources as detailed in Figure 5.5.

Notes

- Equipment and personnel resources are detailed in Section 4.4, Figure 3.1 – 3.4, and Fig 5.5.
- Telephone notification and contact references are provided in Section 3.

Response personnel are trained for responding to small discharges through regularly scheduled tabletop exercises, discharge prevention/safety meetings, ICP reviews, and/or actual responses to spills.

B.2 DISCHARGE SCENARIOS (Cont'd)

Medium/Maximum Discharge = 857 Bbls (EPA)/95 Bbls (USCG)

DISCHARGE SCENARIOS (App. F, Sec. 1.5, to 40 CFR 112)

App. F, Sec. 1.5.1.1, to 40 CFR 112			
Operations	Small (App. F, Sec. 1.5.1.1)	Medium (App. F, Sec. 1.5.1.1)	Worst Case (App. F, Sec. 1.5.2.1)
Loading & Unloading of Surface Transportation	X	X	
Facility Maintenance	X	X	
Facility Piping	X	X	
Pumping Stations & Sumps	X	X	
Oil Storage Tanks	X	X	X
Vehicle Refueling			
Age & Condition of facility components	0.0267 spills/yr Note 1	0.0267 spills/yr Note 1	0.0267 spills/yr Note 1

Note 1: Spill frequencies based on Federal Emergency Management Agency. (1989). *Handbook of Chemical Hazard Analysis Procedures*.

MEDIUM DISCHARGE SCENARIO (App. F, Sec. 1.5.1.2, to 40 CFR 112)

Time: 0900

Weather conditions (App. F, Sec. 1.5.1.2.7, to 40 CFR 112): Thunderstorm with winds out of the west at 10 mph

Aquatic conditions (App. F, Sec. 1.5.1.2.7, to 40 CFR 112): 0.5 knots/hour.

NOTE: Although the scenario discussed will be limited to one of the above, the response steps and required action will be the same in all cases.

Scenario A (Pump): 0900 Hours: An operator at the Facility during his morning rounds hears a loud screeching sound and discovers a pump failure at Tank 100-9. The operator powers down the transfer but product has leaked from the pump and is rapidly filling up the earthen secondary containment (Location of the material spilled - App. F, Sec. 1.5.1.2.5, to 40 CFR 112) and there is a potential for the product to flow into the Ship Channel if Outfall 5 (Likelihood discharge will travel offsite - App. F, Sec. 1.5.1.2.4, to 40 CFR 112) through Outfall-15. The probability of a chain reaction (App. F, Sec. 1.5.1.2.9, to 40 CFR 112) is low due to facility inspections and routine equipment maintenance.

Scenario B (Tank Overfill): 0900 Hours: An operator making rounds sees product pooling at the base of Tank 50-1. The operator contacts dock PIC the tank has been overfilled and dock transfer is stopped but free product is within the earthen secondary containment (Location of the material spilled - App. F, Sec. 1.5.1.2.5, to 40 CFR 112). If through human error, Tank 50-1 containment valve is open and Tank 25-19 containment is being drained through Outfall-5, there is a potential for the product to escape to the Ship Channel (Likelihood discharge will travel offsite - App. F, Sec. 1.5.1.2.4, to 40 CFR 112). The probability of a chain reaction (App. F, Sec. 1.5.1.2.9, to 40 CFR 112) is low due to facility inspections, transfer procedures, and permitted discharges.

Estimated spill volume (**App. F, Sec. 1.5.1.2.1, to 40 CFR 112):** 36,000 gallons

B.2 DISCHARGE SCENARIOS (Cont'd)

Medium/Maximum Discharge = 857 Bbls (EPA)/95 Bbls (USCG) (Cont'd)

Material discharged (App. F, Sec. 1.5.1.2.6, to 40 CFR 112): Scenario A: Alkylate;
Scenario B: Distillate Blend

Proximity to Downgradient wells and/or drinking water intakes(App. F, Sec. 1.5.1.2.2, to 40 CFR 112):

No downgradient wells or drinking water intakes were identified within the planning distance (source: Texas Oil Spill Planning and Response Atlas.).

Proximity to Downgradient waterways(App. F, Sec. 1.5.1.2.10, to 40 CFR 112):

The site drainage is towards the Houston Ship Channel, which flows into Galveston Bay.

Proximity to fish and wildlife and sensitive environments(App. F, Sec. 1.5.1.2.3, to 40 CFR 112):

The spill likely will reach the Ship Channel and impact fish and wildlife.

Time Event

Scenario A and B: 0900 Hours: Upon discovery, the operator notifies Facility management. The Terminal Manager initiates the Company's Emergency Response Line (ERL) Conference, activates the Facility's Integrated Contingency Plan, and contacts the Oil Spill Removal Organization (OSRO) to respond. The Terminal Manager functions as the Incident Commander until relieved by senior personnel. The OSRO, under the direction of the QI, will identify the location(s) and trajectory of the oil spill for deployment of containment, deflection, or exclusion booming downstream as appropriate (see App. A).

1000 Hours: OSRO will mobilize to the identified locations (N. Richey St. or Shaver St.) and initiate a deployment configuration that best supports the operating environment and available resources. The OSRO will place boom in the water using appropriate anchor system or mooring points.

1100 Hours: The OSRO will utilize vacuum trucks or other appropriate recovery equipment to begin removal product.

1130 Hours: The OSRO deploys additional boom downstream to capture any oil that may escape the primary boom or if the primary boom fails. In addition all resources should arrive within 12 hours of activation of deployment. The oil recovery devices should be capable of recovering at least 50% of the product. However the secondary containments should be large enough to retain most of the product at the site. Due to the fact the product is diesel, there should not be the need for remediation equipment; however, if required, it will be available from the OSRO during the cleanup operations (App. F, Sec. 1.5.1.2.8, to 40 CFR 112).

B.2 DISCHARGE SCENARIOS (Cont'd)

Medium/Maximum Discharge = 857 Bbls (EPA)/95 Bbls (USCG) (Cont'd)

Response Requirement

The Facility shall identify sufficient response resources, by contract or other approved means, to respond to a Medium Discharge. The response resources shall, as appropriate, include:

- Oil recovery devices with an effective daily recovery capacity equal to 50% of the *Medium Discharge* volume that is capable of arriving on scene within the required time limits.
- Sufficient quantity of containment boom must arrive within the required time limits for oil collection and containment (see requirements in small discharge scenario above) and for protection of fish and wildlife and sensitive environments, as appropriate.
- Temporary storage capacity equal to twice the daily recovery capacity.

Facility Response Resources/Capability

- The Facility will initially respond to a ***Medium Discharge*** with a similar response to the Small Discharge. Additional response resources will be activated from an Oil Spill Removal Organization(s) (OSRO) as detailed in Figure 3.6.

Notes

- Equipment and personnel resources are detailed in Section 4.4, Figure 3.1 – 3.4, and Fig 5.5.
- Telephone notification and contact references are provided in Section 3.

Spill response personnel, including Facility members, are continually trained to respond to medium discharges through regularly scheduled tabletop exercises, discharge prevention/ safety meetings, ICP reviews, HAZWOPER training, and/or other PREP training.

B.2 DISCHARGE SCENARIOS (Cont'd)

EPA Worst Case Discharge = 167,142 Bbls (EPA)
(App. F, Sec. 1.5.2.1, to 40 CFR 112)

DISCHARGE SCENARIOS (App. F, Sec. 1.5, to 40 CFR 112)

App. F, Sec. 1.5.1.1, to 40 CFR 112			
Operations	Small (App. F, Sec. 1.5.1.1)	Medium (App. F, Sec. 1.5.1.1)	Worst Case (App. F, Sec. 1.5.2.1)
Loading & Unloading of Surface Transportation	X	X	
Facility Maintenance	X	X	
Facility Piping	X	X	
Pumping Stations & Sumps	X	X	
Oil Storage Tanks	X	X	X
Vehicle Refueling			
Age & Condition of facility components	0.0267 spills/yr Note 1	0.0267 spills/yr Note 1	0.0267 spills/yr Note 1

Note 1: Spill frequencies based on Federal Emergency Management Agency. (1989). *Handbook of Chemical Hazard Analysis Procedures*.

WORST CASE DISCHARGE SCENARIO

Time: 0530

Weather conditions (App. F, Sec. 1.5.2.1.1(7), to 40 CFR 112)**:** Severe thunderstorm develops and spawns tornado.

Aquatic conditions (App. F, Sec. 1.5.2.1.1(7), to 40 CFR 112)**:** 3 knots/hr.

NOTE: Although the scenario discussed will be limited to one of the above, the response steps and required action will be the same in all cases.

Day 1

0530 Hours During what appeared to be an ordinary storm, a tornado develops and destroys the integrity of Tank 187-1, a portion of the dike wall, and adjacent roadway. All 167,142 barrels of the tank and dock lines empty into the secondary containment and moves toward Houston Ship Channel slip. Conditions are rainy with strong winds.

0530 - An operator spotted the tornado that hit Tank 187-1

0530 - The operator immediately notifies his foreman of the situation by radio and informs the foreman he will head over to the area and meet the foreman there.

0534 - The foreman arrives at the scene.

0536 - The foreman who is the initial response Incident Commander (IC) calls for deployment of the response boat and begin booming across the slip

B.2 DISCHARGE SCENARIOS (Cont'd)

EPA Worst Case Discharge = 167,142 Bbls (EPA) (Cont'd)

Day 1 (Cont'd)

0536 - The foreman calls the marine scheduler to call the Incident Commander (IC) and Liaison Officer (LO) immediately and relay the incident.

0536 - The IC tells the marine scheduler to call-out the Galena Park ERT via the all-call.

0539 - The LO contacts the OSRO and informs them of the incident and minimum equipment and manpower needed.

0540 - The LO contacts the USCG (Houston) for an emergency shut-down of the channel and informs them of the incident.

0541 - The LO contacts HL&P of the incident and assists in response to protect the water intake if possible.

0545 - The LO notifies appropriate agencies in transit to the terminal.

0600 - Boom across Slip has been deployed and secured. The incoming tide is traveling at at rate of 2 ft / sec.

0620 - The IC arrives and relieves the foreman IC of command and establishes a command post at the Customer Service Center (CSC). The LO arrives and completes any agencies not called while in transit. SOFR arrives and establishes Site Safety Plan and decon procedures. The Spill Response Contractor arrives.

0625 - Containment of oil on land begins by laying absorbents and building a dike.

0630 - Kinder Morgan and the boat crew are instructed to assist the OSRO in deployment of deflection boom.

0645 - OSRO boats are in the water and ready.

0730 - Kinder Morgan and contractor equipment is used to begin recovery of the oil from the water.

0700 - Land response equipment is set-up and additional equipment dispatched. Clean-up of oil on the land begins.

0730 - Agency officials arrive and the Uniform Command System is put in place.

0800 - Clean-up activities are monitored by ICS/ERT members and continue throughout the night.

B.2 DISCHARGE SCENARIOS (Cont'd)

EPA Worst Case Discharge = 167,142 Bbls (EPA) (Cont'd)

Day 2

0730 - OSRO tailgate safety meeting conducted.

0800 - Clean-up of release is continued to be monitored.

0830 - Planning meeting in progress (salvageable oil, temporary storage, short term and long term goals, cost, etc.).

0900 - Operation meeting in progress (update, progress, recovery rate, etc.)

0945 - Shoreline Advisory Team evaluates shoreline area.

1015 - Liaison Officer completes HBU and Houston release notifications as well as claim information.

1600 - Follow-up reports are put together.

Day 3

0730 - OSRO tailgate safety meeting conducted. 0800 - Clean-up activities continued to be monitored.

0830 - Planning meeting in progress (salvageable oil, temporary storage, short term and long term goals, cost, etc.).

0900 - Operation meeting in progress (update, progress, recovery rate, etc.).

0945 - Shoreline Advisory Team evaluates shoreline area.

Day 4

0800 - Evaluation Team of Kinder Morgan and Agencies deemed clean-up completed.

1100 - Environmental Department begins disposal options investigations.

1600 - All reports required are completed to the extent practical.

Estimated spill volume(App. F, Sec. 1.5.2.1.1(1) , to 40 CFR 112): 167,142 barrels

Material discharged(App. F, Sec. 1.5.2.1.1(6) , to 40 CFR 112) - Group 1 Oil): Gasoline

B.2 DISCHARGE SCENARIOS (Cont'd)

EPA Worst Case Discharge = 167,142 Bbls (EPA) (Cont'd)

Proximity to Downgradient wells and/or drinking water intakes(App. F, Sec. 1.5.2.1.1(2), to 40 CFR 112)**:**

No downgradient wells and/or drinking water intakes were identified on the Houston Ship Channel (source: Texas Oil Spill Planning and Response Atlas).

Proximity to Downgradient waterways(Direction of spill pathway (App. F, Sec. 1.5.2.1.1(10), to 40 CFR 112):

The site drainage is towards the Houston Ship Channel, which flows into Galveston Bay.

Proximity to fish and wildlife and sensitive environments (App. F, Sec. 1.5.2.1.1(3) to 40 CFR 112):

The spill likely will reach the Ship Channel and impact fish and wildlife and sensitive environments.

Severe rain events associated with flooding would increase the chances of an oil spill leaving the property(Likelihood discharge will travel offsite - App. F, Sec. 1.5.2.1.1(4) to 40 CFR 112). The bad weather would hinder the response time of the response contractor. Other probable causes but not limited to are fires that can be caused by downed power lines. In event of such a tank failure, the product may escape the earthen containment and travel to the Houston Ship Channel. The probability of a chain reaction (App. F, Sec. 1.5.2.1.1(9) to 40 CFR 112) would be the collapse of the tank and the partial breach of the containment berm. The priority during larger spills is to contain the spill and prevent it from reaching the waterway. Contracted OSROs will be activated to respond. The booming will be done (See App. A) to minimize the flow of the product and impact to ecological sensitive areas. Due to the fact the product is gasoline, there should not be the need for remediation equipment; however, if required, it will be available from the OSRO during the cleanup operations (App. F, Sec. 1.5.2.1.1(8), to 40 CFR 112).

Response Requirement

The Facility shall identify sufficient response resources, by contract or other approved means, to respond to a Worst Case Discharge to the maximum extent practicable. The response resources shall, as appropriate, include:

- Oil recovery devices with an effective daily recovery capacity equal to the lesser of the WCD Response Planning Volume Calculation or the response caps. If the daily recovery rate exceeds the applicable contracting caps, then the Facility must identify additional resources equal to twice the cap or the amount necessary to reach the calculated planning volume.

B.2 DISCHARGE SCENARIOS (Cont'd)

EPA Worst Case Discharge = 167,142 Bbls (EPA) (Cont'd)

Response Requirement (Cont'd)

- Temporary storage capacity equal to twice the daily recovery capacity.
- At least 20% of the on-water response equipment should be capable of operating in water of 6 feet or less depth.
- Containment boom for oil collection and containment (see requirements of small discharge scenario above) for protection of areas of environmental sensitivity or economic importance.
- Identify resources capable of responding to a shoreline clean-up operation involving the calculated volume of oil and emulsified oil that might impact the affected shoreline.
- The above Response Planning Volume requirements, including response times, are based on Attachment E-1 of Appendix E to 40 CFR Part 112.

Notes

- Equipment and personnel resources are detailed in Section 4.4, Figure 3.1 – 3.4, and Fig 5.5.
- Telephone notification and contact references are provided in Section 3.

Spill response personnel, including Facility members, are continually trained to respond to worst case discharges through regularly scheduled PREP exercises (i.e. TTX, QI notification, equipment deployment), discharge prevention/safety meetings, ICP (i.e. FRP) reviews, and/or HAZWOPER training. A minimum of one tabletop exercise (TTX) in a triennial cycle will involve a Worst Case Discharge scenario.

B.2 DISCHARGE SCENARIOS (Cont'd)

PHMSA Worst Case Discharge = 15,941 Bbls

A worst case discharge for the Kinder Morgan Galena Park Terminal Response Zone is considered to be discharge that does not exceed 15,941 barrels.

Pipeline Worst Case Discharge = 15,941 Bbls

Description

The worst case discharge in the Kinder Morgan Galena Park Terminal Response Zone is expected to occur from the 20" KMET 3100 or KMET 3400 (2,112 feet).

Volume

Worst Case Discharge = (Rate of Flow x Maximum Time to Detect the Spill and Shut Down the Pipeline)+ Drainage Volume

Given:

Rate of flow = 15,000 bbls per hour

Maximum Discovery Time = 1.00 hr

Maximum shut down time = 0.008 hr

Drainage volume = 821 bbls

Pipeline Worst Case Discharge = (15,000 bbl/hr] x [1.00 hr + 0.008 hr] + [821 bbl] = 15,941bbls

The WCD is 15,941 bbls.

B.2 DISCHARGE SCENARIOS (Cont'd)

USCG - Worst Case Discharge = 5,351 Bbls

The worst-case discharge was calculated using the total volume of all associated dock lines for each oil group, i.e. Groups I and II.

The following planning assumptions are made in regards to time for discovery and shutdown:
- Discovery Time: 15 minutes (.25 hours)
- Shutdown Time: 1 minutes (.016 hours)

Volumes for all associated dock lines were calculated using the following formula:

V = A x L x F
Where: V = Volume (gals)
A = area (sq. ft.)
L = length (ft.)
F = conversion from feet to gallons = 7.48 gal/cu. ft.

Worst Case Discharge (WCD) = [(maximum time to discover + maximum time to shutdown flow) x maximum flow rate] + piping capacity
[(.25 hrs. + .016 hrs.) x 10,000 bbl./hr.] + Piping Capacity (see table below)

USCG WCD by Group of Oil

Oil Group	Max. Flow (bbl./hr.)	Pipe Length (Feet)	Pipe Diameter (Inches)	Piping Capacity (bbl.)	WCD (bbl.)
I	10,000	1. 260 from tank to 3300 pit	1. 24	1. 145	5,351
		2. 100 from 3300 pit to pump	2. 18	2. 31	
		3. 130 from pump to 3400 MFD	3. 16	3. 32	
		4. 2700 from 3400 MFD to Ship Dock #4	4. 20	4. 1043	
II	10,000	1. 530 from tank to branch to 7100 MFD	1. 16	1. 132	4,470
		2. 1700 from branch to Ship Dock #2	2. 12	2. 238	
III	10,000	900	8	462	4,562

B.3 RESPONSE REQUIREMENTS

The Facility has planned for, and is prepared to respond to spills of any size. In accordance with the regulations, resource requirements have been calculated (Figure B.1) to ensure that the Facility has access to, either by owning equipment or through contracted resources, an appropriate amount of response equipment to respond to spills of all sizes.

FIGURE B.1

RESPONSE PLANNING VOLUME CALCULATIONS
(App. F, Sec. 1.5.2.1, to 40 CFR 112)

Location Data	
Location Type	Nearshore/Inland
Port Type	High Volume Port
WCD Product Type	Petroleum Products
Product Group	2
Capacity of the Largest Single Tank (bbls)	167,142
Discharge Volumes/Calculations	
Small Discharge (bbls)	50
Medium Discharge (bbls)	857
Worst Case Discharge - Based on EPA criteria (bbls)	**167,142**
EPA WCD Calculation: 100% * Capacity of the Largest Single Tank	
Selected Calculation Factors (Based on EPA Tables)	
Removal Capacity Planning Volume - Percent Natural Dissipation	50%
Removal Capacity Planning Volume - Percent Recovered Floating Oil	50%
Removal Capacity Planning Volume - Percent Oil Onshore	30%
Emulsification Factor	1.8
Tier 1 - On Water Oil Recovery Resource Mobilization Factor	15%
Tier 2 - On Water Oil Recovery Resource Mobilization Factor	25%
Tier 3 - On Water Oil Recovery Resource Mobilization Factor	40%
Response Planning Volume Calculation	
On-Water Recovery Volume (bbls)	83,571
Shoreline Recovery Volume (bbls)	50,143
Shoreline Cleanup Volume (bbls)	90,257

	Tier 1	Tier 2	Tier 3
On-Water Recovery Cpcty (bbls/day)	22,564	37,607	60,171
Shallow Water Resp Cpblty (bbls/day)	4,513	7,521	12,034
Storage Capacity (bbls/day)	45,128	75,214	120,342
On-Water Response Caps (bbls/day)	12,500	25,000	50,000
Additional Response Req'd (bbls/day)	10,064	12,607	10,171
Response Time (hrs)	6	30	54

FIGURE B.1

RESPONSE PLANNING VOLUME CALCULATIONS (Cont'd)
(App. F, Sec. 1.5.2.1, to 40 CFR 112)

Location Data	
Location Type	Nearshore/Inland
Area Type	High Volume Area
WCD Product Type	Petroleum Product
Product Group	1
PHMSA WCD Volume (bbls)	15,941
Discharge Volumes/Calculations	
Worst Case Discharge - Based on PHMSA criteria (bbls)	**15,941**
Selected Calculation Factors (Based on USCG Tables)	
Removal Capacity Planning Volume - Percent Natural Dissipation	80%
Removal Capacity Planning Volume - Percent Recovered Floating Oil	20%
Removal Capacity Planning Volume - Percent Oil Onshore	10%
Emulsification Factor	1.0
Tier 1 - On Water Oil Recovery Resource Mobilization Factor	15%
Tier 2 - On Water Oil Recovery Resource Mobilization Factor	25%
Tier 3 - On Water Oil Recovery Resource Mobilization Factor	40%
Response Planning Volume Calculation	
On-Water Recovery Volume (bbls)	3,188
Shoreline Recovery Volume (bbls)	1,594
Shoreline Cleanup Volume (bbls)	1,594

	Tier 1	Tier 2	Tier 3
On-Water Recovery Cpcty (bbls/day)	478	797	1,275
Shallow Water Resp Cpblty (bbls/day)	96	159	255
Storage Capacity (bbls/day)	956	1,594	2,551
On-Water Response Caps (bbls/day)	12,500	25,000	50,000
Additional Response Req'd (bbls/day)	0	0	0
Response Time (hrs)	6	30	54

FIGURE B.1

RESPONSE PLANNING VOLUME CALCULATIONS (Cont'd)
(App. F, Sec. 1.5.2.1, to 40 CFR 112)

Location Data	
Location Type	Nearshore/Inland
Port Type	High Volume Port
WCD Product Type	Petroleum Product
Product Group	1
USCG WCD Volume (bbls)	5,351
Discharge Volumes/Calculations	
Average Most Probable (bbls)	50
Maximum Most Probable (bbls)	535
Worst Case Discharge - Based on USCG criteria (bbls)	**5,351**
Selected Calculation Factors (Based on USCG Tables)	
Removal Capacity Planning Volume - Percent Natural Dissipation	80%
Removal Capacity Planning Volume - Percent Recovered Floating Oil	20%
Removal Capacity Planning Volume - Percent Oil Onshore	10%
Emulsification Factor	1.0
Tier 1 - On Water Oil Recovery Resource Mobilization Factor	15%
Tier 2 - On Water Oil Recovery Resource Mobilization Factor	25%
Tier 3 - On Water Oil Recovery Resource Mobilization Factor	40%
Response Planning Volume Calculation	
On-Water Recovery Volume (bbls)	1,070
Shoreline Recovery Volume (bbls)	535
Shoreline Cleanup Volume (bbls)	535

	Tier 1	Tier 2	Tier 3
On-Water Recovery Cpcty (bbls/day)	161	268	428
Shallow Water Resp Cpblty (bbls/day)	32	54	86
Storage Capacity (bbls/day)	321	535	856
On-Water Response Caps (bbls/day)	12,500	25,000	50,000
Additional Response Req'd (bbls/day)	0	0	0
Response Time (hrs)	6	30	54

B.4 PLANNING DISTANCE CALCULATION

The response area is tidally influenced and is a persistent oil so the planning distance is 15 miles.

APPENDIX C

HAZARD EVALUATION

C. 1 Hazard Identification

Hazard Identification Tank Tables
Loading and Unloading of Transportation Vehicles
Day-to-Day Operations
Secondary Containment Volume
Normal Daily Throughput
Security

C. 2 Discharge Detection

Detection by Personnel
Automated Detection Systems

C. 3 Facility Self-Inspections

Tank Inspections
Containment Area Inspection
Inspection Reports
Figure C.1 Tank Inspection Checklist
Figure C.2 Secondary Containment Inspection Checklist

C. 4 Analysis of the Potential for a Spill

Oil Spill History
Horizontal Range of a Spill
Vulnerability to a Natural Disaster
Other Factors

C.5 Reportable Spill History

Table C-1 Spill History

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS						
5-21	TRANSMIX	126,000	210,000	Vertical/ Cylindrical	2010	5,490,701
10-9	BIODIESEL	252,000	420,000	Vertical/ Cylindrical	1968	2,550,857
10-10	BIODIESEL	252,000	420,000	Vertical/ Cylindrical	1968	2,550,857
10-11	BIODIESEL	252,000	420,000	Vertical/ Cylindrical	1968	2,550,857
10-12	ETHYLENE GLYCOL	252,000	420,000	Vertical/ Cylindrical	1968	2,550,857
10-13	AMERICAS CORE 600	252,000	420,000	Vertical/ Cylindrical	1970	8,931,740
10-14	BIODIESEL	252,000	420,000	Vertical/ Cylindrical	1970	8,931,740
10-15	BIODIESEL	252,000	420,000	Vertical/ Cylindrical	1970	8,931,740
10-16	AMERICAS CORE 600	252,000	420,000	Vertical/ Cylindrical	1970	8,931,740
10-17	XHVI8.0	252,000	420,000	Vertical/ Cylindrical	1971	8,931,740
10-18	FURFURAL	252,000	420,000	Vertical/ Cylindrical	1971	8,931,740
10-19	AMERICAS 330	252,000	420,000	Vertical/ Cylindrical	1971	8,931,740
10-20	XHVI4.0	252,000	420,000	Vertical/ Cylindrical	1971	8,931,740
10-21	CRUDE GLYCERINE	252,000	420,000	Vertical/ Cylindrical	2007	8,931,740
12-1	BENZENE	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-3	ALKYLATE	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
12-5	ALKYLATE	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-6	BIODIESEL	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-7	NBA 96	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-8	ALKYLATE 225	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-9	NBA 96	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-10	ALKYLATE	302,400	504,000	Vertical/ Cylindrical	1974	2,550,857
12-11	D C P D	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-12	AVIATION GASOLINE	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-13	BIODIESEL	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-14	GASOLINE BLENDSTOCK	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-15	BIODIESEL	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-16	BLACK DCPD FINISHED	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-17	BIODIESEL	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-18	DCPDFS-MP	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-19	ALKYLATE	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857
12-20	BLACK DCPD FINISHED	302,400	504,000	Vertical/ Cylindrical	1975	2,550,857

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
12-21	BIODIESEL	302,400	504,000	Vertical/ Cylindrical	1975	12,866,493
12-22	BIODIESEL	302,400	504,000	Vertical/ Cylindrical	1975	12,866,493
12-23	SODIUM SULFIDE	302,400	504,000	Vertical/ Cylindrical	1979	12,866,493
12-24	GASOLINE BLENDSTOCK	302,400	504,000	Vertical/ Cylindrical	1977	12,866,493
12-25	ETHYLENE GLYCOL	302,400	504,000	Vertical/ Cylindrical	1977	12,866,493
12-26	GASOLINE BLENDSTOCK	302,400	504,000	Vertical/ Cylindrical	1977	12,866,493
12-27	NAPHTHA	302,400	504,000	Vertical/ Cylindrical	1977	12,866,493
12-28	CLEAN PETROLEUM PROD	302,400	504,000	Vertical/ Cylindrical	1979	12,866,493
12-29	AROMATIC CONCENTRATE	302,400	504,000	Vertical/ Cylindrical	1979	12,866,493
12-30*	TRANSMIX	302,400	504,000	Vertical/ Cylindrical	1979	12,866,493
15-1*	TRANSMIX	378,000	630,000	Vertical/ Cylindrical	1957	5,490,701
15-2	METHANOL	378,000	630,000	Vertical/ Cylindrical	2007	8,931,740
15-3*	TRANSMIX	378,000	630,000	Vertical/ Cylindrical	2010	8,931,740
20-1	BIODIESEL	504,000	840,000	Vertical/ Cylindrical	2007	8,931,740
20-2	BIODIESEL	504,000	840,000	Vertical/ Cylindrical	2007	8,931,740
22	STAR 6	630,000	1,050,000	Vertical/ Cylindrical	1968	8,931,740

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
25-1	XHVI8.0	630,000	1,050,000	Vertical/ Cylindrical	1956	8,931,740
25-2	BIODIESEL	630,000	1,050,000	Vertical/ Cylindrical	1971	2,550,857
25-4	AROMATIC CONCENTRATE	630,000	1,050,000	Vertical/ Cylindrical	1974	2,550,857
25-3	MIXED OXO PRODUCTS	630,000	1,050,000	Vertical/ Cylindrical	1971	5,475,740
25-5	GASOLINE BLENDSTOCK	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-6	ALKYLATE	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-7	BIODIESEL	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-8	AROMATIC CONCENTRATE	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-9	SODIUM SULFIDE	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-10	CLEAN PETROLEUM PROD	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-11	DCPDFS-HP	630,000	1,050,000	Vertical/ Cylindrical	1975	5,475,740
25-12	HPG	630,000	1,050,000	Vertical/ Cylindrical	1974	5,475,740
25-13	ALKYLATE	630,000	1,050,000	Vertical/ Cylindrical	1975	5,475,740
25-14	PYGAS	630,000	1,050,000	Vertical/ Cylindrical	1974	2,550,857
25-15	PYGAS	630,000	1,050,000	Vertical/ Cylindrical	1974	2,550,857
25-16	ISO-OCTANE	630,000	1,050,000	Vertical/ Cylindrical	1975	2,550,857
25-17	HPG	630,000	1,050,000	Vertical/ Cylindrical	1975	2,550,857

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
25-18	PYGAS	630,000	1,050,000	Vertical/ Cylindrical	1975	2,550,857
25-19	DCPDFS-HP	630,000	1,050,000	Vertical/ Cylindrical	1975	2,550,857
25-20	STAR 12 (7242)	630,000	1,050,000	Vertical/ Cylindrical	1975	8,931,740
25-21	RAFFINATE	630,000	1,050,000	Vertical/ Cylindrical	2010	12,866,493
25-22	GASOLINE BLENDSTOCK	630,000	1,050,000	Vertical/ Cylindrical	1977	12,866,493
25-23	ACETONE	630,000	1,050,000	Vertical/ Cylindrical	1977	12,866,493
25-24	NAPHTHA	630,000	1,050,000	Vertical/ Cylindrical	1979	12,866,493
25-25	TOLUENE-XYLENE	630,000	1,050,000	Vertical/ Cylindrical	1979	12,866,493
25-26	HPG	630,000	1,050,000	Vertical/ Cylindrical	1979	12,866,493
25-27	GASOLINE BLENDSTOCK	630,000	1,050,000	Vertical/ Cylindrical	1979	12,866,493
25-28	AROMATIC CONCENTRATE	630,000	1,050,000	Vertical/ Cylindrical	1979	12,866,493
25-29	STAR 4	630,000	1,050,000	Vertical/ Cylindrical	1979	1,324,052
25-30	AMERICAS CORE 100	630,000	1,050,000	Vertical/ Cylindrical	1979	8,931,740
31	WASTEWATER	630,000	1,050,000	Vertical/ Cylindrical	1937	8,931,740
32	WASTEWATER	630,000	1,050,000	Vertical/ Cylindrical	Unk	8,931,740
37	XHVI4.0	630,000	1,050,000	Vertical/ Cylindrical	1940	8,931,740

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
40-1	STAR 6	630,000	1,050,000	Vertical/ Cylindrical	1974	8,931,740
50-1	PALM OIL	3,780,000	6,300,000	Vertical/ Cylindrical	2007	8,931,740
50-2	BIODIESEL	3,780,000	6,300,000	Vertical/ Cylindrical	2007	8,931,740
50-3	BIODIESEL	3,780,000	6,300,000	Vertical/ Cylindrical	2007	8,931,740
80-9*	NAPHTHA	2,016,000	3,360,000	Vertical/ Cylindrical	1974	5,475,740
80-10*	ISO-OCTANE PURE	2,016,000	3,360,000	Vertical/ Cylindrical	1974	5,475,740
80-11*	HIGH SULFUR NAT GAS	2,016,000	3,360,000	Vertical/ Cylindrical	1974	5,475,740
80-12*	BIODIESEL	2,016,000	3,360,000	Vertical/ Cylindrical	1974	5,475,740
80-13*	NAPHTHA	2,016,000	3,360,000	Vertical/ Cylindrical	1974	5,475,740
80-14*	ISO-OCTANE	2,016,000	3,360,000	Vertical/ Cylindrical	1974	5,475,740
80-15*	GASOLINE BLENDSTOCK	2,016,000	3,360,000	Vertical/ Cylindrical	1975	12,866,493
80-16*	ALKYLATE	2,016,000	3,360,000	Vertical/ Cylindrical	1975	12,866,493
80-17*	REFORMATE	2,016,000	3,360,000	Vertical/ Cylindrical	2010	12,866,493
80-18*	HPG	2,016,000	3,360,000	Vertical/ Cylindrical	1979	12,866,493
80-19*	MIXED XYLENE	2,016,000	3,360,000	Vertical/ Cylindrical	1979	12,866,493
80-20	REFORMATE	2,016,000	3,360,000	Vertical/ Cylindrical	1979	12,866,493
80-21	GASOLINE BLENDSTOCK	2,016,000	3,360,000	Vertical/ Cylindrical	1980	12,866,493

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
80-22	ISO-OCTANE	2,016,000	3,360,000	Vertical/ Cylindrical	1980	12,866,493
90-1*	ALKYLATE	2,268,000	3,780,000	Vertical/ Cylindrical	2002	6,897,039
90-2*	ALKYLATE	2,268,000	3,780,000	Vertical/ Cylindrical	2002	6,897,039
100-1*	MTBE	2,520,000	4,200,000	Vertical/ Cylindrical	1975	4,353,662
100-2*	GAS BLEND SPRING	2,520,000	4,200,000	Vertical/ Cylindrical	1975	12,866,493
100-3*	ALKYLATE	2,520,000	4,200,000	Vertical/ Cylindrical	1978	4,353,662
100-4*	MTBE	2,520,000	4,200,000	Vertical/ Cylindrical	1979	4,353,662
100-5*	ALKYLATE	2,520,000	4,200,000	Vertical/ Cylindrical	1988	4,982,026
100-6*	LIGHT NAPHTHA	2,520,000	4,200,000	Vertical/ Cylindrical	1988	4,982,026
100-7*	ULSD	2,520,000	4,200,000	Vertical/ Cylindrical	1998	9,453,628
100-8*	ULSD	2,520,000	4,200,000	Vertical/ Cylindrical	1998	9,453,628
100-9*	ALKYLATE	2,520,000	4,200,000	Vertical/ Cylindrical	1998	9,453,628
100-10*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	1998	9,453,628
100-11*	ALKYLATE	2,520,000	4,200,000	Vertical/ Cylindrical	2002	6,897,039
100-12*	ALKYLATE	2,520,000	4,200,000	Vertical/ Cylindrical	2002	6,897,039
100-13*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2006	9,453,628

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
100-14*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2006	9,453,628
100-15*	CAT GASOLINE	2,520,000	4,200,000	Vertical/ Cylindrical	2008	10,188,470
100-16*	NAPHTHA	2,520,000	4,200,000	Vertical/ Cylindrical	2008	10,188,470
100-17*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2008	10,188,470
100-18*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2008	10,188,470
100-19*	NAPHTHA	2,520,000	4,200,000	Vertical/ Cylindrical	2008	10,188,470
100-21	SOYBEAN OIL	2,520,000	4,200,000	Vertical/ Cylindrical	2007	8,931,740
100-23	SODIUM SULFIDES	2,520,000	4,200,000	Vertical/ Cylindrical	2008	12,866,493
100-24	SODIUM SULFIDE	2,520,000	4,200,000	Vertical/ Cylindrical	2008	12,866,493
100-25*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2014	10,868,648
100-26*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2014	10,868,648
100-27*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	2015	10,868,648
100-28*	GASOLINE BLENDSTOCK	2,520,000	4,200,000	Vertical/ Cylindrical	Unk	4,353,662
125-1*	LIGHT NAPHTHA	3,150,000	5,250,000	Vertical/ Cylindrical	2010	12,866,493
144-1*	NATURAL GASOLINE	3,628,800	6,048,000	Vertical/ Cylindrical	1977	12,866,493
150-101*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2008	10,188,470
150-102*	CONVENTIONAL GAS	3,780,000	6,300,000	Vertical/ Cylindrical	2008	10,188,470

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
150-103*	ALKYLATE	3,780,000	6,300,000	Vertical/ Cylindrical	2008	10,188,470
150-104*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2009	10,188,470
150-105*	NAPHTHA	3,780,000	6,300,000	Vertical/ Cylindrical	2009	10,188,470
150-106*	RAFFINATE	3,780,000	6,300,000	Vertical/ Cylindrical	2009	10,188,470
150-107*	ALKYLATE	3,780,000	6,300,000	Vertical/ Cylindrical	2009	10,188,470
150-108*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2009	10,188,470
150-109*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2009	10,188,470
150-110*	UNLEADED REGULAR GAS	3,780,000	6,300,000	Vertical/ Cylindrical	2013	9,453,628
150-111*	RAFFINATE	3,780,000	6,300,000	Vertical/ Cylindrical	2013	9,453,628
150-112*	REFORMATE	3,780,000	6,300,000	Vertical/ Cylindrical	2013	9,453,628
150-113*	LIGHT NAPHTHA	3,780,000	6,300,000	Vertical/ Cylindrical	2013	9,453,628
150-114*	UNLEADED REGULAR GAS	3,780,000	6,300,000	Vertical/ Cylindrical	2013	9,453,628
150-115*	ALKYLATE	3,780,000	6,300,000	Vertical/ Cylindrical	2009	9,453,628
150-116*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2014	10,868,648
150-117*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2014	10,868,648
150-118*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2015	10,868,648
150-119*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2015	10,868,648

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
150-120*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2014	10,868,648
150-121*	GASOLINE BLENDSTOCK	3,780,000	6,300,000	Vertical/ Cylindrical	2014	10,868,648
187-1*	ISO-OCTANE	4,211,978	7,019,964	Vertical/ Cylindrical	1977	12,866,493
Tank 3-9	FEEDSTOCK	75,600	126,000	Vertical/ Cylindrical	Unk	8,931,740
Tank 3-10	GROUND WATER	75,600	126,000	Vertical/ Cylindrical	Unk	8,931,740
Blowdown Tank No. 2	GASOLINE BLENDSTOCK	940	1,566	Vertical/ Cylindrical	Unk	1,845
Slop Tank No. 3	LAB FLUSH TANK	150	250	Vertical/ Cylindrical	Unk	1,845
Slop Tank No. 4	Slop/Blowdown Water	300	500	Vertical/ Cylindrical	Unk	862
Slop Tank No. 5	Slop/Blowdown Water	33	55	Vertical/ Cylindrical	Unk	112
Slop Tank No. 7	Slop/Blowdown Water	300	500	Vertical/ Cylindrical	Unk	9,453,628
Slop Tank No. 8	Slop/Blowdown Water	300	500	Vertical/ Cylindrical	2016	862
Slop Tank No. 9	Blowdown Gasoline Blendstock	300	500	Vertical/ Cylindrical	2016	8,931,740
Slop Tank No. 10	Blowdown Gasoline Blendstock	300	500	Vertical/ Cylindrical	2016	1,120
Slop Tank No. 11	Blowdown Gasoline Blendstock	300	500	Vertical/ Cylindrical	2016	505
Slop Tank No. 12	Slop/Blowdown Water	300	500	Vertical/ Cylindrical	2016	8,931,740
Slop Tank No. 13	Slop/Blowdown Water	300	500	Vertical/ Cylindrical	2016	8,931,740

* DOT / EPA Jurisdiction

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS (Cont'd)						
FUEL TANK #1	GASOLINE	1,200	2,000	Horizontal	Unk	4,353,662
FUEL TANK #3	DIESEL	250	416	Horizontal	Unk	487
FUEL TANK # 4	DIESEL	242	404	Horizontal	Unk	467
FUEL TANK # 5	DIESEL	202	336	Horizontal	Unk	646
FUEL TANK # 6	DIESEL	300	500	Horizontal	Unk	894
FUEL # 7 TANK	DIESEL	180	300	Horizontal	Unk	537

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT						
Tank 1 – North Condensate	Condensate	2,268	3,780	Steel Berm	Unk	5,941 (119%)
101	Out of Service	75,600	126,000	Retaining Wall	Unk	357,000
102	Out of Service	75,600	126,000	Retaining Wall	Unk	357,000
103	Durasyn	75,600	126,000	Retaining Wall	Unk	357,000
104	XTJ-718	75,600	126,000	Retaining Wall	Unk	357,000
105	Out of Service	75,600	126,000	Retaining Wall	Unk	357,000
106	Out of Service	75,600	126,000	Retaining Wall	Unk	357,000
115	Durasyn	126,000	210,000	Retaining Wall	Unk	567,000
116	Out of Service	126,000	210,000	Retaining Wall	Unk	567,000
117	Durasyn	126,000	210,000	Retaining Wall	Unk	567,000
118	Out of Service	126,000	210,000	Retaining Wall	Unk	567,000
119	Out of Service	126,000	210,000	Retaining Wall	Unk	567,000
120	Out of Service	126,000	210,000	Retaining Wall	Unk	567,000
121	B99	252,000	420,000	Retaining Wall	Unk	978,600
122	ALFOL810DF	252,000	420,000	Retaining Wall	Unk	978,600
123	ALFOL 14	252,000	420,000	Retaining Wall	Unk	978,600

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT (Cont'd)						
124	ALFOL 6	252,000	420,000	Retaining Wall	Unk	978,600
125	Out of Service	252,000	420,000	Retaining Wall	Unk	978,600
126	Durasyn166 X	252,000	420,000	Retaining Wall	Unk	978,600
127	ALFOL 20+	252,000	420,000	Retaining Wall	Unk	1,062,000
128	Out of Service	252,000	420,000	Retaining Wall	Unk	1,062,000
129	Spectra S40	252,000	420,000	Retaining Wall	Unk	1,062,000
130	Heavy AROM	252,000	420,000	Retaining Wall	Unk	1,062,000
131	ALFOL 1214	252,000	420,000	Retaining Wall	Unk	1,062,000
132	Heavy AROM	252,000	420,000	Retaining Wall	Unk	1,062,000
133	ALFOL 16DE	252,000	420,000	Retaining Wall	Unk	1,033,200
134	ALF610EBC	252,000	420,000	Retaining Wall	Unk	1,033,200
135	ALFOL 1618	252,000	420,000	Retaining Wall	Unk	1,033,200
136	LINCOL 81	252,000	420,000	Retaining Wall	Unk	1,033,200
137	HF – 1000	252,000	420,000	Retaining Wall	Unk	1,033,200
138	B99	252,000	420,000	Retaining Wall	Unk	1,033,200
139	ALFOL 20+	252,000	420,000	Retaining Wall	Unk	1,071,000
140	Out of Service	252,000	420,000	Retaining Wall	Unk	1,071,000

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT (Cont'd)						
141	B99	252,000	420,000	Retaining Wall	Unk	1,071,000
142	B99	252,000	420,000	Retaining Wall	Unk	1,071,000
143	ALFOL 1618	252,000	420,000	Retaining Wall	Unk	1,071,000
144	B99	252,000	420,000	Retaining Wall	Unk	1,071,000
145	B99	252,000	420,000	Retaining Wall	Unk	924,000
146	EHC-35	252,000	420,000	Retaining Wall	Unk	924,000
147	DIMER	252,000	420,000	Retaining Wall	Unk	924,000
148	B99	252,000	420,000	Retaining Wall	Unk	924,000
149	Furfural	252,000	420,000	Retaining Wall	Unk	924,000
150	ALFOL 8	252,000	420,000	Retaining Wall	Unk	924,000
151	ALFOL 810DF	252,000	420,000	Retaining Wall	Unk	852,600
152	154L ALKYL	252,000	420,000	Retaining Wall	Unk	852,600
153	Mosstanol	252,000	420,000	Retaining Wall	Unk	852,600
154	Durasyn 166	252,000	420,000	Retaining Wall	Unk	852,600
155	Mosstanol	252,000	420,000	Retaining Wall on E and W sides, Sloped berm on NE side, NW and S open	Unk	852,600

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT (Cont'd)						
197	B99	756,000	1,260,000	Sloped Berm N, E, and S sides	Unk	5,090,400
198	B99	756,000	1,260,000	Sloped Berm N, E, and S sides	Unk	5,090,400
199	B99	756,000	1,260,000	Sloped Berm N, E, and S sides	Unk	5,090,400
200	B99	756,000	1,260,000	Sloped Berm	Unk	5,090,400
201	Out of Service	756,000	1,260,000	Sloped Berm	Unk	5,090,400
202	B99	756,000	1,260,000	Sloped Berm	Unk	5,090,400
203	B99	756,000	1,260,000	Sloped Berm	Unk	2,272,200
204	Durasyn 125	882,000	1,470,000	Sloped Berm	Unk	2,272,200
205	Durasyn 12	302,400	504,000	Retaining Wall on N, NE, and SE; sloped berm on SW corner	Unk	1,079,400
206	D – 166NC	302,400	504,000	Retaining Wall on N, NE, and SE; sloped berm on SW corner	Unk	1,079,400
207	Durasyn 12	302,400	504,000	Retaining Wall on N, NE, and SE; sloped berm on SW corner	Unk	1,079,400

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT (Cont'd)						
208	B99	302,400	504,000	Retaining Wall on N, NE, and SE; sloped berm on SW corner	Unk	1,079,400
209	Durasyn 145	302,400	504,000	Retaining Wall on N, NE, and SE; sloped berm on SW corner	Unk	1,079,400
210	CAT Gas	756,000	1,260,000	Retaining Walls on E and W; Sloped berm on NE side; NW and S side open	Unk	5,090,400
211	CAT Gas	756,000	1,260,000	Retaining Walls on E and W; Sloped berm on NE side; NW and S side open	Unk	5,090,400
215	Durasyn 16	756,000	1,260,000	Sloped Berm	Unk	2,272,200
216	B99	756,000	1,260,000	Sloped Berm	Unk	5,090,400
219	ALFOL 10	1,091,160	1,818,600	Sloped Berm	Unk	1,562,400
220	Decene	756,000	1,260,000	Sloped Berm	Unk	1,562,400
221	B99	252,000	420,000	Retaining Wall	Unk	856,800

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT (Cont'd)						
222	INF C9945	252,000	420,000	Retaining Wall	Unk	856,800
223	B99	252,000	420,000	Retaining Wall	Unk	856,800
224	B99	252,000	420,000	Retaining Wall	Unk	856,800
225	B99	252,000	420,000	Retaining Wall	Unk	856,800
226	ALFOL 6	252,000	420,000	Retaining Wall	Unk	856,800
227	SPECTRA300	252,000	420,000	Sloped Berm	Unk	1,255,800
228	HEAVY AROM	252,000	420,000	Sloped Berm	Unk	1,255,800
229	SPECTRAS65	252,000	420,000	Sloped Berm	Unk	1,255,800
230	B99	252,000	420,000	Sloped Berm	Unk	1,255,800
231	B99	252,000	420,000	Sloped Berm	Unk	1,255,800
232	B99	252,000	420,000	Sloped Berm	Unk	1,255,800
233	B99	252,000	420,000	Sloped Berm	Unk	1,255,800
234	SPECTRA100	252,000	420,000	Sloped Berm	Unk	1,255,800
235	B99	252,000	420,000	Sloped Berm	Unk	1,255,800
236	DURASYN 14	252,000	420,000	Sloped Berm	Unk	1,255,800
237	SAFOL 23E9	252,000	420,000	Sloped Berm	Unk	1,255,800
238	VV 10 VINY	252,000	420,000	Sloped Berm	Unk	1,255,800

C.1 HAZARD IDENTIFICATION (Cont'd)

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
BULK STORAGE CONTAINERS – WEST CHEMICAL PLANT (Cont'd)						
021	Out of Service	22,680	37,800	West side curbed wall, South side retaining wall	Unk	78,900
022	Out of Service	22,680	37,800	West side curbed wall, South side retaining wall	Unk	78,900
023	Out of Service	22,680	37,800	West side curbed wall, South side retaining wall	Unk	78,900
024	Out of Service	22,680	37,800	West side curbed wall, South side retaining wall	Unk	78,900
025	Out of Service	22,680	37,800	West side curbed wall, South side retaining wall	Unk	78,900
Fuel Tank 1	Diesel	240	400	Curbing	Unk.	420
Fuel Tank 2	Diesel	240	400	Curbing	Unk.	420
Wash Pad Slop Tanks (3)	Slop/Blowdown Water	Varies	Varies	Sloped Berm	Unk	5,090,400
Shipdock Slop Tank (1)	Slop water	3,024	5,040	Sloped Berm	Unk	5,090,400
88-V-5350	Butane/Transmix	36,000	60,000	Bullet Tank	2021	>60,000

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
COMPLETELY AND PARTIALLY BURIED TANKS						
			NONE			

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
OIL FILLED OPERATIONAL EQUIPMENT						
RECTIFIER RET 2001	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	8,931,740
RECTIFIER RET 2002	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	8,931,740
RECTIFIER RET 2003	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	8,931,740
RECTIFIER RET 2004	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	2016	8,931,740
RECTIFIER RET 2006	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	526
RECTIFIER RET 2007	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	1,324,052
RECTIFIER RET 3001	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	60
RECTIFIER RET 3005	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	55
RECTIFIER RET 3010	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	6,897,039
RECTIFIER RET 3015	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	55
RECTIFIER RET 3020	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	2016	1,675
RECTIFIER RET 3025	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	2016	1,675
RECTIFIER RET 3030	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	2016	445
RECTIFIER RET 3035	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	157
RECTIFIER RET 3045	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	10,868,648
RECTIFIER RET 4001	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	2,550,857
RECTIFIER RET 4002	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	2,550,857

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
OIL FILLED OPERATIONAL EQUIPMENT (Cont'd)						
RECTIFIER RET 4004	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	135
RECTIFIER RET 4005	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	135
RECTIFIER RET 5001	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	5,475,740
RECTIFIER RET 5002	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	5,475,740
RECTIFIER RET 5003	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	5,475,740
RECTIFIER RET 5004	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	5,475,740
RECTIFIER RET 6001	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	135
RECTIFIER RET 6002	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	81
RECTIFIER RET 6003	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	12,866,493
RECTIFIER RET 6004	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	12,866,493
RECTIFIER RET 7001	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	12,866,493
RECTIFIER RET 7002	MINERAL OIL	>55 GALLONS	>55 GALLONS	Steel Casing	Unk	12,866,493
XFMR 1001	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	864
XFMR 1005A	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	4,353,662
XFMR 1XXX	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	303
XFMR 2001	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	837
XFMR 2002 (A/B/C)	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	NA pole mounted

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
OIL FILLED OPERATIONAL EQUIPMENT (Cont'd)						
XFMR 2005	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	478
XFMR 3000	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	823
XFMR 3002	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	823
XFMR 3020	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,165
XFMR 3025	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,165
XFMR 3110	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	448
XFMR 3705	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,490
XFMR 3710	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,490
XFMR 3805	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,490
XFMR 3810	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,490
XFMR 6XXX(1)	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	900
XFMR 6005	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	12,866,493
XFMR 7002	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	12,866,493
XFMR 7005	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	12,866,493

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
OIL FILLED OPERATIONAL EQUIPMENT (Cont'd)						
XFMR 7006	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	12,866,493
XFMR 7075	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	12,866,493
XFMR 8006	MINERAL OIL	>55 GALLONS	>55 GALLONS	XFMR	Unk	1,705

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
OIL FILLED OPERATIONAL EQUIPMENT – WEST CHEMICAL PLANT						
Rectifier 7003	Mineral Oil	55	55	Concrete containment	Unk	90
Rectifier 6009	Mineral Oil	55	55	Sloped Berm	Unk	1,255,800
Rectifier 6010	Mineral Oil	55	55	Retaining Wall	Unk	1,062,000
Rectifier 6011	Mineral Oil	55	55	Sloped Berm	Unk	5,090,400
RET 7XXX (3)	Mineral Oil	55	55	Sloped Berm	Unk	5,090,400
XFMR-7XXX	Mineral Oil	55	55	Sloped Berm	Unk	5,090,400
XFMR-7XXX	Mineral Oil	55	55	Sloped Berm	Unk	5,090,400
Transformers 6XXX XFMR (3)	Mineral Oil	55	55	Sloped Berm	Unk	5,090,400
Transformers 6XXX XFMR (3)	Mineral Oil	55	55	Sloped Berm	Unk	5,090,400

C.1 HAZARD IDENTIFICATION

Hazard Identification Tank Tables (App. F, Sec. 1.4.1(3)(a)-(e) and 1.4.1(5)(c), to 40 CFR 112) (Cont'd)

POTENTIAL SPILL SOURCES AND CONTAINER IDENTIFICATION (Any container that stores oil)						
Container I.D.	**Substance Stored** *(Oil & Haz. Substance)*	**Average Quantity Stored** *(Gallons)*	**Maximum Capacity** *(Gallons)*	**Container Type** *(i.e. floating roof, fixed roof, etc.)*	**Year Built**	**Secondary Containment Capacity** *(Volume - Gallons)*
MOBILE/PORTABLE STORAGE AREAS						
CONST. OIL # 9 DRUMS	MOTOR OIL	55	55	Drum	Unk	6,732
MOBILE/PORTABLE STORAGE AREAS – WEST CHEMICAL PLANT						
DRUM STORAGE WAREHOUSE	VARIOUS	55	>55	Drum	Unk	68,000
55-gal Drums (10)	Various	55	55	Sloped Berm	Unk	5,090,400

Notes:
1) Route of Drainage is towards Houston Ship Channel.
2) The bulk storage containment areas are earthen containment.
3) There are no weirs or booms pre-deployed.
4) See Figure4.2 and 5.5 for clean up materials.

C.1 HAZARD IDENTIFICATION (Cont'd)

Loading and Unloading of Transportation Vehicles

The loading and unloading of transportation vehicles at the Facility that may present a risk of discharging oil or releasing a hazardous substance are:

- Truck Transfers – Approx. 214.3 bbl (9,000 gal).
- Rail Transfers – Approx. 761.9 bbl (32,000 gal).
- Vessels – Ship 497,000 bbl.

Day-to-Day Operations

Day-to-day operations that may present a risk of discharging oil or releasing a hazardous substance include:

- Pipeline Maintenance – 200 bbl
- Pipeline Transfers to Tank – Approx. 70,000 – 168,000 bbl.
- Tank-to-Tank Transfers – 80,000 bbl

Secondary Containment Volume

The secondary containment volume associated with each tank or containment area is located in the Hazard Identification Tank tables (see C.1 Hazard Identification).

Normal Daily Throughput

The normal daily throughput for the Facility is 203,499 bbl/day.

Security

The Facility is fenced and manned 24 hours per day, seven days per week. See SPCC Plan maintained separately, for more details.

C.2 DISCHARGE DETECTION

The Facility has a discharge detection program which is intended to limit the effects of a hazardous material release.

Detection by Personnel

Facility personnel make daily visual inspections (including tanks, loading areas, secondary containment, aboveground piping, etc.) during operating rounds and are trained to detect discharges and respond. See SPCC Section 5.2, Inspections and Record Keeping for details of visual inspections and Appendix H, Monthly Tank Inspection Checklist, for written documentation. Initial response actions include stopping product flow, eliminating ignition sources, initiating containment, and notifications. See ICP Sec. 4.2, Initial Specific Response Actions, for more details. External notifications are identified in ICP Sec. 3, Figure 3.5.

C.2 DISCHARGE DETECTION (Cont'd)

Automated Detection Systems

- The large bulk storage tanks have high and/or high-high level alarms to prevent overfills. The smaller tanks do not have automated detection systems. Notifications/alarms will be both visual and auditory for high and high-high levels, but they will be received at the control room where controllers can either take immediate action or notify the field controller to take appropriate action.

C.3 FACILITY SELF-INSPECTIONS

Written procedures for and record of the Facility inspections of tanks and secondary containment are documented in this section. The Facility self-inspection requires two steps: 1) a checklist of items to inspect, and 2) a method of recording the actual inspection findings. All inspection records are maintained per agency/company requirement or industry standard, whichever is more stringent.

Tanks Inspections

Visual inspections of all tanks are by qualified personnel as defined by API 653. Personnel performing this inspection should be knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored.

Containment Area Inspection

All containment areas are inspected during normal operating rounds. All containment areas are constructed of earthen material or concrete.

Inspection Reports

Inspection records are maintained as described in the SPCC Plan.

FIGURE C.1

TANK INSPECTION CHECKLIST

Facility Tanks are visually inspected against the following checklist at a minimum:

- Check tanks for leaks, specifically looking for:
  - Drip marks
  - Discoloration of tanks
  - Puddles containing spilled or leaked material
  - Corrosion
  - Cracks
  - Localized dead vegetation
- Check foundation for:
  - Cracks
  - Discoloration
  - Puddles containing spilled or leaked material
  - Settling
  - Gaps between tank and foundations
  - Damage caused by vegetation roots
- Check piping for:
  - Droplets of stored material
  - Discoloration
  - Corrosion
  - Bowing of pipe between supports
  - Evidence of stored material seepage from valves or seals
  - Localized dead vegetation

Records of the inspections are maintained at the Facility. These records are maintained for a period of five (5) years and are available for review at any time at the Facility Office.

FIGURE C.2

SECONDARY CONTAINMENT INSPECTION CHECKLIST

Facility Secondary Containment systems are visually inspected each time an employee is in the area and once each shift. The Secondary Containment systems are inspected against the following checklist:

- Dike or berm system
    - Level of precipitation in dike/available capacity
    - Operational status of drainage valves
    - Dike or berm permeability
    - Debris
    - Erosion
    - Permeability of the earthen floor of diked area
    - Location/status of pipes, inlets, drainage beneath tanks, etc.
- Secondary containment
    - Cracks
    - Discoloration
    - Presence of spilled or leaked material (standing liquid)
    - Corrosion
    - Valve conditions
- Retention and drainage ponds (as applicable)
    - Erosion
    - Available capacity
    - Presence of spilled or leaked material
    - Debris
    - Stressed vegetation

Records of the inspections are maintained at the Facility. These records are maintained for a period of five (5) years and are available for review at any time at the Administration Building.

C.4 ANALYSIS OF THE POTENTIAL FOR A SPILL

The potential for a spill has been analyzed and deemed to be present, but unlikely. The probability of tank failure for single-wall storage tanks is 1.0 x 10-4 spill/tank-year (U.S. DOT, FEMA, and U.S. EPA Handbook of Chemical Hazard Analysis Procedures). The facility has 267 single-wall tanks which gives a spill frequency of 0.0267 spills/year.

Oil Spill History

Refer to the Reportable Oil Spill History portion of this Appendix (see C.5) for details concerning spill history.

Horizontal Range of a Spill

The maximum horizontal overland spill range is approximately 0.5 mile from the Houston Ship Channel. Secondary containment dikes around the storage tanks will help retard the surface flow to the Ship Channel.

Vulnerability to a Natural Disaster

The area is prone to tropical storms and hurricanes. All storage tanks and ancillary piping are fabricated in compliance with nationally recognized design specifications.

Other Factors

Other factors such as unstable soils, earthquake zones, Karst topography, etc. are not of concern to this Facility.

C.5 REPORTABLE OIL SPILL HISTORY

Discharges subject to OPA 90 regulations as of the publication date of this Plan are summarized in the following table. Details obtained from Incident Reports are maintained on-site.

The reports contain the below listed information to the extent that such information is reasonably identifiable.

- Date of discharge.
- Location of discharge.
- Discharge cause(s)
- Material(s) discharged.
- Amount discharged.
- Amount of discharge that reached navigable waters.
- Amount recovered.
- Effectiveness and capacity of secondary containment.
- Clean-up actions taken.
- Steps taken to reduce possibility of recurrence.
- Total storage capacity of the tank(s) or impoundment(s) from which the material discharged.
- Enforcement actions.
- Effectiveness of monitoring equipment.
- Description of how spill was detected.

Note: No reportable spills as of the date of publication.

TABLE C-1

REPORTABLE OIL SPILL HISTORY

Date	Cause	Media	Product/ Material	Amount Gal.	Amt. (Gal.) In Navigable Water	Effectiveness & Capacity Of Secondary Containment	Clean-Up Actions	Corrective Actions	Capacity of Source	Enforcement Actions	Spill Detected
8/15/1998	EF	water	petroleum lubricant	1/2	1/2	over water	dissipated	repairs	NA	USCG-NOV	operator
8/24/1999	HE/E F	water	petroleum lubricant	2	2	over water	sorbent boom	consultation/repairs	NA	USCG-NOV	operator
4/12/2000	EF	water	petroleum lubricant	15	15	over water	sorbent boom	repairs	NA	USCG-NOV	operator
5/16/2000	EF	water	naphtha	1050	1050	overflowed containment	sorbent boom	repairs	100K BBLS	USCG-NOV	operator
12/15/2000	EF	water	MTBE	<1	<1	over water	dissipated	repairs	100K BBLS	NONE	operator
6/8/2001	Act of God	water	oil sheen	<1	<1	over water	NONE	NONE	NA	NONE	operator
3/27/2002	HE	water	Lube Oil	<5	<5	over water	sorbent boom deployed	Re-locate sample ports, 3rd party awareness	25K BBLS	GLO NOV	operator
6/24/02	HE	water	PAO-5	sheen	<1	overwater	NONE	Training	25K BBLS	GLO NOV	operator
8/16/02	HE	water	Sodium Sulfide	<1	<1	overwater	Kinder Morgan not the responsible party	3rd party	NA	NONE	operator
11/6/2002	EF	water	Oxo-Lights	<1	<1	overwater	None	repaired pipeline	NA	Glo-declared non-event	operator
1/14/2003	EF	water	MTBE	0.5	0.5	overwater	Product water soluble, dissipated	repaired pipeline	NA	None	operator
5/8/2003	EF	water	Diesel	25	25	overwater	vacuum truck, pressure spray bulkhead	replaced fuel line	500 gal	Fine GLO,USCG	GLO
7/8/2003	EF	water	Transmix	20	20	overwater	OSRO clean up	Changed procedures	250 gal	Fine GLO, USCG	contractor
8/8/2003	EF	water	JMP-99 (acid)	5	5	overwater	Leak stopped, absorbent pads	repaired line	N/A	None	operator
5/15/2004	HE	water	Six Oil	60	60	Shoreline/overwater	KM not the responsible party	3rd Party	60 gallons	Fine GLO,USCG	contractor
######	EF	water	Transmix	< 1 pint	< 1 pint	over water	Dissipated	Training	NA	None	operator
1/23/2005	EF	water	LCO	<1	<1	over water	sorbent boom	Repairs	NA	Fine -GLO	operator
4/17/2005	HE	water	Aromatic Concentrate	<1	<1	Shoreline/overwater	Dissipated	Training	NA	NONE	operator
6/24/2005	EF	water	Low Sulfur Fuel Oil	<1	<1	overwater	Dissipated	Repairs	NA	Fine TGLO	operator
8/13/2005	HE	water	Gasoline Blendstock	1	1	overwater	Dissipated	Training	NA	NONE	operator
######	EF	water	High Sulfur Diesel	10	10	overwater	sorbent boom	Planned Inspection & Maintenance	NA	NONE	operator
1/9/2006	HE	water	EHC 45	5	5	Shoreline/overwater	sorbent boom	Training	NA	Fine GLO, USCG	operator
3/2/2006	EF	water	Lube Oil	10	10	overwater	vacuum truck, pressure spray	Repairs	NA	NONE	operator
5/8/2007	EF	water	Transmix	<1	<1	overwater	None	Repairs	NA	NONE	operator
8/27/2007	EF	water	Mineral Oil	84	84	overwater	Oil Mop called for clean-up	Line - Out of Service	N/A	Fine GLO, USCG	operator
5/8/2008	EF	water	Lube Oil	1	<1	overwater	Product water soluble, dissipated	Repairs	N/A	NONE	operator
6/21/2008	HE	water	America Core 150	1	<1	overwater	Oil Mop called for clean-up	Training	N/A	None	operator
7/2/2008	ef	water	Lube Oil	1	<1	overwater	sorbent boom	Training	NA	NONE	operator
8/8/2008	HE	water	biodiesel	1	<1	overwater	dissipated	Training	NA	FINE USCG	operator
9/6/2008	HE	water	Diesel	1	<1	overwater	dissipated	Training	NA	Fine TGLO	operator
10/1/2008	HE	water	Transmix	1	<1	overwater	dissipated	REPAIRS	NA	FINE TGLO, USCG	operator
10/7/2008	EF	water	Transmix	30	<30	Shoreline/overwater	GARNER CALLED IN FOR CLEAN UP	REPAIRS	NA	FINE USCG, TGLO	operator
2/27/2009	EF	water	Lube Oil	1	<1	overwater	dissipated	REPAIRS	NA	FINE USCG, TGLO	operator
7/2/2009	EF	water	Lube Oil	1	<1	overwater	sorbent boom	REPLACED DOCK	NA	NONE	operator
8/5/2009	HE	water	biodiesel	3	<3	overwater	Oil Mop called for clean-up	REPAIRS	NA	FINE USCG	operator
8/11/2009	EF	water	biodiesel	1	<1	overwater	sorbent boom	REPAIRS	NA	NONE	operator

TABLE C-1

REPORTABLE OIL SPILL HISTORY (Cont'd)

Date	Cause	Media	Product/ Material	Amount Gal.	Amt. (Gal.) In Navigable Water	Effectiveness & Capacity Of Secondary Containment	Clean-Up Actions	Corrective Actions	Capacity of Source	Enforcement Actions	Spill Detected
12/8/2009	EF	water	biodiesel	756	<756	overwater	Oil Mop called for clean-up	REPAIRS	NA	FINE USCG, TGLO	operator
3/5/2010	EF	water	Gasoline	0.25	<.25	overwater	dissipated	REPAIRS	NA	NONE	operator
5/12/2010	HE	LAND	Lube Oil	420	0	LAND	USA ENVIRONMENTAL	Training	NA	NONE	operator
7/24/2010	EF	water	Diesel	0.25	0.25	overwater	dissipated	REPLACED DOCK	NA	NONE	operator
9/8/2010	EF	Land	Lube Oil	5	0	Dike Wall	Absorbent pads Excavation of impacted soil	REPAIRS	10K BBLS	NONE	Contractor
######	HE	LAND	Toluene	451	0	LAND	Excavation of impacted soil	Training	50K gallons	NONE	operator
8/19/2011	EF	water	Gas Blend	2 oz	2 oz	overwater	dissipated	Repair	NA	Fine USCG,TGLO	operator
9/15/2011	EF	water	Diesel	1	1	overwater	Absorbent pads and boom	Repairs	NA	Fine USCG, TGLO	operator
11/4/2011	HE	water	ULS Diesel	1	1	overwater	dissipated	Training	NA	FINE USCG, TGLO	operator
5/3/2012	EF	water	Hydraulic Fluid	1 oz	1 oz	overwater	dissipated	Repairs	NA	Fine TGLO	operator
6/5/2012	EF	water	Aromatic Concentrate	0.5	0.5	overwater	dissipated	Repairs	NA	None	operator
7/2/2012	HE	water	OXO Feed	0.25	0.25	over water	dissipated	Training	NA	Fine USCG	operator
7/3/2012	EF	water	Transmix	< .25	< .25	over water	dissipated	Repairs	N/A	Fine TGLO	Operator
7/8/2012	EF	water	Transmix	5	5	over water	Absorbent pads	Repairs	N/A	Fine USCG TGLO	operator
7/13/2012	EF	land/water	ground water	5	5	concrete vault	absorbent pads and excavation of soil	Repairs	N/A	Fine USCG TGLO	operator
8/10/2012	HE	water	Lube Oil	< .5	< .5	over water	absorbent pads	Training	NA	Fine TGLO	operator
8/14/2012	EF	water	Hydraulic Fluid	16 oz	16 oz	over water	absorbent pads and boom	repairs	5 gallons	Fine TGLO	operator
8/28/2012	HE	water	biodiesel	40	40	over water	Oil Mop called for clean-up	Training	80 gallons	Fine TGLO	operator
8/30/2012	EF	water	Cresote timber	1 oz	1 oz	in water	corraled with hard boom	replace	N/A	None	maintenance
9/27/2012	HE	water	Hydraulic Fluid	32 oz	32 oz	over water	absorbent pads and boom	Training	5 gallons	Fine TGLO	maintenance
6/10/2013	other	water	naphtha	210	210	over water	Oil Mop called for clean-up	replace	210	Fine USCG TGLO	operator
7/28/2013	HE	water	Lube Oil	1	1	over water	absorbent pads and boom	Training	1	Fine USCG TGLO	operator
8/5/2013	EF	Land	Lube Oil	63000	0	LAND	OSRO clean up	Repairs	420000	TCEQ	operator
11/8/2013	EF	water	Diesel	0.0156	0.0156	over water	absorbent boom	Training	30	USCG-NOV	maintenance
12/6/2013	HE	water	Diesel	0.5	0.5	over water	ERT absorbent boom	Training	336	USCG-NOV	operator
12/12/2013	EF	Water	Ground water	1	1	NA	absorbent pads	Repairs	NA	GLO	operator
1/2/2014	HE	Land	MTBE	8400	0	Land	OSRO clean up	Training	100 K BBl's	Fine TCEQ	operator
1/9/2014	HE	Water	ULS Diesel	0.25	0.25	over water	absorbent boom	Training	NA	Fine USCG TGLO	operator
2/8/2014	EF	water	Lube Oil	1	1	over water	absorbent boom	Repairs	NA	Fine USCG TGLO	operator
3/14/2014	HE	water	Foam	1	1	over water	NA	Training	NA		operator
4/26/2014	HE	water	Lube Oil	2	2	over water	OSRO clean up	Training	NA	Fine TGLO	operator
8/4/2014	HE	water	Lube Oil	< 160z	< 16oz	over water	absorbent boom	Training	NA	Fine USCG TGLO	operator
9/2/2014	EF	water	ULSD	3	3	over water	OSRO clean up	Training	250 gallons	Fine USCG TGLO	operator
######	EF	water	Gasoline	2 drops	2 drops	over water	dissipated	Replaced hose	NA	Fine USCG TGLO	operator
10/1/2014	HE	water	Hydrocarbon	2	2	over water	absorbent boom	repairs	100 gallons	Fine USCG TGLO	contractor
1/18/2015	EF	Land	Trans-mix	840	0	Land	Vacuum trucks	replaced check valve to sump	25 K BBL's	TCEQ	operator
2/4/2015	HE	water	red dyed diesel	< 1	< 6 oz	sheet flow off facility	absorbent pads	relocated contractors fuel tank	5 gallons	Fine USCG	operator

TABLE C-1

REPORTABLE OIL SPILL HISTORY (Cont'd)

Date	Cause	Media	Product/ Material	Amount Gal.	Amt. (Gal.) In Navigable Water	Effectiveness & Capacity Of Secondary Containment	Clean-Up Actions	Corrective Actions	Capacity of Source	Enforcement Actions	Spill Detected
5/23/2016			oil-containing product	84 gal		Land, Tank 25-2	Spill cleaned with vac trucks	Repairs, Training			
9/5/2016			oil-containing product	693gal		Land, Tank BO-11	Spill cleaned with vac trucks	Repairs			
9/8/2016			oil-containing product	0.015 gal		Ship Dock #1	Spill absorbed with spill pads	Retrain			
9/25/2016			oil-containing product	2 gal		Ship Dock #3	Spill contained with boom and absorbed with spill pads	Retrain			
9/27/2016			oil-containing product	0,008 gal		Product hose at 1 S/D developed pin hole leak that dripped Into the Ship Channel.	Spill contained with boom and absorbed with spill pads				
10/20/2016			oil-containing product	22 gal		Puddles of product found on floating roof of tank	Product cleaned off of roof.				
10/25/2016			oil-containing product	0.5 gal		Mystery sheen reported at docks In Galena Park	Spill contained with boom and absorbed with spill pads				
11/11/2016			oil-containing product	2 gal		Product release from stripping pumps and 3900 manifold	Spill contained with absorbent pads.				
11/21/2016			oil· containing product	1243.62 gal		Flange leak on pipeline from tank 25-29 to Shell	OSRO notified and clean spill				
12/4/2016			oil-containing product	42 gal		KM Event on 12-4-16 at 0900. Recent heavy rains caused one barrel of Shell's Star 4 product to leach out of the ground from the previous incident that occurred on 11-21-16 with tank 25-29's Shell line. Of the one barrel, one gallon drained to the Ship Channel and was contained with spill boom	Spill contained with spill boom				
1/27/2017			oil-containing product	0.5 gal		Third party spill of hydraulic fluid	Notification made, KM and BOMAC Boomed area				
3/23/2017			oil-containing product	0.01 gal		Mystery sheen found at #1 S/D	Notification only, non-KM				
5/8/2017			oil-containing product	196.95 gal		KM Event on 5-8-17, Liquid was Identified on top of the carbon steel pontoon Internal floating roof on tank 12-30 (Transmlx).	Repaired tank				
5/30/2017			oil-containing product	42 gal		Contractor AEG-While pigging an abandoned line (25-4) for demo, approximately 1 bbl of Aromatic Concentrate was released from the flange to the ground,	Used vacuum truck for liquids and flushed, Soils were excavated.				
1/18/2018			oil-containing product	0.001 gal		At #1 B/D product sprayed from 2" bleeder during pigging of line.	Notification	Operations team was retrained			
2/1/2018			oil containing product	8 gal		The vessel Marlin Adventurine released product thru vessel pressure relief valve	Notifications, vessel equipment failure				

TABLE C-1

REPORTABLE OIL SPILL HISTORY (Cont'd)

Date	Cause	Media	Product/ Material	Amount Gal.	Amt. (Gal.) In Navigable Water	Effectiveness & Capacity Of Secondary Containment	Clean-Up Actions	Corrective Actions	Capacity of Source	Enforcement Actions	Spill Detected
4/29/2018			oil containing product	420gal		Product spill from 16" WCP dock line	Vacuum truck used for liquids and flushed. Soils were excavated				
5/30/2018			oil containing product	0.13 gal		KM event on 5-30-18, While loading the SS High Valor at 1 Ship Dock the product transfer hose failed causing 1 pint of ULSD to be released Into the Houston Ship Channel.	Replaced hose which caused issue				
5/21/2018			oil containing product	5 gal		Effluent discharged from outfall 002 exceeded permit limits for ammonia nitrogen on 05/21/2018 discharge	Made required notification				
5/22/2018			oil-containing product	231 gal		Effluent discharged from outfall 001 exceeded permit limits for oil and grease on 05/22/2018.	Made required notification				
7/4/2018			oil-containing product	8 gal		Ship dock 4 sump pump over filled causing 1 cup of waste water to enter ship channel	Notifications made, absorbent pads and boom used to clean spill.				
7/19/2018			oil-containing product	0.0004 gal		KM Event on 7-19-18, While discharging the SS Sea Treasure approximately 20 drops of gasoline blendstock leaked from the transfer hose at 1s/d and contacted the ship channel.	Notifications made hose Issue determined as root cause and was repaired				
9/24/2018			oil-containing product	2184 gal		KM Event-Spill of 52 bbls. of Star-6 lube oil from tank 40-1	Notifications made vacuum truck used to clean liquid and flushed. Soil excavated				
10/17/2018			oil-containing product	0.001 gal		(3rd Party Event) Subcontractor (divers) using pneumatic Impact guns under water, when too much	Notifications made contractors notified to use hand wrenches				
12/8/2018			oil-containing product	1 gal		At 2100 hrs. on 12/8/18 a product spill of AGO at #1 ship dock occurred during the pressure testing of the dock hoses	Notifications made, OSRO was hired to conduct cleanup.				
2/9/2019			oil-containing product	0,001 gal		Small drip developed on load arm	Released to containment				
5/12/2019			oil-containing product	2 gal,		During Heavy Rain event containment overfilled	Notified OSRO to conduct cleanup				
8/20/2019			oil-containing product	1 gal		Product released through crack in secondary containment	Sealant used to repair crack, spill pads and boom deployed.				

TABLE C-1

REPORTABLE OIL SPILL HISTORY (Cont'd)

Date	Cause	Media	Product/ Material	Amount Gal.	Amt. (Gal.) In Navigable Water	Effectiveness & Capacity Of Secondary Containment	Clean-Up Actions	Corrective Actions	Capacity of Source	Enforcement Actions	Spill Detected
2/13/2020			oily residual	< 1 oz		During the rehabilitation of 1 ship dock3rd party contractor disturbs shoreline pile driving. Releasing less than one ounce of oily residual from behind old wooden bulkhead.	Work was halted agency notifications made. Absorbents pads and boom utilized for cleanup				
2/17/2020			petroleum product	22.4 gal		Maintenance performing work task around tank 80-12 discover leak from tank mixer	Notifications made (DOT) absorbent pads and boom utilized for cleanup				
5/5/2020			petroleum containing product	1 gal		During heavy rain event# 4 ship dock lost power allowing secondary containment to overfilled causing a sheen in the channel	Agency notifications made, due to wind and wave actions sheen quickly dispersed				
7/29/2020			oil containing product	< 1 bbl		Due to faulty equipment lift station #4 overfilled releasing oily water into ship channel	Agency notifications made ERT deployed use spill boat and hard boom to capture and contain released material. OSRO called for cleanup on water				
2/17/2021			contact water	< 1 gal		Due to freezing weather conditions and power outage safety shower water line ruptured filling secondary containment	Agency notifications made				
WEST CHEMICAL PLANT											
8/11/2016			Biodiesel	270 gal		HE, Land, Biodiesel		Training Review			
8/17/2016			Biodiesel	840 gal		H**E**, Land, Biodiesel		Training Review			
6/29/2020			oil containing product	< 1 gal		Fuel filter to #5 ship dock discovered leaking	Agency notifications made absorbent pads and boom used for cleanup				

GEND: HE -Human Error EF - Equipment Failure UK – Unknown N/A - Not applicable

APPENDIX D

ICS ROLES AND RESPONSIBILITIES

ICS ROLES AND RESPONSIBILITIES

COMMON RESPONSIBILITIES

The following is a checklist applicable to all personnel in an ICS organization:

- Receive assignment, including:
  - Job assignment
  - Resource order number and request number
  - Reporting location
  - Reporting time
  - Travel instructions
  - Special communications instructions
- Upon arrival, check-in at designated check-in location.
- Receive briefing from immediate supervisor.
- Acquire work materials.
- Supervisors maintain accountability for assigned personnel.
- Organize and brief subordinates.
- Know your assigned radio frequency(s) and ensure communications equipment is operating properly.
- Use clear text and ICS terminology (no codes) in all communications.
- Complete forms and reports required of the assigned position and send to Documentation Unit.
- Maintain unit records, including Unit/Activity Log (ICS Form 214).
- Response to demobilization orders and brief subordinates regarding demobilization.

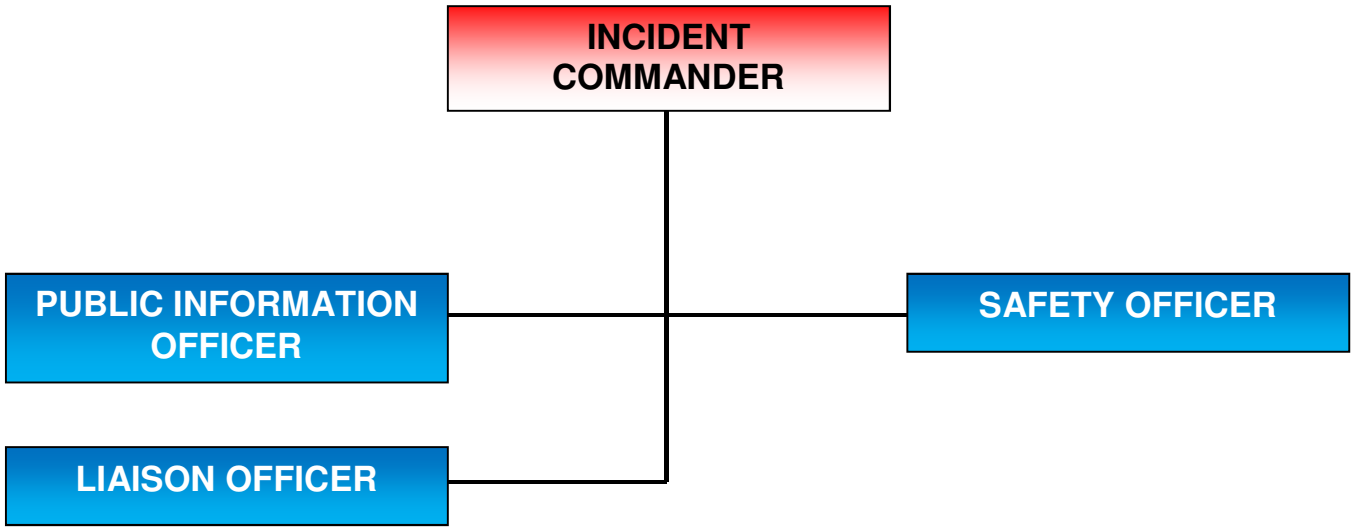
COMMAND STAFF

Incident Commander D-4

Public Information Officer D-4

Liaison Officer D-5

Safety Officer D-5



INCIDENT COMMANDER

- Assess the situation and/or obtain a briefing from the prior IC.
- Determine Incident Objectives and strategy.
- Establish the immediate priorities.
- Establish an ICP.
- Brief Command Staff and Section Chiefs.
- Review meetings and briefings.
- Establish an appropriate organization.
- Ensure planning meetings are scheduled as required.
- Approve and authorize the implementation of an IAP.
- Ensure that adequate safety measures are in place.
- Coordinate activity for all Command and General Staff.
- Coordinate with key people and officials.
- Approve requests for additional resources or for the release of resources.
- Keep agency administrator informed of incident status.
- Approve the use of trainees, volunteers, and auxiliary personnel.
- Authorize release of information to the news media.
- Ensure incident Status Summary (ICS Form 209) is completed and forwarded to appropriate higher authority.
- Order the demobilization of the incident when appropriate.

PUBLIC INFORMATION OFFICER

- Determine from the IC if there are any limits on information release.
- Develop material for use in media briefings.
- Obtain IC approval of media releases.
- Inform media and conduct media briefings.
- Arrange for tours and other interviews or briefings that may be required.
- Obtain media information that may be useful to incident planning.
- Maintain current information summaries and/or displays on the incident and provide information on the status of the incident to assigned personnel.

LIAISON OFFICER

- Be a contact point for Agency Representatives.
- Maintain a list of assisting and cooperating agencies and Agency Representatives. Monitor check-in sheets daily to ensure that all Agency Representatives are identified.
- Assist in establishing and coordinating interagency contacts.
- Keep agencies aware of incident status.
- Monitor incident operations to identify current or potential inter-organizational problems.
- Participate in planning meetings, providing current resource status, including limitations and capability of assisting agency resources.
- Coordinate response resource needs for Natural Resource Damage Assessment and Restoration (NRDAR) activities with the Operations Section (OPS) during oil and HAZMAT responses.
- Coordinate response resource needs for incident investigation activities with the OPS.
- Ensure that all required agency forms, reports, and documents are completed prior to demobilization.
- Coordinate activities of visiting dignitaries.

SAFETY OFFICER

- Participate in planning meetings.
- Identify hazardous situations associated with the incident.
- Review the IAP for safety implications.
- Exercise emergency authority to stop and prevent unsafe acts.
- Investigate accidents that have occurred within the incident area.
- Review and approve the Medical Plan.
- Develop the Site Safety Plan and publish Site Safety Plan summary (ICS Form 208) as required.

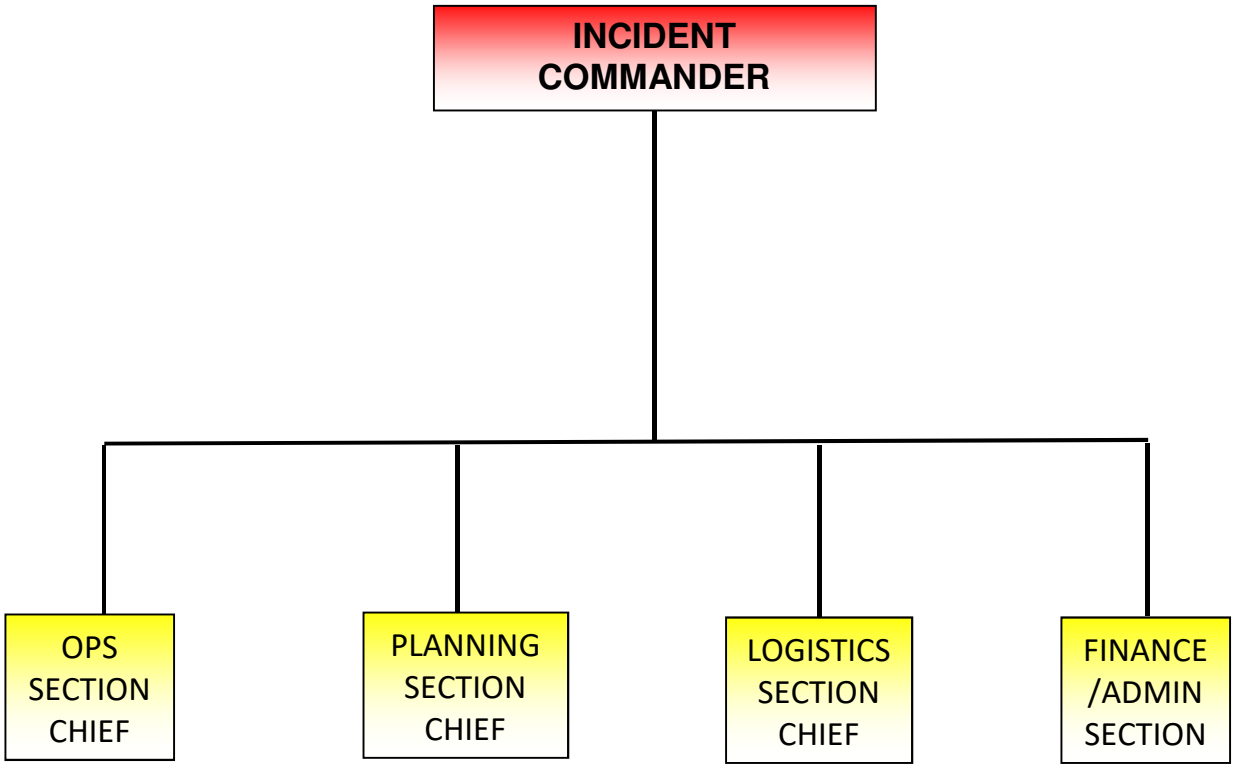
GENERAL STAFF

Operations Section Chief..... D-7

Planning Section Chief..... D-10

Logistics Section Chief..... D-14

Finance/Admin Section Chief..... D-19



OPERATIONS

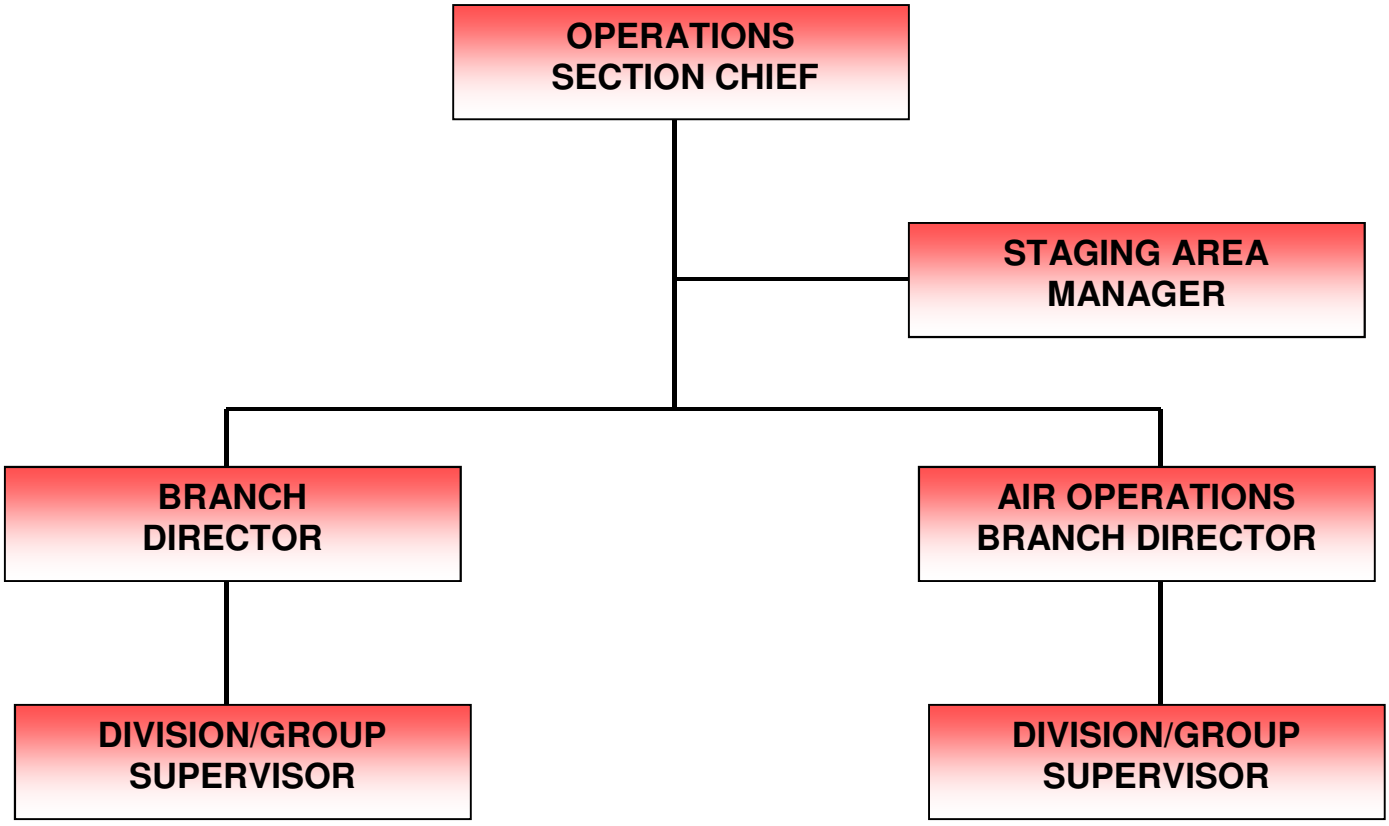
Operations Section Chief D-8

Branch Director D-8

Division/Group Supervisor D-8

Staging Area Manager D-9

Air Operations Branch Director D-9



OPERATIONS SECTION CHIEF

- Develop operations portion of IAP.
- Brief and assign Operations Section personnel in accordance with the IAP.
- Supervise Operations Section.
- Determine need and request additional resources.
- Review suggested list of resources to be released and initiate recommendation for release of resources.
- Assemble and disassemble strike teams assigned to the Operations Section.
- Report information about special activities, events, and occurrences to the IC.
- Respond to resource requests in support of NRDAR activities.

BRANCH DIRECTOR

- Develop with subordinates alternatives for Branch control operations.
- Attend planning meetings at the request of the OPS.
- Review Division/Group Assignment Lists (ICS Form 204) for Divisions/Groups within the Branch. Modify lists based on effectiveness of current operations.
- Assign specific work tasks to Division/Group Supervisors.
- Supervise Branch operations.
- Resolve logistic problems reported by subordinates.
- Report to OPS when: the IAP is to be modified; additional resources are needed; surplus resources are available; or hazardous situations or significant events occur.
- Approve accident and medical reports originating within the Branch.

DIVISION/GROUP SUPERVISOR

- Implement IAP for Division/Group.
- Provide the IAP to Strike Team Leaders, when available.
- Identify increments assigned to the Division/Group.
- Review Division/Group assignments and incident activities with subordinates and assign tasks.
- Ensure that the IC and/or Resources Unit are advised of all changes in the status of resources assigned to the Division/Group.
- Coordinate activities with adjacent Division/Group.
- Determine need for assistance on assigned tasks.
- Submit situation and resources status information to the Branch Director or the OPS.
- Report hazardous situations, special occurrences, or significant events (e.g., accidents, sickness, discovery of unanticipated sensitive resources) to the immediate supervisor.
- Ensure that assigned personnel and equipment get to and from assignments in a timely and orderly manner.
- Resolve logistics problems within the Division/Group.
- Participate in the development of Branch plans for the next operational period.

STAGING AREA MANAGER

- Establish Staging Area layout.
- Determine any support needs for equipment, feeding, sanitation and security.
- Establish check-in function as appropriate.
- Post areas for identification and traffic control.
- Request maintenance service for equipment at Staging Area as appropriate.
- Respond to request for resource assignments
- Obtain and issue receipts for radio equipment and other supplies distributed and received at Staging Area.
- Determine required resource levels from the OPS.
- Advise the OPS when reserve levels reach minimums.
- Maintain and provide status to Resource Unit of all resources in Staging Area.
- Demobilize Staging Area in accordance with the Incident Demobilization Plan.

AIR OPERATIONS BRANCH DIRECTOR

- Organize preliminary air operations.
- Request declaration {or cancellation) of restricted air space.
- Participate in preparation of the IAP through the OPS. Insure that the air operations portion of the IAP takes into consideration the Air Traffic Control requirements of assigned aircraft.
- Perform operational planning for air operations.
- Prepare and provide Air Operations Summary Worksheet (ICS Form 220) to the Air Support Group and Fixed-Wing Bases.
- Determine coordination procedures for use by air organization with ground Branches, Divisions, or Groups.
- Coordinate with appropriate Operations Section personnel.
- Supervise all air operations activities associated with the incident.
- Evaluate helibase locations.
- Establish procedures for emergency reassignment of aircraft.
- Schedule approved flights of non-incident aircraft in the restricted air space area.
- Coordinate with the Operations Coordination Center {OCC) through normal channels on incident air operations activities.
- Inform the Air Tactical Group Supervisor of the air traffic situation external to the incident.
- Consider requests for non-tactical use of incident aircraft.
- Resolve conflicts concerning non-incident aircraft.
- Coordinate with FAA.
- Update air operations plans.
- Report to the OPS on air operations activities.
- Report special incidents/accidents.
- Arrange for an accident investigation team when warranted.

PLANNING

Planning Section Chief D-11

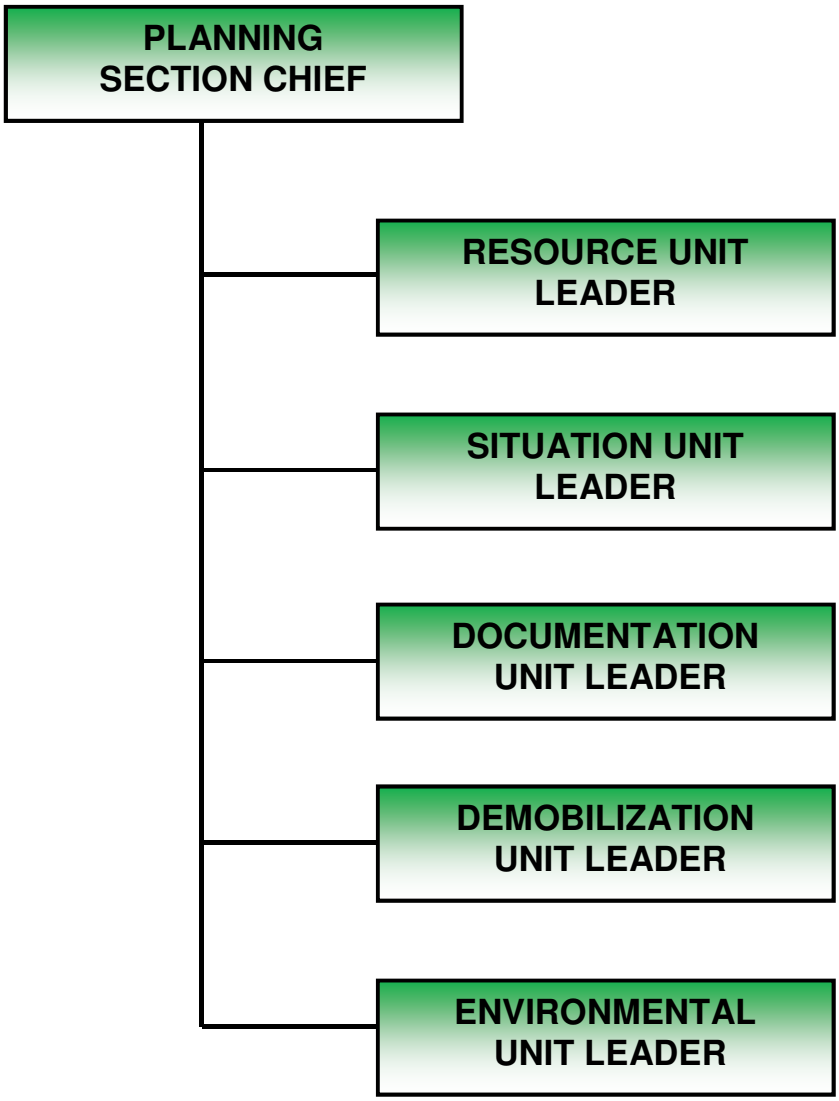
Resources Unit Leader D-11

Situation Unit Leader D-11

Documentation Unit Leader D-12

Demobilization Unit Leader D-12

Environmental Unit Leader D-13



PLANNING SECTION CHIEF

- Collect and process situation information about the incident.
- Supervise preparation of the IAP.
- Provide input to the IC and the OPS in preparing the IAP.
- Chair planning meetings and participate in other meetings as required.
- Reassign out-of-service personnel already on-site to ICS organizational positions as appropriate.
- Establish information requirements and reporting schedules for Planning Section Units (e.g., Resources, Situation Units).
- Determine the need for any specialized resources in support of the incident.
- If requested, assemble and disassemble Strike Teams and Task Forces not assigned to Operations.
- Establish special information collection activities as necessary (e.g., weather, environmental, toxics, etc.).
- Assemble information on alternative strategies.
- Provide periodic predictions on incident potential.
- Report any significant changes in incident status.
- Compile and display incident status information.
- Oversee preparation and implementation of the Incident Demobilization Plan.
- Incorporate plans (e.g., Traffic, Medical, Communications, Site Safety) into the IAP.

RESOURCES UNIT LEADER

- Establish the check-in function at incident locations.
- Prepare Organization Assignment List (ICS Form 203) and Organization Chart (ICS Form 207).
- Prepare appropriate parts of Division Assignment Lists (ICS Form 204).
- Prepare and maintain the ICP display (to include organization chart and resource allocation and deployment).
- Maintain and post the current status and location of all resources.
- Maintain master roster of all resources checked in at the incident.

SITUATION UNIT LEADER

- Begin collection and analysis of incident data as soon as possible.
- Prepare, post, or disseminate resource and situation status information as required, including special requests.
- Prepare periodic predictions or as requested by the PSC.
- Prepare the Incident Status Summary Form (ICS Form 209).
- Provide photographic services and maps if required.

DOCUMENTATION UNIT LEADER

- Set up work area; begin organization of incident files.
- Establish duplication service; respond to requests.
- File all official forms and reports.
- Review records for accuracy and completeness; inform appropriate units of errors or omissions.
- Provide incident documentation as requested.
- Store files for post-incident use.

DEMOBILIZATION UNIT LEADER

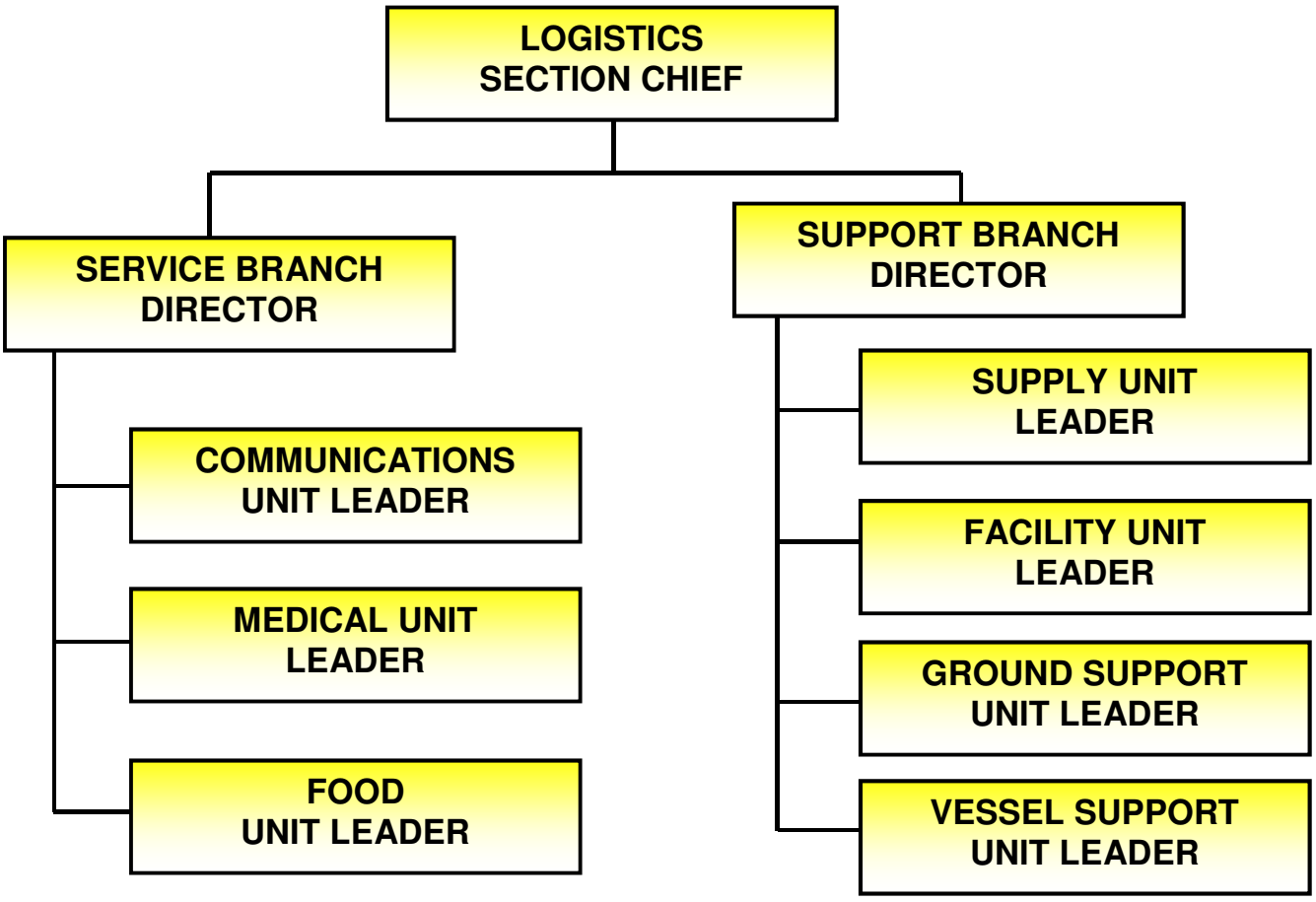
- Participate in planning meetings as required.
- Review incident resource records to determine the likely size and extent of demobilization effort.
- Based on the above analysis, add additional personnel, workspace, and supplies as needed.
- Coordinate demobilization with Agency Representatives.
- Monitor the on-going Operations Section resource needs.
- Identify surplus resources and probable release time.
- Develop incident check-out function for all units.
- Evaluate logistics and transportation capabilities to support demobilization.
- Establish communications with off-incident facilities, as necessary.
- Develop an Incident Demobilization Plan detailing specific responsibilities and release priorities and procedures.
- Prepare appropriate directories (e.g., maps, instructions, etc.) for inclusion in the Demobilization Plan.
- Distribute Demobilization Plan (on and offsite).
- Provide status reports to appropriate requestors.
- Ensure that all Sections/Units understand their specific demobilization responsibilities.
- Supervise execution of the Incident Demobilization Plan.
- Brief the PSC on demobilization progress.

ENVIRONMENTAL UNIT LEADER

- Participate in Planning Section meetings.
- Identify sensitive areas and recommend response priorities.
- Following consultation with natural resource trustees, provide input on wildlife protection strategies (e.g., pre-emptive capture, hazing, and/or capture and treatment).
- Determine the extent, fate, and effects of contamination.
- Acquire, distribute, and provide analysis of weather forecasts.
- Monitor the environmental consequences of cleanup actions.
- Develop shoreline cleanup and assessment plans. Identify the need for, and prepare any special advisories or orders.
- Identify the need for, and obtain, permits, consultations, and other authorizations including Endangered Species Act (ESA) provisions.
- Following consultation with the FOSC's Historical/Cultural Resources Technical Specialist identify and develop plans for protection of affected historical/cultural resources.
- Evaluate the opportunities to use various response technologies.
- Develop disposal plans.
- Develop a plan for collecting, transporting, and analyzing samples.

LOGISTICS

Logistics Section Chief D-15
Service Branch Director D-15
Communications Unit Leader D-16
Medical Unit Leader D-16
Food Unit Leader D-16
Support Branch Director D-17
Supply Unit Leader D-17
Facility Unit Leader D-17
Ground Support Unit Leader D-18
Vessel Support Unit Leader D-18



LOGISTICS SECTION CHIEF

- Plan the organization of the Logistics Section.
- Assign work locations and preliminary work tasks to Section personnel.
- Notify the Resources Unit of the Logistics Section units activated including names and locations of assigned personnel
- Assemble and brief Branch Directors and Unit Leaders.
- Participate in preparation of the IAP.
- Identify service and support requirements for planned and expected operations.
- Provide input to and review the Communications Plan, Medical Plan, and Traffic Plan.
- Coordinate and process requests for additional resources.
- Review the IAP and estimate Section needs for the next operational period.
- Advise on current service and support capabilities.
- Prepare service and support elements of the IAP.
- Estimate future service and support requirements.
- Receive Incident Demobilization Plan from Planning Section.
- Recommend release of Unit resources in conformity with Incident Demobilization Plan.
- Ensure the general welfare and safety of Logistics Section personnel.

SERVICE BRANCH DIRECTOR

- Determine the level of service required to support operations.
- Confirm dispatch of Branch personnel.
- Participate in planning meetings of Logistics Section personnel.
- Review the IAP.
- Organize and prepare assignments for Service Branch personnel.
- Coordinate activities of Branch Units.
- Inform the LSC of Branch activities.
- Resolve Service Branch problems.

COMMUNICATIONS UNIT LEADER

- Prepare and implement the Incident Radio Communications Plan (ICS Form 205).
- Ensure the Incident Communications Center and the Message Center is established.
- Establish appropriate communications distribution/maintenance locations within the Base/Camp(s).
- Ensure communications systems are installed and tested.
- Ensure an equipment accountability system is established.
- Ensure personal portable radio equipment from cache is distributed per Incident Radio Communications Plan.
- Provide technical information as required on:
  - Adequacy of communications systems currently in operation.
  - Geographic limitation on communications systems.
  - Equipment capabilities/limitations.
  - Amount and types of equipment available.
  - Anticipated problems in the use of communications equipment.
- Supervise Communications Unit activities.
- Maintain records on all communications equipment as appropriate.
- Ensure equipment is tested and repaired.
- Recover equipment from Units being demobilized.

MEDICAL UNIT LEADER

- Participate in Logistics Section/Service Branch planning activities.
- Prepare the Medical Plan (ICS Form 206).
- Prepare procedures for major medical emergency.
- Declare major emergency as appropriate.
- Respond to requests for medical aid, medical transportation, and medical supplies.
- Prepare and submit necessary documentation.

FOOD UNIT LEADER

- Determine food and water requirements.
- Determine the method of feeding to best fit each facility or situation.
- Obtain necessary equipment and supplies and establish cooking facilities.
- Ensure that well-balanced menus are provided.
- Order sufficient food and potable water from the Supply Unit.
- Maintain an inventory of food and water.
- Maintain food service areas, ensuring that all appropriate health and safety measures are being followed.
- Supervise caterers, cooks, and other Food Unit personnel as appropriate.

SUPPORT BRANCH DIRECTOR

- Determine initial support operations in coordination with the LSC and Service Branch Director.
- Prepare initial organization and assignments for support operations.
- Assemble and brief Support Branch personnel.
- Determine if assigned Branch resources are sufficient.
- Maintain surveillance of assigned units work progress and inform the LSC of their activities.
- Resolve problems associated with requests from the Operations Section.

SUPPLY UNIT LEADER

- Participate in Logistics Section/Support Branch planning activities.
- Determine the type and amount of supplies en route.
- Review the IAP for information on operations of the Supply Unit.
- Develop and implement safety and security requirements.
- Order, receive, distribute and store supplies, and equipment.
- Receive and respond to requests for personnel, supplies, and equipment.
- Maintain an inventory of supplies and equipment.
- Service reusable equipment.
- Submit reports to the Support Branch Director.

FACILITY UNIT LEADER

- Review the IAP.
- Participate in Logistics Section/Support Branch planning activities.
- Determine requirements for each facility, including the ICP.
- Prepare layouts of incident facilities.
- Notify Unit Leaders of facility layout.
- Activate incident facilities.
- Provide Base and Camp Managers and personnel to operate facilities.
- Provide sleeping facilities.
- Provide security services.
- Provide facility maintenance services (e.g., sanitation, lighting, cleanup).
- Demobilize Base and Camp facilities.
- Maintain facility records.

GROUND SUPPORT UNIT LEADER

- Participate in Support Branch/Logistics Section planning activities.
- Develop and implement the Traffic Plan.
- Support out-of-service resources.
- Notify the Resources Unit of all status changes on support and transportation vehicles.
- Arrange for and activate fueling, maintenance, and repair of ground resources.
- Maintain Support Vehicle Inventory and transportation vehicles {ICS Form 218).
- Provide transportation services, IAW requests from the LSC or Support Branch Director.
- Collect information on rented equipment.
- Requisition maintenance and repair supplies {e.g., fuel, spare parts, etc.).
- Maintain incident roads.
- Submit reports to Support Branch Director as directed.

VESSEL SUPPORT UNIT LEADER

- Participate in Support Branch/Logistics Section planning activities.
- Coordinate development of the Vessel Routing Plan.
- Coordinate vessel transportation assignments with the Protection and Recovery Branch or other sources of vessel transportation.
- Coordinate water-to-land transportation with the Ground Support Unit, as necessary.
- Maintain a prioritized list of transportation requirements that need to be scheduled with the transportation source.
- Support out-of-service vessel resources, as requested.
- Arrange for fueling, dockage, maintenance, and repair of vessel resources, as requested.
- Maintain inventory of support and transportation vessels.

FINANCE/ADMINISTRATION

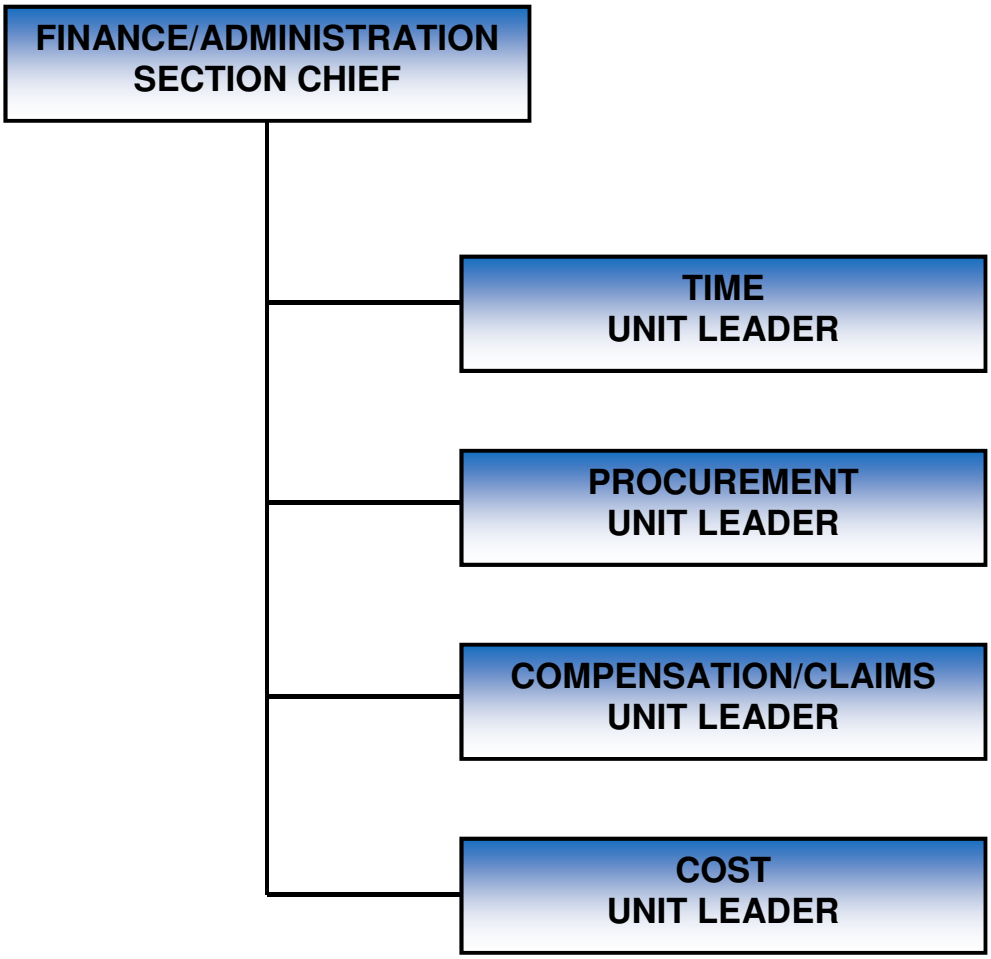
Finance/Administration Section Chief D-20

Time Unit Leader D-20

Procurement Unit Leader D-21

Compensation/Claims Unit Leader D-21

Cost Unit Leader D-22



FINANCE/ADMINISTRATION SECTION CHIEF

- Attend planning meetings as required.
- Manage all financial aspects of an incident.
- Provide financial and cost analysis information as requested.
- Gather pertinent information from briefings with responsible agencies.
- Develop an operating plan for the Finance/Administration Section; fill supply and support needs.
- Determine the need to set up and operate an incident commissary.
- Meet with Assisting and Cooperating Agency Representatives, as needed.
- Maintain daily contact with agency(s) administrative headquarters on Finance/ Administration matters.
- Ensure that all personnel time records are accurately completed and transmitted, according to policy.
- Provide financial input to demobilization planning.
- Ensure that all obligation documents initiated at the incident are properly prepared and completed.
- Brief administrative personnel on all incident-related financial issues needing attention or follow-up prior to leaving incident.

TIME UNIT LEADER

- Determine incident requirements for time recording function.
- Determine resource needs.
- Contact appropriate agency personnel/representatives.
- Ensure that daily personnel time recording documents are prepared and in compliance with policy.
- Establish time unit objectives.
- Maintain separate logs for overtime hours.
- Establish commissary operation on larger or long-term incidents as needed.
- Submit cost estimate data forms to the Cost Unit, as required.
- Maintain records security.
- Ensure that all records are current and complete prior to demobilization.
- Release time reports from assisting agency personnel to the respective Agency Representatives prior to demobilization.
- Brief the Finance/Administration Section Chief on current problems and recommendations, outstanding issues, and follow-up requirements.

PROCUREMENT UNIT LEADER

- Review incident needs and any special procedures with Unit Leaders, as needed.
- Coordinate with local jurisdiction on plans and supply sources.
- Obtain the Incident Procurement Plan.
- Prepare and authorize contracts and land-use agreements.
- Draft memoranda of understanding as necessary.
- Establish contracts and agreements with supply vendors.
- Provide for coordination between the Ordering Manager, agency dispatch, and all other procurement organizations supporting the incident.
- Ensure that a system is in place that meets agency property management requirements. Ensure proper accounting for all new property.
- Interpret contracts and agreements; resolve disputes within delegated authority.
- Coordinate with the Compensation/Claims Unit for processing claims.
- Coordinate use of impress funds, as required.
- Complete final processing of contracts and send documents for payment.
- Coordinate cost data in contracts with the Cost Unit Leader.
- Brief the Finance/Administration Section Chief on current problems and recommendations, outstanding issues, and follow-up requirements.

COMPENSATION/CLAIMS UNIT LEADER

- Establish contact with the incident SO and LO (or Agency Representatives if no LO is assigned).
- Determine the need for Compensation for Injury and Claims Specialists and order personnel as needed.
- Establish a Compensation for Injury work area within or as close as possible to the Medical Unit.
- Review Incident Medical Plan (ICS Form 206).
- Ensure that Compensation/Claims Specialists have adequate workspace and supplies.
- Review and coordinate procedures for handling claims with the Procurement Unit.
- Brief the Compensation/Claims Specialists on incident activity.
- Periodically review logs and forms produced by the Compensation/Claims Specialists to ensure that they are complete, entries are timely and accurate, and that they are in compliance with agency requirements and policies.
- Ensure that all Compensation for Injury and Claims logs and forms are complete and routed appropriately for post-incident processing prior to demobilization.
- Keep the Finance/Administration Section Chief briefed on Unit status and activity.
- Demobilize unit in accordance with the Incident Demobilization Plan.

COST UNIT LEADER

- Coordinate cost reporting procedures.
- Collect and record all cost data.
- Develop incident cost summaries.
- Prepare resources-use cost estimates for the Planning Section.
- Make cost-saving recommendations to the Finance/Administration Section Chief.
- Ensure all cost documents are accurately prepared.
- Maintain cumulative incident cost records.
- Complete all records prior to demobilization.
- Provide reports to the Finance/Administration Section Chief.

APPENDIX E

TRAINING AND EXERCISES

E.1 GENERAL TRAINING

The Company provides training related to discharge prevention, testing, and response, including measures to repair and mitigate discharges. The training methods address oil discharges from several perspectives: human health and safety, rupture control and repair operations, pollution control, and overall (crisis) management of the emergency. The competency of each training program is closely monitored by the Training Section through observation of and/or participation in actual training sessions. PREP exercises should be viewed as an opportunity for continuous improvement of the response plans and the response system.

Training records and other applicable documentation items are maintained in the training department. ERT Personnel depending on their required responsibilities during a response go through HAZWOPER, rescue, and/or both trainings. These trainings and familiarization of the plan allow/give site personnel the ability to implement the plan as necessary.

All training records are maintained for as long as a person has response duties in this Plan.

E.2 HAZWOPER TRAINING

HAZWOPER (29 CFR 1910.120)

OSHA HAZWOPER training requirements are shown in the table below.

OSHA HAZWOPER TRAINING REQUIREMENTS		
Responder Classification	**Required Training**	**Refresher**
29 CFR 1910.120(q) Emergency Response		
First Responder - Employee Awareness Level	2-4 hrs demonstration of competency	Same
First Responder - Operations	8 hrs	8 hrs
Level Incident Commander	24 hrs plus competency	8 hrs

All personnel responding to an incident must satisfy the applicable HAZWOPER training requirements of 29 CFR 1910.120. Personnel are trained to the level of HAZWOPER necessary to perform their emergency response duties. Team members are required under state and federal regulations to have appropriate up-to-date HAZWOPER training necessary to function in their assigned positions. Refresher training or a demonstration of competency is required annually to maintain HAZWOPER qualifications.

First Responder/Operations: Personnel involved in the day to day operations within a specific unit receive continual instruction and experience in the proper handling and potential hazards associated with the materials that could be spilled in their area. Personnel are involved in protection and containment operations which do not involve contact with the spill (i.e., booming operations prior to arrival of the oil) must have at least 8 hours of HAZWOPER training or sufficient experience to demonstrate competency in their spill response duties.

E.3 RESPONSE TEAM TRAINING (App. F, Sec. 1.7.1.1(2) and 1.8.3 to 40 CFR 112)

Emergency Response Team

The Company provides training related to discharge prevention, testing, and response, including measures to repair and mitigate discharges. The training methods address oil discharges from the pipeline from several perspectives: human health and safety, rupture control and repair operations, pollution control, and overall (crisis) management of the emergency.

Hazardous Materials Incidents

Federal and State regulations require that Spill Response Team Members maintain up-to- date HAZWOPER training necessary to function in their assigned positions. At a minimum, Team members will receive "First Responder Awareness Level" training. All personnel responding to an incident must satisfy the applicable HAZWOPER training requirements of 29 CFR 1910.120. Training for HAZWOPER responder levels is documented by attendance sheets (see Appendix F). The signed attendance sheets are maintained at the Facility/Operations Office for five (5) years.

Qualified Individuals

Qualified Individuals (QI's) have received training in NIMS ICS and Hazardous Materials Response Training up to at least the OSHA Hazardous Materials Operations Level.

Incident Management Team

Assigned IMT team members will receive ICS training and may also receive supplemental training in other related general topics.

Incident Commander: IC is trained to assume control of an incident. Training includes the Company's Incident Command System, how to implement the Facility Response Plan, the associated risks of employees working in chemical protective clothing, decontamination procedures, how to implement the local emergency response plan, and knowledge of the state emergency response plan and of the Federal Regional Response Team.

Other Response Support

Personnel from other aspects of the Response Team (e.g., Hazmat, etc.) can be made available depending on the spill event.

Other personnel whose skills are needed temporarily to perform immediate emergency support work (such as dump truck drivers and crane operators) are not required to meet the training requirements discussed above. However, these personnel must be briefed on the potential hazards and the duties to be performed at the site before participating in response operations. They must also receive instruction in the use of any safety and personal protective equipment needed and on all other appropriate safety and health precautions.

E.3 RESPONSE TEAM TRAINING (App. F, Sec. 1.7.1.1(2) and 1.8.3 to 40 CFR 112) (Cont'd)

Company and Other Specialist Support

Experts would provide technical advice or guidance during response to a spill incident. Such persons must receive appropriate training or demonstrate competency in their specialty. There are no specific requirements on training content or hours of training for these persons. However, the training must be sufficient for the individuals to maintain competency in their specific area of expertise.

Contractor Training

The Company also recognizes that contract personnel must also have sufficient training in responding to emergency situations in accordance with HAZWOPER training requirements. The Company communicates this training need to its key contractors during contract negotiations.

Training Records and Maintenance

Training records for team members will be maintained at the Facility according to Federal, State, and local government requirements (three (3) years for the U.S. Coast Guard and five (5) years for the U.S. Environmental Protection Agency) and as long as an individual is assigned under the plan for the DOT PHMSA Office of Pipeline Safety.

E.4 RESPONSE TEAM EXERCISES

ERT/IMT members, government agencies, contractors, and other resources must participate in response exercises required by Federal, State, or local regulations and as detailed in the "National Preparedness for Response Exercise Program (PREP) Guidelines." The Company (through the Emergency Services Coordinator) will conduct announced and unannounced exercises to maintain compliance, and each plan-holder must participate in at least one exercise annually. The following table lists the triennial exercise cycle for facilities (see PREP Guidelines for full details).

E.4 RESPONSE TEAM EXERCISES (Cont'd)

TRIENNIAL CYCLE[1]		
Total Number	**Frequency**	**Exercise Type/Description**
12	Quarterly	QI Notification Exercise[2]
6	Semi-Annual	Equipment Deployment Exercise *(Facility-owned equipment)*
3	Annual	Equipment Deployment Exercise (facilities with OSRO-owned equipment)
3	Annual	Incident Management Team Tabletop Exercise
3	Annual	Unannounced Exercise *(not a separate exercise) May include:* *Emergency procedures, IMT Exercises or Facility equipment deployment exercises*

NOTES:

[1] All response plan components must be exercised at least once in the Cycle.

[2] Voice contact and confirmation must be made with a QI as detailed in the plan. Electronic messaging may be used only if communication by voice is not possible.

All individual drill and exercise information is kept separately, and is available upon request. All logs pertaining to the drills and exercises will be kept for a period of not less than 5 years.

Quarterly QI Notification Exercise

- **Scope:** Exercise the notification process between key facility personnel and the QI to demonstrate notification process and the accessibility of the QI.

- **Objective:** Voice contact and confirmation must be made with a QI as detailed in the plan. Electronic messaging may be used only if communication by voice is not possible.

- **General:** Quarterly QI Notification Exercises will be documented on the Notification Drill Form in the Miscellaneous Forms tab of this Plan. All personnel receiving notification shall respond to the notification and verify their receipt of the notification. Personnel who do not respond should be contacted to determine whether or not they received the notification. The Emergency Response Line (ERL) can be used for QI notifications.

Semi-Annual/Annual Equipment Deployment Exercise (for facilities with equipment)

- **Scope:** Deploy and operate facility response equipment identified in the response plan. The equipment to be deployed must include the following, at a minimum:

  - 1,000 feet of representative type of boom;
  - one of each type of skimming system; or
  - the equipment necessary to respond to the facility's Small/Average Most Probable Discharge (AMPD), whichever is less.

E.4 RESPONSE TEAM EXERCISES (Cont'd)

Semi-Annual/Annual Equipment Deployment Exercise (for facilities with equipment) (Cont'd)

- **Objective:** Demonstrate personnel's ability to deploy and operate response equipment. Ensure that the response equipment is in proper working order.

- **General:** The Facility may take credit for actual equipment deployment to a spill, or for training sessions, as long as the activities are properly documented.

Annual Equipment Deployment Exercise (OSRO-owned equipment)

- **Scope:** Demonstrate the ability to deploy response equipment identified in the FRP. The equipment may consist entirely of operator-owned equipment, or a combination of OSRO and operator equipment.

- **Objective:** Designated emergency response personnel should demonstrate the ability to:

  - Organize; and
  - Deploy and operate representative types of key response equipment as described in the response plan.

- **General:** The plan holder may claim credit for this exercise when conducted in conjunction with other exercises, as long as all the objectives are met, the exercise is evaluated, and a proper record is generated. Credit may be claimed for an actual response when these objectives are met, the response is evaluated, and a proper record is generated. Plan holders are encouraged to notify their DOT/PHMSA regional office at least one month in advance of conducting their PREP exercises. When possible, DOT/PHMSA will participate and evaluate their exercise.

Annual Response Team Tabletop Exercise

- **Scope:** Exercise the response team's organization, communication, and decision-making in managing a spill response. Each team identified within the plan must conduct an annual Response Team Tabletop Exercise.

- **Objective:** Exercise the response team in a review of the following:

  - Knowledge of the Plan.
  - Proper notifications.
  - Communications system.
  - Ability to access an OSRO.
  - Coordination of internal spill response personnel.
  - Review of the transition from a local team to a regional team.
  - Ability to effectively coordinate response activity with the National Response Framework (NRF) Infrastructure.
  - Ability to access information in the Area Contingency Plan.

E.4 RESPONSE TEAM EXERCISES (Cont'd)

Annual Response Team Tabletop Exercise (Cont'd)

- **General:** A minimum of one Response Team Tabletop Exercise in a triennial cycle will involve a Worst-Case Discharge scenario.

Government-Initiated Unannounced Exercise

- **Scope:** The Facility is required to participate in only one unannounced exercise every 36 months from the date of the last government-initiated unannounced exercise.
  - Exercises are limited to approximately four hours in duration.
  - Exercises would involve response to a Small/Average Most Probable Discharge scenario.
  - Exercise would involve equipment deployment to respond to a spill scenario.

- **Objective:** Conduct proper notifications to respond to unannounced scenario of a Small/Average Most Probable Discharge.
  - Demonstrate that the response is timely, conducted with an adequate amount of equipment for the scenario, and properly conducted.

- **General:** This exercise is only applicable to those facilities which are randomly chosen.

Area Exercises

- **Objective:** The purpose of the area exercise is to exercise the entire response community in a particular area. An area is defined as "that geographic area for which a separate and distinct Area Contingency Plan has been prepared, as described in OPA 90." The response community includes the federal, state, and local government and industry. The area exercises are designed to exercise the government and industry interface for spill response.

- **General:** The goal is to ensure that all areas of the country are exercised triennially. All of the area exercises will be developed by an exercise design team. The exercise design team is comprised of representatives from the federal, state, and local government and industry. A lead plan holder would lead each area exercise. The lead plan holder is the organization (government or industry) that holds the primary plan that is exercised in the area exercise. The lead plan holder would have the final word on designing the scope and scenario of the exercise.

Exercise Documentation

- All exercises should be documented and maintained at the facility; documentation should specify:
  - The type of exercise;
  - Date and time of the exercise;
  - A description of the exercise;

E.4 RESPONSE TEAM EXERCISES (Cont'd)

Exercise Documentation (Cont'd)

- The objectives met in the exercise;
- The components of the response plan exercised; and
- Lessons learned.

- Exercise documentation should be kept on file for the required length of time depending on the regulating agency (three (3) years for the U.S. Coast Guard and DOT PHMSA Office of Pipeline Safety and five (5) years for the U.S. Environmental Protection Agency).

E.5 PURPOSE OF REVIEW AND EVALUATION

This section provides procedures and information useful to responders for post incident/exercise review and evaluation. Post incident/exercise reviews should be conducted in a timely manner following an incident/exercise. The Plan should be evaluated to determine its usefulness during the incident/exercise and appropriate revisions should be made. All incident/exercise documentation should be included in the Plan evaluation process.

Outline of Review

Given below are items a team composed of outside people knowledgeable in spill response and key members of the response teams should examine. These questions are intended as guidelines only; many other questions are likely to be appropriate at each stage of a critique.

- ***Detection***

  - Was the spill detected promptly?
  - How was it detected?
  - By whom?
  - Could it have been detected earlier? How?
  - Are any instruments or procedures available to consider which might aid in spill detection?

- ***Notification***

  - Were proper procedures followed in notifying government agencies?
  - Were notifications prompt?
  - Was management notified promptly?
  - Was management response appropriate?
  - Was the Facility / Company notified promptly? If so, why, how, and who? If not, why not?

E.5 PURPOSE OF REVIEW AND EVALUATION (Cont'd)

- ***Assessment/Evaluation***

  - Was the magnitude of the problem assessed correctly at the start?
  - What means were used for this assessment?
  - Are any guides or aids needed to assist spill evaluation?
  - What sources of information were available on winds and on water currents?
  - Is our information adequate?
  - Was this information useful (and used) for spill trajectory forecasts? Were such forecasts realistic?
  - Do we have adequate information on product properties?
  - Do we need additional information on changes of product properties with time, i.e., as a result of weathering and other processes?

- ***Mobilization***

  - What steps were taken to mobilize spill countermeasures?
  - What resources were used?
  - Was mobilization prompt?
  - Could it have been speeded up or should it have been?
  - What about mobilization of manpower resources?
  - Was the local spill cooperative used appropriately?
  - How could this be improved?
  - Was it appropriate to mobilize the Facility/company resources and was this promptly initiated?
  - What other corporate resources are available and have they been identified and used adequately?

- ***Response - Strategy***

  - Is there an adequate spill response plan for the location?
  - Is it flexible enough to cope with unexpected spill events?
  - Does the plan include clear understanding of local environmental sensitivities?
  - What was the initial strategy for response to this spill?
  - Is this strategy defined in the spill plan?
  - How did the strategy evolve and change during this spill and how were these changes implemented?

- What caused such changes?
- Are there improvements needed? More training?

E.5 PURPOSE OF REVIEW AND EVALUATION (Cont'd)

- ***Response - Resources Used***

  - What resources were mobilized?
  - How were they mobilized?
  - How did resource utilization change with time? Why?
  - Were resources used effectively?

- Contractors
- Government agencies
- Company resources
- Cooperatives
- Volunteers
- Consultants
- Other (e.g., bird rescue centers)

  - What changes would have been useful?
  - Do we have adequate knowledge of resource availability?
  - Do we have adequate knowledge of waste disposal capabilities?

- ***Response - Effectiveness***

  - Was containment effective and prompt?
  - How could it have been improved?
  - Should the location or the local cooperative have additional resources for containment?
  - Was recovery effective and prompt?
  - How could it have been improved?
  - Should the location or the local cooperative have additional resources for recovery of spilled product?
  - Was contaminated equipment disposed of promptly and safely?
  - Was there adequate in-house product separation, recovery, and disposal?
  - How could it have been improved?
  - Was there adequate outside disposal resources available?

- ***Command Structure***

  - Who was initially in charge of spill response?
  - What sort of organization was initially set up?
  - How did this change with time? Why?
  - What changes would have been useful?
  - Was there adequate surveillance?
  - Should there be any changes?
  - Were communications adequate?
  - What improvements are needed? Hardware, procedures, etc.
  - Was support from financial services adequate? Prompt?
  - Should there be any changes?
  - Is more planning needed?
  - Should financial procedures be developed to handle such incidents?

E.5 PURPOSE OF REVIEW AND EVALUATION (Cont'd)

- ***Measurement***

  - Was there adequate measurement or estimation of the volume of product spilled?
  - Was there adequate measurement or estimation of the volume of product recovered?
  - Was there adequate measurement or estimation of the volume of product disposed of?
  - Should better measurement procedures be developed for either phase of operations?
  - If so, what would be appropriate and acceptable?

- ***Government Relations***

  - What are the roles and effects of the various government agencies which were involved?
  - Was there a single focal point among the government agencies for contact?
  - Were government agencies adequately informed at all stages?
  - Should there have been better focus of communications to the agencies?
  - Were government agencies adequately informed at all stages?
  - Were too many agencies involved?

- Are any changes needed in procedures to manage government relations?

  - Examples of affected U.S. agencies (there may be others):

- U.S. Coast Guard
- Environmental Protection Agency
- National Oceanic and Atmospheric Administration
- Dept of Fish and Wildlife
- State Parks
- Harbors and Marinas
- States
- Cities
- Counties

  - Was there adequate agreement with the government agencies on disposal methods?
  - Was there adequate agreement with the government agencies on criteria for cleanup?
  - How was this agreement developed?
  - Were we too agreeable with the agencies in accepting their requests for specific action items (e.g., degree of cleanup)?
  - Should there be advance planning of criteria for cleanup, aimed at specific local environmentally sensitive areas? (Such criteria should probably also be designed for different types of product.)

E.5 PURPOSE OF REVIEW AND EVALUATION (Cont'd)

- ***Public Relations***

  - How were relations with the media handled?
  - What problems were encountered?
  - Are improvements needed?
  - How could public outcry have been reduced? Was it serious?
  - Would it be useful to undertake a public information effort to "educate" reporters about product and effects to it if spilled?
  - These areas should be investigated shortly after the incident to assure that actions taken are fresh in people's minds.

APPENDIX F

ICS AND OTHER MISCELLANEOUS FORMS

ICS Forms

Qualified Individual (QI) Notification Exercise

Response Team Tabletop Exercise

Equipment Deployment Exercise - Internal Exercise Documentation Form

Personnel Response Training Log

Response Equipment Inspection Log

NIMS ICS Forms		
ICS Form #	**Form Title**	**Prepared By**
IAP	Cover Sheet	Documentation Unit Leader
ICS-201-CG	Incident Briefing	Incident Commander (IC)
ICS-202-CG	Response Objectives	Planning Section Chief (Planning)
ICS-203-CG	Organization Assignment List	Resources Unit Leader (Planning)
ICS-204-CG	Assignment List	Resources Unit Leader (Planning)
ICS-204a-CG	Assignment List Attachment	Resources Unit Leader (Planning)
ICS-205-CG	Incident Radio Communications Plan	Communications Unit Leader (Logistics)
ICS-205A-CG	Communications List	Communications Unit Leader (Logistics)
ICS-206-CG	Medical Plan	Medical Unit Leader (Logistics)
ICS-207-CG	Incident Organization Chart	Resources Unit (Planning)
ICS-208-CG	Site Safety and Health Plan	Safety Officer
ICS-209-CG	Incident Status Summary	Situation Unit Leader (Planning)
ICS-210-CG	Status Change Card	Communications Center (Logistics)
ICS-211-CG	Check-In List	Resources Unit (Planning)
ICS211-p-CG	Check-In List (Personnel)	Resources Unit (Planning)
ICS-213-CG	General Message	Any message originator
ICS-213 RR-CG	Resource Request Message	Any message originator
ICS-214-CG	Unit Log	All sections and units
ICS-214a-CG	Individual Log	All sections and units
ICS-215-CG	Operational Planning Worksheet	Operations Section Chief (Operations)
ICS-217	Radio Frequency Assignment Worksheet	Communications Unit (Logistics)
ICS-218	Support Vehicle Inventory	Ground Support Unit (Logistics)
ICS-220-CG	Air Operations Summary	Operations Section Chief or Air Branch Director (Operations)
ICS-221-CG	Demobilization Check-Out	Demobilization Unit (Planning)
ICS-230-CG	Daily Meeting Schedule	All sections and units
ICS-231-CG	Meeting Summary	All sections and units
ICS-232	Resources at Risk Summary	Situation Unit Leader (Planning)
ICS-232a-CG	ACP Site Index	Situation Unit Leader (Planning)
ICS-233	Incident Open Action Tracker	Planning Section Chief (Planning)
ICS-234-CG	Work Analysis Matrix	Operations Section Chief (Operations)

1. Incident Name	2. Operational Period to be covered by IAP (Date/Time) From: DD MMM YY / TIME To: DD MMM YY / TIME	CG IAP COVER SHEET

3. Approved by Incident Commander(s):

ORG	NAME

INCIDENT ACTION PLAN

The items checked below are included in this Incident Action Plan:

- ☐ ICS 202-CG (Incident Objectives)
- ☐ ICS 202A-CG (Command Direction)
- ☐ ICS 203-CG (Organization List) – OR – ICS 207-CG (Organization Chart)
- ☐ ICS 204-CGs (Assignment Lists)
  One Copy each of any ICS 204-CG attachments:
- ☐ ICS 205-CG (Communications Plan)
- ☐ ICS 206-CG (Medical Plan)
- ☐ ICS 208-CG (Site Safety Plan) or Note SSP Location
- ☐ Map / Chart
- ☐ Weather Forecast / Tides/Currents

Other Attachments

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

4. Prepared by:	Date/Time
NAME, DUTY POSITION	DD MMM YY / TIME

NRC Incident No. #_____

1. Incident Name	**2. Prepared by:** (name) Date: Time:	INCIDENT BRIEFING ICS 201-CG

3. Map/Sketch (include sketch, showing the total area of operations, the incident site/area, overflight results, trajectories, impacted shorelines, or other graphics depicting situational and response status)

4. Current Situation:

NRC Incident No. #_____

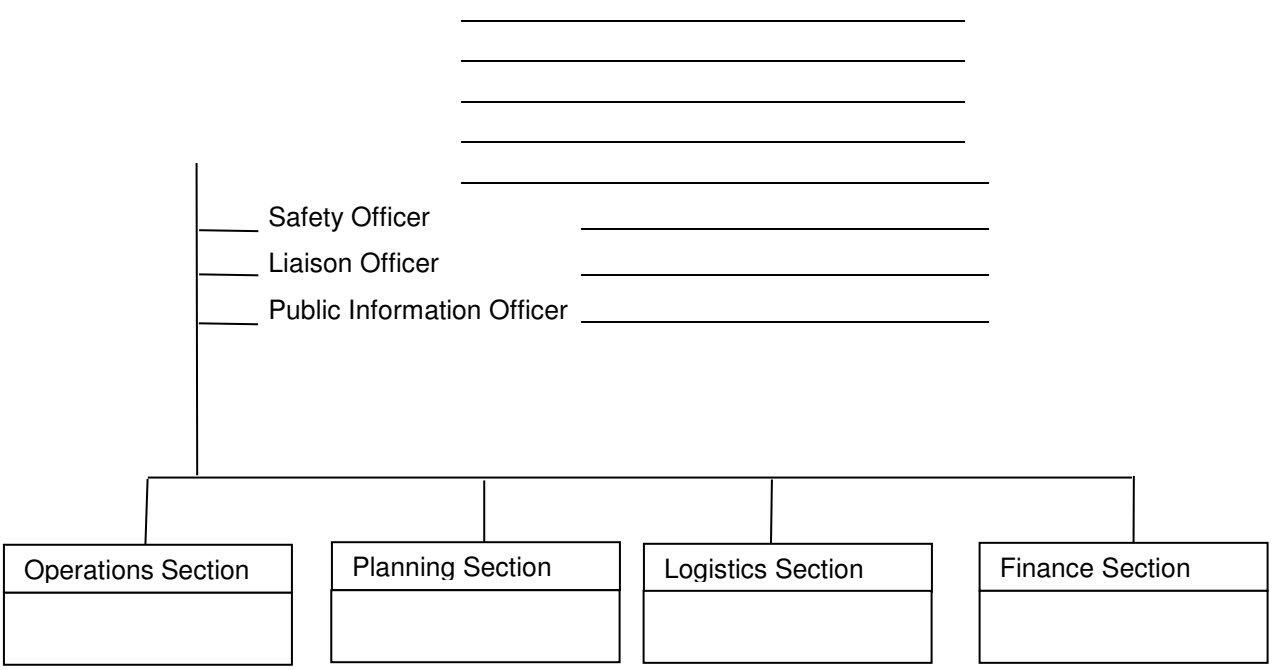
1. Incident Name	2. Prepared by: (name) Date: Time:	INCIDENT BRIEFING ICS 201-CG

5. Initial Response Objectives, Current Actions, Planned Actions

NRC Incident No. #_____

1. Incident Name	2. Prepared by: (name) Date: Time:	INCIDENT BRIEFING ICS 201-CG

6. Current Organization (fill in additional appropriate organization)



NRC Incident No. #_____

1. Incident Name	**2. Prepared by:** (name) Date: Time:	INCIDENT BRIEFING ICS 201-CG

7. Resources Summary

Resource	Resource Identifier	Date Time Ordered	ETA	On-Scene (X)	NOTES: (Location/Assignment/Status)

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	**INCIDENT OBJECTIVES** **ICS 202-CG**

3. Objective(s)

4. Operational Period Command Emphasis (Safety Message, Priorities, Key Decisions/Directions)

Approved Site Safety Plan Located at:

5. Prepared by: (Planning Section Chief) **Date/Time**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	ORGANIZATION ASSIGNMENT LIST ICS 203-CG

3. Incident Commander(s) and Staff

Agency	IC	Deputy

Safety Officer:	
Information Officer:	
Liaison Officer:	

4. Agency Representatives

Agency	Name

5. PLANNING/INTEL SECTION

Chief	
Deputy	
Resources Unit	
Situation Unit	
Environmental Unit	
Documentation Unit	
Demobilization Unit	
Technical Specialists	

6. LOGISTICS SECTION

Chief	
Deputy	
a. Support Branch	
Director	
Supply Unit	
Facilities Unit	
Vessel Support Unit	
Ground Support Unit	
b. Service Branch	
Director	
Communications Unit	
Medical Unit	
Food Unit	

7. OPERATION SECTION

Chief		
Deputy		
Deputy		
Staging Area Manager		
Staging Area Manager		
Staging Area Manager		
a. Branch – Division Groups		
Branch Director		
Deputy		
Division Group		
Division Group		
Division Group		
Division/Group		
Division/Group		
b. Branch – Division/Groups		
Branch Director		
Deputy		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
c. Branch – Division/Groups		
Branch Director		
Deputy		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
d. Air Operations Branch		
Air Operations Br. Dir		
Helicopter Coordinator		

8. FINANCE/ADMINISTRATION SECTION

Chief	
Deputy	
Time Unit	
Procurement Unit	
Compensation/Claims Unit	
Cost Unit	

9. Prepared By: (Resources Unit) **Date/Time**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	**Assignment List** **ICS 204-CG**
3. Branch	**4. Division/Group/Staging**	

5. Operations Personnel

	Name	Affiliation	Contact # (s)
Operations Section Chief:			
Deputy Operations Section Chief:			
Branch Director:			
Deputy Branch Director:			
Division/Group Supervisor/STAM:			

Strike Team/Task Force/Resource Identifier	Leader	Contact Info. #	# Of Persons	Reporting Info/Notes/Remarks	
					☐
					☐
					☐
					☐
					☐
					☐
					☐
					☐
					☐
					☐

7. Work Assignments

8. Special Instructions

9. Communications (radio and/or phone contact numbers needed for this assignment)

Assignment	Channel Name	Frequency (Tx)	Phone

Emergency Communications

Medical_____ Evacuation_____ Other _____

10. Prepared by: Date/Time	11. Reviewed by (PSC): Date/Time	12. Reviewed by (OSC): Date/Time

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	ASSIGNMENT LIST ATTACHMENT ICS 204a-CG
3. Branch	4. Division/Group	
5. Strike Team/Task Force/Resource (Identifier)	6. Leader	7. Assignment Location

8. Work Assignment Special Instructions, Special Equipment/Supplies Needed for Assignment, Special Environmental Considerations, Special Site Specific Safety Considerations

Approved Site Safety Plan Located at:

9. Other Attachments (as needed)

☐ **Map/Chart** ☐ **Weather Forecast/Tides/Currents** ☐ _____

☐ _____ ☐ _____ ☐ _____

10. Prepared by: Date/Time	11. Reviewed by (PSC): Date/Time	12. Reviewed by (OSC): Date/Time

NRC Incident No. #_____

1. Incident Name	2. Operational Period Date/Time From: To:	**INCIDENT RADIO COMMUNICATIONS PLAN ICS 205-CG**

3. Basic Radio Channel Use

Ch #	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D or M	Remarks
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

4. Prepared By (Communications Unit) 5. Date/Time

The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W", depending on whether the frequency is narrow or wide band. Mode refers to either "A" or "D" indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode. All channels are shown as if programmed in a control station, mobile or portable radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

NRC Incident No. #_____

1. Incident Name	**2. Operational Period (Date / Time)** From: To:	**COMMUNICATIONS LIST** **ICS 205A-CG**

3. Basic Local Communications Information

Assignment	Name	Method(s) of contact (radio frequency, phone, pager, cell #(s), etc.)

4. Prepared by: (Communications Unit) **Date / Time**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date / Time) From: To:	**MEDICAL PLAN** **ICS 206-CG**

3. Medical Aid Stations

Name	Location	Contact #	Paramedics On site (Y/N)

4. Transportation

Ambulance Service	Address	Contact #	Paramedics On board (Y/N)

5. Hospitals

Hospital Name	Address	Contact #	Travel Time		Burn Ctr?	Heli-Pad?
			Air	Ground		

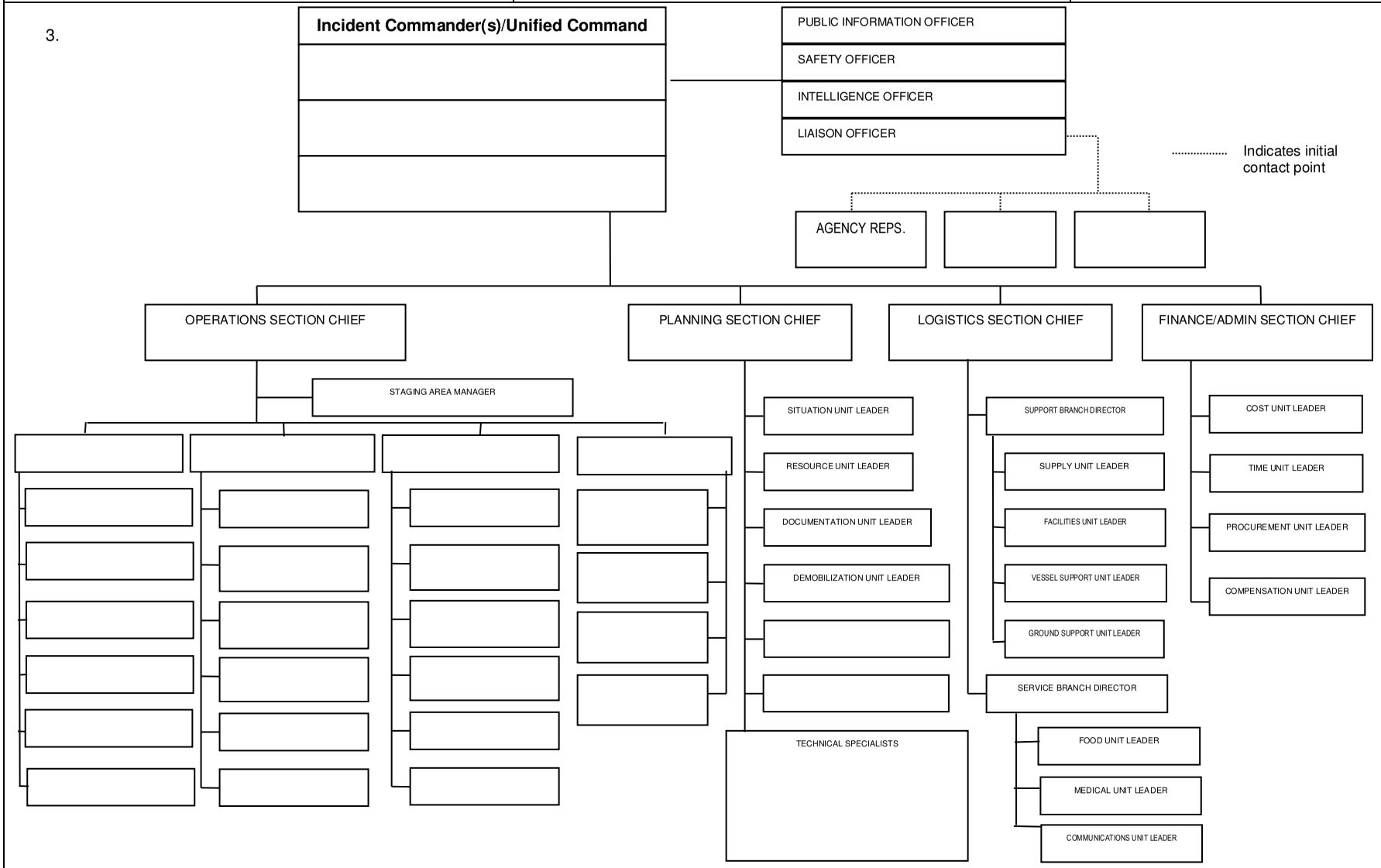
6. Special Medical Emergency Procedures

7. Prepared by: (Medical Unit Leader) Date/Time	**8. Reviewed by: (Safety Officer) Date/Time**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	INCIDENT ORGANIZATION CHART ICS 207-CG

3.



4. Prepared By: (Resources Unit Leader)	5. Date/Time Prepared:

Site Safety and Health Plan ICS-208-CG (rev 4/15)

Incident Name: _____ **Date/Time Prepared: _____** **Operational Period: _____**

Purpose. The ICS Compatible Site Safety and Health Plan is designed for safety and health personnel that use the Incident Command System (ICS). It is compatible with ICS and is intended to meet the requirements of the Hazardous Waste Operations and Emergency Response regulation (Title 29, Code of Federal Regulations, Part 1910.120). The plan avoids the duplication found between many other site safety plans and certain ICS forms. It is also in a format familiar to users of ICS. Although primarily designed for oil and chemical spills, the plan can be used for all hazard situations. Changes: The only change to this form since 2006 is added Emergency Site Non-Hazardous Assessment form (SSP-A2).

Questions on the document should be addressed to the **Coast Guard Office of Contingency Preparedness and Exercise Policy (CG-CPE)**.

Table of Forms

FORM NAME	FORM #	USE	REQUIRED	OPTIONAL	ATTACHED
Emergency Safety and Response Plan	A	Emergency response phase (uncontrolled)	X		
Emergency Site Non-Hazardous Assessment Form	A2	Emergency response phase without Hazardous Materials present. Overall site assessment	X		
Site Safety Plan	B	Post-emergency phase (stabilized, cleanup)	X		
Site Map	C	Post-emergency phase map of site and hazards	X		
Emergency Response Plan	D	Part of Form B, to address emergencies	X		
Exposure Monitoring Plan	E	Exposure monitoring Plan to monitor exposure	X		
Air Monitoring Log	E-1	To log air monitoring data	X*		
Personal Protective Equipment	F	To document PPE equipment and procedures	X*		
Decontamination	G	To document decon equipment and procedures	X*		
Site Safety Enforcement Log	H	To use in enforcing safety on site		X	
Worker Acknowledgement Form	I	To document workers receiving briefings		X	
Form A Compliance Checklist	J	To assist in ensuring HAZWOPER compliance		X	
Form B Compliance Checklist	K	To assist in ensuring HAZWOPER compliance		X	
Drum Compliance Checklist	L	To assist in ensuring HAZWOPER compliance		X	
Other:					

** Required only if function or equipment is used during a response*

This Page Intentionally Left Blank

EMERGENCY SAFETY and RESPONSE PLAN	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Attachments: **Attach MSDS for each Chemical:**

5. Organization IC/UC:	Safety: Div/Group Supv:	Entry Team:	Backup Team:	Decon Team:

6.a. Physical Hazards and Protection	6.b. Confined Space ☐ Noise ☐ Heat Stress ☐ Cold Stress ☐ Electrical ☐ Animal/Plant/Insect ☐ Ergonomic ☐ Ionizing Rad ☐ Slips/Trips/Falls ☐ Struck by ☐ Water ☐ Violence ☐ Excavation ☐ Biomedical waste and/or needles ☐ Fatigue ☐ Other (specify)

6.c. Tasks & Controls	6d Entry Permit	6.e. Ventilate	6f. Hearing Protection	6g. Shoes (type)	6.h. Hard Hats	6i. Clothing (cold wx)	6j. Life Jacket	6l. Work/ Rest (hrs)	6.m. Fluids (amt/time)	6.n. Signs & Barricade	6.p. Fall Protect	6.q. Post Guards	6.r. Flash Protect	6.s. Work Gloves	6.t. Other

7.a. Agent	7.b. Hazards		7.c. Target Organs	7.d. Exposure Routes	7.f. PPE	7.g. Type of PPE
	Explosive ☐ Flammable ☐ Reactive ☐ Biomedical ☐ Toxic ☐	Radioactive ☐ Carcinogen ☐ Oxidizer ☐ Corrosive ☐ Specify Other: ☐	Eyes ☐ Nose ☐ Skin ☐ Ears ☐ Central Nervous System ☐ Respiratory ☐ Throat ☐ Lungs ☐ Heart ☐ Liver ☐ Kidney ☐ Blood ☐ Lungs ☐ Circulatory ☐ Gastrointestinal ☐ Bone ☐ Other Specify: ☐	Inhalation ☐ Absorption ☐ Ingestion ☐ Injection ☐ Membrane ☐ ☐	Face Shield ☐ Eyes ☐ Gloves ☐ Inner Suit ☐ Splash Suit ☐ Level A Suit ☐ SCBA☐ APR☐ SAR ☐ Cartridges ☐ Fire Resistance☐	

8. Instruments:	8.a. Action Levels	8.b. Chemical Name(s):	8.c. LEL/UEL %	8.d. Odor Thresh Ppm	8.e. Ceiling/ IDLH	8.f. STEL/TLV	8.g. Flash Pt/ Ignition Pt (F or C)	8.h. Vapor Pressure (mm)	8.i. Vapor Density	8.j. Specific Gravity	8.l. Boiling Pt F or C
O2 ☐ CGI ☐ Radiation ☐											
Total HCs ☐ Colorimetric ☐ Thermal ☐ Other ☐											

EMERGENCY SAFETY and RESPONSE PLAN (Cont)	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Attachments: **Attach SDS for each Chemical**

9. Decontamination:				
Instrument Drop Off ☐	Suit Wash ☐	Bottle Exchange ☐	SCBA/Mask Rinse ☐	Intervening Steps ☐ Specify:
Outer Boots/Glove Removal ☐	Decon Agent: Water ☐	Outer Suit Removal ☐	Inner Glove Removal ☐	
Suit/Gloves/Boot Disposal ☐	Other ☐	Inner Suit Removal ☐	Work Clothes Removal ☐	
	Specify:	SCBA/Mask Removal ☐	Body Shower ☐	

10. Site Map. Include: Work Zones, Locations of Hazards, Security Perimeter, Places of Refuge, Decontamination Line, Evacuation Routes, Assembly Point, Direction of North
☐ Attached, ☐ Drawn Below:

11.a. Potential Emergencies:	11.b. Evacuation Alarms:	11.c Emergency Prevention and Evacuation Procedures:
Fire ☐	Horn ☐ # Blasts ☐	Safe Distance:
Explosion ☐	Bells ☐ #Rings ☐	
_____ Other ☐	Radio Code ☐	
	Other:	

12. a. Communications:	12.b. Command #:	12.c. Tactical #:	12.d. Entry #:
Radio ☐ Phone ☐ Other ☐			

13.a. Site Security: Personnel Assigned	13.b. Procedures:	13.c. Equipment:
14.a. Emergency Medical: Personnel Assigned	14.b. Procedures:	14.c Equipment:
15. Prepared by:	16. Date/Time Briefed:	**ICS-208-CG SSP-A Page 2 (rev 4/15):** Page _____ of _____

EMERGENCY SAFETY AND RESPONSE PLAN (ICS-208-CG SSP-A)

Purpose: The Emergency Safety and Response Plan provides the Safety Officer and ICS personnel a plan for safeguarding personnel during the initial emergency phase of the response. *It is only used during the emergency phase of the response, which is defined as a situation involving an uncontrolled release.* It is also intended to meet the requirements of the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation, Title 29 Code of Federal Regulations Part 1910.120.

Preparation: The Safety Officer or his/her designated staff starts the Emergency Site Safety and Response Plan. They initially address the hazards common to all operations involved in the response (initial site characterization). Outside support organizations must be contacted to ensure the plan is consistent with other plans (local, state, other federal plans). Form ICS-208-CG SSP-G need not be completed if this form is used. When the operation proceeds into the post-emergency phase (site stabilized and cleanup operations begun) forms ICS-208-CG SSP-B and ICS-208-CG SSP-G should be used. For large incidents, the Emergency Site Safety and Response Plan complements the Incident Action Plan. For smaller incidents, the Emergency Site Safety and Response Plan complements ICS-201.

Distribution: The Emergency Safety and Response Plan completed by the Safety Officer is forwarded to the Planning Section Chief. Copies are made and attached to the ICS 204 Assignment List(s). The Operations Section Chief, Directors, Supervisors or Leaders get a copy of the plan. They must ensure it is available on site for all personnel to review. The Safety Officer is responsible for ensuring that the Emergency Site Safety and Response Plan properly addresses the hazards of the operation. The Safety Officer accomplishes this through on site enforcement and feedback to the operational units.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Attachments	Enter attachments. Material Safety Data Sheets are mandatory under 1910.120. Safe Work Practices may also be attached.
5	Organization	List the personnel responsible for these positions. IC and Safety Officer are mandatory.
6	Physical Hazards & Protection	Check off the physical hazards at the site. Identify the major tasks involved in the response (skimming, lightering, overpacking, etc.). Check off the controls that would be used to safeguard workers from the physical hazards for each major task.
7	Chemical/Agent	List the chemicals involved in the response. Chemicals may be listed numerically. Check off the hazards, potential health effects, pathway of dispersion, and exposure route of the chemical. Numbers corresponding to the chemical may be entered into the check blocks to differentiate. Check off the PPE to be used. Identify the type of PPE selected (for example: gloves: butyl rubber).
8	Instruments	Indicate the instruments being used for monitoring. List the action levels adjacent to the instruments being used. Identify the chemicals being monitored (2). List the physical parameters of the chemicals. Use a separate form for additional chemicals monitored.

EMERGENCY SAFETY AND RESPONSE PLAN (FORM ICS-208-CG SSP-A) (Instructions Continued)

9	Decontamination	Check off the decontamination steps to be used. Numbers may be entered to indicate the preferred sequence. Identify any intervening steps necessary on the form or in a separate attachment.
10	Site Map	Draw a rough site map. Ensure all the information listed is identified on the map.
11	Potential Emergencies	Identify any potential emergencies that may occur. If none, so state. Check off the appropriate alarms that may be used. Identify emergency prevention and evacuation procedures in the space provided or on a separate attached sheet.
12	Communications	Indicate type of site communications (phone, radio). Indicate phone numbers or frequencies for the command, tactical and entry functions.
13	Site Security	Identify the personnel assigned. Identify security procedures in the space provided or on a separate attached sheet. Identify the equipment needed to support security operations.
14.	Emergency Medical	Identify the personnel assigned. Identify emergency medical procedures in the space provided or on a separate attached sheet. Identify the equipment needed to support security operations.
15.	Prepared by:	Enter the name and position of the person completing the worksheet.
16.	Date/time briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

EMERGENCY SITE NON-HAZARDOUS ASSESSMENT FORM	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Attachments: **Y** on **N**
5. *SCENE CONTACTS*:	Name of Group/Branch or Division:	Safety Officer:	Staging Manager:	OSC:
6.a. Physical Hazards Onsite	6.b. Confined Space ☐ Noise ☐ Heat Stress ☐ Cold Stress ☐ Electrical ☐ Animal/Plant/Insect ☐ Ergonomic ☐ Ionizing Rad ☐ Slips/Trips/Falls ☐ Struck by ☐ Water ☐ Violence ☐ Excavation ☐ Biomedical waste and/or needles ☐ Fatigue ☐ Other (specify)			

6.c. Work Assignments/ Job Tasks	6d Electrical Hazard	6.e. Eye /Face Hazards	6f. Ear Protection	6g. Foot Protection (type)	6.h. Hard Hats	6i. Clothing (cold/hot wx)	6j. Life Vest	6l. Work /Rest (hrs)	6.m. Fluids (amt/time	6.n. Signs & Barricade	6.p. Fall Hazard	6.q. Security Issues	6.r. Hand Protection (Gloves)	6.s. Other

7. Comments:

EMERGENCY SITE NON-HAZARDOUS ASSESSMENT FORM (CONT'D)	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Attachments: **Y** or **N**

8. Any Reported Illnesses or Injuries: **Y** or **N**
If so, what type of Injury: Location of Injury:

Was this recorded on CG-209 ? **Y** or **N** Was the persons Agency informed of injury: **Y** or **N**

9. Site Map. Include: Work Zones, Locations of Hazards, Security Perimeter, Places of Refuge, Decontamination Line, Evacuation Routes, Assembly Point, Direction of North ☐ Attached, ☐ Drawn Below:

10.a. Potential Emergencies:	10.b. Evacuation Alarms:	10.c Emergency Prevention and Evacuation Procedures:
Fire ☐ Explosion ☐ _____ Other ☐	Horn ☐ # Blasts ☐ Bells ☐ #Rings ☐ Radio Code ☐ Other:	Safe Distance:

11. a. Communications:	11.b. Command #:	11.c. Tactical #:	11 d. Staging Area #:
Radio ☐ Phone ☐ Other ☐			

12.a. Emergency Medical:	12.b. Procedures:	12.c Equipment:
Personnel Assigned		

13. Prepared by:	14. Date/Time Briefed:	**ICS-208-CG SSP-A2 Non-Hazardous Page 2 (rev 4/15):**
		Page _____ of _____

EMERGENCY SITE NON-HAZARD ASSESSMENT FORM(ICS-208-CG SSP-A2)

Purpose: The Emergency Site Non-Hazard Assessment Form provides the Safety Officer and ICS personnel a plan for safeguarding personnel during the initial emergency phase of the response when an *uncontrolled release is **NOT present***. It is also intended to meet the requirements of the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation, Title 29 Code of Federal Regulations Part 1910.120.

Preparation: The Safety Officer or his/her Assistant Safety Officer will start the Emergency Site Non-Hazard Assessment Form. They initially address the possibility for employee/worker exposure to safety and health hazards in all operations involved in the response (initial site characterization). Outside support organizations must be contacted to ensure the plan is consistent with other plans (local, state, other federal plans). When the operation proceeds into the post-emergency phase (site stabilized and cleanup operations begun) forms ICS-208-CG SSP-B and ICS-208-CG SSP-G should be used. For large incidents, the Emergency Site Non-Hazard Assessment Form will complement the Incident Action Plan. For smaller incidents, the Emergency Site Non-Hazard Assessment Form will complement ICS-201 form.

Distribution: The Emergency Site Non-Hazard Assessment Form completed by the Safety Officer is forwarded to the Planning Section Chief. Copies are made and attached to the Assignment List(s) (ICS Form 204). The Operations Section Chief, DIVS (Division/Group Supervisor), Supervisors or Leaders get a copy of the plan. They must ensure it is available on site for all personnel to review. The Safety Officer is responsible for ensuring that the Emergency Site Non-Hazard Assessment Form properly addresses the hazards of the operation. The Safety Officer accomplishes this through on site enforcement and feedback to the operational units.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Attachments	Enter attachments. Injury Logs or reports, Any required supplies or PPE (CG213RR), and any Safe Practices initiated.
5	Scene Contacts	Area Assessed. List the personnel responsible for these positions. IC and Safety Officer are mandatory.
6	Physical Hazards Onsite & Protection	Check off the physical hazards at the site. Identify the major tasks involved in the response (skimming, lightering, over packing, etc.). Check off the controls that would be used to safeguard workers from the physical hazards for each major task.
7	Comments	Other Physical Hazards seen. Suggested Control Measures. CG213RR order number assigned to a Control Measure to safeguard workers
8	Any Reported Illnesses or Injuries	Any Illnesses or Injuries in Assessed Area? If so, what was the Illness or Injury? Was an ICS CG209 (Incident Status Summary) filled out or updated? Was the persons Agency informed?
9	Site Map	Draw a rough site map. Ensure all the information listed is identified on the map.

10	Potential Emergencies	Identify any potential emergencies that may occur. If none, so state. Check off the appropriate alarms that may be used. Identify emergency prevention and evacuation procedures in the space provided or on a separate attached sheet.
11	Communications	Indicate type of site communications (phone, radio). Indicate phone numbers or frequencies for the command, tactical and entry functions.
12.	Emergency Medical	Identify the personnel assigned. Identify emergency medical procedures in the space provided or on a separate attached sheet. Identify the equipment needed to support security operations.
13.	Prepared by:	Enter the name and position of the person completing the worksheet.
14.	Date/time briefed:	Enter the date/time the document was briefed to the appropriate workers/IMT members and by whom.

CG ICS SITE SAFETY PLAN (SSP) HAZARD IDENTIFICATION/ EVAL/CONTROL	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact):
5. Supervisor/Leader	6. Location and Size of Site	7. Site Accessibility Land☐ Water☐ Air ☐ Comments:	8. For Emergencies Contact:	9. Attachments: **Attach MSDS for each Chemical OR CG 213RR for Ordering items from Block 10.e.**

10.a. Job Task/Activity	10.b. Hazards* ⇨	10.c. Potential Injury & Health Effects	10.d. Exposure Routes	10.e. Controls: Engineering, Administrative, PPE
			Inhalation ☐ Absorption ☐ Ingestion ☐ Injection ☐ Membrane ☐ ☐	
			Inhalation ☐ Absorption ☐ Ingestion ☐ Injection ☐ Membrane ☐ ☐	
			Inhalation ☐ Absorption ☐ Ingestion ☐ Injection ☐ Membrane ☐ ☐	
			Inhalation ☐ Absorption ☐ Ingestion ☐ Injection ☐ Membrane ☐ ☐	
			Inhalation ☐ Absorption ☐ Ingestion ☐ Injection ☐ Membrane ☐ ☐	

11. Prepared By:	12. Date/Time Briefed:	***HAZARD LIST**: Physical/Safety, Toxic, Explosion/Fire, Oxygen Deficiency, Ionizing Radiation, Biological, Biomedical, Electrical, Heat Stress, Cold Stress, Ergonomic, Noise, Cancer, Dermatitis, Drowning, Fatigue, Vehicle, & Diving	**ICS-208-CG SSP-B (rev 4/15):** Page _____ of _____

SITE SAFETY PLAN (FORM ICS-208-CG SSP-B)

Purpose: The Site Safety Plan provides the Safety Officer and ICS personnel a plan for safeguarding personnel during the post-emergency phase of an incident. The post-emergency phase is when the situation is stabilized and cleanup operations have begun. ICS-208-CG SSP-B is intended to meet the requirements of the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation, Title 29 Code of Federal Regulations Part 1910.120.

Preparation: The Safety Officer or his/her designated staff starts the Site Safety Plan. They initially address the hazards common to all operations involved in the response (initial site characterization). The plan is then reproduced and as a minimum sent to ICS Group/Division Supervisors. They amend it according to unique job or on-scene hazards with support from the Safety Officer and/or his/her staff (detailed site characterization). The plan is continuously updated to address changing conditions. During the first hours of the response, where most response functions are in the emergency phase, the Safety Officer may chose to use the Emergency Safety and Response Plan (ICS-208-CG SSP-A) in place of the Site Safety Plan. For large incidents, ICS-208-CG SSP-B compliments the Incident Action Plan (IAP). For smaller incidents, ICS-208-CG SSP-B compliments ICS Form 201. The Safety Officer is encouraged to use the HAZWOPER Compliance Checklist (Form ICS-208-CG SSP-K) to ensure the IAP and the 201 address the requirements and all other pertinent ICS forms (203, 205, 206, etc.) are completed.

Distribution: The initial Site Safety Plan completed by the Safety Officer is forwarded to the Planning Section Chief. Copies are made and attached to the Assignment List(s) (ICS Form 204). The Operations Section Chief, Directors, Supervisors or Leaders get a copy and make on site amendments specific to their operation. They must also ensure it is available on site for all personnel to review. The Safety Officer provides personnel from his/her staff to assist in the detailed site characterization. The Safety Officer is responsible for ensuring that the Site Safety Plan for each assignment properly addresses the hazards of the assignment. The Safety Officer must ensure that the safety plans on site are consistent. The Safety Officer accomplishes this through on site enforcement and feedback to the operational units.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Group/Division Supv Strike Team/TF Leader	The Supervisor/Leader who receives this form will enter their name here.
6	Location & size of site	Enter the geographical location of the site and the approximate square area.
7	Site Accessibility	Check the block(s) if the site is accessible by land, water, air, etc.
8	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
9	Attachments	Enter attachments. Material Safety Data Sheets are mandatory under 1910.120. Safe Work Practices may also be attached.
10	Job/Task Activity	Enter Job/Task & Activities, list hazards, list potential injury and health effects, check exposure routes and identify controls. If more detail is needed for controls, provided attachments.
11	Prepared by	Enter the name and position of the person completing the worksheet.
12	Date/Time Briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

CG ICS SSP: SITE MAP	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact) :
5. Supervisor/Leader	6. Location and Size of Site	7. Site Accessibility Land☐ Water☐ Air ☐ Comments:	8. For Emergencies Contact:	9. Include: - Work Zones - Locations of Hazards - Security Perimeter - Places of Refuge - Decontamination Line - Evacuation Routes
10. Sketch of Site: ☐ Attached. ☐ Drawn Here				
11. Prepared By:	12. Date/Time Briefed:	**HAZARD LIST**: Physical/Safety, Toxic, Explosion/Fire, Oxygen Deficiency, Ionizing Radiation, Biological, Biomedical, Electrical, Heat Stress, Cold Stress, Ergonomic, Noise, Cancer, Dermatitis, Drowning, Fatigue, Vehicle, & Diving		**ICS-208-CG SSP-C (rev 4/15):** Page _____ of _____

SITE MAP FOR SITE SAFETY PLAN (ICS-208-CG SSP-C)

Purpose: The Site Map for the Site Safety Plan is required by Title 29 Code of Federal Regulations Part 1910.120. It provides in 1 place a visual description of the site which can help ICS personnel locate hazards, identify evacuation routes and places of refuge.

Preparation: The Site Map for the Site Safety Plan can be completed by the Safety Officer, his/her staff or by ICS field personnel (Group Supervisors, Task Force/Strike Team Leaders) working at a site with unique and specific hazards. One or several maps may be developed, depending on the size of the incident and the uniqueness of the hazards. The key is to ensure that the workers using the map(s) can clearly identify the work zones, locations of hazards, evacuation routes and places of refuge.

Distribution: This form must be located with the Site Safety Plan (ICS-208-CG SSP-B). It therefore follows the same distribution route.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
6	Location & size of site	Enter the geographical location of the site and the approximate square area.
7	Site Accessibility	Check the block(s) if the site is accessible by land, water, air, etc.
8	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
9	Include	Ensure the map includes the listed items provided in this block.
10	Sketch of Site	Sketch of site for work. May attach map or chart.
10	Prepared by	Enter the name and position of the person completing the worksheet.
11	Date/Time Briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

CG ICS SSP: EMERGENCY RESPONSE PLAN	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact):
5. Supervisor/Leader	6. Location and Size of Site	7. For Emergencies Contact:		8. Attachments: **INCLUDE ICS FORM 206 and EMT Medical Response Procedures**
9. Emergency Alarm (sound and location)	10. Backup Alarm (sound and location)	11. Emergency Hand Signals	12. Emergency Personal Protective Equipment Required:	
13. Emergency Notification Procedures	14. Places of Refuge (also see site map form 208B)	15. Emergency Decon and Evacuation Steps	16. Site Security Measures	
17. Prepared By:	18. Date/Time Briefed:	**HAZARD LIST**: Physical/Safety, Toxic, Explosion/Fire, Oxygen Deficiency, Ionizing Radiation, Biological, Biomedical, Electrical, Heat Stress, Cold Stress, Ergonomic, Noise, Cancer, Dermatitis, Drowning, Fatigue, Vehicle, & Diving	**ICS-208-CG SSP-D (rev 4/15)** Page _____ of _____	

EMERGENCY RESPONSE PLAN (ICS-208-CG SSP-D)

Purpose: The Emergency Response Plan provides information on measures to be taken in the event of an emergency. It is used in conjunction with the Site Safety Plan (Form ICS-208-CG SSP-B). It is also required by Title 29 Code of Federal Regulations Part 1910.120.

Preparation: The Safety Officer, his/her staff member or the Site Supervisor/Leader prepares the Emergency Response Plan. A copy of the Medical Plan (ICS Form 206) must always be attached to this form.

Distribution: This form must be located with Site Safety Plan (ICS-208-CG SSP-B). It therefore follows the same distribution route.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
6	Location & size of site	Enter the geographical location of the site and the approximate square area.
7	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
8	Attachments	Enter attachments. ICS Form 206 must be included.
9	Emergency Alarm	Enter a description of the sound of the emergency alarm and it's location.
10	Backup Alarm	Enter a description of the sound of the emergency alarm and it's location.
11	Emergency Hand Signals	Enter the emergency hand signals to be used.
12	Emergency Personal Protective Equipment Required	Enter the emergency personal protective equipment that may be needed in the event of an emergency.
13	Emergency Notification Procedures	Enter the procedures for notifying the appropriate personnel and organizations in the event of an emergency.
14	Places of Refuge	Enter by name the place of refuge personnel can go to in the event of an emergency.
15	Emergency Decon & Evacuation Steps	Enter emergency decontamination steps and evacuation procedures.
16	Site Security Measures	Enter site security measures needed for emergencies.
17	Prepared by	Enter the name and position of the person completing the worksheet.
18	Date/Time Briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

CG ICS SSP: Exposure Monitoring Plan	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact):

5. Specific Task/Operation	6. Survey Location	7. Survey Date/Time	8. Monitoring Methodology	9. Direct-Reading Instrument	10. Air Sampling/ Analysis Method	11. Hazard(s) to Monitor	12. Monitoring Duration	13. Reasons to Monitor	14. Laboratory Support for Analysis
			☐ Personal Breathing Zone ☐ Area Air Monitoring ☐ Dermal Exposure ☐ Biological: ☐ Blood ☐ Urine ☐ Other ☐ Obtain bulk samples ☐ Other: _____	Model: Manufacturer: Last Mfr Calibration Date:	Method: Collecting Media: ☐ Charcoal Tube ☐ Silica Gel ☐ 37 mm MCE Filter ☐ 37 mm PVC Filter ☐ Other:_____			☐ Regulatory Compliance ☐ Assess current PPE adequacy ☐ Validate engineering controls ☐ Monitor IDLH Conditions ☐ Other_____	
			☐ Personal Breathing Zone ☐ Area Air Monitoring ☐ Dermal Exposure ☐ Biological: ☐ Blood ☐ Urine ☐ Other ☐ Obtain bulk samples ☐ Other: _____	Model: Manufacturer: Last Mfr Calibration Date:	Method: Collecting Media: ☐ Charcoal Tube ☐ Silica Gel ☐ 37 mm MCE Filter ☐ 37 mm PVC Filter ☐ Other:_____			☐ Regulatory Compliance ☐ Assess current PPE adequacy ☐ Validate engineering controls ☐ Monitor IDLH Conditions ☐ Other_____	
			☐ Personal Breathing Zone ☐ Area Air Monitoring ☐ Dermal Exposure ☐ Biological: ☐ Blood ☐ Urine ☐ Other ☐ Obtain bulk samples ☐ Other: _____	Model: Manufacturer: Last Mfr Calibration Date:	Method: Collecting Media: ☐ Charcoal Tube ☐ Silica Gel ☐ 37 mm MCE Filter ☐ 37 mm PVC Filter ☐ Other:_____			☐ Regulatory Compliance ☐ Assess current PPE adequacy ☐ Validate engineering controls ☐ Monitor IDLH Conditions ☐ Other_____	
			☐ Personal Breathing Zone ☐ Area Air Monitoring ☐ Dermal Exposure ☐ Biological: ☐ Blood ☐ Urine ☐ Other ☐ Obtain bulk samples ☐ Other: _____	Model: Manufacturer: Last Mfr Calibration Date:	Method: Collecting Media: ☐ Charcoal Tube ☐ Silica Gel ☐ 37 mm MCE Filter ☐ 37 mm PVC Filter ☐ Other:_____			☐ Regulatory Compliance ☐ Assess current PPE adequacy ☐ Validate engineering controls ☐ Monitor IDLH Conditions ☐ Other_____	

15. Prepared By:	16. Date/Time Briefed:	**HAZARD LIST**: Potential Health Effects: Bruise/Lacerations, Organ Damage, Central Nervous System Effects, Cancer, Reproductive Damage, Low Back Pain, Temporary Hearing Loss, Dermatitis, Respiratory Effects, Bone Breaks, & Eye Burning

18. Safety Officer Review:	Reporting: Monitoring results shall be logged in the ICS-208-CG SSP-E-1 form (Air Monitoring Log) and attached as part of a current Site Safety Plan and Incident Action Plan. Significant Exposures shall be immediately addressed to the IC and General Staff for immediate correction.	**ICS-208-CG SSP-E (rev 4/15)** Page _____ of _____

EXPOSURE MONITORING PLAN (FORM ICS-208-CG SSP-E)

Purpose: The Exposure Monitoring Plan provides plan of monitoring conducted during an incident. The plan is a supplement to the Site Safety Plan (ICS-208-CG SSP-B). It is only required when performing monitoring operations.

Preparation: The Safety Officer, his/her staff member or the Site Supervisor/Leader prepares the Exposure Monitoring Plan. If there is a decision not to monitor during a response, the reasons must be stated clearly in the Site Safety Plan (ICS-208-CG SSP-B).

Distribution: This form must be located with Site Safety Plan (ICS-208-CG SSP-B). It therefore follows the same distribution route.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Specific Task / Operation	Enter specific task or operation.
6	Survey Location	Enter the location to be monitored.
7	Survey Date/Time	Enter the date/time for the monitoring teams to survey.
8	Monitoring Methodology	Enter/Check the monitoring method to be used.
9	Direct-Reading Instrument	Enter the instrument model, manufacturer, last calibration date.
10	Air Sampling	Enter Air Sampling analysis method
11	Hazards to Monitor	Enter the hazards to monitor
12	Monitoring Duration	Enter duration of monitoring
13	Reasons to Monitor	Enter Reasons to Monitor
14	Laboratory Support for Analysis	Enter Laboratory Support needed for analysis of samples
15	Prepared by	Enter the name and position of the person completing the worksheet.
16	Date/Time Briefed	Enter the date/time the document was briefed to the appropriate workers and by whom.
17	Safety Officer Review	The Safety Officer must review and sign the form.

CG ICS SSP: AIR MONITORING LOG	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact)	
5. Site Location	6. Hazards of Concern	7. Action Levels (include references):		8. Weather: Air Temperature: Water Temp: Precipitation: Wind: Relative Humidity: Cloud Cover:	
9.a. Instrument, ID Number Calibrated? Indicate below.	9.b. Monitoring Person Name(s)	9.c. Results (units)	9.d. Location	9.f. Time	9.g. Interferences and Comments
10. Safety Officer Review:		Potential Health Effects: Bruise/Lacerations, Organ Damage, Central Nervous System Effects, Cancer, Reproductive Damage, Low Back Pain, Temporary Hearing Loss, Dermatitis, Respiratory Effects, Bone Breaks, & Eye Burning		**ICS-208-CG SSP-E-1 (rev 4/15):** Page _____ of _____	

DAILY AIR MONITORING LOG (FORM ICS-208-CG SSP-E-1)

Purpose: The Exposure Monitoring Log provides documentation of air monitoring conducted during a spill. The log is a supplement to the Site Safety Plan (ICS-208-CG SSP-B). It is only required when performing air monitoring operations. The information used from the log can help update the Site Safety Plan.

Preparation: Persons conducting monitoring complete the Daily Air Monitoring Log. Normally these are air monitoring units under the Site Safety Officer. If there is a decision not to monitor during a spill, the reasons must be stated clearly in the Site Safety Plan (ICS-208-CG SSP-B).

Distribution: The Daily Air Monitoring Log when completed is copied and forwarded to the Site Safety Officer who must review and sign the form. The original form must be available on site, readily available and briefed to all impacted ICS personnel.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Location & size of site	Enter the geographical location of the site and the approximate square area.
6	Hazards of Concern	Enter the hazards being monitored.
7	Action Levels	Enter the action levels/readings for the monitoring teams.
8	Weather	Enter weather information. Ensure units of measure are listed.
9	Air Monitoring Data	Enter the instrument type and number, persons monitoring, results with appropriate units, location of reading, time of reading and interferences and comments.
10	Safety Officer Review	The Safety Officer must review and sign the form.

CG ICS SSP: PERSONAL PROTECTIVE EQUIPMENT	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact):
5. Supervisor/Leader	6. Location and Size of Site	7. Hazards Addressed:	8. For Emergencies Contact:	

9. Equipment:				10. References Consulted:

11. Inspection Procedures:	12. Donning Procedures:	13. Doffing Procedures:	14. Limitations and Precautions (include maximum stay time in PPE):

15. Prepared By:	16. Date/Time Briefed:	Potential Health Effects: Bruise/Lacerations, Organ Damage, Central Nervous System Effects, Cancer, Reproductive Damage, Low Back Pain, Temporary Hearing Loss, Dermatitis, Respiratory Effects, Bone Breaks, Eye Burning	**ICS-208-CG SSP-F: (Rev 4/15)** Page _____ of _____

PERSONAL PROTECTIVE EQUIPMENT (ICS-208-CG SSP-F)

Purpose: The Personal Protective Equipment form is a list of personal protective equipment to be used in operations. The listing of personal protective equipment is required by Title 29 Code of Federal Regulations Part 1910.120.

Preparation: The Personal Protective Equipment form is completed by the Site Safety Officer, or his/her staff. Personal protective equipment common to all ICS Operations personnel is addressed first. Jobs with unique personal protective equipment requirements (fall protection) are addressed next. When the form is delivered on site, the ICS Director, Supervisor, or Leader may amend the list to ensure personnel are adequately protected from job hazards. It must be completed prior to the onset of any operations, unless addressed elsewhere by Standard Operating Procedures.

Distribution: This form must be located with Site Safety Plan (ICS-208-CG SSP-B). It therefore follows the same distribution route.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
6	Location & size of site	Enter the geographical location of the site and the approximate square area.
7	Hazard(s) Addressed:	Enter the hazards that need to be safeguarded.
8	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
9	Equipment	List the equipment needed to address the hazards. If pre-designed Safe Work Practices are used, indicate here and attach to form.
10	References consulted	List the references used in making the selection for PPE.
11	Inspection Procedures	Enter the procedures for inspecting the Personal Protective Equipment prior to donning. If pre-designed Safe Work Practices are used, indicate here and attach to form.
12	Donning Procedures	Enter the procedures for putting on the PPE. If pre-designed Safe Work Practices are used, indicate here and attach to form.
13	Doffing Procedures	Enter the information for removing the PPE. If pre-designed Safe Work Practices are used, indicate here and attach to form.
14	Limitations and Precautions	List the limitations and precautions when using PPE. Include the maximum time to be inside the PPE, Heat Stress concerns, psychomotor skill detraction and other factors.
15	Prepared by	Enter the name and position of the person completing the worksheet.
16	Date/Time Briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

CG ICS SSP: DECONTAMINATION	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact):
5. Supervisor/Leader	6. Location and Size of Site	7. For Emergencies Contact:	8. Hazard(s) Addressed:	

9. Equipment:				10. References Consulted:

11. Contamination Avoidance Practices:	12. Decon Diagram: ☐ Attached, ☐ Drawn below	13. Decon Steps

14. Prepared By:	15. Date/Time Briefed:	Potential Health Effects: Bruise/Lacerations, Organ Damage, Central Nervous System Effects, Cancer, Reproductive Damage, Low Back Pain, Temporary Hearing Loss, Dermatitis, Respiratory Effects, Bone Breaks, Eye Burning	**ICS-208-CG SSP-G (rev 4/15):** Page _____ of _____

DECONTAMINATION (ICS-208-CG SSP-G)

Purpose: The Decontamination form provides information on how workers can avoid contamination and how to get decontaminated. It is a supplemental form to the Site Safety Plan.

Preparation: The Decontamination Form can be completed by the Site Safety Officer, a member of his/her staff or by the Group/Division Supervisor, Task Force/Strike Team Leader on the site

Distribution: This form must be located with Site Safety Plan (ICS-208-CG SSP-B). It therefore follows the same distribution route.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
6	Location & size of site	Enter the geographical location of the site and the approximate square area.
7	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
8	Hazard(s) Addressed:	Enter the hazards that need to be safeguarded.
9	Equipment	Enter the decontamination equipment needed for the site. If pre-designed Safe Work Practices are used, indicate here and attach to this form.
10	References consulted	List the references used in making the selection for PPE.
11	Contamination Avoidance Practices	Enter procedures for personnel to avoid contamination. If pre-designed Safe Work Practices are used, indicate here and attach to form.
12	Decon Diagram	Draw a diagram for the decontamination operation. If pre-designed Safe Work Practices are used, indicate here and attach to form.
13	Decon Steps	List the decontamination steps.
14	Prepared by	Enter the name and position of the person completing the worksheet.
15	Date/Time Briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

CG ICS SSP: ENFORCEMENT LOG	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact)	
5. Supervisor/Leader	6. For Emergencies Contact:			7. Attachments:	
8.a. Job Task/Activity	8.b. Hazards	8.c. Deficiency	8.d. Action Taken	8.e. Safety Plan Amended?	8.f. Signature of Supervisor/Leader
9. Prepared By:	10. Date/Time Briefed:	**HAZARD LIST**: Physical/Safety, Toxic, Explosion/Fire, Oxygen Deficiency, Ionizing Radiation, Biological, Biomedical, Electrical, Heat Stress, Cold Stress, Ergonomic, Noise, Cancer, Dermatitis, Drowning, Fatigue, Vehicle, & Diving			**ICS-208-CG SSP-H (rev 4/15):** Page _____ of _____

SITE SAFETY ENFORCEMENT LOG (ICS-208-CG SSP-H)

Purpose: The Site Safety Plan Enforcement Log is used to help enforce safety during an incident.

Preparation: The Safety Officer and/or his/her staff complete the Site Safety Plan Enforcement Log. The log is completed as Safety personnel are on scene reviewing the site. It should be completed at a minimum once per day. The number of enforcement logs to be completed depends on the size of the incident. Enough should be completed to ensure that site safety is being adequately enforced.

Distribution: The Site Safety Plan enforcement log when completed is delivered to the Safety Officer. The Safety Officer can use the form to amend the Site Safety Plan (ICS-208-CG SSP-A or B).

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact
5	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
6	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
7	Attachments	List any attached supporting documentation.
8 a	Job/Task Activity	Enter only those Job Task/activities for which a deficiency is noted.
8 b	Hazards	Enter the hazard not being sufficiently addressed.
8 c	Deficiency	Enter the deficiency.
8 d	Action Taken	Enter the corrective action taken to address the deficiency.
8 e	Safety Plan Amended?	Enter whether the on site safety plan was amended.
8 f	Signature of Supervisor/Leader	Ensure the Supervisor/Leader signs the form to acknowledge the deficiency.
9	Prepared by	Enter the name and position of the person completing the worksheet.
10	Date/Time Briefed:	Enter the date/time the document was briefed to the appropriate workers and by whom.

CG ICS SSP WORKER ACKNOWLEDGEMENT FORM	1. Incident Name	2. Site Location:	3. Attachments:	
4. Type of Briefing	5. Presented By:		6. Date Presented	7. Time Presented
Safety Plan/Emergency Response Plan ☐ Start Shift ☐ Pre-Entry ☐ Exit ☐ End of Shift ☐ Specify Other:				
8.a. Worker Name (Print)	8.b. Signature*		8.c. Date	8.d. Time

* *By signing this document, I am stating that I have read and fully understand the plan and/or information provided to me.*

WORKER ACKNOWLEDGEMENT FORM (ICS-208-CG SSP-I)

Purpose: The Worker Acknowledgement form is used to document workers who have received safety briefings.

Preparation: Those personnel responsible for conducting safety briefings complete this form initially. Once the briefings are completed, workers who were briefed print their name, sign, date and indicate the time of the briefing.

Distribution: This form is returned to the Safety Officer or designated representative at the end of each operational period.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Site Location	Indicate the location where the briefings are held.
3	Attachments	Indicate any attachments used as part of the briefings.
4	Type of briefing	Check the block next to the type of briefing.
5	Presented by	Enter the name of the person conducting the briefing.
6	Date Presented	Enter the date of the briefing.
7	Time Presented	Enter the time of the briefing.
8	Worker Name, Signature, Date and Time	Workers receiving the briefing print their name, sign, date and enter the time they acknowledge the briefing.

CG ICS SSP: Emergency Safety & Response Plan 1910.120 Compliance Checklist (Form A)	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Site Supervisor/Leader	5. Location of Site

6.a. Cite: 1910.120	6.b. Requirement(sections that duplicate or explain are omitted)	6.c. ICS Form	6.d. Check	6.e. Comments
(**q**)(1)	Is the plan in writing?	SSP-A	☐	
(1)	Is the plan available for inspection by employees?	N/A	☐	Performance based
(**q**)(2)(i)	Does the plan address pre-emergency planning and coordination?	SSP-A	☐	
(ii)	Does it address personnel roles?	SSP-A	☐	
(ii)	Does it address lines of authority?	SSP-A	☐	
(ii)	Does it address communications?	SSP-A	☐	
(iii)	Does it address emergency recognition?	SSP-A	☐	
(iii)	Does it address emergency prevention?	SSP-A	☐	
(iv)	Does it identify safe distances?	SSP-A	☐	
(iv)	Does it address places of refuge?	SSP-A	☐	
(v)	Does it address site security and control?	SSP-A	☐	
(vi)	Does it identify evacuation routes?	SSP-A	☐	
(vi)	Does it identify evacuation procedures?	SSP-A	☐	
(vii)	Does it address decontamination?	SSP-A	☐	
(viii)	Does it address medical treatment and first aid?	SSP-A	☐	
(ix)	Does it address emergency alerting procedures?	SSP-A	☐	
(ix)	Does it address emergency response procedures	SSP-A	☐	
(x)	Was the response critiqued?	N/A	☐	Performance based
(xi)	Does it identify Personal Protection Equipment?	SSP-A	☐	
(xi)	Does it identify emergency equipment?	SSP-A	☐	
(**q**)(3)(ii)	All the hazardous substances identified to the extent possible?	N/A	☐	Performance based
(ii)	All the hazardous conditions identified to the extent possible?	N/A	☐	Performance based
(ii)	Was site analysis addressed?	N/A	☐	Performance based
(ii)	Were engineering controls addressed?	N/A	☐	Performance based
(ii)	Were exposure limits addressed?	N/A	☐	Performance based
(ii)	Were hazardous substance handling procedures addressed?	N/A	☐	Performance based
(iii)	Is the PPE appropriate for the hazards identified?	N/A	☐	Performance based
(iv)	Is respiratory protection worn when inhalation hazards present?	N/A	☐	Performance based
(v)	Is the buddy system used in the hazard zone?	N/A	☐	Performance based
(vi)	Are backup personnel on standby?	N/A	☐	Performance based
(vi)	Are advanced first aid support personnel standing by?	N/A	☐	Performance based
(vii)	Has the ICS designated safety official been identified?	SSP-A	☐	
(vii)	Has the Safety Official evaluated the hazards?	N/A	☐	Performance based
(viii)	Can the Safety Official communicate with IC immediately?	N/A	☐	Performance based
(ix)	Are appropriate decontamination procedures implemented?	N/A	☐	Performance based

Emergency Safety & Response Plan Compliance Checklist Form A (ICS-208-CG SSP-J)

Purpose: The Emergency Safety and Response Plan 1910.120 Compliance Checklist is to ensure that incident response operations are in compliance with Title 29, Code of Federal Regulations Part 1910.120, Hazardous Waste Operations and Emergency Response. It also identifies how form ICS-208-CG SSP-J can be used to satisfy the HAZWOPER requirements. This checklist is an optional form.

Preparation: The Emergency Safety and Response Plan 1910.120 Compliance Checklist is completed by the Safety Officer or his/her staff as frequently as necessary whenever the Safety Officer wants to ensure regulatory compliance. It is best used in conjunction with the Site Safety Plan Enforcement Log (ICS-208-CG SSP-H). Many of the requirements are performance based and are best evaluated on scene by the Safety Officer or his/her staff.

Distribution: The Safety Officer should maintain The Emergency Safety and Response Plan (ERP) 1910.120 Compliance Checklist.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
5	Location of Site	Enter the site location.
6 a	Cites	These are the regulatory cites within 1910.120. The major headings are highlighted in bold. Informational cites or cites that are duplicative are not included.
6 b	Requirement	This lists the requirement in a question format. Some require documentation or some form of action.
6 c	ICS Form	Lists those requirements covered by ICS-208-CG SSP-A.
6 d	Check Block	Enter the check if the site satisfies the requirement.
6 f	Comments	This provides additional information on the requirement. The user may also enter comments.
7	Prepared by	Enter the name and position of the person completing the worksheet.

CG ICS SSP: 1910.120 COMPLIANCE CHECKLIST (Form B)	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Site Supervisor/Leader	5. Location of Site

6.a. Cite: 1910.120	6.b. Requirement(sections that duplicate or explain are omitted)	6.c. ICS Form	6.d. Check	6.e. Comments
1910.120 (**b**)(1)(ii)(A)	Organizational structure?	203	☐	
(B)	Comprehensive workplan?	IAP	☐	Incident Action Plan
(C)	Site Safety Plan?	SSP-B	☐	
(D)	Safety and health training program?	N/A	☐	Responsibility of each employer
(E)	Medical surveillance program?	N/A	☐	Responsibility of each employer
(F)	Employer SOPs?	N/A	☐	Responsibility of each employer
(G)	Written program related to site activities?	N/A	☐	
(**b**)(1)(iii)	Site excavation meets shored or slope requirements in 1926?	N/A	☐	
(**b**)(2)(i)(D)	Lines of communication?	201 203 205	☐	
(**b**)3(iv)	Training addressed?	N/A	☐	Responsibility of each employer
(v)-(vi)	Information and medical monitoring addressed?	N/A	☐	Responsibility of each employer
(**b**)4(i)	Site Safety Plan kept on site?	N/A	☐	
(ii)(A)	Safety and health hazard analysis conducted?	N/A	☐	
(B)	Properly trained employees assigned to right jobs?	N/A	☐	
(C)	Personnel Protective Equipment issues addressed?	SSP-F	☐	
(E)	Frequency and types of air monitoring addressed?	SSP-E	☐	
(F)	Site control measures in place?	SSP-B	☐	
(G)	Decontamination procedures in place?	SSP-G	☐	
(H)	Emergency Response Plan in place?	SSP-D	☐	
(I)	Confined space entry procedures?	SSP-B	☐	
(J)	Spill containment program	SSP-B	☐	
(iii)	Pre-entry briefings conducted?	SSP-I	☐	
(iv)	Site Safety Plan effectiveness evaluated?	SSP-H	☐	
(**c**)(1)	Site characterization done?	N/A	☐	
(**c**)(2)	Preliminary evaluation done by qualified person?	N/A	☐	
(**c**)(3)	Hazard identification performed?	SSP-B	☐	
(**c**)(4)(i)	Location and size of site identified?	SSP-B	☐	
(ii)	Response activities, job tasks identified?	SSP-B	☐	
(iii)	Duration of tasks identified?	SSP-B	☐	Operational period
(iv)	Site topography and accessibility addressed?	SSP-C	☐	
(v)	Health and safety hazards addressed?	SSP-B	☐	
(vi)	Dispersion pathways addressed?	SSP-B	☐	
(vii)	Status and capabilities of medical emergency response teams?	206	☐	
(**c**)(5)(i)(iv)	Chemical protective clothing addressed and properly selected?	SSP-F	☐	
(ii)	Respiratory protection addressed?	SSP-B and F	☐	
(iii)	Level B used for unknowns?	N/A	☐	

CG ICS SSP: 1910.120 COMPLIANCE CHECKLIST (Form B)	1. Incident Name	2. Date/Time Prepared	3. Operational Period	
6.a. Cite: 1910.120	6.b. Requirement(sections that duplicate or explain are omitted)	6.c. ICS Form	6.d. Check	6.e. Comments
1910.120 (**c**)(6)(i)	Monitoring for ionization conducted?	SSP-E	☐	
(ii)	Monitoring conducted for IDLH conditions?	SSP-E	☐	
(iii)	Personnel looking out for dangers of IDLH environments?	N/A	☐	
(iv)	Ongoing air monitoring program in place?	SSP-E	☐	
(**c**)(7)	Employees informed of potential hazard occurrence?	SSP-B	☐	
(**c**)(8)	Properties of each chemical made aware to employees?	SSP-B	☐	
(**d**)(1)	Appropriate site control procedures in place?	IAP, SSP-B	☐	
(**d**)(2)	Site control program developed during planning stages?	IAP, SSP-B	☐	
(**d**)(3)	Site map, work zones, alarms, communications addressed?	IAP, SSP-B	☐	
(**g**)(1)(i)	Engineering, admin controls considered?	SSP-B	☐	
(iii)	Personnel not rotated to reduce exposures?	N/A	☐	
(**g**)(5)(i)	PPE selection criteria part of employer's program?	N/A	☐	Responsibility of employer
(ii)	PPE use and limitations identified?	SSP-F	☐	
(iii)	Work mission duration identified?	SSP-F	☐	
(iv)	PPE properly maintained and stored?	N/A	☐	Responsibility of employer
(vi)	Are employees properly trained and fitted with PPE?	N/A	☐	Responsibility of employer
(vii)	Are donning and doffing procedures identified?	SSP-F	☐	
(viii)	Are inspection procedures properly identified?	SSP-F	☐	
(ix)	Is a PPE evaluation program in place?	SSP-F	☐	
(**h**) (3)	Periodic monitoring conducted?	SSP-E	☐	
(**k**)(2)(i)	Have decontamination procedures been established?	SSP-G	☐	
(ii)	Are procedures in place for contamination avoidance?	SSP-G	☐	
(iii)	Is personal clothing properly deconned prior to leaving the site?	SSP-G	☐	
(iv)	Are decontamination deficiencies identified and corrected?	SSP-H	☐	
(**k**)(3)	Are decontamination lines in the proper location?	SSP-C	☐	
(**k**)(4)	Are solutions/equipment used in decon properly disposed of?	N/A	☐	
(**k**)(6)	Is protective clothing and equipment properly secured?	N/A	☐	
(**k**)(7)	If cleaning facilities are used, are they aware of the hazards?	N/A	☐	
(**k**)(8)	Have showers and change rooms provided, if necessary?	N/A	☐	
(**l**)(1)(iii)	Are provisions for reporting emergencies identified?	SSP-D	☐	
(iv)	Are safe distances and places of refuge identified?	SSP-B and C	☐	
(v)	Site security and control addressed in emergencies?	SSP-D	☐	
(vi)	Evacuation routes and procedures identified?	SSP-D	☐	
(vii)	Emergency decontamination procedures developed?	SSP-D	☐	
(ix)	Emergency alerting and response procedures identified?	SSP-D	☐	
(x)	Response teams critiqued and followup performed?	SSP-H	☐	
(xi)	Emergency PPE and equipment available?	SSP-D	☐	

CG ICS SSP: 1910.120 COMPLIANCE CHECKLIST (Form B)	1. Incident Name	2. Date/Time Prepared	3. Operational Period

6.a. Cite:	6.b. Requirement(sections that duplicate or explain are omitted)	6.c. ICS Form	6.d. Check	6.e. Comments
1910.120 (l)(3)(i)	Emergency notification procedures identified?	SSP-D	☐	
(ii)	Emergency response plan separate from Site Safety Plan?	SSP-D	☐	
(iii)	Emergency response plan compatible with other plans?	SSP-D	☐	
(iv)	Emergency response plan rehearsed regularly?	SSP-D	☐	
(v)	Emergency response plan maintained and kept current?	SSP-H	☐	
1910.165 (b)(2)	Can alarms be seen/heard above ambient light and noise levels?	N/A	☐	
(**b**)(3)	Are alarms distinct and recognizable?	N/A	☐	
(**b**)(4)	Are employees aware of the alarms and are they accessible?	SSP-D	☐	
(**b**)(5)	Are emergency phone numbers, radio frequencies clearly posted?	206	☐	
(**b**)(6)	Signaling devices in place where there are 10 or more workers?	IAP	☐	
(**c**)(1)	Are alarms like steam whistles, air horns being used?	IAP	☐	
(**d**)(3)	Are backup alarms available?	IAP	☐	
(m)	Are areas adequately illuminated?	IAP	☐	
(**n**)(1)(i)	Is an adequate supply of potable water available?	IAP	☐	
(ii)	Are drinking water containers equipped with a tap?	IAP	☐	
(iii)	Are drinking water containers clearly marked?	IAP	☐	
(iv)	Is a drinking cup receptacle available and clearly marked?	IAP	☐	
(**n**)(2)(i)	Are non-potable water containers clearly marked?	IAP	☐	
(**n**)(3)(i)	Are their sufficient toilets available?	IAP	☐	
(**n**)(4)	Have food handling issues been addressed?	IAP	☐	
(**n**)(6)	Have adequate wash facilities been provided outside hazard zone?	IAP	☐	
(**n**)(7)	If response is greater than 6 months, have showers been provided?	IAP	☐	

HAZWOPER 1910.120 COMPLIANCE CHECKLIST FORM B (ICS-208-CG SSP-K)

Purpose: The HAZWOPER 1910.120 Compliance Checklist is to ensure that incident response operations are in compliance with Title 29, Code of Federal Regulations Part 1910.120, Hazardous Waste Operations and Emergency Response. It also identifies how other ICS forms can be used to satisfy the HAZWOPER requirements. This is an optional form.

Preparation: The HAZWOPER 1910.120 Compliance Checklist is completed by the Safety Officer or his/her staff as frequently as necessary whenever the Safety Officer wants to ensure regulatory compliance. It is best used in conjunction with the Site Safety Plan Enforcement Log (ICS-208-CG SSP-H). The Site Safety Plan Forms (A-G) best meet some of the requirements. The Incident Action Plan is suited to address other requirements, and the Safety Officer should ensure the IAP addresses them. Other requirements are performance based and are best evaluated on scene by the Safety Officer or his/her staff.

Distribution: The HAZWOPER 1910.120 Compliance Checklist should be maintained by the Safety Officer.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
5	Location of Site	Enter the site location.
6.a.	Cites	These are the regulatory cites within 1910.120. The major headings are highlighted in bold. Informational cites or cites that are duplicative are not included.
6.b.	Requirement	This lists the requirement in a question format. Some require documentation or some form of action.
6.c.	ICS Form	Lists those ICS Forms that cover the requirement. **IAP designations means it should be covered in IAP, it does not guarantee it is covered. The Safety Officer must ensure this.**
6.d.	Check Block	Enter the check if the site satisfies the requirement.
6.e.	Comments	This provides information on where else the requirement may be met. The user may also enter comments.
7	Prepared by	Enter the name and position of the person completing the worksheet.

CG ICS SSP: 1910.120 DRUM COMPLIANCE CHECKSHEET	1. Incident Name	2. Date/Time Prepared	3. Operational Period	4. Safety Officer (include method of contact):
5. Supervisor/Leader	6. Location and Size of Site	7. For Emergencies Contact:	8. Note: tanks and vaults should also be treated in the same manner as described below [1910.120(j)(9)]. Many can also pose confined space hazards.	

9.a. Cite: 1910.120 (Cites that duplicate or explain requirements are omitted)	9.b. Requirement	9.c. Check	9.d. Comments
(**j**)(1)(ii)	Drums meet DOT, OSHA, EPA regs for waste they contain, including shipment?	☐	
(iii)	Drums inspected and integrity ensured prior to movement?	☐	
(iii)	Or drums moved to an accessible location (staging area) prior to movement?	☐	
(iv)	Unlabelled drums treated as unknown until properly identified and labeled?	☐	
(v)	Site activities organized to minimize drum handling?	☐	
(vi)	Employers properly warned about the hazards of moving and handling drums?	☐	
(vii)	Suitable overpack drums are available for addressing leaking and ruptured drums?	☐	
(viii)	Leaking materials from drums properly contained?	☐	
(ix)	Are drums that cannot be moved, emptied of contents with transfer equipment?	☐	
(x)	Are suspect buried drums surveyed with underground detection system?	☐	
(xi)	Are soil and covering material above buried drums removed with caution?	☐	
(xii)	Is the proper extinguishing equipment on scene to control incipient fires?	☐	
(**j**)(2)(i)	Are airlines on supplied air systems protected from leaking drums?	☐	
(ii)	Are employees at a safe distance, using remote equipment, when handling explosive drums?	☐	
(iii)	Are explosive shields in plane to protect workers opening explosive drums?	☐	
(iv)	Is response equipment positioned behind shields when shields are used?	☐	
(v)	Are non-sparking tools used in flammable or potentially flammable atmospheres?	☐	
(vi)	Are drums under extreme pressure opened slowly & workers protected by shields/distance?	☐	
(vii)	Are workers prohibited from standing and working on drums?	☐	
(**j**)(3)	Is the drum handling equipment positioned and operated to minimize sources of ignition?	☐	
(**j**)(5)(i)	For shock sensitive drums, have all non-essential employees been evacuated?	☐	
(ii)	For shock sensitive drums: is handling equipment provided with shields to protect workers?	☐	
(iii)	Are alarms that announce start/finish of explosive drum handling actions in place?	☐	
(iv)	Are continuous communications in place between the drum handling site & command post?	☐	
(v)	Are drums under pressure properly controlled for prior to handling?	☐	
(vi)	Are drums containing packaged laboratory wastes treated as shock sensitive?	☐	
(**j**)(6)(i)	Are lab packs opened by trained and experienced personnel?	☐	
(ii)	Are lab packs showing crystallization treated as shock sensitive?	☐	
(**j**)(8)(ii-iii)	Are drum staging areas manageable with marked access and egress?	☐	
(iv)	Is bulking of drums conducted only after drum contents have been properly identified?	☐	

10. Prepared By:	**Form SSP-L (rev 4/15)** Page _____ of _____

HAZWOPER 1910.120 DRUM COMPLIANCE CHECKLIST (ICS-208-CG SSP-L)

Purpose: The HAZWOPER 1910.120 Drum Compliance Checklist is to ensure that incident response operations are in compliance with Title 29, Code of Federal Regulations Part 1910.120, Hazardous Waste Operations and Emergency Response whenever drums are encountered during an incident. This is an optional form.

Preparation: The HAZWOPER 1910.120 Drum Compliance Checklist is completed by the Safety Officer or his/her staff as frequently as necessary whenever the Safety Officer wants to ensure regulatory compliance. It is best used in conjunction with the Site Safety Plan Enforcement Log (ICS-208-CG SSP-H). The Site Safety Plan Forms (A-G) best meet some of the requirements. Other requirements are performance based and are best evaluated on scene by the Safety Officer or his/her staff.

Distribution: The HAZWOPER 1910.120 Drum Compliance Checklist should be maintained by the Safety Officer.

Instructions:

Item #	Item Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Date/Time Prepared	Enter date (month, day, year) prepared.
3	Operational Period	Enter the time interval for which the assignment applies.
4	Safety Officer	Enter the name of the Safety Officer and means of contact.
5	Supervisor/Leader	The Supervisor/Leader who receives this form will enter their name here.
6	Location & size of site	Enter the geographical location of the site and the approximate square area.
7	For Emergencies Contact	Enter the name and way to contact the individual who handles emergencies.
8	Note	Tanks and vaults should also be treated in the same manner as described in the checklist (1910.120((j)(9)).
9.a.	Cites	These are the regulatory cites within 1910.120. The major headings are highlighted in bold. Informational cites or cites that are duplicative are not included.
9.b.	Requirement	This lists the requirement in a question format. Some require documentation or some form of action.
9.c.	Check Block	Enter the check if the site satisfies the requirement.
9.d.	Comments	This provides information on where else the requirement may be met. The user may also enter comments.
10	Prepared by	Enter the name and position of the person completing the worksheet.

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date / Time) From: To: Time of Report	INCIDENT STATUS SUMMARY ICS 209-CG

3. Type of Incident

☐	Oil Spill	☐	HAZMAT	☐	AMIO
☐	SAR/Major SART	☐	SI/Terrorism	☐	Natural Disaster
☐	Marine Disaster	☐	Civil Disturbance	☐	Military Outload
☐	Planned Event	☐	Maritime HLS/Prevention	☐	

4. Situation Summary as of Time of Report:

5. Future Outlook/Goals/Needs/Issues:

6. Safety Status/Personnel Casualty Summary

	Since Last Report	Adjustments To Previous Op Period	Total
Responder Injury			
Responder Death			
Public Missing (Active Search)			
Public Missing (Presumed Lost)			
Public Uninjured			
Public Injured			
Public Dead			
Total Public Involved			

7. Property Damage Summary

Vessel	$
Cargo	$
Facility	$
Other	$

8. Attachments with clarifying information

☐	Oil/HAZMAT	☐	SAR/LE	☐	
☐		☐		☐	
☐	Marine Disaster	☐	Civil Disturbance	☐	Military Outload

9. Equipment Resources					
Kind	Notes	# Ordered	# Available	# Assigned	# Out of Service
USCG Assets					
Aircraft – Helo					
Aircraft – Fixed Wing					
Vessels – USCG Cutter					
Vessels – Boat					
Vehicles – Car					
Vehicles – Truck					
Pollution Equip – VOSS/SORS					
Pollution Equip – Portable Storage					
Pollution Equip – Boom					
Non-CG/Other Assets					
Aircraft – Helo					
Aircraft – Fixed Wing					
Vessels – SAR/LE Boat					
Vessels – Work/Crew Boat					
Vessels – Tug/Tow Boat					
Vessels – Pilot Boat					
Vessels – Deck Barge					
Vessels –					
Vehicles – Car					
Vehicles – Ambulance					
Vehicles – Truck					
Vehicles – Fire/Rescue/HAZMAT					
Vehicles – Vac/Tank Truck					
Vehicles –					
Pollution Equip – Skimmers					
Pollution Equip – Tank Vsl/ Barge					
Pollution Equip – Portable Storage					
Pollution Equip – OSRV					
Pollution Equip – Boom					
Pollution Equip –					

10. Personnel Resources	
Agency	**Total # of People**
USCG	
DHS (other than USCG)	
NOAA	
FBI	
DOD (USN Supsalv, CST, etc.)	
DOI (US Fish & Wildlife, Nat Parks, BLM, etc.)	
RP	
State	
Local	
Total Personnel Resources Used From all Organizations:	

11. Prepared by:	**Date/Time Prepared:**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date / Time) From: To: Time of Report	ICS 209-CG OIL/HAZMAT ATTACHMENT

3. HAZMAT/Oil Spill Status (Estimated, in gallons)

Common Name(s):

UN Number:		Secured		Unsecured
		Remaining Potential (bbl):		
		Rate of Spillage (bbl/hr):		

	Adjustments To Previous Operational Period	Since Last Report	Total
Volume Spilled/Released			
Mass Balance - HAZMAT/Oil Budget			
Recovered HAZMAT/Oil			
Evaporation/Airborne			
Natural Dispersion			
Chemical Dispersion			
Burned			
Floating, Contained			
Floating, Uncontained			
Onshore			
Total HAZMAT/Oil accounted for:	N/A	N/A	

Comments:

4. HAZMAT/Oil Waste Management (Estimated, Since Last Report)

	Recovered	Disposed	Stored
HAZMAT/Oil (bbl)			
Oily Liquids (bbl)			
Liquids (bbl)			
Oily Solids (tons)			
Solids (tons)			

Comments:

5. HAZMAT/Oil Shoreline Impacts (Estimated in miles)

Degree of Impact	Affected	Cleaned	To Be Cleaned
Light			
Medium			
Heavy			
Total			

Comments:

6. HAZMAT/Oil Wildlife Impacts (Since Last Report)

					Died in Facility	
Type of Wildlife	Captured	Cleaned	Released	DOA	Euthanized	Other
Birds						
Mammals						
Reptiles						
Fish						
Total						

Comments:

7. Prepared by:	Date/Time Prepared:

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date / Time) From: To: Time of Report	ICS 209-CG SAR/LE ATTACHMENT

3. Evacuation Status

	Since Last Report	Adjustments To Previous Operational Period	Total
Total to be Evacuated			
Number Evacuated			

4. Migrant Interdiction Status

	Since Last Report	Adjustments To Previous Op Period	Total
Vessels Interdicted			
Migrants Interdicted at Sea			
Migrants Interdicted Ashore			
Injured			
MEDEVAC'd			
Deaths			
Migrants Repatriated			

5. Sorties/Patrols Summary (List of Sorties Since Last Report)

Air	Since Last Report	Total
Number of Sorties/Patrols		
Area Covered (square miles)		
Total Time On-Scene (In Hours)		
Surface	Since Last Report	Total
Number of Sorties/Patrols		
Area Covered (square miles)		
Total Time On-Scene (In Hours)		

6. Use of Force Summary

Category	Since Last Report	Total
III - Soft Empty Hand Control		
IV - Hard Empty Hand Control		
V - Intermediate Weapons		
VI - Deadly Force		
VSL - Force to Stop Vessel from Cutter/Boat		
A/C - Force to Stop Vessel From Aircraft		
Arrests		
Seizures		
Deaths		

7. Operational Controls Summary

Currently In Force

Type	Initiating Unit	Initiated Date	Activity #

Removed Since Last Report

Type	Initiating Unit	Initiated Date	Date Removed	Activity #

18. Prepared by:	Date/Time Prepared:

NRC Incident No. #_____

1.Incident Name	2. Operational Period (Date I Time) From: To:	STATUS CHANGE ICS 210-0S
3. Personnel / Resource Name or I.D.		
4. New status ☐ Available / staged ☐ Assigned ☐ Out of Service		
5. FROM Location or Status	6. TO Location or Status	
7. lime of Location / status Change		
8. Comments		
9. Prepared by:	Date / lime	
10.Processed by:(Resource Unit)	Date / lime	

Electronic version: NOAA 1.0 June 1, 2000

NRC Incident No. #_____

CHECK-IN LIST	1. INCIDENT NAME:	2. CHECK-IN LOCATION:	3. DATE/TIME:

CHECK-IN INFORMATION

4. LIST PERSONNEL (OVERHEAD) BY AGENCY NAME – OR LIST EQUIPEMENT BY THE FOLLOWING FORMAT:
S=Supplies H=Helicopter
O=Overhead VL=Vessels
E=Equipment C=Crew
A=Aircraft VH=Vehicle

AGENCY	RESOURCE IDENTIFIER	KIND	5. ORDER/ NUMBER	6. DATE/TIME CHECK-IN	7. LEADER'S NAME	8. TOTAL NO. PERSONNEL	9. INCIDENT CONTACT INFORMATION	10. INCIDENT LODGING INFO/CONTACT INFO	11. HOME UNIT	12. METHOD OF TRAVEL	13. INCIDENT ASSIGNMENT	14. SENT TO RESTAT TIME/INT

15. ICS 211-CG PAGE_____ of

16. PREPARED BY (Name and Position) USE BACK FOR REMARKS OR COMMENTS

1. Incident Name	2. Operational Period (Date/Time) From: To:	3. Check-in Location ☐ Command Post ☐ Other _____ ☐ Staging Area ___		CHECK-IN LIST (Personnel) ICS 211p-OS	
Personnel Check-In Information			8. Initial Check-in?	9. TIME	
4. Name	5. Company/Agency	6. ICS Section/Assignment/Quals.	(x)	IN	OUT
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
			☐		
10. Prepared by: Date/Time		11. Date/Time Sent to Resources Unit			
CHECK-IN LIST (Personnel)		June 2000			ICS 211p-OS

NRC Incident No. #_____

1. Incident Name	**2. Date and Time of Message**	**GENERAL MESSAGE ICS 213-CG**
3. TO:	ICS Position	
4. FROM:	ICS Position	
5. Subject:		
6. Message		
7. Reply		
8. Signature/Position (person replying)	**Date/Time of reply**	
GENERAL MESSAGE		ICS 213-CG (04/04)

Resource Request Message

Purpose: The 213RR CG is used by all incident personnel to request tactical and non-tactical resources.

ICS-213 RR CG (2/07)

Requestor

1. Incident Name:	2. Date/Time:	3. Resource Request No:

4. ORDER Note: Use additional forms when requesting different resource sources of supply

a. Qty.	b. Kind	c. Type	d. Priority U or R	e Detailed item description (Vital characteristics, brand, specs, experience, etc. & if applicable describe purpose/use, attach diagrams, & other amplifying info)	f. Requested Reporting Location:	f. Requested Reporting Date/Time:	g. Order # (LSC):	h. ETA (LSC):	i. Cost

5. Suggested source(s) of Supply - POC phone no. if known & suitable substitutes:	6. Requestor Position and Signature Date/Time:
	7. Section Chief/Command Staff Approval Date/Time:

Plans

8. RESL – Check box (a) if request is for tactical or personnel resources. Then note availability in box 8.b or 8.c.	a. ☐	b. ☐ Resources available as noted in block 12 c. ☐ Resources not available	9. RESL Review/Signature: Date/Time:

Logistics

10. Requisition/Purchase Order #	11. Supplier Name/Phone/Fax/Email:	13. Logistics Section Signature Date/Time:
12. Notes:		

14. Order placed by (check box):	☐ SPUL	☐ PROC	☐ OTHER _____

Finance

15. Reply/Comments from Finance:	16. Finance Section Signature Date/Time:

Full instruction on back page. Requestor fills in blocks 1-5, except #3 &#4.g-I (Shaded areas), signs block 6 (do not forget position), get appropriate Section Chief or Command Staff approval in block 7, and keeps yellow copy (bottom). If applicable, RESL review if resources abailable, signs block 9 and keeps blue copy. Logistics fills inblock 4.g & h, and blocks 10-13, and keeps orange copy. Orderer (LSC or FSC) fills in block 4.i. Finance fills in blocks 15-16 and keeps green copy. Pink copy is returned to RESL for tactical/personnel or requestor for non-tactical. White copy goes to DOCL.

1. Incident Name	2. Operational Period (Date/Time) From: To:	UNIT LOG ICS 214-CG
3. Unit Name/Designators	4. Unit Leader (Name and ICS Position)	

5. Personnel Assigned

NAME	ICS POSITION	HOME BASE

6. Activity Log (Continue on Reverse)

TIME	MAJOR EVENTS

7. Prepared by: **Date/Time**

1. Incident Name	2. Operational Period (Date/Time) From: To:	UNIT LOG (CONT.) ICS 214-CG

6. Activity Log (Continue on Reverse)

TIME	MAJOR EVENTS

7. Prepared by: **Date/Time:**

1. Incident Name	2. Operational Period (Date/Time) From: To:	**INDIVIDUAL LOG** **ICS 214a-OS**

3. Individual Name	4. ICS Section	5. Assignment/Location

6. Activity Log	Page of

Time	Major Events

1. Incident Name	2. Operational Period (Date/Time) From: To:	**INDIVIDUAL LOG** **ICS 214a-OS**

3. Individual Name	4. ICS Section	5. Assignment/Location

6. Activity Log	Page of

Time	Major Events

NRC Incident No. #_____

OPERATIONAL PLANNING WORKSHEET

1.INCIDENT NAME

2. DATE & TIME PREPARED

3. OPERATIONAL PERIOD (DATE & TIME)

4. DIVISION/ GROUP/ OTHER LOCATION	5. WORK ASSIGNMENTS	6. KINDS OF RESOURCES																7. OVERHEAD	8. SPECIAL EQUIPMENT & SUPPLIES	9. REPORTING LOCATION	10. REQUESTED ARRIVAL TIME
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		REQ																			
		HAVE																			
		NEED																			
		11. TOTAL RESOURCES REQUIRED																14. PREPARED BY (NAME & POSITION)			
		12. TOTAL RESOURCES ON HAND																			
		13. TOTAL RESOURCES NEEDED																			

ICS 215 USCG 12-02

RADIO FREQUENCY ASSIGNMENT WORKSHEET ICS 217

1. INCIDENT NAME	2. DATE	3. OPERATIONAL PERIOD (DATE/TIME)

5. INCIDENT ORGANIZATION / 4. RADIO DATA																								
SOURCE	FUNCTION	CH #	FREQUENCY																					TOTAL BY REQ.
6. AGENCY	ID	CH #	FREQUENCY																					
7. TOTAL RADIOS REQUIRED																								

217 ICS		7. PREPARED BY (NAME/POSITION)

SUPPORT VEHICLE INVENTORY ICS 218	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED

VEHICLE INFORMATION

a. TYPE	b. MAKE	c. CAPACITY/SIZE	d. AGENCY/OWNER	e. I.D. NO.	f. LOCATION	g. RELEASE TIME

ICS 218	PAGE	5. PREPARED BY (GROUND SUPPORT UNIT)

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date / Time) From: To:	AIR OPERATIONS SUMMARY ICS 220-CG

3. Distribution
Fixed-Wing Bases_____ Helibase _____

4. Personnel and Communications

	Air Operations Director	Air / Air Frequency	Air / Ground Frequency
Air Operations Director			
Air Tactical Supervisor Air			
Support Supervisor Helicopter			
Coordinator Fixed-Wing			
Coordinator			
	____	____	____

5. Remarks (Spec. Instructions, Safety Notes, Hazards, Priorities)

6. Location / Function	7. Assignment	8. Fixed-Wing		9. Helicopter		10. Time		11. Aircraft Assigned	12. Operating Base
		NO.	TYPE	NO.	TYPE	Available	Commence		
	13. TOTALS								

14. Air Operation Support Equipment	15. Prepared by	Date / Time

NRC Incident No. #_____

1. Incident Name	**2. Operational Period (Date / Time)** From: To:	**DEMOB. CHECK-OUT** **ICS 221-CG**
3. Unit / Personnel Released	**4. Release Date / Time**	

5. Unit / Personnel

You and your resources have been released, subject to signoff from the following:
(Demob. Unit Leader "X" appropriate box(es))

Logistics Section

☐ Supply Unit _____

☐ Communications Unit _____

☐ Facilities Unit _____

☐ Ground Unit _____

Planning Section

☐ Documentation Unit _____

Finance / Admin. Section

☐ Time Unit _____

Other

☐ _____ _____

☐ _____ _____

☐ _____ _____

6. Remarks

_____

_____

_____

_____

7. Prepared by: **Date / Time**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	DAILY MEETING SCHEDULE ICS 230-CG

3. Meeting Schedule (Commonly-held meetings are included)

Date/ Time	Meeting Name	Purpose	Attendees	Location
	Unified Command Objectives Meeting	Review/ identify objectives for the next operational period.	Unified Command members	
	Command & General Staff Meeting	IC/UC gives direction to Command & General staff including incident objectives and priorities	IC/UC, Command & General Staff	
	Tactics Meeting	Develop/Review primary and alternate Strategies to meet Incident Objectives for the next Operational Period.	PSC, OSC, LSC, RESL & SITL	
	Planning Meeting	Review status and finalize strategies and assignments to meet Incident Objectives for the next Operational Period.	Determined by the IC/UC	
	Operations Briefing	Present IAP and assignments to the Supervisors / Leaders for the next Operational Period.	IC/UC, Command & General Staff, Branch Directors, Div/Gru Sups., Task Force/Strike Team Leaders and Unit Leaders	

4. Prepared by: (Situation Unit Leader) **Date/Time**

NRC Incident No. #_____

1.Incident Name	2. Meeting Date / lime	MEETING SUMMARY ICS231-0S
3. Meeting Name		
4. Meeting Location		
5. Facilitator		
6. Attendees		
7. Notes (with summary of decisions and action items)		
8. Prepared by:	Date /Time	

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	RESOURCES AT RISK SUMMARY ICS 232-CG

3. Environmentally-Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issues

Narrative

4. Archaeo-cultural and Socio-economic Issues

Site #	Priority	Site Name and/or Physical Location	Site Issues

Narrative

5. Prepared by: (Environmental Unit Leader) **Date/Time**

NRC Incident No. #_____

1. Incident Name	2. Operational Period (Date/Time) From: To:	ACP Site Index ICS 232a-CG

3. Index to ACP/GRP sites shown on Situation Map

Site #	Priority	Site Name and/or Physical Location	Action	Status

Note: This form is designed to be posted next to the situation map. Use additional sheets, as needed.

4. Prepared by: **Date/Time**

1. Incident Name:					**INCIDENT OPEN ACTION TRACKER ICS-233**		
2. No.	3. Item	4. For/POC	5. POC Briefed	6. Start Date	7. Status	8. Target Date	9. Actual Date
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							

		WORK ANALYSIS MATRIX ICS 234-CG
1. Incident Name	2. Operational Period From: To:	

3. Operation's Objectives DESIRED OUTCOME	4. Optional Strategies HOW	5. Tactics/Work Assignments WHO, WHAT, WHERE, WHEN

6. Prepared by: (Operations Section Chief)	7. Date/Time:

Complete Boxes 1 - 6 First

KINDER MORGAN

EMERGENCY RESPONSE SITE SPECIFIC HEALTH & SAFETY PLAN

Date / Time:_____/_____

1. Incident Information:

Incident Type:

- ❑ **Fire / Explosion**
- ❑ **Spill / Release**
- ❑ **Rescue**
- ❑ **Injury**

Date: _____

Location: _____

_____

Time of Incident: _____

Incident Name: _____

_____

2. Products / Chemical Involved:

❑ Gasoline ❑ Diesel ❑ Jet Fuel ❑ Methanol ❑ DRA
❑ Fuel Additive ❑ Ethanol ❑ Ethane ❑ Butane
❑ Natural Gas ❑ Isobutane ❑ MCC Lubricity
❑ Crude Oil ❑ Propane ❑ Ethyl Mercaptan
❑ Other _____

(see Table 1 on back for chemical & physical properties)

MSDS available and reviewed: ❑ Yes

3. Primary Hazards:

❑ Fire ❑ Vapor ❑ Respiratory ❑ Skin

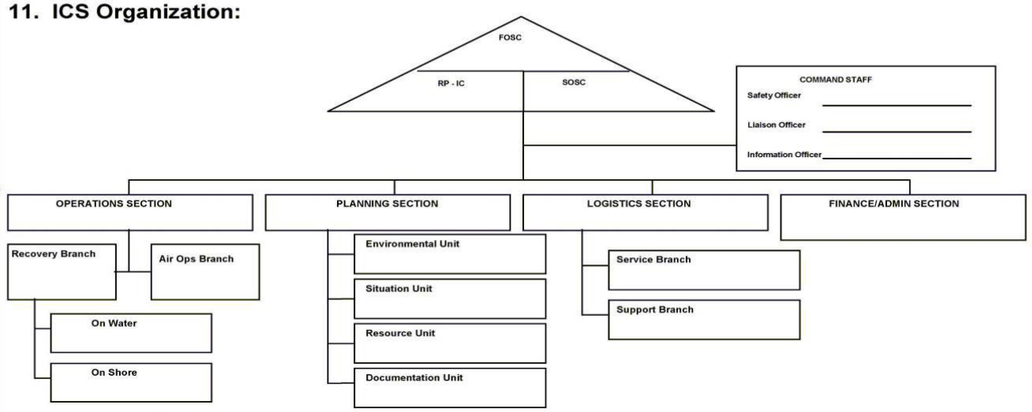
4. Personal Protective Equipment:

Cold Zone / Staging - ❑ Hardhat ❑ Safety Boots ❑ Traffic Vest
Warm Zone / Decon - Level ❑ A ❑ B ❑ C ❑ D
Hot Zone - Level ❑ A ❑ B ❑ C ❑ D
(see Table 2 on back for description of PPE by Level)

Incident Priority Checklist:

- ❑ 1. Evacuate self and others
- ❑ 2. Secure area/restrict access
- ❑ 3. Notification: Internal/External
- ❑ 4. Eliminate ignition sources
- ❑ 5. Initiate ICS
- ❑ 6. Conduct Site Assessment (H&S Plan)
- ❑ 7. Meet with arriving authorities
- ❑ 8. Mobilize response resources

11. ICS Organization:



5. Hot Zone Authorized Entrants:

❑ Fire Dept. ❑ KM
❑ Agency Reps. ❑ Contractors

6. Site Map:

Wind Direction (out of the ___)

❑ Weather Conditions: _____ ❑ Wind Direction ❑ Hazard Zones ❑ Staging
❑ Command Post ❑ Decon ❑ Cross streets ❑ Sensitive receptors (drainage, roadways, environmental sensitivity)

7. Secondary Hazards:

- ❑ Fire
- ❑ Heavy Equipment
- ❑ Excavations
- ❑ Noise
- ❑ Confined Spaces
- ❑ Heat Stress
- ❑ Cold Stress
- ❑ Rain/Lightning
- ❑ General (slip, trip, fall, established smoking area)
- ❑ Other: _____

(see Table 3 on back for secondary hazard precautions)

8. Evacuation Plan:

Evacuation signal : _____

Primary Evac. Area: _____

Secondary Evac. Area: _____

9. Nearest Hospital:

Notified: ❑ Yes ❑ No

Address: _____

_____

Phone #: _____

Directions: _____

_____

10. PROP 65 Notices: (California only)

- ❑ Incident is within Terminal or Station; notice(s) are posted at facility entrance(s).
- ❑ Incident of outside KM property; notice(s) are posted along incident site boundaries.

12. Enforcement / Regulatory Agencies (On Site):

Agency (Fed/State/Local)	Name	Contact Number	Time of Arrival

13. Contractors (On Site):

❑ Environ. _____ ❑ Clean up _____
❑ Repair _____ ❑ Consultant _____

14. Hot Zone Entry Objectives:

Objectives:

Why are people entering the Hot Zone? What is their objective?

_____

_____

_____

15. Decon Checklist:

- ❑ Establish and communicate location
- ❑ Plastic tarps and trash bags provided
- ❑ Supervision of decon provided
- ❑ Entrant log maintained
- ❑ Container of absorbent material provided
- ❑ Boot brush provided
- ❑ Folding chairs provided
- ❑ Lighting provided (if needed)

16. Atmospheric Monitoring:

Completed by - ❑ KM ❑ Fire Dept. ❑ Contractor ❑ Other: _____

Results: %LEL _____ PPM _____ Time: _____ Location: _____

Results: %LEL _____ PPM _____ Time: _____ Location: _____

17. Authorization Signatures:

Incident Commander:

Safety Officer:

INCIDENT COMMANDER PRIORITIES - SAFETY of ❑ KMEP PERSONNEL ❑ SURROUNDING COMMUNITY ❑ ENVIRONMENT

Table 1. Chemical & Physical Properties

Chemical Hazards	Flammability Range		Toxicity	Chemical / Physical Properties				NFPA 704
	LEL	UEL	PEL[a]/TLV[b]	Flash Pt.	Vapor Pressure	Vapor Density	Specific Gravity	Health/Flammable/Reactive
❑ Gasoline	1.3%	7.6%	300 ppm[a]	-45°F	~300 mmHg	5	0.74	1 / 3 / 0
❑ Diesel	0.9%	7.0%	NA	~150°F	~1 mmHg	>5	0.86	1 / 2 / 0
❑ Jet Fuel	~0.8%	~6.0%	500 ppm[a]	~110°F	5	>5	0.81	1 / 2 / 0
❑ Ethanol	3.3%	19.0%	1,000 ppm[b]	48°F	44 mmHg	>1	0.79	0 / 3 / 0
❑ Fuel Additive*								
❑ Drag Reducing Agent (DRA)*								2 / 2 / 0
❑ MCC Lubricity	Not Available	Not Available		>140°F	1.37 mmHg	>1	.93 - .94	2 / 2 / 0
❑ Natural Gasoline	1.4%	7.6%	--	-50 °F	12-26 psi	2.7	0.66-0.75	1 / 3 / 0
❑ Butane	1.6%	8.4%	800 ppm[a]	-101°F	43 psi	2.05	.58	1 / 4 / 0
❑ Ethane	2.9%	13.0%	not established	-275°F	800 psi	1.1	0.36	
❑ Isobutane	1.8%	8.4%	800 ppm[a]	-126°F	62 psi	2.0	0.563	1 / 4 / 0
❑ Propane	2.1%	9.5%	1000 ppm[a]	-156 °F	288 psi	1.53	0.51	1 / 4 / 0
❑ Crude Oil								
❑ Methanol	6.0%	36%	200 ppm	52°F	96 mm HG	1.1	.792	1 / 3 / 0
❑ Ethyl Mercaptan	2.8%	18%	10 ppm[a]/ .5 ppm[b]	-55 °F	16.2 psi	2.1	.845	2 / 4 / 0
❑ Other*								

* Describe:

1 atm = 760 mmHg = 14.7 psi

Table 2. PPE Levels

LEVEL A	LEVEL B	LEVEL C	LEVEL D
Respiratory Protection ❑ SCBA or Air Line ❑ Positive pressure full face piece supplied air w/ escape SCBA Required Equipment ❑ Totally encapsulating, gas tight chemical resistant suit ❑ Inner chemical resistant gloves ❑ Chemical resistant safety boots Optional Equipment ❑ Hearing protection ❑ Hard Hat ❑ Disposable glove & boot covers	Respiratory Protection ❑ SCBA or Air Line ❑ Positive pressure full face piece supplied air w/ escape SCBA Required Equipment ❑ Non-encapsulating chemical resistant suit (Tyvek/Nomex) ❑ Inner & outer chemical resistant gloves ❑ Chemical resistant safety boots ❑ Hard Hat Optional Equipment ❑ Hearing protection ❑ Coveralls ❑ Disposable boot covers ❑ Face shield/safety glasses	Respiratory Protection ❑ Full / Half Face respirator w/: ❑ cartridge (gas/vapor): _____ ❑ filter (particulate): _____ Required Equipment ❑ Non-encapsulating chemical resistant suit ❑ Tyvek ❑ Nomex ❑ Inner & outer chemical resistant gloves ❑ Chemical resistant safety boots ❑ Hard Hat Optional Equipment ❑ Hearing protection ❑ Coveralls ❑ Disposable boot covers ❑ Face shield/safety glasses	Respiratory Protection ❑ None Required Equipment ❑ Coveralls ❑ Safety Boots ❑ Safety Glasses ❑ Hard Hat Optional Equipment ❑ Hearing protection ❑ Gloves ❑ Face shield/safety glasses

Table 3. Secondary Hazards

Hazards	Recommended Precaution(s)
❑ Fire (potential)	• Remain safe distance away • Eliminate ignition sources • Keep upwind of vapor/smoke • Provide vapor suppression (if safe) • Do not impede Fire Dept. efforts
❑ Heavy Equipment	• Qualified operators only • Hardhats and safety boots needed around heavy equip. • Minimum 10ft. clearance from power lines • Make "one call" if excavating • Proper machine guarding in place
❑ Excavations	• Trenches/excavations equal to or greater than 5ft. deep must meet OSHA requirements • No one allowed to enter excavation > 5ft. unless shored, sloped or protected • Excavations < 5ft. and judged by competent person as cave-in hazard must also follow OSHA requirements
❑ Noise	• Portable generators & heavy equip. can generate potentially high noise levels • Hearing protection available to workers • Hearing protection must be worn in area with noise levels above 85dBA.
❑ Confined Spaces	• Site Safety Officer will determine whether confined space will be entered • All confined space entries must meet OSHA requirements (permits, atmospheric monitoring, attendants, etc.)
❑ Heat Stress	• Potential hazard when temp >80°F • Workers should take more breaks and drink plenty of appropriate liquids • More PPE = higher risk • Be aware of heat cramps (stomach cramps), heat exhaustion (excessive sweating, flushed/clammy skin) – treat with rest and liquids. Heat stroke (dry, hot, pale skin; no sweating) can be deadly – get medical help immediately, reduce core body temp by applying cold water to body & fanning.
❑ Cold Stress	• Skin takes on gray-glossy look • Appendages become non-responsive • Blisters or sores may appear • Do not rub • Submerse affected areas in warm water or wrap in warm cloth.
❑ Rain / Lightning	• Stop excavation activities during excessive rainfall • Avoid shock hazards by stopping work during thunderstorm or lightening • Prevent & control erosion & transport of soils out of incident area.
❑ General	• Slip, trip & fall hazards • Keep work area clear of debris • Smoking not permitted in work areas • Use hand tools safely
❑ Other:	

Qualified Individual (QI) Notification Exercise

Internal Exercise Documentation

1. Date performed: _____
2. Company: _____
3. Exercise or actual response: _____
4. Person initiating exercise: _____
5. Name of person notified: _____
   Is this person identified in the response plan as the: ☐ QI ☐ AQI
6. Time initiated: _____
   Time QI or AQI responded: _____
7. Method used to contact:
   ☐ Telephone ☐ Pager ☐ Radio
   ☐ Other _____
8. Description of emergency scenario:

   _____

   _____
9. Evaluation:

   _____

   _____
9. Changes to be implemented and provide timetable for implementation of those items:

   _____

   _____
10. Identify which components of your response plan were exercised during this particular exercise:

Organizational Design

- ☐ Notifications
- ☐ Staff mobilization
- ☐ Ability to operate within the response management system described in the plan

Operational Response

- ☐ Discharge control
- ☐ Assessment of discharge
- ☐ Containment of discharge
- ☐ Recovery of spilled material
- ☐ Protection of economically and environmentally sensitive areas
- ☐ Disposal of recovered product

Response Support

- ☐ Communications
- ☐ Transportation
- ☐ Personnel support
- ☐ Equipment maintenance and support
- ☐ Procurement
- ☐ Documentation

Certifying Signature: _____ Name (Printed): _____
Date: _____

Response Team Tabletop Exercise

Internal Exercise Documentation

1. Date(s) performed: _____
2. Company: _____
3. Exercise or actual response: _____
   Exercise type: ☐ Announced ☐ Unannounced
4. Location of exercise: _____
5. Time started: _____
   Time completed: _____
6. Response plan scenario used (check one):
   ☐ Small ☐ Medium ☐ Worst case discharge
   Size of (simulated) spill _____ Bbls
7. Describe how the following objectives were exercised:
   a) Response Team's knowledge of oil spill response plan:

   b) Proper notifications:

   c) Communications System:

   d) Response Team's ability to access contracted OSRO:

Response Team Tabletop Exercise

Internal Exercise Documentation (Cont'd)

e) Response Team's ability to coordinate spill response with OSC, state and applicable agencies:

_____

_____

_____

f) Response Team's ability to access sensitive site and resource information in Area Contingency Plan:

_____

_____

_____

_____

_____

_____

8. Identify which components of your response plan were exercised:

_____

_____

_____

_____

9. Changes to be implemented and timetable for implementation of those changes:

_____

_____

_____

_____

10. Attach description of lesson(s) learned and person(s) responsible for follow up of corrective measures.

Certifying Signature: _____ Name (Printed): _____

Date: _____

SAMPLE

PERSONNEL RESPONSE TRAINING LOG

Name	Response Training/ Date and number of hours	Prevention Training/ Date and number of hours

Response Equipment Checklist & Inspection Log

Description	Location	Quantity	Accessibility (time to respond)	Status/Condition (leave blank if OK)	Use or Testing
Booms					
Containment Boom					
Sorbents					
Mini-Booms					
Sorbent Pads					
Sorbent Rolls					
Sorbent Pillows					
Hand Tools					
Shovels					
Flashlights					
Communication Equipment					
Phones					
Security Radios					
Personal Protective Equipment					
Gloves					
Face Shields					
Goggles					
Full & Half-Face Respirator					
Chemical Resistant Boots					
Class B Spill Response Suit					
Tyvek Coveralls					

Response Equipment Checklist & Inspection Log (Cont'd)

Other					
Completed by:				Date:	

SECONDARY CONTAINMENT EVENT LOG						
Date	**Containment ID**	**Presence of Oil (Yes / No)**	**Start Time**	**End Time**	**Valve Resealed (Yes / No)**	**Signature**

APPENDIX G

MAPS AND DIAGRAMS

Galena Park Terminal Detailed Overview Map

Galena Park Terminal Direction Map

Galena Park Terminal Plot Plan (88-MS-0016)

Galena Park Terminal Plot Plan (88-MS-0196)

Galena Park Terminal Plot Plan (88-EHS-0197)

Galena Park Terminal Plot Plan (88-MS-0147)

Galena Park Terminal Plot Plan (88-MS-0177)

Galena Park Terminal Plot Plan (88-MS-0144

Galena Park Terminal Plot Plan (88-MS-0133B)

Galena Park Plot Plan (88-MS-0198)

Galena Park Plot Plan (88-MS-0143)

DOT Jurisdiction Assets

Galena Park Plot Plan (88-MLP-0002)

Galena Park Plot Plan (88-MLP-0001)

Kinder Morgan Galena Park Terminal
General Facility Detailed Overview Map
Intergrated Contingency Plan

KINDER MORGAN

The Response Group
Emergency Response | Pre-Planning & Support
281-880-5000

Scale: 1:6,000

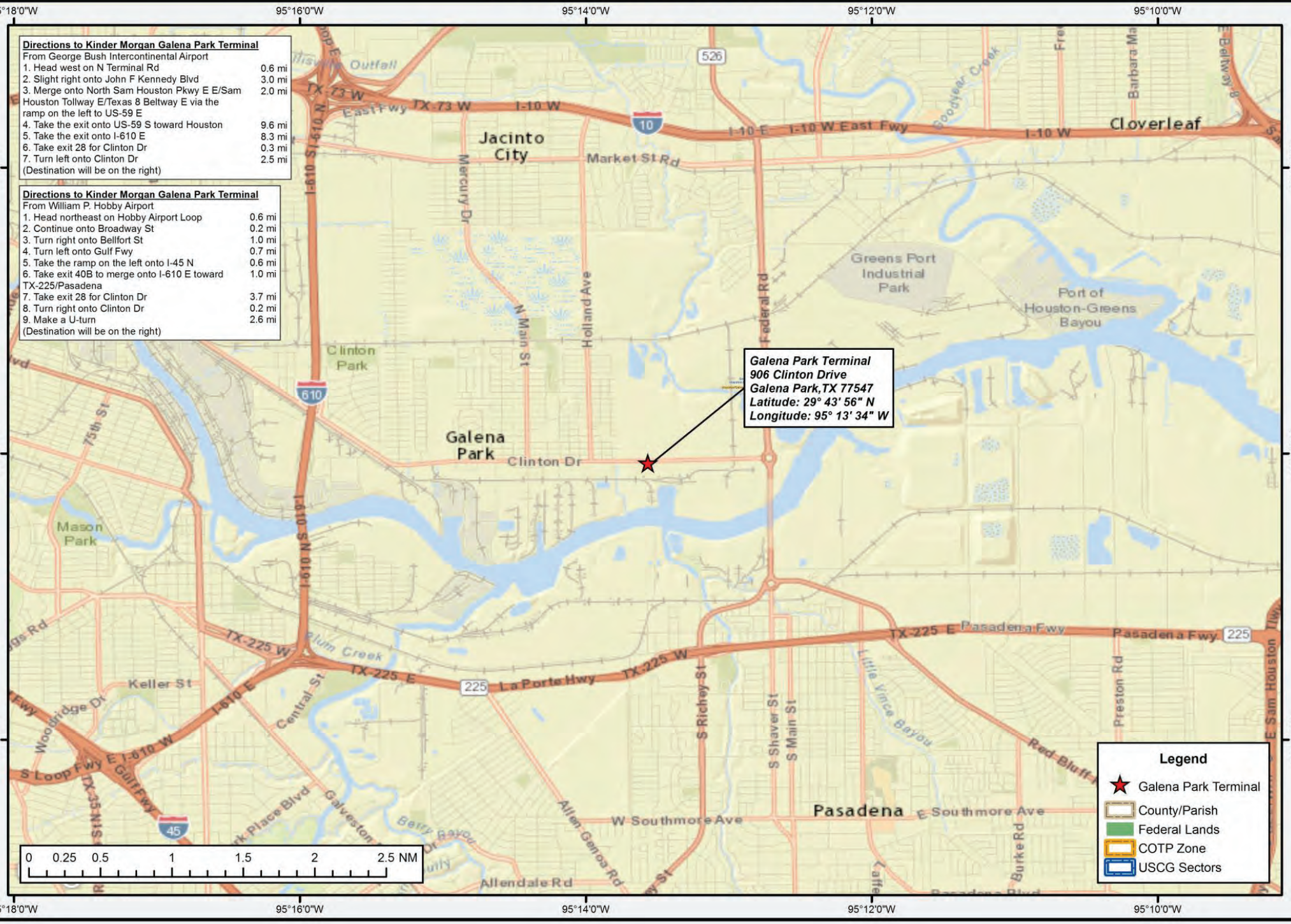


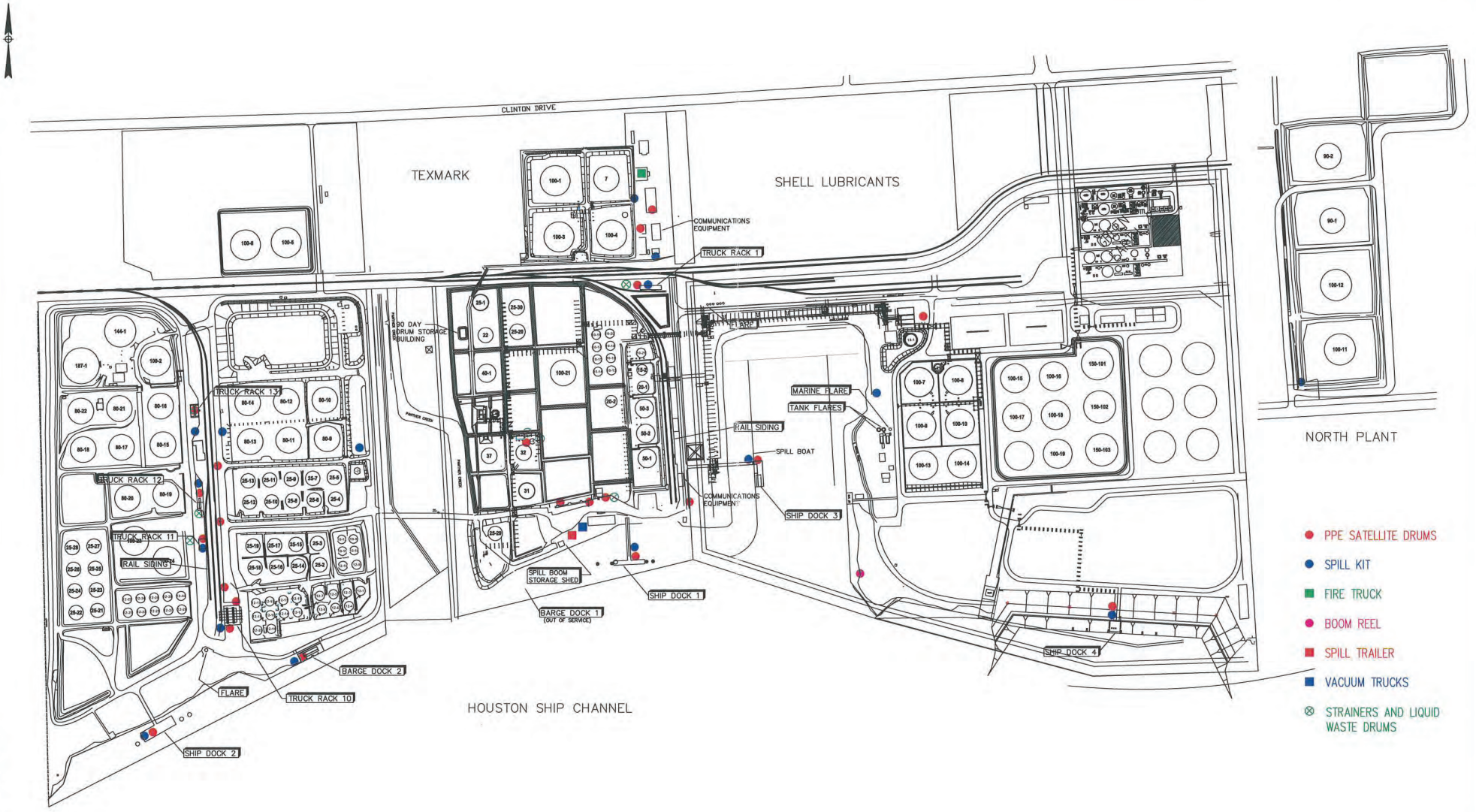
Kinder Morgan Galena Park Terminal
Direction Map
Intergrated Contingency Plan

KINDER MORGAN

The Response Group
Emergency Response | Pre-Planning & Support
281-880-5000

Scale: 1:62,500





PLOT DATE: Jun 17, 2008–2:09PM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	GENERAL UPDATE	06-17-08	JLM	JS	JS

KINDER MORGAN

DRAWN S. MARTIN
CHECKED
APPROVED PROJ. ENGR.
APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

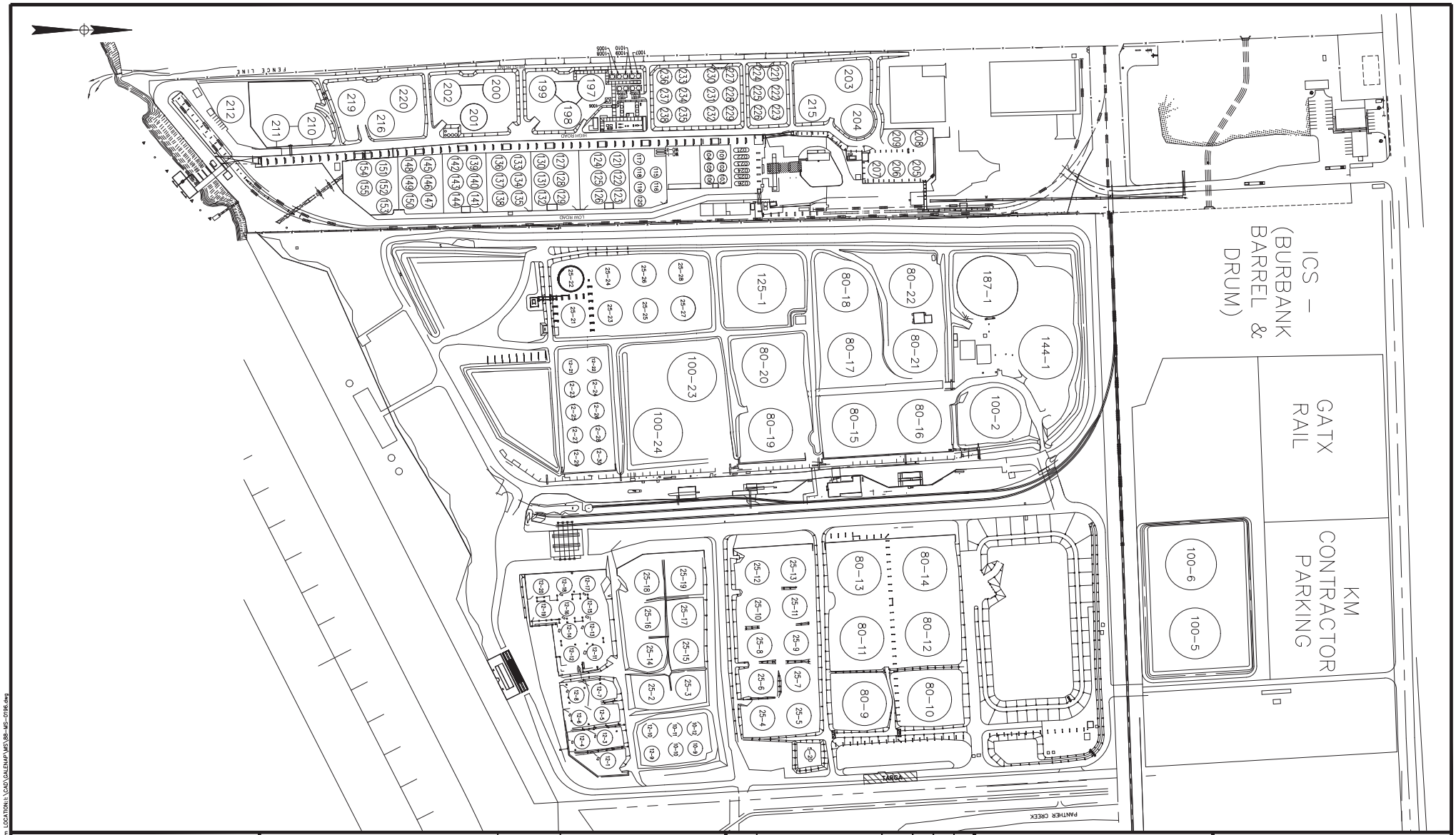
PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

EMERGENCY RESPONSE EQUIPMENT

DWG. NO. 88-MS-0016

SCALE NONE | TERMINAL 88 | DATE



NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		A	ISSUED FOR REVIEW	03-16-15	JLM	RJH	RJH

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED RJH
APPROVED RJH ENGR. MGR.
APPROVED AJR REG. ENGR. MGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

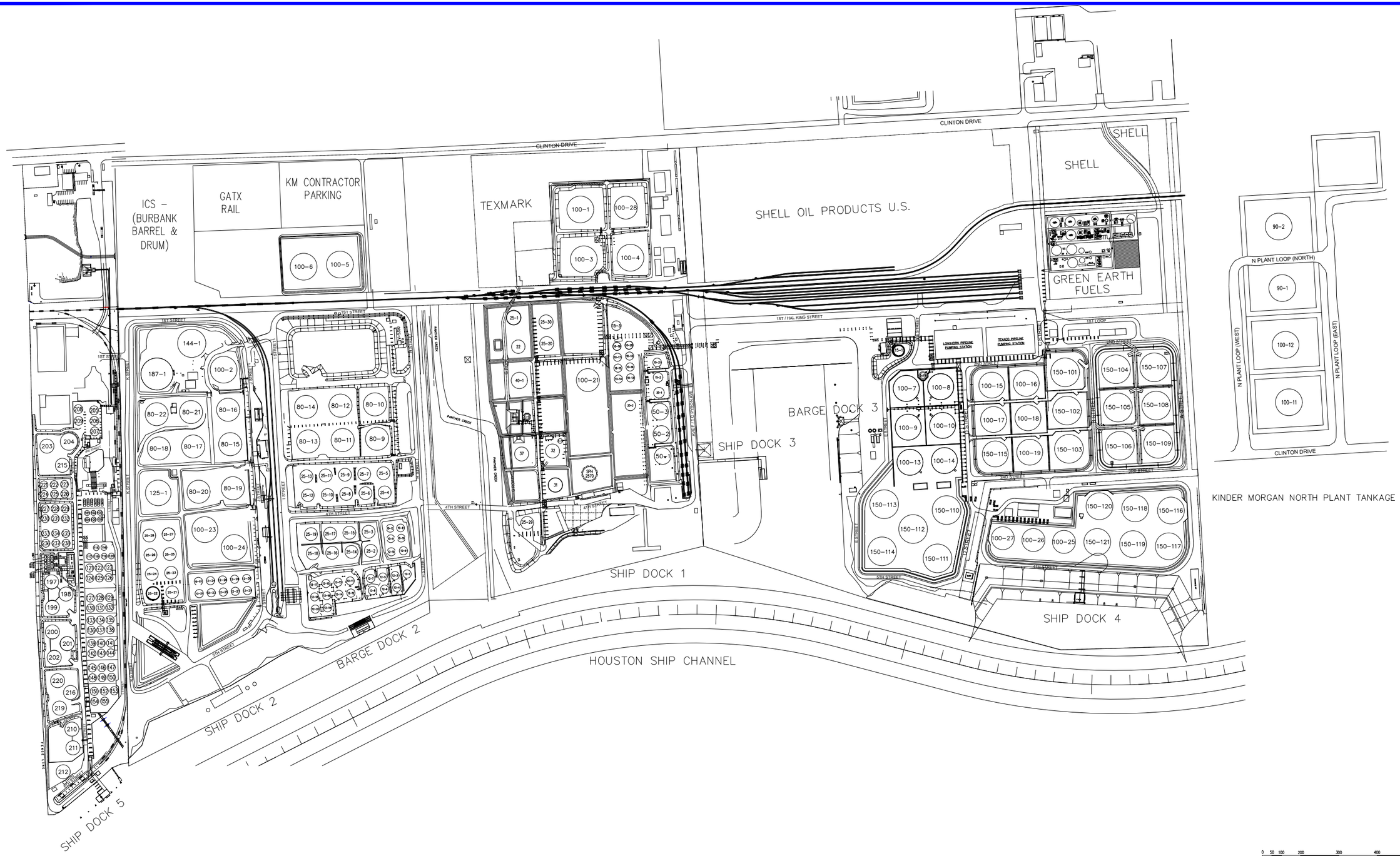
PLOT PLAN

GP WEST & WEST CHEMICAL PLANT

DWG. NO. 88-MS-0196

SCALE NONE | TERMINAL 88 | DATE 03-16-2015

PLOT DATE: Mar 27, 2015 - 1:45pm LOCATION: I:\CAD\GALENAPK\MS\88-MS-0196.dwg



KINDER MORGAN NORTH PLANT TANKAGE

0 50 100 200 300 400 500

GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

& WEST CHEMICAL PLANT

PRO. REV.	PRO. NO.	
2		
PRO. DATE	PRO. INSPECTOR	PRO. MANAGER

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		2	ADDED KERERA & EASTON C5 TANKS	06–23–21	JLM	RK	LL
		1	IMPORTED TO EDMS SYSTEM	09–23–16	JLM	JGO	RJH
		B	ADDED ROAD NAMES	06–06–17	JLM	JG	RJH
		A	ISSUED FOR REVIEW	03–17–15	JLM	RJH	RJH

KINDER MORGAN

DRAWN J L MORRIS

CHECKED RJH

APPROVED RJH PROJ. ENGR.

APPROVED RJH REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

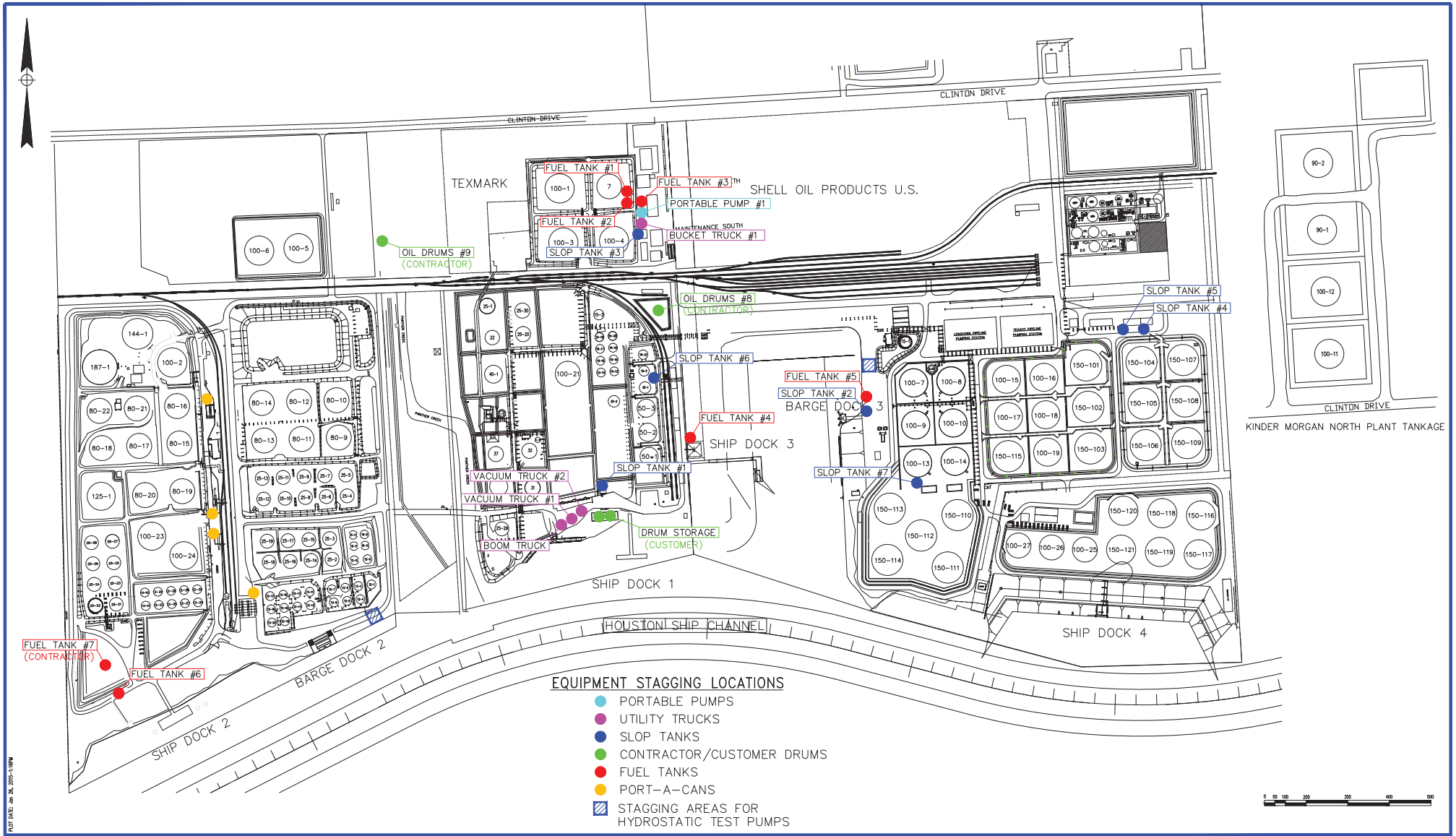
GALENA PARK TERMINAL

PLOT PLAN

NORTH, EAST, CENTRAL, AND WEST PLANTS

& WEST CHEMICAL PLANT

DWG. NO.		REV. NO.
88–EHS–0197		2
SCALE	TERMINAL	DATE
NONE	88	03–17–15



PLOT DATE: Jan 26, 2015-1:16PM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		C	ADDED 3700 MANIFOLD SLOP TANK #7	05-14-14	JLM	JS	GC
		B	ADDED ADDITIONAL EQUIPMENT	06-25-13	JLM	JS	JS
		A	ISSUED FOR REVIEW	11-24-10	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED JS PROJ. ENGR.
APPROVED PA REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

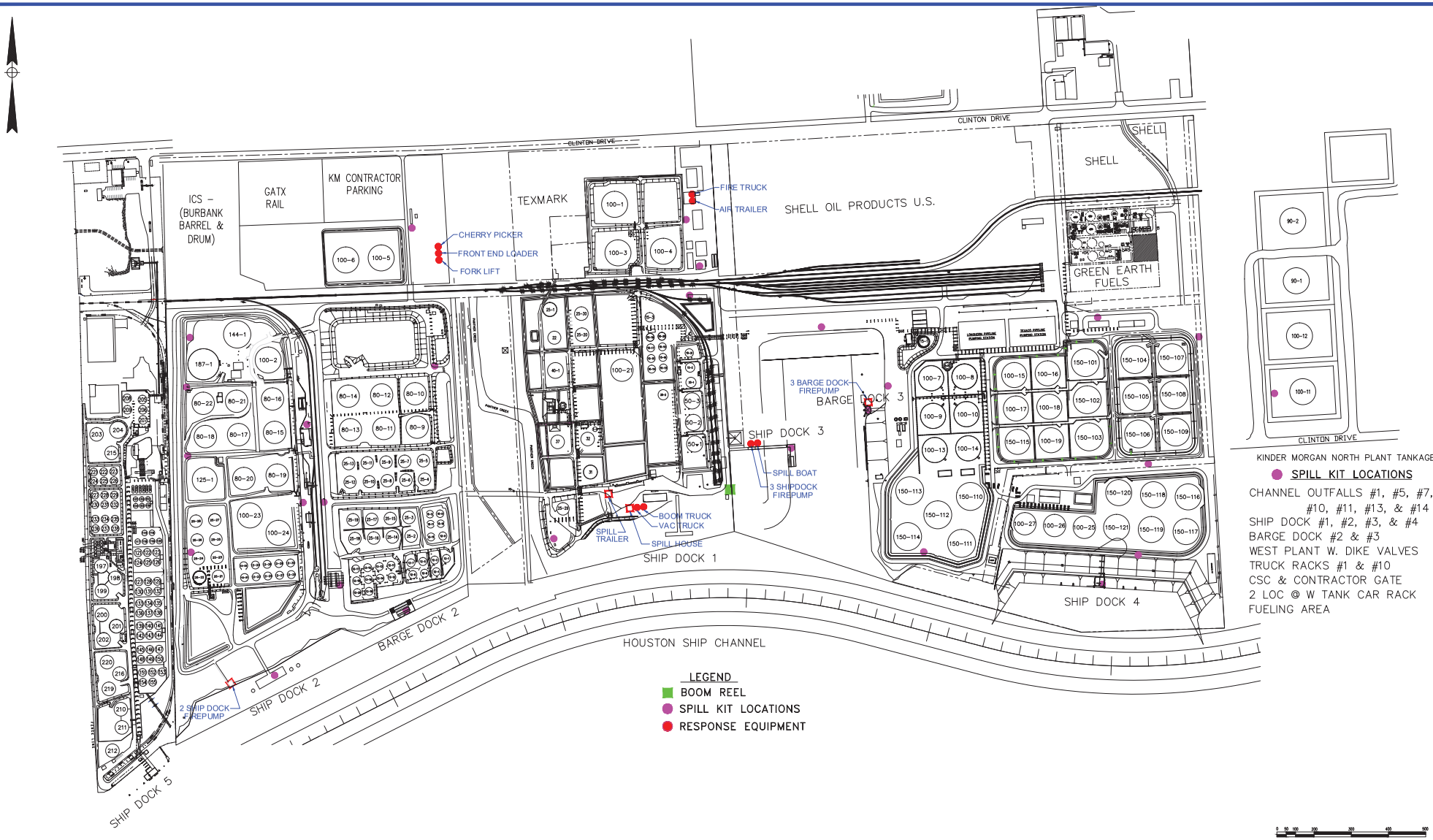
PLOT PLAN

NORTH, EAST, CENTRAL & WEST PLANTS

EQUIPMENT STAGGING AREAS

DWG. NO. 88-MS-0147

SCALE NONE | TERMINAL 88 | DATE 11-24-2010



KINDER MORGAN NORTH PLANT TANKAGE

SPILL KIT LOCATIONS

CHANNEL OUTFALLS #1, #5, #7, #10, #11, #13, & #14
SHIP DOCK #1, #2, #3, & #4
BARGE DOCK #2 & #3
WEST PLANT W. DIKE VALVES
TRUCK RACKS #1 & #10
CSC & CONTRACTOR GATE
2 LOC @ W TANK CAR RACK
FUELING AREA

PLOT DATE: May 11, 2015 - 8:53AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		B	ADDED SPILL KITS AT NEW TANKAGE AREAS	05–11–15	JLM	JS	JS
		A	ISSUED FOR REVIEW	01–15–12	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED JS PROJ. ENGR.
APPROVED GD REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

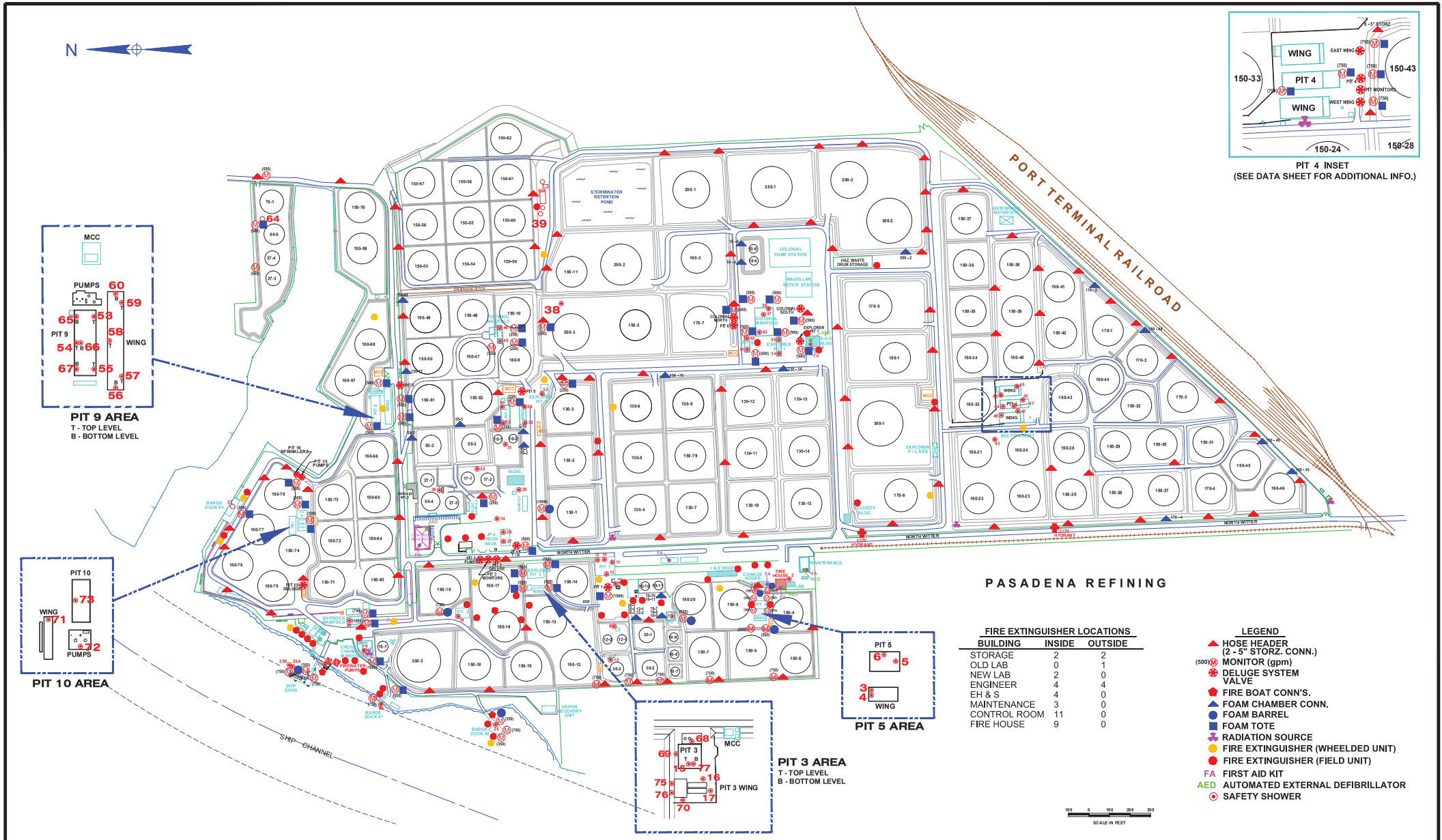
PLOT PLAN

NORTH, EAST, CENTRAL AND WEST PLANTS

RESPONSE EQUIPMENT

DWG. NO. 88–MS–0177

SCALE NONE | TERMINAL 88 | DATE 01–15–12



FIRE EXTINGUISHER LOCATIONS

BUILDING	INSIDE	OUTSIDE
STORAGE	2	2
OLD LAB	0	1
NEW LAB	2	0
ENGINEER	4	4
EH & S	4	0
MAINTENANCE	3	0
CONTROL ROOM	11	0
FIRE HOUSE	9	0

LEGEND

- HOSE HEADER (2 - 5" STORZ. CONN.)
- (500)M MONITOR (gpm)
- DELUGE SYSTEM VALVE
- FIRE BOAT CONN'S.
- FOAM CHAMBER CONN.
- FOAM BARREL
- FOAM TOTE
- RADIATION SOURCE
- FIRE EXTINGUISHER (WHEELDED UNIT)
- FIRE EXTINGUISHER (FIELD UNIT)
- FA FIRST AID KIT
- AED AUTOMATED EXTERNAL DEFIBRILLATOR
- SAFETY SHOWER

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
76-MS-0031	UPDATE WITH SAFETY SHOWER LOCATION PLAN	0	ISSUED FOR APPROVAL	06-11-15	J.M	MH	EV

KINDER MORGAN
LIQUID TERMINALS L.L.C.

DRAWN JL MORRIS
CHECKED M. HICKS
APPROVED E. VEGA PROJ. ENGR.
APPROVED ALR REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUID TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

PASADENA TERMINAL

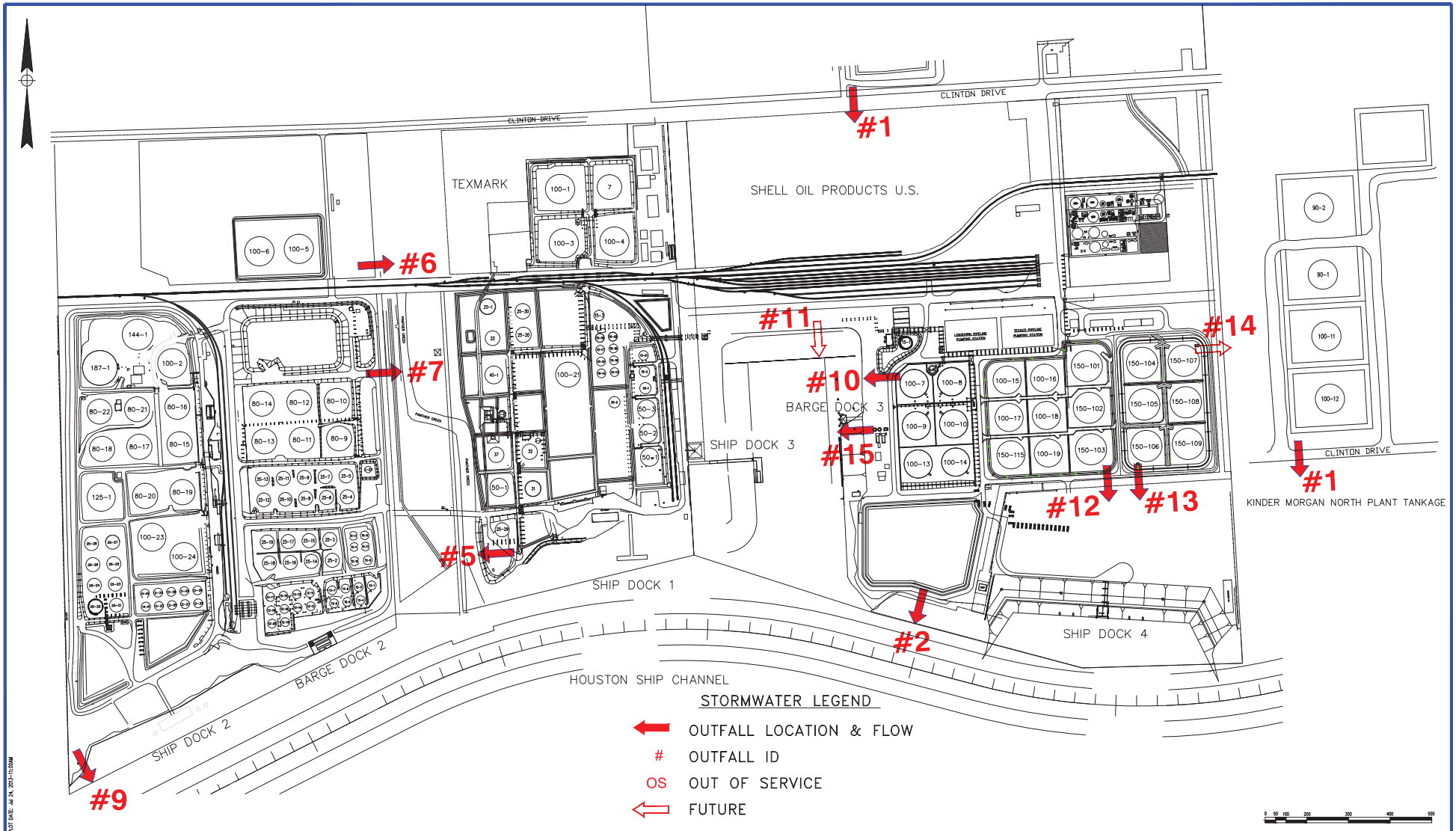
FIRE & SAFETY LOCATION PLAN

PLOT PLAN

COMBINED SYSTEMS

DWG. NO. 76-MS-0292

SCALE AS SHOWN | TERMINAL 76 | DATE



PLOT DATE: Jul 24, 2013-11:00AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		A	ISSUED FOR REVIEW	08-31-12	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED JS PROJ. ENGR.
APPROVED AJR REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

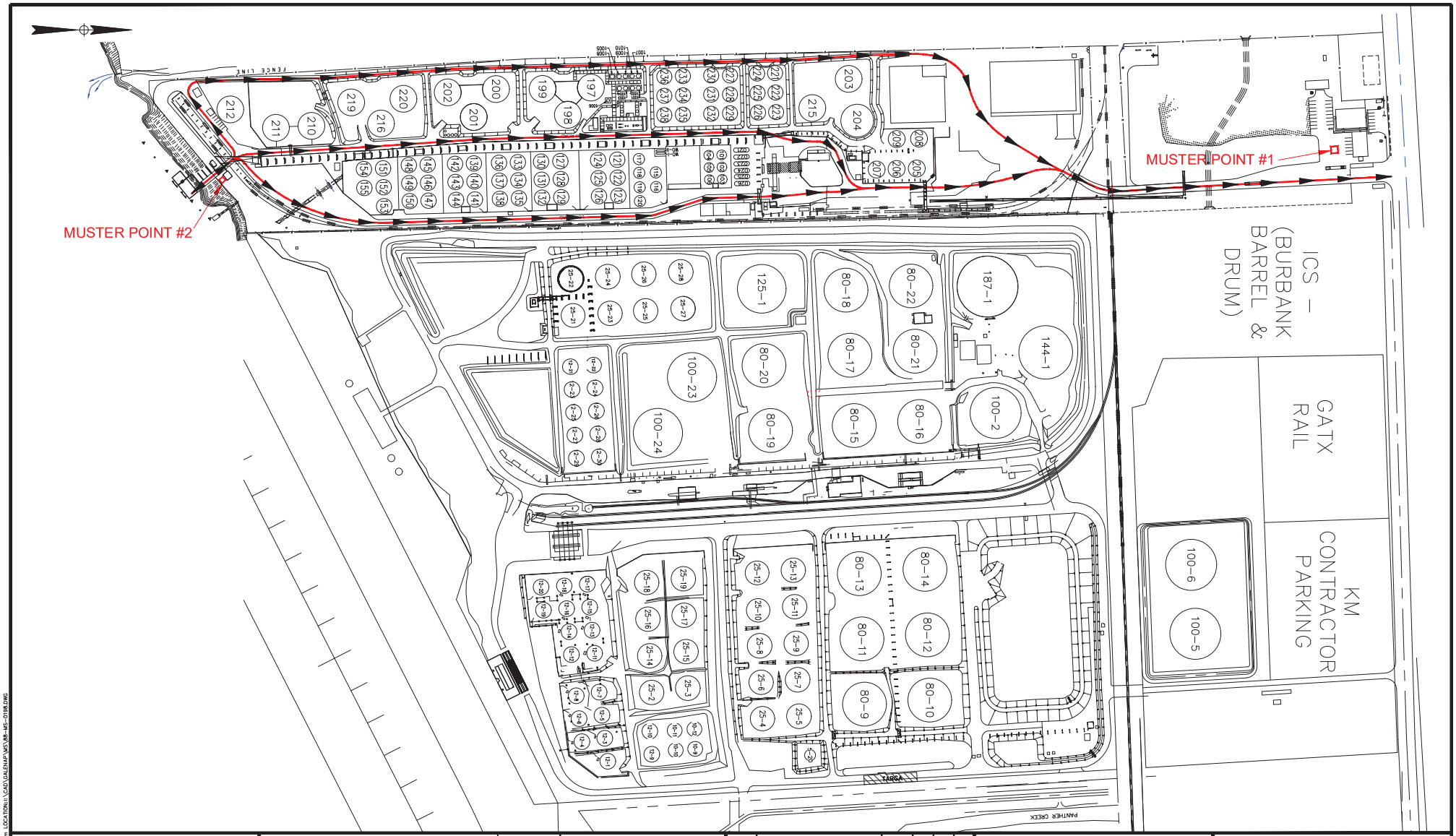
PLOT PLAN

NORTH, EAST, CENTRAL AND WEST PLANTS

OUTFALL LOCATIONS

DWG. NO. 88-MS-0133B

SCALE NONE | TERMINAL 88 | DATE 08-31-12



NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	ISSUED FOR REVIEW	04-17-15	JLM	MG	MG

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED MG
APPROVED RJH ENGR. MGR.
APPROVED AJR REG. ENGR. MGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

MUSTER AREAS & EVACUATION ROUTES

WEST CHEMICAL PLANT

DWG. NO. 88-MS-0198

SCALE NONE | TERMINAL 88 | DATE 04-17-2015

PLOT DATE: Apr 17, 2015 - 9:02pm LOCATION:\\CAD\GALENAP\WES\88-MS-0198.DWG

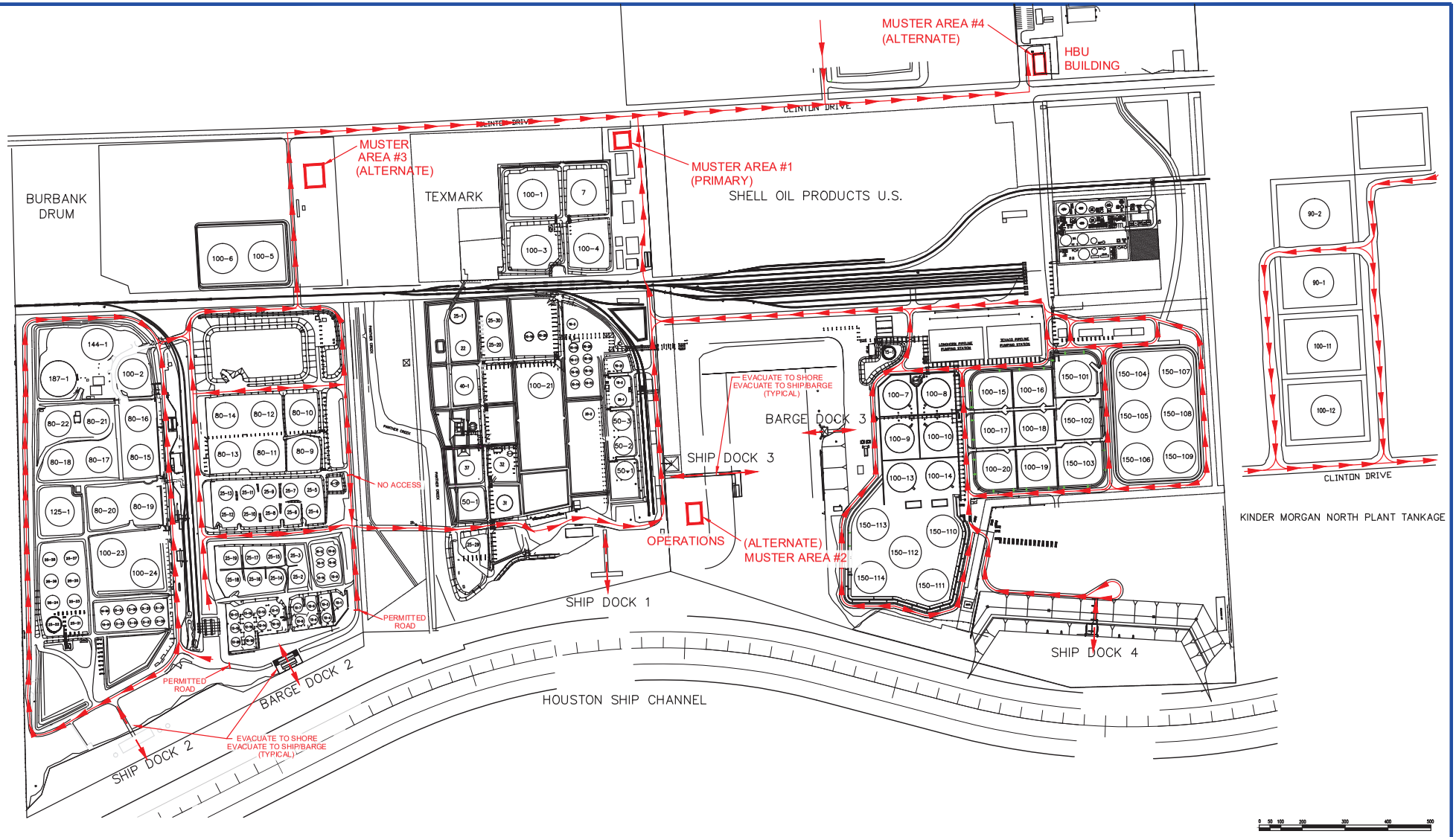


FIGURE 3.1

PLOT DATE: Jun 14, 2013-1:39PM

CONTRACTOR BLOCK

NOTES

THIS DRAWING SUPERCEDES DWG. D-88-1-4302C

DRAWING NUMBER	REFERENCE DRAWING	REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
		B	GENERAL UPDATES	06-14-13	JLM	MG	MN
		A	ISSUED FOR REVIEW	09-01-10	JLM	JS	JS

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED JS
APPROVED JA PROJ. ENGR.
APPROVED PA REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

MUSTER AREAS & EVACUATION ROUTES

NORTH, EAST, CENTRAL, AND WEST PLANTS

DWG. NO. 88-MS-0143

SCALE NONE | TERMINAL 88 | DATE 09-01-2010

DOT JURISDICTION ASSETS

DOT JURISDICTIONAL LEGEND

JURISDICTIONAL (DOT ROW)

IN-STATION JURISDICTIONAL

NON-JURISDICTIONAL

FLARE

PRODUCT TANK 150-XX (BREAKOUT & STORAGE)

SAMPLE STATION

WATER DRAW

LIFT STATION

STRIPPER

RETURN

SUCTION

MIX-XX

>/= 50% BY PIPELINE

FLARE

PRODUCT TANK 30-XX (STORAGE)

SAMPLE STATION

WATER DRAW

LIFT STATION

< 50% BY PIPELINE

O/B-PUMPS

OUTBOUND MANIFOLD

BARGE DOCK(S)

SHIP DOCK

DOCKLINE

COMMON

DOCKLINE

DOCKLINE MANIFOLD

DOCKLINE

HEADER

HEADER

WING MANIFOLD

PRODUCT PIPELINE

PRODUCT PIPELINE

PRODUCT PIPELINE

PRODUCT PIPELINE

FACILITY LIMITS

TERMINAL

FACILITY LIMITS

FLARE

SAMPLE STATION

LIFT STATION

WATER DRAW

PRODUCT TANK 80-XX (STORAGE)

< 50% BY PIPELINE & RAIL

TRUCK LOADING

RAIL LOADING

OB-PUMPS

OUTBOUND MANIFOLD

INBOUND MANIFOLD

STRIPPING-PUMP

INBOUND BY RAIL & TRUCK

MANIFOLD PIT

STRIPPING-PUMP

TRANSFER-PUMP

OUTBOUND-PUMP

PRODUCT PIPELINE

PRODUCT PIPELINE

PRODUCT PIPELINE

PRODUCT PIPELINE

PLOT DATE: Oct 23, 2015-9:41AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
0	REVISED DWG. NUMBER	9/14/15	JEP	BLM	RJH
B	GENERAL UPDATES	12-01-14	JLM	RJH	RJH
A	ISSUED FOR REVIEW	03-20-10	JLM	GT	CTM

KINDER MORGAN

DRAWN J.L.MORRIS

CHECKED GT

APPROVED CTM PROJ. ENGR.

APPROVED CTM REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

PASADENA TERMINAL

JURISDICTIONAL GO-BY

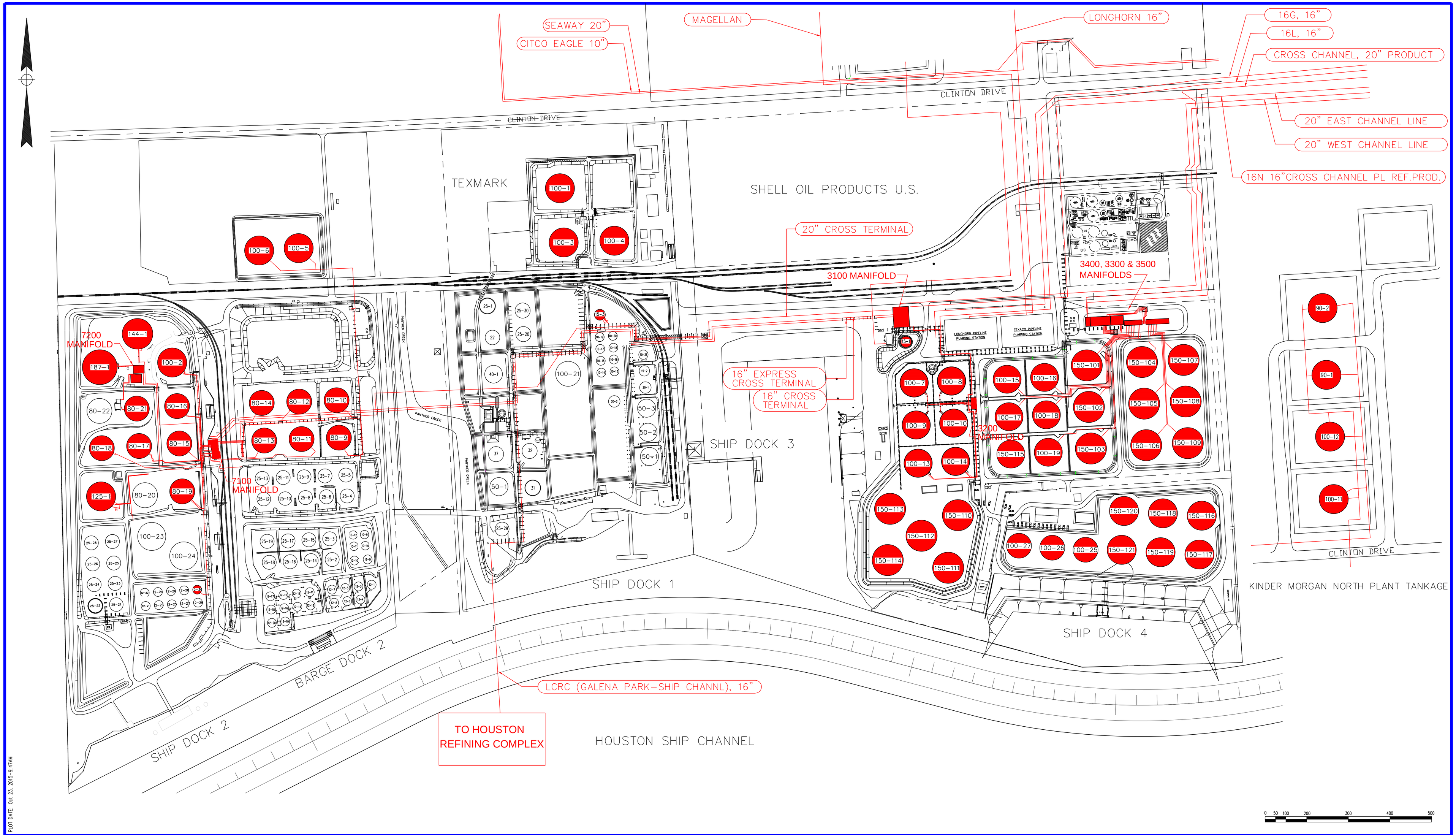
TYPICAL PIPING ARRANGEMENT

DWG. NO. 76-GB-0001

SCALE NONE

TERMINAL 76

DATE 03-20-2010



PLOT DATE: Oct 23, 2015–9:47AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
0	REVISED DWG. NUMBER	9/14/15	JEP	BLM	RJH
C	ADDEDD TKS 187–1 & 80–21	11–13–13	JLM	GW	RJH
B	ADDED NEW TANKS	11–05–13	JLM	RJH	AJR
A	ISSUED FOR REVIEW	10–11–08	JLM	CB	CM

KINDER MORGAN

DRAWN J.L.MORRIS
CHECKED CB
APPROVED AJR (PROJ. ENGR.)
APPROVED SLS (REGIONAL ENGR.)

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

TEXAS RAILROAD COMMISSION – JURISDICTIONAL SYSTEMS

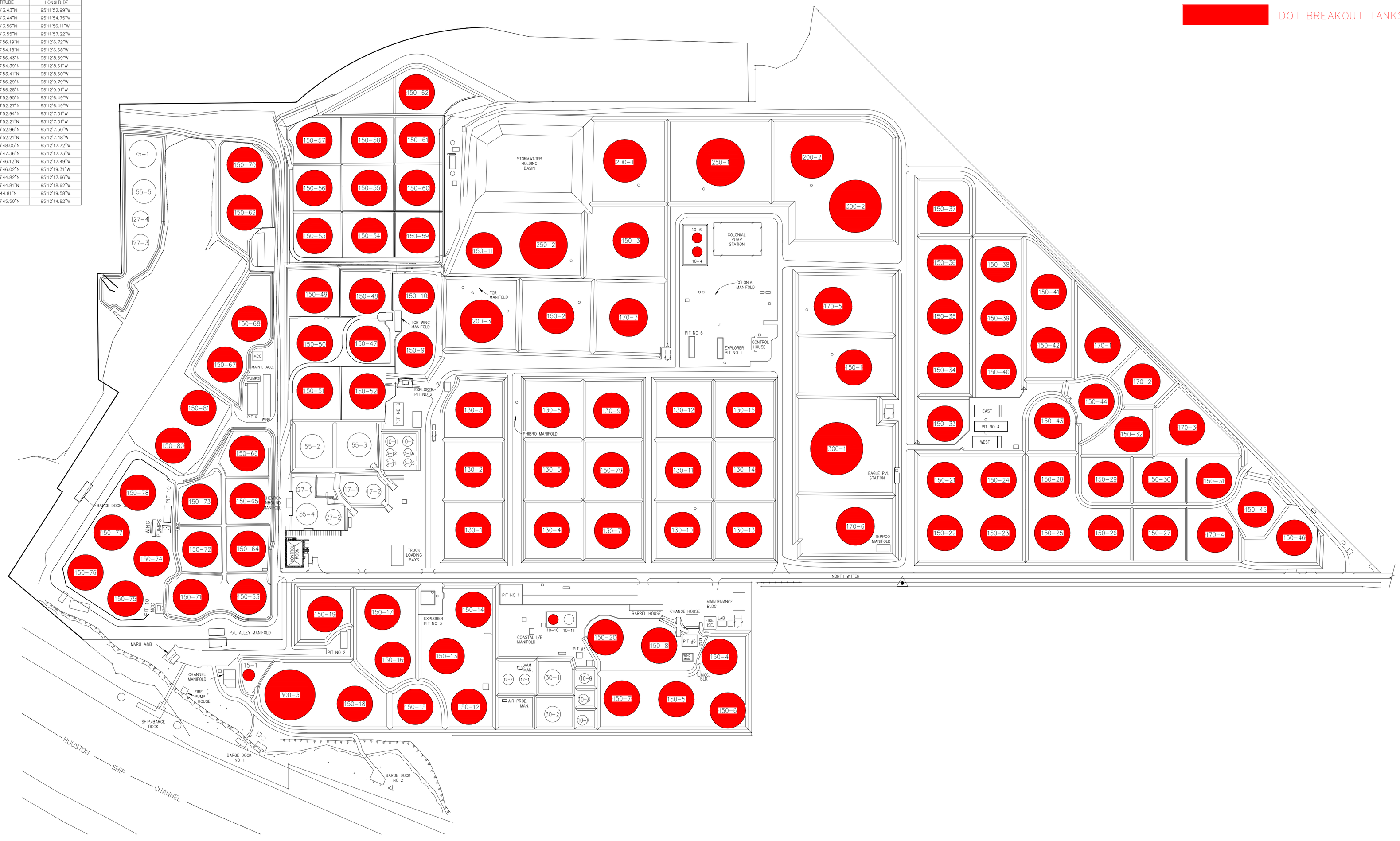
906 CLINTON DRIVE GALENA PARK, TEXAS 77547

DWG. NO. 88–MLP–0002

SCALE NONE | TERMINAL 88 | DATE 10–02–08

TANK CENTER		
TANK	LATITUDE	LONGITUDE
15–1	29°43'58.814"N	95°12'17.585"W
300–3	29°43'57.091"N	95°12'18.443"W
150–12	29°43'49.779"N	95v12'18.913"W
150–13	29°43'50.699"N	95°12'16.519"W
150–14	29°43'49.621"N	95°12'14.364"W
150–15	29°43'51.955"N	95°12'18.907"W
150–16	29°43'52.926"N	95°12'16.715"W
150–17	29°43'53.372"N	95°12'14.442"W
150–18	29°43'54.374"N	95°12'18.749"W
150–19	29°43'55.724"N	95°12'14.562"W
150–20	29°43'43.987"N	95°12'15.545"W
150–4	29°43'39.336"N	95°12'16.465"W
150–5	29°43'41.139"N	95°12'18.466"W
150–6	29°43'39.021"N	95°12'18.973"W
150–7	29°43'43.373"N	95°12'18.463"W
150–8	29°43'41.876"N	95°12'15.899"W
10–10	29°43'46.129"N	95°12'14.734"W
130–1	29°43'49.497"N	95°12'10.54"W
130–2	29°43'49.523"N	95°12'7.679"W
130–3	29°43'49.549"N	95°12'4.853"W
130–4	29°43'46.228"N	95°12'10.518"W
130–5	29°43'46.254"N	95°12'7.657"W
130–6	29°43'46.28"N	95°12'4.815"W
130–7	29°43'43.73"N	95°12'10.501"W
130–8	29°43'43.757"N	95°12'7.637"W
130–9	29°43'43.781"N	95°12'4.787"W
130–10	29°43'40.791"N	95°12'10.481"W
130–11	29°43'40.821"N	95°12'7.608"W
130–12	29°43'40.844"N	95°12'4.753"W
130–13	29°43'38.259"N	95°12'10.479"W
130–14	29°43'38.277"N	95°12'7.587"W
130–15	29°43'38.312"N	95°12'4.718"W
150–47	29°43'53.952"N	95°12'1.799"W
150–48	29°43'53.977"N	95°11'59.531"W
150–9	29°43'51.969"N	95°12'2.063"W
150–10	29°43'51.923"N	95°11'59.499"W
200–3	29°43'49.286"N	95°12'0.626"W
150–11	29°43'49.165"N	95°11'57.315"W
150–2	29°43'46.189"N	95°12'0.359"W
250–2	29°43'46.785"N	95°11'57.004"W
170–7	29°43'43.081"N	95°12'0.347"W
150–3	29°43'43.15"N	95°11'56.768"W
200–1	29°43'43.296"N	95°11'53.005"W
250–1	29°43'39.438"N	95°11'52.999"W
200–2	29°43'35.706"N	95°11'52.75"W
300–2	29°43'33.848"N	95°11'55.069"W
170–5	29°43'34.646"N	95°11'59.754"W
150–1	29°43'33.783"N	95°12'2.624"W
300–1	29°43'34.59"N	95°12'6.209"W
170–6	29°43'33.716"N	95°12'10.193"W
10–4	29°43'40.404"N	95°11'57.031"W
10–6	29°43'40.408"N	95°11'56.373"W
150–37	29°43'30.144"N	95°11'55.099"W
150–36	29°43'30.11"N	95°11'57.65"W
150–35	29°43'30.083"N	95°12'0.194"W
150–34	29°43'30.072"N	95°12'2.756"W
150–33	29°43'30.042"N	95°12'5.316"W
150–32	29°43'22.305"N	95°12'5.697"W
150–31	29°43'18.89"N	95°12'7.82"W
150–30	29°43'21.12"N	95°12'7.851"W
150–29	29°43'23.351"N	95°12'7.881"W
150–28	29°43'25.57"N	95°12'7.89"W
150–27	29°43'21.094"N	95°12'10.399"W
150–26	29°43'23.327"N	95°12'10.429"W
150–25	29°43'25.546"N	95°12'10.443"W
150–24	29°43'27.797"N	95°12'7.919"W
150–23	29°43'27.774"N	95°12'10.47"W
150–22	29°43'30.002"N	95°12'10.505"W
150–21	29°43'30.025"N	95°12'7.945"W
170–1	29°43'23.526"N	95°12'1.505"W
170–2	29°43'21.921"N	95°12'3.195"W
170–3	29°43'20.031"N	95°12'5.294"W
170–4	29°43'18.82"N	95°12'10.376"W
150–38	29°43'27.888"N	95°11'57.712"W
150–39	29°43'27.863"N	95°12'0.277"W
150–40	29°43'27.84"N	95°12'2.823"W
150–41	29°43'25.797"N	95°11'59.001"W
150–42	29°43'25.77"N	95°12'1.55"W
150–43	29°43'25.591"N	95°12'5.113"W
150–44	29°43'23.782"N	95°12'4.19"W
150–45	29°43'17.146"N	95°12'9.164"W
150–46	29°43'15.536"N	95°12'10.484"W
150–49	29°43'56.254"N	95°11'59.565"W
150–50	29°43'56.227"N	95°12'01.833"W
150–51	29°43'56.203"N	95°12'04.102"W
150–52	29°43'53.926"N	95°12'04.068"W
150–53	29°43'56.287"N	95°11'56.729"W
150–54	29°43'54.009"N	95°11'56.695"W
150–55	29°43'54.036"N	95°11'54.427"W
150–56	29°43'56.313"N	95°11'54.461"W
150–57	29°43'56.338"N	95°11'52.192"W
150–58	29°43'54.054"N	95°11'52.158"W
150–59	29°43'52.030"N	95°11'56.664"W
150–60	29°43'52.056"N	95°11'54.396"W
150–61	29°43'52.082"N	95°11'52.127"W
150–62	29°43'52.107"N	95°11'49.859"W
150–63	29°43'58.879"N	95°12'13.909"W
150–64	29°43'58.921"N	95°12'11.641"W
150–65	29°43'58.962"N	95°12'09.373"W
150–66	29°43'59.002"N	95°12'07.104"W
150–67	29°43'59.951"N	95°12'02.896"W
150–68	29°43'58.953"N	95°12'00.936"W
150–69	29°43'59.190"N	95°11'55.656"W
150–70	29°43'59.209"N	95°11'53.387"W
150–71	29°44'01.271"N	95°12'13.949"W
150–72	29°44'00.900"N	95°12'11.688"W
150–73	29°44'00.941"N	95°12'09.419"W

TANK CENTER		
TANK	LATITUDE	LONGITUDE
75–1	29°44'3.43"N	95°11'52.99"W
55–5	29°44'3.44"N	95°11'54.75"W
27–4	29°44'3.56"N	95°11'56.11"W
27–3	29°44'3.55"N	95°11'57.22"W
55–2	29°43'56.19"N	95°12'6.72"W
55–3	29°43'54.18"N	95°12'6.68"W
27–1	29°43'56.43"N	95°12'8.59"W
17–1	29°43'54.39"N	95°12'8.61"W
17–2	29°43'53.41"N	95°12'8.60"W
55–4	29°43'56.29"N	95°12'9.79"W
27–2	29°43'55.28"N	95°12'9.91"W
10–1	29°43'52.95"N	95°12'6.49"W
10–2	29°43'52.27"N	95°12'6.48"W
5–12	29°43'52.94"N	95°12'7.01"W
5–16	29°43'52.21"N	95°12'7.01"W
5–11	29°43'52.96"N	95°12'7.50"W
5–15	29°43'52.21"N	95°12'7.48"W
12–2	29°43'48.05"N	95°12'17.72"W
12–1	29°43'47.36"N	95°12'17.73"W
30–1	29°43'46.12"N	95°12'17.49"W
30–2	29°43'46.02"N	95°12'19.31"W
10–9	29°43'44.82"N	95°12'17.66"W
10–8	29°43'44.81"N	95°12'18.62"W
10–7	29°43'44.81"N	95°12'19.58"W
10–11	29°43'45.50"N	95°12'14.82"W



PLOT DATE: Sep 23, 2016–6:52AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
4	REVISED DWG. NUMBER	9/14/15	JEP	BLM	RJH
3	REVISED DOT TANKAGE	06–09–08	JLM	AJR	AJR
2	ADD PIT 9 TANKS / ADD PIT 8 COORDS	1–23–08	SGM	JW	JW
1	ADDED NEW TANKAGE	8–23–05	SGM	CTM	CTM
0	ISSUED FOR USE	3–24–03	X		

KINDER MORGAN

DRAWN S. MARTIN

CHECKED

APPROVED PROJ. ENGR.

APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

PASADENA TERMINAL

PLOT PLAN

DOT BREAKOUT TANKS

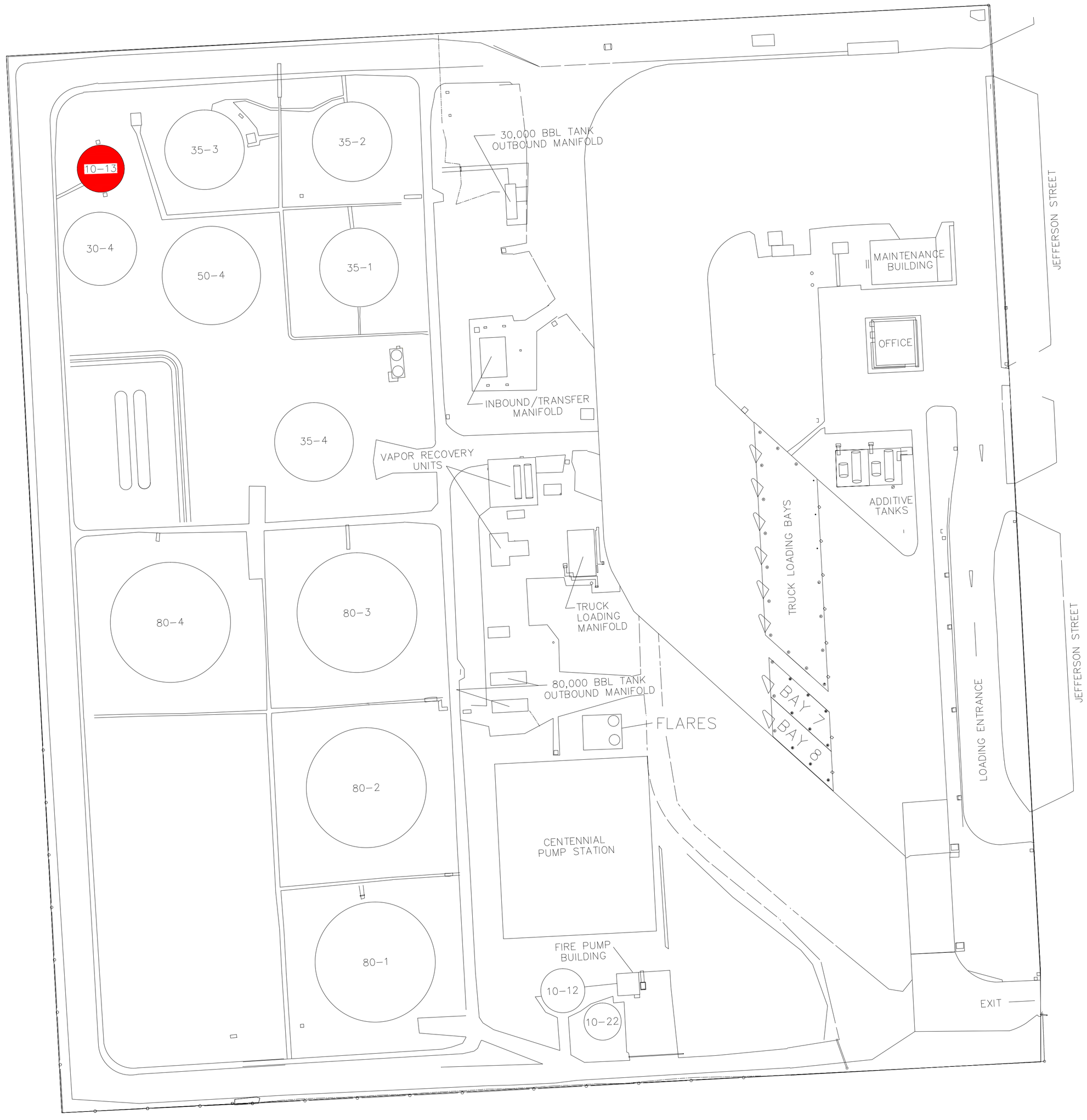
916 WITTER DRIVE, PASADENA,TEXAS 77506

DWG. NO. 76–MLP–0001

SCALE	TERMINAL	DATE
1" = 200'	76	2–07–03

TANK CENTER		
TANK	LATITUDE	LONGITUDE
10–13	29°43'6.222"N	95°11'7.599"W
35–1	29°43'6.363"N	95°11'6.518"W
35–2	29°43'6.391"N	95°11'4.986"W
35–3	29°43'6.363"N	95°11'6.518"W
80–1	29°42'58.964"N	95°11'5.025"W
80–2	29°43'0.543"N	95°11'5.058"W
80–3	29°43'2.13"N	95°11'5.096"W
80–4	29°43'2.098"N	95°11'7.031"W

TANK CENTER		
TANK	LATITUDE	LONGITUDE
30–4	29°43'5.46"N	95°11'7.68"W
50–4	29°43'5.14"N	95°11'6.49"W
10–12	29°42'58.66"N	95°11'3.12"W



DOT BREAKOUT TANKS

0 50 100 150 200 250

PLOT DATE: Sep 23, 2016–7:06AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
3	ADDED NEW FIREWATER TANK	9/23/2016	BLM	JG	RJH
2	REVISED DOT TANKAGE	04–15–16	JLM		
1	REVISED DWG. NUMBER	9/14/15	JEP	BLM	RJH
0	ISSUED FOR USE	3–24–03	SGM		

KINDER MORGAN

DRAWN S. MARTIN

CHECKED

APPROVED PROJ. ENGR.

APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

JEFFERSON STREET TRUCK RACK

PLOT PLAN

DOT BREAKOUT TANKS

400 JEFFERSON STREET, PASADENA TEXAS 77506

DWG. NO. 77–MLP–0001

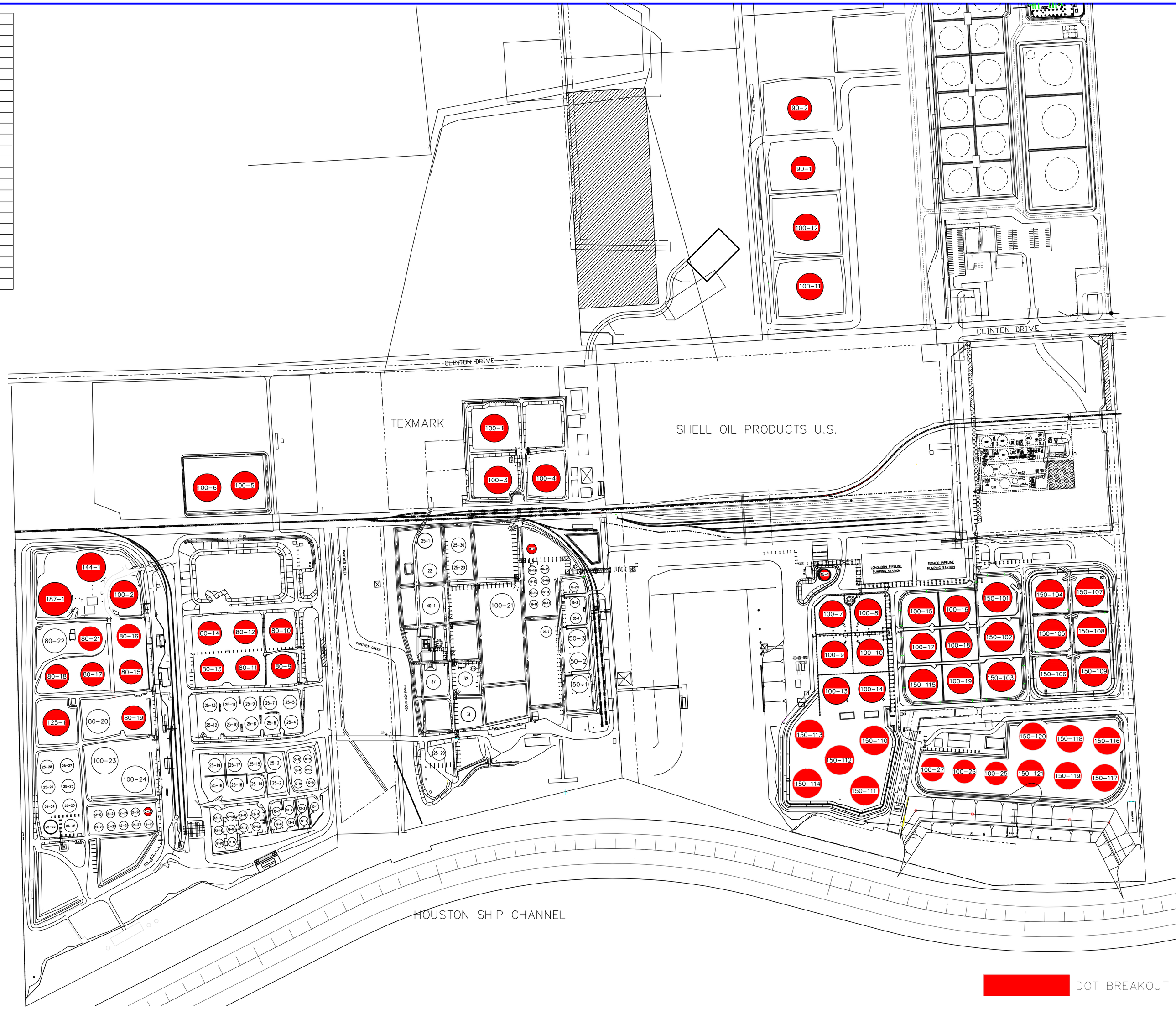
SCALE NONE | TERMINAL 77 | DATE 02–07–03

TANK CENTER		
TANK	LATITUDE	LONGITUDE
100-10	29°43'41.651"N	95°13'17.095"W
100-9	29°43'41.619"N	95°13'19.137"W
100-8	29°43'43.655"N	95°13'17.137"W
100-7	29°43'43.623"N	95°13'19.178"W
15-1	29°43'45.586"N	95°13'19.548"W
100-11	29°43'59.955"N	95d13'19.859"W
100-12	29°44'2.912"N	95°13'19.946"W
90-1	29°44'5.872"N	95°13'20.032"W
90-2	29°44'8.84"N	95°13'20.122"W
100-5	29°43'50.971"N	95°13'52.461"W
100-6	29°43'50.921"N	95°13'54.615"W
80-9	29°43'41.906"N	95°13'50.599"W
80-10	29°43'43.686"N	95°13'50.659"W
80-11	29°43'41.895"N	95°13'52.637"W
80-12	29°43'43.677"N	95°13'52.699"W
80-13	29°43'41.881"N	95°13'54.675"W
80-14	29°43'43.67"N	95°13'54.742"W
80-15	29°43'41.87"N	95°13'59.298"W
80-16	29°43'43.652"N	95°13'59.358"W
80-17	29°43'41.813"N	95°14'1.496"W
80-18	29°43'41.766"N	95°14'3.529"W
80-19	29°43'39.591"N	95°13'59.227"W
100-2	29°43'45.731"N	95°13'59.549"W
144-1	29°43'47.146"N	95°14'1.386"W
12-30	29°43'34.899"N	95°13'58.584"W
100-13	29°43'39.800"N	95°13'19.099"W
100-14	29°43'39.832"N	95°13'17.058"W
100-15	29°43'43.654"N	95°13'14.107"W
100-16	29°43'43.686"N	95°13'12.066"W
100-17	29°43'41.872"N	95°13'14.071"W
100-18	29°43'41.904"N	95°13'12.029"W
100-19	29°43'40.122"N	95°13'11.993"W
150-101	29°43'44.192"N	95°13'09.745"W
150-102	29°43'42.213"N	95°13'09.704"W
150-103	29°43'40.233"N	95°13'09.664"W

TANK CENTER		
TANK	LATITUDE	LONGITUDE
125-1	29°43'46.17"N	95°14'3.73"W
15-3	29°43'54.05"N	95°13'36.29"W
150-104	29°43'50.96"N	95°13'6.80"W
150-105	29°43'48.98"N	95°13'6.76"W
150-106	29°43'47.00"N	95°13'6.72"W
150-107	29°43'51.00"N	95°13'4.53"W
150-108	29°43'49.02"N	95°13'4.49"W
150-109	29°43'47.04"N	95°13'4.45"W
150-110	29°43'43.97"N	95°13'17.10"W
150-111	29°43'41.48"N	95°13'17.72"W
150-112	29°43'43.05"N	95°13'19.12"W
150-113	29°43'44.37"N	95°13'20.78"W
150-114	29°43'41.94"N	95°13'21.00"W
100-25		
100-26		
100-27		
100-116		
150-117		
150-118		
150-119		
150-120		
150-121		

TANK CENTER		
TANK	LATITUDE	LONGITUDE
187-1	29°43'45.50"N	95°14'3.63"W
80-22	29°43'43.46"N	95°14'3.76"W
80-21	29°43'43.47"N	95°14'1.70"W
80-20	29°43'39.40"N	95°14'1.35"W
100-23	29°43'37.38"N	95°14'0.87"W
100-24	29°43'36.54"N	95°13'59.15"W
25-28	29°43'37.22"N	95°14'4.36"W
25-27	29°43'37.24"N	95°14'3.23"W
25-26	29°43'36.24"N	95°14'4.31"W
25-25	29°43'36.25"N	95°14'3.17"W
25-24	29°43'35.21"N	95°14'4.29"W
25-23	29°43'35.26"N	95°14'3.15"W
25-22	29°43'34.22"N	95°14'4.25"W
25-21	29°43'34.26"N	95°14'3.13"W
12-22	29°43'34.79"N	95°14'1.51"W
12-24	29°43'34.80"N	95°14'0.79"W
12-26	29°43'34.82"N	95°14'0.07"W
12-28	29°43'34.82"N	95°13'59.36"W
12-21	29°43'34.15"N	95°14'1.50"W
12-23	29°43'34.17"N	95°14'0.77"W
12-25	29°43'34.19"N	95°14'0.06"W
12-27	29°43'34.21"N	95°13'59.35"W
12-29	29°43'34.23"N	95°13'58.62"W
25-13	29°43'40.04"N	95°13'54.91"W
25-11	29°43'40.05"N	95°13'53.77"W
25-9	29°43'40.06"N	95°13'52.64"W
25-7	29°43'40.05"N	95°13'51.47"W
25-5	29°43'40.05"N	95°13'50.35"W
25-12	29°43'39.04"N	95°13'54.87"W
25-10	29°43'39.04"N	95°13'53.72"W
25-8	29°43'39.04"N	95°13'52.58"W
25-6	29°43'39.06"N	95°13'51.42"W
25-4	29°43'39.06"N	95°13'50.28"W
5-20	DEMOED	
25-19	29°43'37.01"N	95°13'54.75"W
25-17	29°43'37.01"N	95°13'53.60"W
25-15	29°43'37.03"N	95°13'52.46"W
25-3	29°43'37.07"N	95°13'51.30"W
25-18	29°43'36.02"N	95°13'54.67"W
25-16	29°43'36.01"N	95°13'53.52"W
25-14	29°43'36.03"N	95°13'52.37"W
25-2	29°43'36.04"N	95°13'51.22"W
10-12	29°43'37.21"N	95°13'50.03"W
10-11	29°43'36.69"N	95°13'50.02"W
12-10	29°43'35.98"N	95°13'49.99"W
10-9	29°43'37.22"N	95°13'49.40"W
10-10	29°43'36.67"N	95°13'49.38"W
12-9	29°43'36.02"N	95°13'49.28"W

TANK CENTER		
TANK	LATITUDE	LONGITUDE
12-17	29°43'34.42"N	95°13'54.66"W
12-15	29°43'34.46"N	95°13'53.93"W
12-13	29°43'34.50"N	95°13'53.21"W
12-11	29°43'34.55"N	95°13'52.50"W
12-18	29°43'33.77"N	95°13'54.64"W
12-16	29°43'33.81"N	95°13'53.91"W
12-14	29°43'33.86"N	95°13'53.19"W
12-12	29°43'33.90"N	95°13'52.47"W
12-20	29°43'33.13"N	95°13'54.62"W
12-19	29°43'33.18"N	95°13'53.89"W
12-7	29°43'34.63"N	95°13'51.28"W
12-5	29°43'34.68"N	95°13'50.54"W
12-3	29°43'34.74"N	95°13'49.82"W
12-1	29°43'34.81"N	95°13'49.09"W
12-8	29°43'34.00"N	95°13'51.17"W
12-6	29°43'34.05"N	95°13'50.45"W
12-4	29°43'34.11"N	95°13'49.74"W
100-1	29°43'53.35"N	95°13'38.20"W
100-3	29°43'50.73"N	95°13'38.09"W
100-4	29°43'50.74"N	95°13'35.31"W
7	DEMOED	
25-1	29°43'47.89"N	95°13'42.34"W
22	29°43'46.51"N	95°13'42.33"W
40-1	29°43'44.49"N	95°13'42.17"W
25-30	29°43'48.14"N	95°13'40.48"W
25-20	29°43'46.64"N	95°13'40.45"W
37	29°43'40.82"N	95°13'42.08"W
32	29°43'40.94"N	95°13'40.23"W
3-9	29°43'41.46"N	95°13'39.75"W
31	29°43'39.14"N	95°13'40.17"W
25-29	29°43'37.24"N	95°13'41.89"W
100-21	29°43'44.52"N	95°13'38.01"W
10-19	29°43'46.27"N	95°13'36.21"W
10-17	29°43'45.63"N	95°13'36.16"W
10-15	29°43'45.00"N	95°13'36.11"W
10-14	29°43'44.37"N	95°13'36.06"W
10-20	29°43'46.31"N	95°13'35.48"W
10-18	29°43'45.67"N	95°13'35.45"W
10-16	29°43'45.04"N	95°13'35.40"W
10-13	29°43'44.39"N	95°13'35.35"W
20-2	29°43'43.19"N	95°13'35.52"W
10-21	29°43'45.36"N	95°13'33.85"W
15-2	29°43'44.60"N	95°13'33.81"W
20-1	29°43'43.79"N	95°13'33.79"W
50-3	29°43'42.76"N	95°13'33.77"W
50-2	29°43'41.61"N	95°13'33.75"W
50-1	29°43'40.46"N	95°13'33.75"W
3-10	29°43'42.76"N	95°13'41.72"W



PLOT DATE: Oct 23, 2015-9:46AM

CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
5	REVISED DWG. NUMBER	9/14/15	JEP	BLM	RJH
4	ADDED TANKS	10-01-13	JLM	BLM	RJH
3	ADDED TK-100-1/100-3/100-4 AS DOT	9-5-12	BLM	DS	DS
2	ADDED 10 NEW TANKS	1-23-08	SGM	CB	CB
1	REMOVED TANK 5-21 FROM DOT TANKS	4-19-04	SGM	RZ	RZ
0	ISSUED FOR USE	3-24-03	SGM		

KINDER MORGAN

DRAWN S. MARTIN
CHECKED
APPROVED PROJ. ENGR.
APPROVED REGIONAL ENGR.

THIS DRAWING IS THE PROPERTY OF KINDER MORGAN LIQUIDS TERMINALS AND MUST BE RETURNED UPON REQUEST. REPRODUCTION HEREOF OR TRANSMISSIONS OF THE INFORMATION HEREON MAY NOT BE MADE WITHOUT WRITTEN CONSENT. ALL PATENT RIGHTS ARE RESERVED.

GALENA PARK TERMINAL

PLOT PLAN

DOT BREAKOUT TANKAGE

906 CLINTON DRIVE GALENA PARK, TEXAS 77547

DWG. NO. 88-MLP-0001

SCALE 1" = 200' TERMINAL 88 DATE 02-07-03

APPENDIX H

REGULATORY CORRESPONDENCE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

March 13, 2018

Gary Cotie
Kinder Morgan Terminals
1001 Louisiana Street, Suite 1000
Houston, TX 77002

RE: Galena Park Terminal, FRP-06-TX-00024

Dear Mr. Cotie:

This letter is to notify you that the United States Environmental Protection Agency (EPA) has approved your Facility Response Plan. All appropriate liability requirements set forth in the Clean Water Act (CWA) 311(j)(5), as amended by the Oil Pollution Act of 1990 are still applicable. This regulatory approval was based upon technical review of the plan submissions. Please be advised that the EPA will continue to monitor your facility's approval status through site inspections and information validation.

If the EPA determines during its next review, or during field verification, that the response plan is inadequate, or if the EPA acquires information which indicates your response plan is inadequate to manage potential discharges, the EPA will require appropriate revisions to your plan. Failure to make such revisions may affect your plan's approved status.

If you have any questions concerning this letter, please contact my office at (214) 665-7368.

Sincerely,

Bryant Smalley
Oil Spill & Response Team Leader
Federal On-Scene Coordinator
USEPA R6 (6SF-EO)

APPENDIX I

REGULATORY CERTIFICATIONS

Certification of the Applicability of the EPA Substantial Harm Criteria

FACILITY NAME: Kinder Morgan Galena Park Terminal
FACILITY ADDRESS: 906 Clinton Drive, Galena Park, Texas 77547

(Detailed Facility information, including data required for the Response Plan Cover Sheet, follows this certification page)

1. Does the facility transfer oil over water to or from vessels ***and*** does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?	Yes		No	
	X			
2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons ***and*** does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?	Yes		No	
			X	
3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons ***and*** is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to 40 CFR Part 112 or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (59 FR 14713, March 29, 1994) and the applicable Area Contingency Plan.	Yes		No	
	X			
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons ***and*** is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to 40 CFR Part 112 or a comparable formula[1]) such that a discharge from the facility would shut down a public drinking water intake[2]?	Yes		No	
			X	
5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons ***and*** has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?	Yes		No	
			X	

[1] If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

[2] For the purposes of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

CERTIFICATION

I hereby certify the following:

- Under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.
- The information and procedures contained herein are considered to be accurate as of this date and are consistent with the National Contingency Plan (NCP) and applicable Area Contingency Plans (ACP) as detailed in Section 1.5.

Signature — Title: Terminal Manager

Robert Hammons — Name (please type or print)

6-26-17 — Date

Operator's Statement for DOT PHMSA Significant and Substantial Harm

FACILITY NAME: Kinder Morgan Galena Park Terminal
FACILITY ADDRESS: 906 Clinton Drive,
Galena Park, Texas 77547

Is the pipeline greater than 6 5/8 inches (168 millimeters) in outside nominal diameter, greater than 10 miles (16 kilometers) in length?

YES _____ NO X

If Yes, **and** if the line section meets one (1) or more of the following criteria:--

(1) Has experienced a release greater than 1,000 barrels (159 cubic meters) within the previous five years,

YES _____ NO X

(2) Has experienced two or more reportable releases, as defined in Sec. 195.50, within the previous five years,

YES _____ NO X

(3) Containing any electric resistance welded pipe, manufactured prior to 1970, operates at a maximum operating pressure established under Sec. 195.406 that corresponds to a stress level greater than 50 percent of the specified minimum yield strength of the pipe,

YES _____ NO X

(4) Is located within a 5 mile (8 kilometer) radius of potentially affected public drinking water intakes and could reasonably be expected to reach public drinking water intakes, or

YES _____ NO X

(5) Is located within a 1 mile (1.6 kilometer) radius of potentially affected environmentally sensitive areas, and could reasonably be expected to reach these areas.

YES X NO _____

Then the pipeline is considered a substantial harm facility.

CERTIFICATION

Based on the following criteria per 49 CFR 194, the Facility can be classified as substantial harm but not significant and substantial harm because the facility is less than 10 miles in length.

_____ Terminal Manager
Signature Title

Robert Hammons 6-26-17
Name (please type or print) Date

APPENDIX J

OTHER SUPPORTING DOCUMENTATION

Emergency Action Plan

Galena Park Terminal

Operated by:

Kinder Morgan Terminals

906 Clinton Dr.

Galena Park, TX 77547

Table of Contents

1 Record of Plan Revisions 4

2 Facility Description/Emergency Organization 5

2.1 PLAN SCOPE AND GENERAL INFORMATION 5

2.1.1 DESCRIPTION OF Galena Park terminal 5

2.1.2 WHAT IS THE PURPOSE OF THIS PLAN? 5

2.1.3 WHEN IS THE PLAN TO BE IMPLEMENTED? 5

2.2 FACILITY OWNER / OPERATOR INFORMATION 6

2.3 AUTHORZATION FOR NECESSARY RESOURCES 7

2.4 Command Structure and Key Personnel 8

2.4.1 EMERGENCY OPERATIONS CENTER (EOC) 9

2.4.2 Employee Responsibilities 10

2.4.3 Emergency Points of Contact (POC) 10

2.4.4 Off Site EOC 10

2.5 FACILITY EMERGENCY NOTIFICATION CODE SYSTEM 10

2.6 SAFE SEARCH TEAMS 11

2.7 FACILTY MAPS 11

2.8 MEDIA INTERACTION 12

3 Emergency Procedures 13

3.1 Fire 14

3.1.1 Fire Reporting and Response 14

3.1.2 Fire Types 14

3.1.3 Fire Evacuation 15

3.1.4 Flammable and Combustible Control 15

3.1.5 Petroleum, Oil and Lubricants (POL) Fuel Source Hazards 16

3.1.6 New Employee/Visitor Fire Hazards Brief 16

3.2 Spill/Vapor Release 16

3.2.1 Incident Notification 16

3.2.2 Spill Control 16

For small Spills and Leaks 16

3.3 Medical Emergencies 17

3.4 Severe Weather 17

3.4.1 Hurricanes 17

3.4.2 Tornadoes 17

3.4.3 Severe Thunderstorm Watch 17

3.4.4 Severe Thunderstorm Warning 17

3.4.5 Tornado Watch 17

3.4.6 Tornado Warning 18

3.4.7 Effects of High Winds 18

3.4.8 Emergency Notification System 18

3.4.9 Minimum Actions to Be Take Based on Specific Severe Weather Alerts 18

3.5 Flooding 19

3.5.1 Response 19

3.5.2 Recovery for Floods 20

3.5.3 Re-Occupancy 20

3.5.4 Infection Control 20

3.6 Power Outages 21
3.7 Bomb Threat 21
3.7.1 Telephone Bomb Threats 21
3.7.2 Mail Bombs 22
3.7.3 Management Responsibility 23
3.7.4 Bomb Threat Assessment 23
3.7.5 Bomb Threat Response Guidelines 23
3.8 Emergency Drill 25
3.9 Documentation 25
4 Post Incident Activity 26
4.1 INCIDENT DOCUMENTATION 26
4.1.1 REQUIRED REPORTS 26
4.2 RESPONSE CRITIQUE AND PLAN REVIEW AND MODIFICATION PROCESS 27
5.0 MOB Response 27

APPENDICES 31

1 Record of Plan Revisions

This Emergency Response Plan (ERP) shall be reviewed on an annual basis and amended, if necessary by the Terminal Manager. Amendments and / or reviews shall be documented in the table below. The plan must be amended in response to any changes in terminal design, construction, or operation that materially affect an emergency response.

Revision #	Date	Section(s)	Description of Change	Reviewed/Revised by:
0	8/31/2016	All	Initial issuance of plan.	M. Garner
1	3/13/17		Updated Safety Officer	M. Garner
2	4/11/16		Names/Phone #s, MOB, Appendix	M. Garner
3	3/11/19	1, 2, App. B	Names/Phone #	Midstream CRM

2 Facility Description/Emergency Organization

2.1 PLAN SCOPE AND GENERAL INFORMATION

2.1.1 DESCRIPTION OF Galena Park Terminal

The Galena Park terminal is a storage terminal on the Houston Ship Channel. Kinder Morgan Terminals is the terminal operator and is responsible for the day-to-day operation of the facility.

2.1.2 WHAT IS THE PURPOSE OF THIS PLAN?

This Emergency Action Plan is to be utilized by the Galena Park Terminal in the event of a fire, explosion, accidental release, or other natural or man-made emergency at this terminal. The purpose of this plan is to minimize hazards to human health, the environment, and property. The intent of this plan is to protect the work force, the surrounding community, the environment, and property from fire, explosion, or any unplanned sudden or non-sudden accidental release of hazardous or flammable commodities at this location, or other natural disasters. This plan is intended to meet the requirements of OSHA, 29 CFR 1910.38- Emergency Action Plan.

2.1.3 WHEN IS THE PLAN TO BE IMPLEMENTED?

In the event that one or more of the following emergencies occur, this contingency plan will be implemented immediately.

- Fire & Explosion: Any fire or potential fire that involves a commodity has the potential to spread, or has the potential to release toxic fumes. Any explosion or potential explosion that occurs in, on, or near the facility. This includes any fires of explosions involving hazardous waste operations or materials.

- Uncontrolled release of materials: Any release or potential release of hazardous material, petroleum-based material, hazardous waste or other material that may cause undesirable environmental damage.

- Vapor Release: Any release of toxic fumes and/or vapors, which may be hazardous to the personnel of the facility or the surrounding community.

- Acts of God: Any incidents related to weather or acts of God, which cause the facility to be in imminent danger.

- Security Incidents: Including terminal break-ins and bomb threats.

2.2 FACILITY OWNER / OPERATOR INFORMATION

Facility Name & Address:
Galena Park Terminal
906 Clinton Dr.
Galena Park, TX 77547

Phone: 713.703.9047
Fax:
County: Harris

Ownership ofFacility Kinder Morgan

Operator of Facility
Kinder Morgan
1001 Louisiana St, Suite 1000
Houston, TX 77002

Terminal Manager:
Robert Hammons
Office number: 713-654-6046
Mobile number: 281-844-0552
Ops Manager:
Corey McGuire
Office number: 832-690-5515
Mobile number: 832-963-4373

General Manager
Jeff Hersperger
Office Number: 832.900.5061
Mobile number: 713.202.9183

2.3 AUTHORZATION FOR NECESSARY RESOURCES

In the event of an emergency the first person on-scene is the Incident Commander (IC) until relieved by a more qualified individual. I hereby authorize the Incident Commander at this facility to commit the necessary resources in order to prevent and minimize harm to human health, the environment, and property in the event of an emergency at the facility.

Jeff Hersperger

Jeff Hersperger
Gulf Liquids General Manager
Kinder Morgan Terminals

Date

2.4 Command Structure and Key Personnel

As the emergency escalates, the following persons are trained and empowered to act as the IC. The Kinder Morgan IC will act as the IC until relieved by municipal response agencies or participate in a Unified Command structure for the incident. The IC is responsible for directing facility personnel and resources to safely mitigate any facility emergencies.

INCIDENT COMMANDER				
TITLE	**NAME**	**TITLE**	**HOME PHONE**	**CELL PHONE**
Incident Commander	Robert Hammons	Terminal Manager	NA	281-844-0552
Incident Commander Alternate	Corey McGuire	Operations Manager	NA	832-963-4373

During ANY emergency condition the Incident Commander's actions must be based upon the following decision factors:

1. **LIFE SAFETY** - Protection of life, health and safety of terminal employees, contractors, visitor and the general public.
2. **INCIDENT STABILIZATION** - Protection of the environment including surface water, air and land receptors.
3. **PROPERTY CONSERVATION** - Protection of property, equipment and customer products.
4. **SYSTEM AND BUSINESS RESTORATION –** In no case will business restoration take priority over the protection of human health and safety, the environment, or property protection

If the Incident Commander determines that the threat may extend to outside the facility, the Incident Commander will notify, or cause to be notified, the proper authorities for evacuation (Emergency Services). Only the proper emergency services (Police and Fire Departments) will direct evacuation of persons outside this facility. The Incident Commanders duties include but are not limited to:

1. Activating the appropriate Plan.
2. Identifying hazards and risks involved in the situation.
3. Activating internal facility alarms or communication systems to notify all applicable personnel.
4. Establishing a staging area for equipment, resources and personnel.
5. Setting up an initial perimeter for security and entrance.
6. Notifying, if needed, the Police Department, Fire Department, and any applicable State and Federal organizations.
7. Assuming overall authority for managing the emergency unless higher command arrives (e.g., Fire Department Chief).
8. Performing emergency response termination procedures.
9. Conducting emergency response critique and arranging follow-up procedures.
10. Stopping an activity if a safety concern arises.

If an emergency escalates additional roles may be required to manage equipment & resources, establish additional support facilities, and maintain communication during the incident. The following key personnel at this facility have been trained to fill the following roles:

INCIDENT COMMAND SYSTEM - KEY PERSONNEL		
TITLE	**NAME**	**CELL PHONE**
Site Safety Officer	Greg Allen	713.447.8856
Ops Section Chief	Field Controller	713.703.9047
Logistics/Planning Section Chief	Gary Tredup Allen Rhodes	713-248-3078 713-201-8762
Financial/Administrative Section Chief	Andy Wu	281-620-8735
FIRST AID / MEDICAL PERSONNEL:		
ERT Members	ERT Members	Radio Channel – GP Ops 1
AREA/REGION SAFETY COORDINATOR:		
Regional EHS Manager	Tony Bundick	713-208-9795

During some emergency situations, it will be necessary for some specially assigned personnel to remain at the work areas to perform critical operations. Critical Operations Personnel are trained annually on the following procedures:

- T-O&M 1101-Response to Notice of Emergency or Abnormal Operations
- T-O&M 11002-Response to Abnormal Operation (Pressure & Flow Control)

Personnel involved in critical operations may remain on the site upon the permission of the Incident Commander or the site designated official. The following are the assigned critical operations personnel:

Critical Operations Personnel		
Work Area	**Job Title**	**Description of Assignment**
Control Room	Controller	Pipeline Controller

2.4.1 EMERGENCY OPERATIONS CENTER (EOC)

The Emergency Operations Center (EOC) shall be activated during an emergency that has overwhelmed the normal day to day functions of the onsite first responders/ERT members or when the Incident Commander determines EOC activation is necessary. In addition to the EOC if additional support is needed, the Crisis Support Team (CST) shall be activated. The following defines the levels of incidents and at which the EOC should be activated:

- ***Level "0" First Responder (No danger)***
- ***Level "1" ERT Activation (Minimal)***
- ***Level "2" EOC/ERT Activation (Moderate)***
- ***Level "3" EOC/ERT/CST Activation (Extreme)***

The HBU Training Room will serve as the EOC for any emergency affecting the terminal. If the HBU Training Room is untenable due to fire, vapor release or terminal evacuation a temporary EOC will be established off site at the gathering point.

2.4.2 Employee Responsibilities

- When an evacuation is ordered the designated employee will take the visitors log to the rally point unless recovering the log threatens injury or life.
- The EAP Grab Binder(s) should be taken to the rally point.
- When possible, within the first five minutes of the evacuation the designated employee will take a roll call listing all visitors on the roll call sheet located in Appendix A of the EAP Grab Binder and verify all employees and visitors are present.

2.4.3 Emergency Points of Contact (POC)

The Emergency POCs are maintained in Appendix B of the EAP Grab Binder. The Emergency POCs are to be up to date at all times.

2.4.4 Off Site EOC

In case the emergency situation does not permit any of the personnel to remain at the facility, the IC or other site designated official shall notify the appropriate offices to initiate backups.
The following offices should be contacted (if applicable):

Name/Location: **Park 225**

An offsite EOC should be established at the above listed location. The role of the Off Site EOC is to coordinate support with external agencies during terminal emergency evacuation operations and provide a communication link to senior management. The IC has the responsibility to report their incident status and necessary resource requests, to manage the incident, to outside agencies and Kinder Morgan EOC.
The following materials should be taken to ensure continuity of communications and response:

1. Emergency Response Grab Binder(s)
2. Copy of facility SDS
3. Customer Contact List
4. Means of communication (cellular telephone, terminal portable radio).

2.5 FACILITY EMERGENCY NOTIFICATION CODE SYSTEM

The terminal uses portable radios for normal operating communications. These radios operate on a designated private frequency. The terminal emergency notification system will use these portable radios for notification of both initial emergency on the terminal and personnel notification of emergency type. Prior to being allowed on the terminal yard, all employees, contractors and visitors will be provided with a safety briefing. In addition to radio communication, the Whelen alarm will be sounded and given direction.

Employees are trained and will receive periodic re-training on incident reporting and the notification code system. Records of this training will be maintained as part of the terminal safety training procedures.

- EVACUATE ALARM - Shut down all equipment and all personnel assemble at evacuation points
- MUSTER ALARM - Shut down all equipment and all personnel assemble at muster points
- SHELTER IN PLACE – Seek shelter if working outside
- ALL CLEAR – The emergency situation is fully resolved and return to normal operations
- LIGHTNING ALARM- Shut down all work and seek shelter

Incident Termination: The IC will have the sole authority and responsibility to sound the all-clear based upon incident conditions, local responders or other authority.
Upon notification or realization of an emergency condition, the IC will use the appropriate action guides to take protective actions and notifications necessary of-site resources and internal chain of command contacts listed in Appendix B. If the IC judges that the threat may extend to outside the facility, the IC will notify, or cause to be notified, the proper authorities for evacuation (Emergency Services). Only the proper emergency services (Police and Fire Departments) will direct evacuation of persons outside this facility.

Upon hearing an Emergency Notification Alarm, all office, yard and shop personnel will do the following unless otherwise instructed by the IC or his/her designee:

1. Sound Whelen Alarm
2. Shut down all on-going systems (valves, vehicles, motors, pumps, etc.)
3. Clear aisles and drives for emergency traffic/vehicles
4. Report to the assembly area. The assembly area for this facility is:
   Muster Area # 5: Fire house
   Muster Area # 6: 5-9 Building
   Muster Area # 7: Contractor Gate
   Muster Area # 8: HBU North Fence
5. The IC will ensure that all persons and personnel, outside vendors, and visitors are present and accounted for.

2.6 SAFE SEARCH TEAMS

In some emergency situations a safe search team, comprised of Kinder Morgan ERT members, (minimum of two persons per team) may be needed to locate missing employees or visitors. Safe search teams are limited to conducting searches that do not impose any threat to the searcher and are to be conducted utilizing voice and visual techniques. Constant contact must be maintained with the Incident Commander.

2.7 FACILTY MAPS

Facility map(s) are placed in strategic locations throughout the terminal and Appendix D of this plan. The facility map(s) contain the following information:

1. Rally Points/Muster locations and evacuation routes for the Terminal are located in the following areas as noted in the site map(s):
   Muster Area # 5: Fire house
   Muster Area # 6: 5-9 Building
   Muster Area # 7: Contractor Gate
   Muster Area # 8: HBU North Fence
2. Building Emergency Exits/Evacuation Routes
3. Emergency Shutdown Devices (ESDs) **Appendix D**
4. Evacuation Routes
5. First Aid Stations
6. Eye washes/showers
7. Fire extinguishing equipment
8. Meeting Location

MEDIA INTERACTION

No person at the facility is authorized to speak or respond to the media when this plan is enacted. All inquiries by the media shall be referred to Kinder Morgan Corporate Communications:

Kinder Morgan
Corporate Communications
1001 Louisiana St, Suite 1000
Houston, TX 77002

Phone:
1. 713-369-8060
2. 713-369-9176
3. 713-420-6828

The only appropriate response to the media is as follows:

No one at this facility, including myself, is authorized to respond to a media inquiry. Any request for information should be addressed to Media Communications of Kinder Morgan. The address and phone number for that person is:

Corporate Communications
1000 Louisiana Street, Suite 1000
Houston, TX 77002

1. 713-369-8060
2. 713-369-9176
3. 713-420-6828

The media should be kept as far away as possible. The security forces at the facility should be in charge to keep all spectators, including the media, at a safe distance.

Unless specifically authorized by the Media Communications, at no time will the media be allowed on the facility property, to take photographs, video or audio recordings. If the media requests to take photographs, video or audio recordings, they may only do so if Media Communications specifically permits and controls the media.

3 Emergency Procedures

Emergency equipment at the facility is listed in Appendix

3.1 Rescue and Medical Aid

3.1.1 Immediate Emergency Response

Search and Rescue efforts, as part of any EAP, inherently have safety risk associated with the activities. In the event of an emergency there will not be time for a JHA, but as part of drilling & preparation safety issues must be addressed. A JHA should be prepopulated for rescue activities prior to an emergency.

3.1.2 Safe Search Team

In some emergency situations a safe search team (minimum of two persons per team) may be needed to locate missing employees, contractors or visitors. Safe search teams are limited to conducting searches that do not impose any threat to the searchers and are to be conducted utilizing voice and visual techniques. Constant contact must be maintained with the Terminal/Facility Manager or Incident Commander.

3.1.3 Rescue and Medical Aid

If it is necessary to rescue personnel and/or perform medical aid treatment, only trained assigned personnel should perform these functions. All personnel assigned these functions are required to keep their training current. The administering of First Aid/CPR is strictly voluntary “Good Samaritan”. Any person administering First Aid/CPR on a voluntary basis who feels that they may have come in contact with blood or other potentially infectious material will accompany the injured to the clinic or hospital for treatment and/or evaluation

MOB Technical Rescue

If it becomes necessary to conduct Man Overboard (MOB) rescue, only properly trained personnel with the correct equipment should attempt retrieval of a MOB victim from the water. Personnel attempting rescue must be adequately trained on the unique circumstances of water rescue, and practice with the equipment used for water rescue. Emphasis on Rescuer Safety is paramount in these cases to avoid the Rescuer from becoming a victim. The primary goal of water rescue is to (1) get the victim out of the water and (2) keep the victim warm & transport where 1st Aid can be adequately administered. Refer to Section 5 of the EAP for details on MOB Response & Rescue.

3.2 Emergency Shutdown

When an emergency shutdown is determined to be necessary, the Terminal/Facility Manager or Incident Commander will assign properly trained personnel to shut down critical operations to assure proper emergency control.

3.3 After Action Review

After each incident, the incident and Emergency Response Plan shall be reviewed and revised as necessary. This review shall involve answering the following questions:

1) What caused the emergency?
2) Was it preventable? If so, how?
3) Were inadequate or incorrect orders given or actions taken?
4) Were these the result of bad judgment, wrong or insufficient information, or poor procedures?
5) Can procedures or training be improved?

See appendix Z for template

3.4 Fire

3.4.1 Fire Reporting and Response

In some instances, immediate action can be taken to eliminate the emergency condition prior to further notification. Employees must use their own judgment, experience, and training to make this decision. Fire/Explosions Emergency Checklist is located in Appendix G of the EAP Grab Binder. When required perform notification as follows:

1. Notify Kinder Morgan ERT, Police if necessary, and the Terminal Manager in all incidents, giving the following information:
    - Name and Title
    - The nature of the emergency
    - Any known injuries
    - The exact location and best entry point
2. An ERL (Emergency Response Line) may be required per T-O&M 159 Incident Reporting and Investigation.

3.4.2 Fire Types

3.4.2.1 Contained

These are small fires that are easily extinguishable. The following steps should occur for contained fires:

- Trained personnel should extinguish fire with fire extinguishers.
- As soon as a fire is detected, the Terminal Manager and ERT, if necessary, are to be notified immediately.
- The Incident Commander will determine the appropriate response and whether evacuation is necessary.
- Confine fire by closing doors and windows to area involved.
- Clean up and sanitation procedures should not commence until directed by the Incident Commander to ensure any required investigation and reporting evidence is gathered.
- Terminal Manager will file a report in accordance with T-O&M 159 Incident Reporting and Investigation.

3.4.2.2 Uncontrollable

These are fires that cannot be easily contained and extinguished with fire extinguishers. This includes fires close to the building that are possible threats. The following steps should occur for uncontrollable fires:

- The alarm should be sounded for a full evacuation and Terminal Manager notified.
- The Terminal Manager will determine whether to conduct an emergency or controlled shutdown.
- All non-essential employees will evacuate through the nearest and safest route to the Primary Rally Point unless otherwise directed.
- Employees should close all windows, doors and turn off equipment and lights if it does not pose a threat to their safety. All doors should remain unlocked.
- Roll call will be held in accordance with section 2.4.2 of this plan. If there are any missing employees or visitors a safe search will be conducted in accordance with section 2.6 of this plan.
- Any missing persons that cannot be accounted for should be communicated to the ERT for search and rescue with their name and last known location.
- Personnel are not to return to the evacuated area until given the all clear by the Incident Commander after the scene has been deemed safe.

3.4.3 Fire Evacuation

In the event of a fire evacuation employees should practice "RACE"

R	Remain calm
A	Alarm, activate nearest alarm pull, verbally inform employees
C	Contain fire at point of origin by closing windows and doors
E	Evacuate

In addition to following the guidelines of this plan you should:

- Prepare to evacuate by way of nearest exit (see facility map(s)).
- Close, but do not lock doors as you leave.
- Before exiting through any close door, check for heat and the presence of fire behind the door.
- In the event you are unable to exit the building:
  - Remain calm.
  - Remain low, crawl if necessary.
  - Place a cloth, wet if possible, over your mouth to serve as a filter
  - Signal for help from a window and/or call 911 or employee on site by cell phone or office phone.
- Upon exiting building go to primary rally point unless otherwise directed by the Incident Commander.
- Cessation of an alarm or departure of the ERT is not an "all clear" only re-enter the building when given the all clear to return by the Incident Commander.
- Assist Visitors during the emergency situation.

3.4.4 Flammable and Combustible Control

Flammable and Combustible Control will be accomplished in accordance with T-O&M 119 Flammable/Combustible Liquid Storage

3.4.5 Petroleum, Oil and Lubricants (POL) Fuel Source Hazards

Only limited quantities of POL will be maintained at this terminal.

3.4.6 New Employee/Visitor Fire Hazards Brief

New employees and visitors are to be given a safety brief upon initial arrival to the terminal that includes fire safety.

3.5 Spill/Vapor Release

3.5.1 Incident Notification

If a spill or release occurs the IC shall be established and the Terminal Manager shall be immediately notified. The Terminal Manager will gather information pertaining to the incident and contact the EHS and initiate reporting procedures in accordance with T-O&M 159 Incident Reporting and Investigation. The Spill Response Checklist is located in Appendix H and shall be used in the event of a spill. The Vapor Release Checklist is located in Appendix I and shall be used in the event of a vapor release.

3.5.2 Spill Control

For small Spills and Leaks

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Use water/foam spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- Prevent spreading of vapors through sewers, ventilation systems and confined areas.
- Isolate area until gas has dispersed.

3.5.2.1 Basic Control

Basic control is the first step taken to prevent further release of the spill. Basic control may include shutting off a valve or shutting down a piece of machinery.

3.5.2.1.1 Containment

There are four types of procedures that can be taken to keep the involved material in its container.

1. Shut-off Valves: Shut-off valves may cause spills or releases. Ensure that all shut-off valves on the affected cylinder and/or drums are properly closed and secured.
2. Plugging: Plugging devices may be placed or pounded into a penetration to stop a leak. Pieces of wood, golf tees, soap or stakes wrapped with cloth may be used. Metal objects shall not be used for plugging purposes due to the possibility of sparking.
3. Patching: Materials like clay or putty may be used to patch a leak. Look for decomposition of the patching compound as well as the possibility of the build-up of internal pressure, which could cause the patch to fail.
4. Over-packing: Over-packing is accomplished by placing a damaged container into a larger undamaged container.

3.5.2.1.2 Confinement

There are three types of procedures which can be used to keep a material in a confined area.

1. Diking: Materials like sand, earth, straw or absorbent material can be placed around the perimeter of the leak. The type of diking material used shall be compatible with the spilled hazardous material.
2. Blocking: Drains, ditches or storm sewers shall be covered or a dike built to prevent run-off of spilled materials. Blocking can be accomplished with absorbent pads or a heavy piece of plastic.
3. Absorption: Run-off can sometimes be absorbed with dirt, sand, soda ash, saw dust, vermiculite or other absorbent materials. The absorbent material shall be positioned so that the spilled material runs into it. Care shall be taken to ensure that the absorbent is compatible with the spill.

3.6 Medical Emergencies

In the event of a Medical Emergency, including those from accidental exposures, the supervisor shall notify Kinder Morgan ERT for medical assessment of the individual. If the emergency is life threatening, call 911 immediately. For a list of medical clinics, refer to Appendix B.

3.7 Severe Weather

The purpose of this Severe Weather Plan is to provide a course of action to be used during a severe weather event to minimize the potential for injury and loss of life that can result during a severe weather event. This plan should be reviewed at least annually by all employees to ensure that everyone knows where the severe weather shelter area is and what to do when the severe weather siren activate. Tornadoes develop from high winds associated with thunderstorm activity or in conjunction with hurricanes. Typically spring and late summer thru early fall seasons provide the best conditions conducive to tornado formation, although, a tornado can form during any season.

3.7.1 Hurricanes

See the Gulf Liquids Hurricane Plan.

3.7.2 Tornadoes

The National Weather Service has defined four severe weather alerts that are of concern. The actions recommended are intended to be the minimum responses necessary for this severe weather plan. The Tornado Checklist in Appendix K will be used.

3.7.3 Severe Thunderstorm Watch

A severe thunderstorm watch means weather conditions are such that a severe thunderstorm could develop, but has not at this time. This alert usually lasts for five or six (5 or 6) hours.

3.7.4 Severe Thunderstorm Warning

A severe thunderstorm warning means a severe thunderstorm has developed and will probably affect those areas stated in the alert message.

3.7.5 Tornado Watch

A tornado watch means weather conditions are such that a tornado could develop, but has not at this time. This alert usually lasts for five or six (5 or 6) hours.

3.7.6 Tornado Warning

A tornado warning means a tornado has formed and was indicated by weather radar or sighted, and may affect those areas stated in the alert. This alert usually lasts for one (1) hour.

3.7.6.1 Tornado Danger Signs

- Dark, often greenish clouds- a phenomenon caused by hail
- Wall cloud—an isolated lowering of the base of a thunderstorm
- Cloud of debris
- Large hail
- Funnel cloud—a visible rotating extension of the cloud base
- Roaring noise

3.7.7 Effects of High Winds

The causes of damage to buildings by a tornado may be classified in one of three categories which include: extreme winds, missiles, collapse. All buildings have at least one undesirable structural feature relating to the effects of a tornado. Examples are: large areas of glass, long roof/ceiling spans, wind tunnels, and load-bearing wall construction. If you should be trapped in a building and cannot evacuate, you should observe the following:

- Avoid glass
- Avoid interior and exterior doors
- Utilize interior spaces with short spans
- Keep occupants as far away as possible from entrances
- Avoid areas expected to become wind tunnels
- Put as many walls as possible between you and the exterior of the building

3.7.8 Emergency Notification System

Severe weather alerts are transmitted by three means: via severe weather radios, Whelen alarm, and internet located within the terminal office.

3.7.9 Minimum Actions to Be Take Based on Specific Severe Weather Alerts

- SEVERE THUNDERSTORM WATCH-Be aware that conditions may be ripe for the development of a tornado.
- SEVERE THUNDERSTORM WARNING-Review your severe weather action plan. Usual activities can continue but be prepared to seek shelter. Avoid going outside if possible.
- TORNADO WATCH-Review your severe weather action plan. Usual activities can continue but be prepared to seek shelter.
- TORNADO WARNING-When a tornado warning is issued, activating the sirens and broadcasting a tornado warning via the severe weather radios, all supervisors shall immediately lead their employees to the tornado shelter. Persons responsible for severe weather radios in the building should unplug them and take them to the shelter area to monitor for additional warnings. The designated employee should bring the visitors log.

Roll call should be taken within 3 minutes. The tornado shelter door should not be opened. Under no circumstances should persons leave the shelter during a warning.

The warnings will last for an hour from the last siren unless a shorter time is indicated by the National Weather Service. Building occupants should remain in the shelter area for at least that long unless a new warning is issued and the sirens activate again, or the National Weather Service issues a release.

Remember, you typically have only three minutes to reach a shelter so do not delay. Waiting can mean the difference between life and death. Everyone must be familiar with the location of the severe weather shelter area. Persons in the shelter should tune to local radio stations, their severe weather radio, and/or a NOAA weather radio for additional information.

3.7.9.1 Severe Weather Kits

The tornado shelter should have a Severe Weather Kit. The kit should include the following items:

- Flashlight(s), with extra batteries
- Battery operated Radio, with extra batteries
- NOAA Weather Radio if available
- First-aid Kit
- An A-B-C-type fire extinguisher

3.7.9.2 Floor Plan & Shelter Area Identification

Floor plans and tornado shelter area are located along with the facility map of this plan as well as posted throughout the terminal.

3.7.9.3 Measures to Be Taken for a Tornado Touchdown at the Terminal

In the event of a touchdown on the premises all employees should assume the tornado position if they are unable to reach the tornado shelter. After contact all employees not in the tornado shelter should move to the tornado shelter area to be accounted for by the Activities Coordinator. The Terminal Manager or designated employees should assess the situation and contact the appropriate emergency response units. First Aid responders will administer first aid to those in need. Appropriate measures should be taken to extinguish any fires as detailed in section 5 of this plan.

3.8 Flooding

The following plan has been developed to establish appropriate procedures for responding to a flood emergency that affects terminal operations. A flood emergency exists if floodwater is uncontrolled and flowing beyond the area where the source of water is normally contained or controlled.

3.8.1 Response

When flooding is expected in the terminal area the Incident Command Team will meet to evaluate the potential to flood. After evaluation, if it is determined that it is very likely that buildings will flood or flooding is actually occurring the following preventive action shall be taken:

- Terminal Manager will notify the IC to initiate response utilizing the Flood Checklist Appendix L.
- The Incident Command Team shall check drainage to ensure it is functioning properly
- Supplies such as sand bags, flash lights, submersible pumps, hoses and emergency generators shall be obtained to prevent the flow of water into buildings and water sensitive product areas.

- Incident Command Team shall wear PPE as designated by EHS
- If flooding occurs and water begins accumulating EHS and the Terminal Manager shall conduct a hazard assessment of flooded areas prior to entry by response personnel. If EHS is not yet on site the Terminal Manager may conduct an assessment over the phone with EHS. EHS shall assess the following hazards:
    - health hazards (e.g., contaminated water either hazardous or bio-hazardous)
    - physical hazards (e.g., building design, existence of submerged office)
    - energized water, rushing water
- If safe to do so Incident Command Team shall de-energize any electrical equipment and outlets in the affected area. If flood occurs, maintain all safe and reasonable efforts to protect, buildings, products and equipment
- The Incident Command Team shall designate personnel to move any equipment, supplies or products to higher areas
- All non-essential personnel shall be evacuated
- Activities coordinator shall restrict access to the affected area by appropriate means

3.8.2 Recovery for Floods

Recovery for floods shall be handled as follows:

- Incident Command Team shall determine if any building systems (e.g., fire alarm, fire suppression), building equipment or building materials have been affected and the extent of the damage.
- If the water is not considered hazardous Incident Command Team shall initiate water removal activities.
- Terminal Manager or EHS shall immediately contact remediation professionals if damaged building materials need to be removed or dried and disinfected or when the water is hazardous.
- The affected areas shall be evaluated for safety hazards (e.g., open walls building materials, tools left out in the area) or any health concerns (e.g., mold/fungal growth due to the flood or contaminated materials). Once those concerns have been addressed and resolved, EHS shall declare areas safe for re-occupancy

3.8.3 Re-Occupancy

EHS shall be responsible for assessing areas affected by a flood for re-occupancy. The affected areas shall be declared ready for re-occupancy when the construction work is complete or near complete and no longer poses a hazard to the occupants. The area shall be assessed to ensure that all wall and floor openings are closed up, tools and equipment have been removed from the area, and building systems (e.g., ventilation, fire alarm) have been restored.

3.8.4 Infection Control

When there is a possibility that water from flooding is hazardous or bio-hazardous, a remediation contractor shall complete the entire clean-up. The remediation contractor shall coordinate with EHS to determine appropriate remediation procedures, including infection control. EHS shall ensure that those remediation procedures are followed. The remediation contractor shall use appropriate disinfecting agents to clean affected areas when drying of or removal of building materials is complete. The remediation contractor shall decontaminate any equipment that is in the affected area during flooding from hazardous or bio-hazardous water.

3.9 Power Outages

The terminal may experience a power outage with or without severe weather in the area. Whenever a loss of power occurs, the emergency lighting units will be activated. If the power is soon restored, no significant action should be taken.

If the power is not restored immediately, all employees must shut down any equipment they are using that might cause damage or injury when the power is restored. After securing the work area, all employees are to go immediately to the main break area where they can be accounted for and remain there until power is restored or they are released by the Terminal Manager. After roll call is taken, the Incident Commander will send search teams in accordance with section 1.15.1 of this plan.

The Terminal Manager should contact the utility company as well as emergency services as needed.

Note: In some circumstances, the handset on a fax machine can be used to make phone calls when the main phone system is not working.

The Terminal Manager should gather information and make a determination of the magnitude of the outage to take appropriate action.

3.10 Bomb Threat

The purpose of responding to a bomb threat is to minimize injuries, damage to property, and disruption of terminal operations. When responding to a bomb threat the Terminal Manager or Incident Commander will order buildings secured, control traffic and employee/visitor movement, and obtain as much initial information as possible.

This section will cover bomb threat and evacuation. It describes the actions to take when a bomb threat is received.

Bomb threats are usually received by telephone or mail. Or they may be discovered by noticing a suspicious item. Each method requires special procedures to effectively obtain the maximum amount of information from the threat source.

The most popular method of making bomb threats is by telephone. It is important that as much information as possible be received from the caller. All bomb threats should be taken seriously. However, experience has shown that most anonymous threat calls are a hoax, intended to create an atmosphere of anxiety and panic in order to interrupt normal activities. Therefore, absent positive target identification (PTI) indicators or other credible information, an evacuation may not be considered appropriate.

3.10.1 Telephone Bomb Threats

When a telephone bomb threat is received, someone has actual knowledge that a device has been planted or a prankster wishes to disrupt an operation. Noting what is said and how it is said during a bomb threat call can help determine which of these reasons is true. The person receiving the call may be the only person to ever have contact with the potential bomber. When a bomb threat is received, the receiver must know what to do and how to do it, or valuable information will be lost. The Bomb Threat Checklist in Appendix M will be used if a bomb threat call is received.

Signaling another employee to listen in on the call is worked out in advance where working arrangements allow observation. The second person concentrates on the characteristics of the caller and any background

noises. The receiver of the call concentrates on the exact words of the caller. The receiver must try to keep the caller on the phone as long as possible to allow time to recognize background noises and gain additional information.

The receiver asks the caller for specific information as shown on the Bomb Threat Checklist. If the caller describes what it looks like, how it operates, and its general characteristics, this is known as a descriptive bomb threat. A descriptive bomb threat is probably real. The receiver documents the exact wording of the threat. For example, if the caller says, "Mary Jones, there is a bomb planted at your terminal. You and your coworkers have 20 minutes to clear out," the receiver must note all of that information.

Recording the exact date and time of the telephone phone call is important. By determining the time of the bomb threat, identification of the bomb site by background sounds may be possible.

The bomb threat checklist was developed to be placed near telephones. The Bomb Threat Checklist should be placed under telephones when possible for easy access.

The person receiving the bomb threat call immediately reports to the designated supervisor or security person with the completed bomb threat checklist. This action will facilitate proper emergency notifications and help lessen the possibility of panic. The receiver does NOT spread the word about the bomb threat before notifying the supervisor who then notifies the proper authorities and makes the decision to evacuate.

3.10.2 Mail Bombs

A small number of explosive devices have been mailed over the years resulting in death, injury, and destruction of property. A bomb can be enclosed in either a parcel or an envelope, its outward appearance limited only by the imagination of the sender. However, past mail bombs have exhibited some unique characteristics which can assist in identifying a suspect mailing.

A recipient of mail, who is suspicious of a letter or parcel and cannot verify the contents with the addressee or sender, must not open the article or put it in water or a confined space like a desk drawer or a filing cabinet. Recipients must isolate the suspected mail and evacuate the immediate area. If possible, windows are opened in the immediate area to help vent potential explosive gases. The proper authorities are immediately contacted to report the suspected mail bomb.

The following are some characteristics of mail bombs:

- Mail bombs may bear restricted endorsements such as "personal" or "private" when the addressee does not normally receive personal mail at the office
- Addressee's name and/or title may be inaccurate
- Mail may reflect distorted handwriting
- The name and address may be prepared with homemade labels or cut-and-paste lettering
- Mail may have protruding wires, aluminum foil, visible oil stains, and/or they may emit a peculiar odor
- Mail may have and excessive amount of postage stamps affixed
- Mail may feel rigid or appear uneven or lopsided
- Parcel bombs may be unprofessionally wrapped with several combinations of tape used to secure the package and may be marked "Fragile--Handle With Care" or "Rush--Do Not Delay"

- Parcel bombs may be an irregular shape or have soft spots or bulges
- Parcel bombs may make a buzzing or ticking noise or a sloshing sound
- Pressure or resistance may be noted when removing contents from an envelope or parcel

3.10.3 Management Responsibility

In all cases of bomb threats, the Terminal Manager will assess the seriousness of the threat using the following bomb threat assessment and bomb threat response guidelines. The manager should also notify law enforcement authorities.

3.10.4 Bomb Threat Assessment

When receiving a bomb threat the Terminal Manager should determine the credibility of the threat by considering:

- Time of day and day of week the threat is received
- Mode of the threat- telephone or mail
- Identity of the caller- child, male/female, young/old, drunk, foul language
- Specificity of the threat- time, location, type of explosive device
- Possibility of access to allow placing of the device

Did the caller identify any of the following PTIs?

- Time bomb is to detonate
- Target to be destroyed
- Bomb's construction, shape, or description
- Bomb's location

3.10.5 Bomb Threat Response Guidelines

3.10.5.1 Response

- Searches will normally be the most appropriate choice and should generally be the chosen response, if no PTIs or only one PTI was given in the threat.
- Evacuations should be ordered only when the call is judged to be serious, the threat credible, there is insufficient time to conduct a thorough search, and the judgment is made that employees will be at less risk evacuating or moving to a safe haven than remaining in place and seeking cover. If two or more PTIs are given in the bomb threat call, an evacuation is to be ordered.

3.10.5.2 Execution

- Initiate notification to employees and visitors
- Determine who is to search and in what area. In general, employees should search their own area to determine if there are any suspicious objects. Common areas should be searched by those most familiar with the areas.
- Notify public law enforcement and emergency services as appropriate; notify immediately if a suspicious object is found.
- If appropriate, determine who is to be evacuated and to what location.

- If evacuation is ordered before a search is done, determine for how long. Consider inclement weather and possible effect on operations if evacuation occurs at or near shift change.
- Ensure that roll call is held to account for all persons ordered to evacuate and determine that they have in fact evacuated and there is an orderly shutdown of operations, if required.
- Coordinate with local authorities to determine if the area needs to be searched and when operations can resume and people can return to their work stations.

3.10.5.3 Bomb Explosion

If there is a bomb explosion, the Terminal Manager should take these steps:

- Initiate the on-site emergency plan for fire and medical response if necessary.
- Determine if there are any injuries and attend to them immediately in accordance with section 3.4.2 of this document.
- Evacuate the surrounding area.
- Ensure no one goes near the scene of the explosion except to remove the injured.
- Control access to the area as other bombs may have been set to detonate at intervals.
- Advise police who will take charge of the situation.

3.10.5.4 Communication

Reliable communication from the bomb scene is essential. The Activities Coordinator will continually keep the Terminal Manager updated and informed of ongoing actions. However, radios will not be used within 100 meters of the affected area. The following are communications to be used to maintain contact with teams:

- Runners
- Whistles
- Voice

3.10.5.5 Bomb Threat Evacuation

Evacuation is not necessary for all bomb threats. Evacuation is determined by the Terminal Manager only after a thorough evaluation of all available information. The results of the bomb threat checklist will be a determining factor for evacuation. If the bomber describes in detail the type of device, its location, and/or the placing of the device, then the Terminal Manager will order an evacuation. When evacuation has been ordered the following should occur:

- All persons will make a preliminary search around their immediate areas for suspicious items.
- All persons, as they leave, will remove those items that they brought in (briefcases, thermos bottles, and lunch bags), turn off radios, and unplug office machines.
- Windows and doors will be left open to help dissipate any explosive force.
- All cabinets and drawers will be left unlocked to make it easier for the searchers.

When evacuation of a building is accomplished, only authorized personnel are permitted entry until the threat is resolved.

3.11 Emergency Drill

To ensure that the plan will meet current conditions and that all involved individuals will respond properly the plan shall be tested a minimum of annually. The drill evaluation shall include at a minimum the following:

- Evacuation and accountability of personnel
- Personnel familiarity with evacuation routes and rally points
- Proper functioning of alarm system
- Response time of personnel
- Adherence to plan procedures
- The drill must be evaluated as satisfactory by trained personnel from outside the facility (Environmental, Health & Safety Representative, a Subject Matter Expert, or an Operations Manager).

3.12 Documentation

All drills and exercises of the plan will be documented, indicating the results of the exercise and any problems that were encountered, along with recommendations for plan modifications. The Terminal Manager will complete the EAP Evaluation in Appendix R after drills and exercises and Form# 1900.004 EAP After Action Report after an event and maintain copies for review.

4 Post Incident Activity

4.1 INCIDENT DOCUMENTATION

4.1.1 REQUIRED REPORTS

4.1.1.1 TELEPHONIC NOTIFICATION

Immediately after the occurrence of a significant event such as those outlined in this plan, terminal personnel shall notify their Director of Operations **or** Assistant Director of Operations **and** the EHS Department to inform them of the event. This notification is crucial. The EHS Department is required to submit an Emergency Response List (ERL) notification for significant events which occur within KM. This system notifies Corporate Communications, Management, EHS, Legal and other pertinent staff of an occurrence within the network, giving them the advance notice necessary to begin gathering information needed when informing outside agencies of events at our terminals.

Kinder Morgan utilizes IMPACT as an event tracking system. Information input into the system tracks occurrences, events, root causes and corrective actions and assigns action items to the appropriate personnel to enact the corrective actions. This information is utilized throughout the company for environmental compliance, safety, medical, insurance and many other purposes.

4.1.1.2 WRITTEN NOTIFICATION

Within 24 hours of the incident, an initial written report will be forwarded to KM and will be distributed internally with-in ten (10) days after an incident necessitating implementation of the contingency plan. Appendix F can be utilized as part of the initial written report. The IC shall submit a written summary of the incident to Kinder Morgan Terminals management.

Written reports will be filed to State and Federal government agencies as required. Copies of the report will be maintained with the facility operating record. The report shall include:

1. Name, Address and Telephone number for KM management;
2. Name, Address and Telephone number of the facility;
3. Date, Time and Type of incident (for example; fire, spill, explosion etc.);
4. Name and quantity of materials involved;
5. Extent of injuries, if any;
6. An assessment of actual or potential hazards to human health of the environment, where applicable;
7. Estimated quantity and disposition of recovered material that resulted from the incident; and
8. A report of all notifications that were made including who was called, time of calls, and any other information obtained or derived from the notification calls.

4.1.1.3 HAZARDOUS WASTE INCIDENT REPORTING

Incidents involving hazardous waste must be reported to local, state and federal

regulatory agencies.

4.2 RESPONSE CRITIQUE AND PLAN REVIEW AND MODIFICATION PROCESS

After all response and mitigation activities have been completed the terminal and associated owner/operator management should complete an incident response critique to identify elements of the response system that fail, were ineffective or worked well.

Key baseline rules for any critique:

1. To be effective as learning tools critiques must be honest.
2. A clear review of the facts leading to the incident must be established.
3. A step-by-step review of response actions or timeline should be established.
4. Critical control points such as incident discovery, reporting, communication/notification and response activities need to identified and measured for timeliness, completeness and effectiveness.
5. Critical control points that were not effective should be flagged for review and modification as necessary.
6. Corrective action plans and responsibility for implementing corrective action are established and tracked until completed.
7. Applicability to other terminals or facilities should be identified and implement.
8. All participant interaction must be done to find ways to make improvements, not to find fault or blame those persons who performed incident management roles.

5.0 MOB RESPONSE

MOB Scenarios

Listed below are scenarios applicable to the Galena Park terminal MOB rescues.

- Worst case scenario: a facedown unresponsive victim in water
- Face up, unconscious victim in water
- Face up, conscious victim who is unable to self-rescue
- Face up, conscious victim who is able to self-rescue

How we react to a Man Overboard event depends on how well we have prepared for this type of emergency. Teammates conducting marine dock and water side operations, as well as designated rescuers, are to be familiar with and follow this plan in the event of a MOB emergency. Trained Gulf Area ERT members will assume command and perform rescue operations. **911 should be considered for all MOB rescues.**

What To Do If You Go Overboard

- Do not panic.
- Get someone's attention. Yell, wave your hands, use your rescue whistle, etc.
- Stay afloat and position yourself with your feet to the front.

- If possible, swim towards the dock or land (Self Rescue). Remember, your PFD is designed to keep you floating face-up. Trying to swim chest down may lead to exhaustion.
- PFDs are required when within 3 feet of an unguarded edge. In the event that you are not wearing a PFD and have gone overboard, tread water or float.
- If possible, steer yourself away from the barge/vessel rakes and permanent hollow based structures. Currents can push you under obstructions.
- If pulled under an object such as barge or dock, keep your hand(s) up to protect yourself and avoid coming into contact with the object.
- Avoid large piles of driftwood.

If man overboard involves cold conditions, it is important to realize physical exertion causes the body to lose heat.

.

5.1 Main Types Of Water Rescue

Self – Rescue: The MOB victim is conscious and alert but may be injured. S/he is able to grasp and hold on to a floatation device (i.e. life ring, PFD, etc.), communicate with observers / rescuers, swim to shore, climb a ladder, affix a lifting harness or otherwise extract himself from the water without assistance to land based assets. This is the preferred option in every MOB situation, provided the victim can mentally and physically perform the necessary actions.

Dockside / Landside Rescue: Observers & Gulf Area ERT members are able to assist the victim from land-based assets (docks, shoreline, gangway, pier, etc.) without use of watercraft or without entering the water. The MOB victim may be fully conscious & alert, or may be confused but alert enough to understand and follow basic instruction from observers & rescuers. S/he requires assistance from others using tools & aids (life ring with rope, rescue pole, etc.), coaching, and encouraging with some or all of the self-rescue methods. This person may have mental or physical impairments (trauma or medical conditions) which limit their ability to fully self-rescue, but can partially help themselves in the rescue effort. This option limits the risk to observers and rescuers while remaining effective in assisting the MOB victim.

Water Rescue: Trained Gulf Area ERT members are required to locate and extract the MOB victim from the water using a spill boat. The MOB victim may be: (1) fully conscious and alert, and simply cannot return to land due to distance from shore or swift currents, or (2) s/he may be confused but alert enough to understand and follow basic instruction from observers & rescuers, or (3) unconscious and mentally/physically unable to help themselves at all, and requires assistance from others to get out of the water. This person may have mental or physical impairments (trauma or medical conditions) which make them unable to self-rescue, or limit their ability to assist with rescue. Risk to rescuers is high, and rescuer safety is paramount. This is the least desirable, but sometimes only option for MOB victim rescue. Worst case scenario water rescue would be an unconscious/face down victim.

WARNING: Do not attempt to rescue a MOB victim by entering the water as you may become a second victim. Always call for help and assist the victim by throwing life rings.

MOB Initial Response Actions

- Remain calm. When someone goes in the water immediately yell “Man Overboard” to alert other crewmembers that someone has fallen in the water.
- If available, assign a person to keep the MOB in sight and clearly point towards them.
- If no other crew members are available, continue to yell “Man Overboard” until additional help arrives. This would include persons such as the PIC, Dock Watch and Line Watch teammates as well as the vessel POC, if available.

- Utilize radios to alert ERT, other teammates, crew leaders, safety, and others needed to assist in MOB rescue. Initiate Incident Command System, Form 201, and perform scene size up.
- Eye contact is crucial. Choppy water and strong channel currents can cause you to lose sight of the MOB victim. If the MOB victim is not on the surface, make note of the last place they were seen.
- If the rescue is at night, a spotlight will be required to assist with victim location. If the water activated strobe light on the employees PFD cannot be seen, illuminate the area.
- Throw a floatation device to the victim, such as a life ring, personal flotation device, buoy, etc.
- Throw more than one flotation device.
- If a search becomes necessary, emergency responders will have an immediate visual reference on the direction of drift, which can benefit the search operation.

Take note of all conditions, such as wind and current. Notify proper personnel to help with the rescue, such as the supervisor, Terminal Manager, Coast Guard, etc.

Water Rescue Response Objectives

- **Arrival:** The initial rescuers size-up the situation by obtaining information from witnesses & teammates who first observed the MOB. The location of the victim is determined. They assess the immediate hazards, assess the on-scene capabilities, and determine the need for additional resources. Any additional safety hazards and controls are quickly evaluated and implemented.
- **Pre-Rescue Preparation:** Water body characteristics are evaluated (velocity and direction of current, debris, local marine traffic, structures (bridges, water intakes/discharges, etc.) that can affect rescue techniques. Night time operational considerations are implemented, as applicable. Rescuers don PPE specific for water rescue in accordance with a pre-written JHA and/or safety plan.
- **Rescue Operations:** Rescue operations should be conducted with as little risk to the rescuers as necessary to affect the rescue. Low-risk operations may not always be possible but should be considered first.
- **Response Termination:** Consider decontamination of victim(s) and rescuer(s), as needed. Recover all tools and equipment used in the rescue/recovery. In cases of a fatality, consider leaving everything in place until the investigative process has been completed. Ensure personnel accountability and terminate the Incident Command System. A post-incident review must be completed.

Rescue Fundamentals

MOB within Arm's Reach:

Use for Self-Rescue and Dockside / Landside Rescue situations**.** If the MOB victim is within reaching distance, as in one arm's length or less, and it is safe to do so, remain on the dock and reach for him/her (by the PFD, if worn,) pulling the victim onto the dock. It is safer for two people to pull the MOB victim onto the dock rather than one. If the victim is conscious, calm, and able to do so, they may also use the dock ladder to pull themselves out of the water. Ensure the victim is covered with an emergency blanket and moved to a warm environment and administer first aid as necessary.

CAUTION: Use caution when extracting a victim from the water by grasping the PFD. If the PFD is not worn & attached such that it could come off during the extraction process, the victim could slide out of the PFD while in the water, leaving the victim more prone to drowning.

MOB within Rope or Pole Reach:

Use for self-rescue, dockside/landside rescue or water rescue situations. Toss a lifeline/rope with a loop tied into the end to the MOB victim and have them hook the loop around their body under the armpits, or extend a pole to the MOB victim to grab. Tow the person in slowly. Once the victim is within arm's reach, two people (if available) should grab them by the PFD and pull to safety. If the MOB victim is conscious, calm and able to do so, they may also use the dock ladder to pull themselves out of the water. A medical evaluation is required for all employees who are a victim of a man overboard. Ensure the victim is covered with an emergency blanket and moved to a warm environment and administer first aid as necessary.

MOB Outside Of Life Line's Reach:

Use for water rescue situations. If a reach-rescue is not safe or possible, continue to keep the MOB victim in sight and note all conditions until water rescue capability arrives. Continue to deploy life rings, PFD's or other floatation devices to the victim. The terminal spill boat shall be launched in effort to retrieve the MOB. Consideration should be given to alerting the "Captain of the Port" (USCG) so that vessel traffic can be shut down. A medical evaluation is required for all employees who are a victim of a man overboard. Ensure the victim is covered with an emergency blanket and moved to a warm environment and administer first aid as necessary.

MOB Is Unresponsive: Face-up/Face-down:

If the victim is unconscious, The Gulf Region ERT spill boat shall be launched in effort to retrieve the MOB. Consideration should be given to alerting the "Captain of the Port" (USCG) so that vessel traffic can be shut down. A minimum of 3 ERT members shall be on the boat for extraction. Carefully pull the person aboard the boat. If required, have personnel support the rescuers for increased safety. Be mindful of boat stability for two people plus the victim on the same side. Bear in mind that a wet person is very heavy. Unconscious victims or victims with trauma should be extracted from the water and handled with a stokes basket/back board if possible. Ensure the victim is covered with an emergency blanket and moved to a warm environment. A medical evaluation is required for all employees who are a victim of a man overboard. Call 911. If the victim is not breathing, perform CPR until professional medical help arrives and administer first aid as necessary.

Site Specific Tools and Equipment

The Galena Park terminal has the following tools and equipment available for use doing a MOB rescue. All equipment is located on each dock (*) and is inspected to ensure performance during a rescue.

- Spill Boat (Could be used in the event of a MOB)
- Pole hook*
- Life rings w/ 90' of rope*
- PFD with water activated strobe and whistle*
- Beacon buoy*
- 1st Aid Kit*
- Spot light*
- Emergency blanket*
- Radio/Phone*
- Rescue vehicle with various ropes, rigging, and haul systems
- Stokes basket with rigging*
- Fixed ladders

APPENDICES

APPENDIX A: EMPLOYEE ROLL CALL 32

APPENDIX B: EMERGENCY POINTS OF CONTACT (POCs) 33

APPENDIX C: KINDER MORGAN EMERGENCY FLOW CHART 34

APPENDIX D: FACILTY MAP 35

APPENDIX E: MATERIALS ON SITE 36

APPENDIX F: FIRST RESPONDER IMPORTANT INFORMATION RECORD DOCUMENT 37

APPENDIX G: FIRE EMERGENCY CHECKLIST 38

APPENDIX H: SPILL RESPONSE CHECKLIST 39

APPENDIX I: VAPOR RELEASE CHECKLIST 40

APPENDIX J: MOB Checklist 41

APPENDIX K: SEVERE WEATHER CHECKLIST 43

APPENDIX L: FLOOD CHECKLIST 44

APPENDIX M: BOMB THREAT CHECKLIST 45

APPENDIX N: EMERGENCY EQUIPMENT 46

APPENDIX O: EMPLOYEE EMERGENCY RESPONSIBILITIES 67

APPENDIX P: Reserved 68

APPENDIX Q: SDS VAULT INSTRUCTIONS 69

APPENDIX R: EAP EVALUATION 70

APPENDIX S: DEFINITIONS 71

APPENDIX T: RESERVED 72

APPENDIX U: RESERVED 73

APPENDIX V: RESERVED 74

APPENDIX X: RESERVED 75

APPENDIX Y: RESERVED 76

APPENDIX Z: DOCUMENTS 76

APPENDIX A: EMPLOYEE ROLL CALL

Employee Number	Last Name	First Name	Emergency Point of Contact	Roll Call		
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
			Name: **Phone No.:**			
Visitors						
Name			**Comments** * Make notation if visitor leaves the terminal area			

See directory/TWIC program reader

APPENDIX B: EMERGENCY POINTS OF CONTACT (POCs)

NAME OF FACILITY:	Galena Park terminal	**Issue Date:**	8.31.2016
Latitude of Facility:	29.43m 56s	**Longitude of Facility:**	95.13m 32s

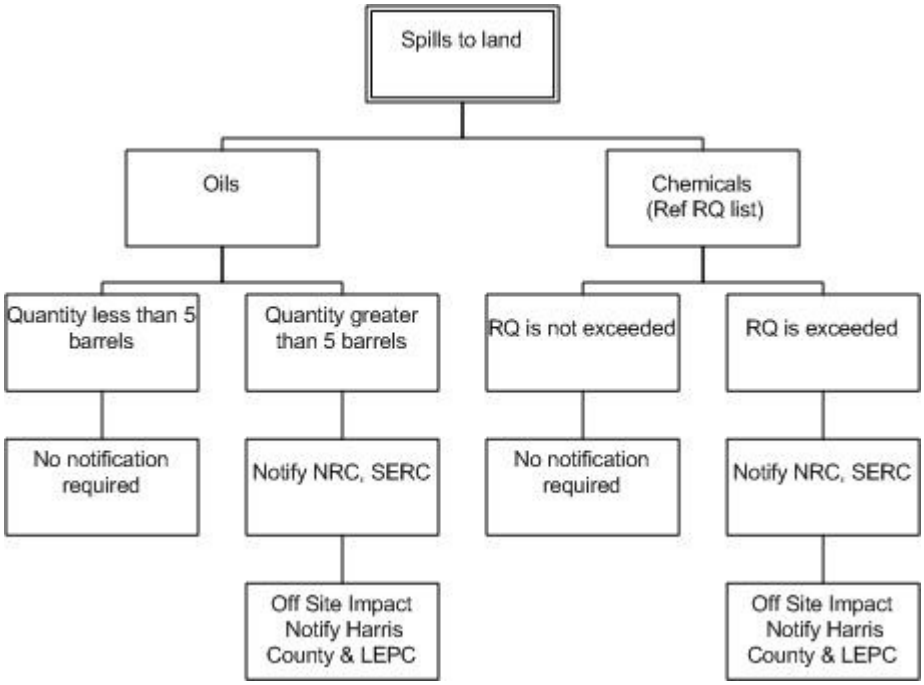
NAME & LOCATION OF COMPANY OR AGENCY			PHONE NO.
Memorial Hermann Life Flight	City: Houston	State: Texas	911
The Patients Medical Center	City: Pasadena	State: Texas	713.948.7000
Bayshore Medical Center	City: Pasadena	State: Texas	713.359.2000
Deer Park Family Clinic	City: Deer Park	State: Texas	281.479.5941
Ambulance Service	City: Pasadena	State: Texas	911
Harris County Sheriff	City: Houston	State: Texas	713.877.5250
Texas Highway Patrol	City: Houston	State: Texas	281.517.1220
Pasadena Police	City: Pasadena	State: Texas	911
Pasadena Fire Department	City: Pasadena	State: Texas	911
Center Point Energy	City: Houston	State: Texas	800.332.7143
Central Helicopter Service, Inc	City: Houston	State: Texas	713.644.5900
Phoenix Environmental	City: Pasadena	State: Texas	281.838.3400
Fed Aviation Admin (FAA)	City: Washington D.C.	State:	866.835.5322

Other agencies or people to contact (customers, people living near the R.O.W., etc.)

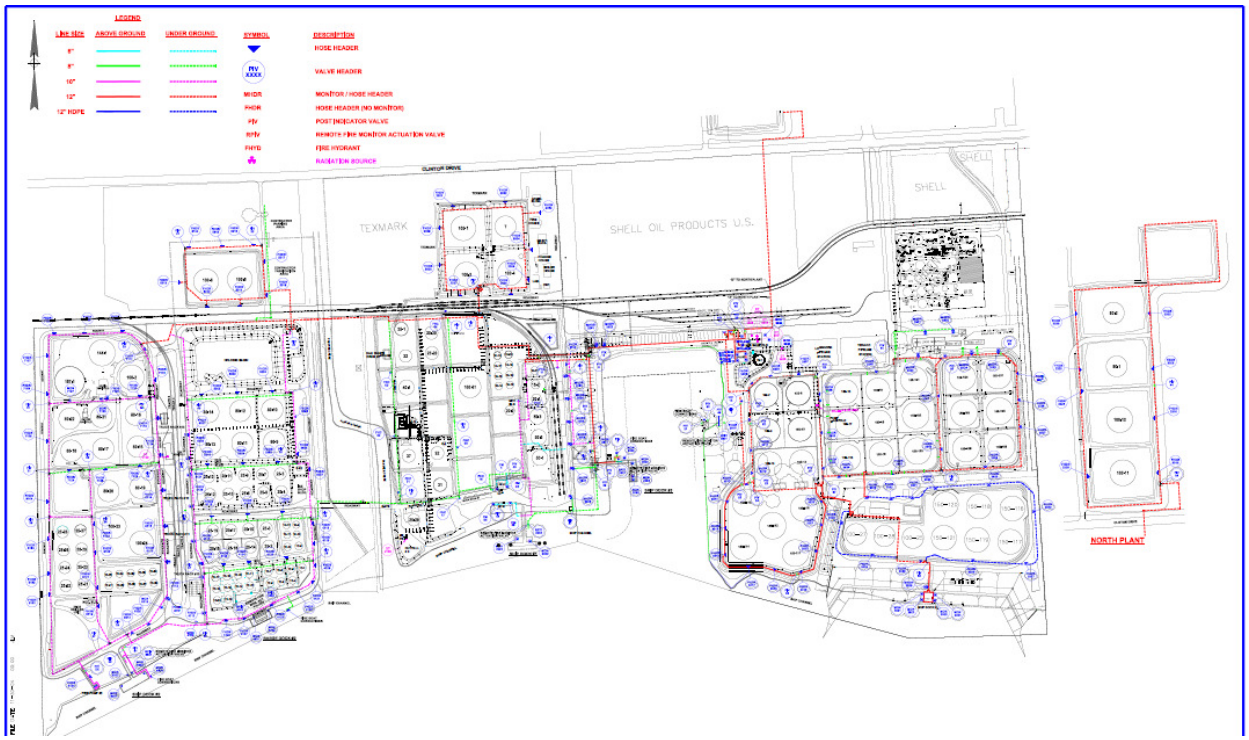
USCG	City:	State: Texas	281.464.4855
NRC	City:	State:	800.424.8802
SERC	City:	State:	800.832.8224
Pasadena LEPC	City:	State:	713.473.2273
CIMA Dispatch	City:	State:	713.473.9191

APPENDIX C: KINDER MORGAN EMERGENCY FLOW CHART

Report all incidents in accordance with T O&M – 159. Notify EHS on-call immediately for all injury/illnesses and spills.



APPENDIX D: FACILTY MAP



APPENDIX E: MATERIALS ON SITE

See Terminal Manager or IC for location of products in specific tanks. Safety Data Sheets for all products are maintained in the SDS Vault.

Main Office Chemical List

Butane
Ethanol
Jet A
Biodiesel
Ultra Low Sulfur Diesel
Regular Unleaded
Mid Grade
#2 Biodiesel
Transmix
Diesel Fuel Treatment
1101 Regular
Prist Hi Flow
Lubricity 2115SD
Unisol Liquid Red BK-50
Hitec 6590 Fuel Additive
OGA 72040
Green Plus A
Thunderstorm FC-601A

Maintenance Office Chemical List

Formula 30 Orange Soap
Acrylic Aerosol Enamel
Krylon Tough Coat – Red Oxide
Molykoter(R) G-N Metal Assembly Spray
Molykoter(R) 111 Compound
Deep Woods Off
Shell Tellus Oil 46
5006 Formula 30B
Lok Cease 20/20
Orange Action Degreaser
Delo 400 SAE 30
Imperial Multipurpose Degreaser
Basoila Hard Set Thread Sealant
Cat Diesel Engine Oil
Gasiola Soft Set
Shell Antifreeze Concentrate
Krylon Sandable Primer Gray
Transparent Bird Repellent
Superco Acti-Vate B
Superco Bio Gel A
Superco Citra Clean
Superco Enhance
Superco Hurricane Q/B
Superco Snug PA
Viscon 1101 Diesel Fuel Additive
Hydraulic Oil
Zep Battery Coat
Zeb Groovy
High Traction Part A Base

APPENDIX F: FIRST RESPONDER IMPORTANT INFORMATION RECORD DOCUMENT

FIRST RESPONDER IMPORTANT INFORMATION RECORD	
INVOLVED PARTIES	
(A) Reporting Party	(B) Suspected Responsible Party
Name	Name
Phone(s)	Phone(s)
Company: KM Liquids Terminals, LLC	Company:
Address:	Address
City/State:	City/State
Zip:	Zip
Were Materials Released (Y/N)?	Calling for Responsible Party
INCIDENT DESCRIPTION	
Source and/or Cause of Incident	
Incident Discovered Date:_____ Time:_____	EHS Notified Date:_____ Time:_____
Incident Address/Location	
Distance from City .	EPA ID#
Storage Tank Container Type Above Ground (Y/N)? Below Ground (Y/N)? Unknown	Tank Capacity Facility Capacity
Latitude Degrees Longitude Degrees	Mile Post or River Mile
MATERIALS	
Released Quantity/Unit of Measure: Quantity in Water:	Released Material RQ per 302.4: Y/N
WEATHER CONDITIONS:	
REMEDIAL ACTION	
Actions Taken to Correct or Mitigate Incident	
IMPACT	
Number of Injuries	Number of Fatalities
Were there Evacuations (Y/N/U)	
Was there any damage (Y/N/U)?	Damage in Dollars NOTE:

Agency:	NRC	SERC	ERL			
Phone No:	800-424-8802	800.832.8224	866-537-1630			
Case#:			PASS No: 8926480			
Contact			Moderator Code: 2573162			
Time:						

APPENDIX G: FIRE EMERGENCY CHECKLIST

Incident Start Time:	**Start Date:**		
Incident End Time:	**Checklist Initiated by:**		
Fire Emergency Checklist			
Incident Command	**Yes**	**No**	**NA**
IC Established			
Initiated the appropriate Emergency Employee Notification system throughout the Terminal, Initiated or delegated ERL and agency notifications as required.			
Kinder Morgan ERT was notified if required.			
Assessed extent of emergency			
Requests trained Terminal First Aid/CPR personnel to assess and assist injured (if applicable).			
Made outside Responder notification to obtain assistance in emergency and made other necessary calls to sensitive receptors, as required.			
Secured perimeter during response. If necessary, obtained security. (Restrict access to the area to prevent non-emergency response personnel from entering the affected area)			
Monitor situation, provide updates as necessary to KMT management.			
Terminate Incident/Issue All Clear			
Terminal Manager			
Terminal Manager completes Incident Investigation & ensures the incident has been entered into IMPACT.			
After Action Review - Incident Conference Call.			
Containment of Fire			
All doors were closed but not locked.			
Fire extinguisher was taken to the fire location.			
Evacuation			
Employees and visitors reported to respective rally point(s) roll call taken.			
Employees carried out assigned duties.			
Status report given after relocation.			
Utilities			
Electrical appliances were shut off.			
Lights were left on.			
Ventilation system was shut down.			
Hazardous Material List			
SDS List for all applicable products on site given to fire department.			
Comments:			
Completed by:	Signature:		Date:

APPENDIX H: SPILL RESPONSE CHECKLIST

Incident Start Time:	**Start Date:**
Incident End Time:	**Checklist Initiated by:**

Spill Checklist

Incident Command	Yes	No	N/A
Terminal office is notified via radio or in person. Establish Incident Command (IC).			
IC initiates the appropriate Emergency Employee Notification system throughout the Terminal. Initiate or delegate ERL and agency notifications as required. ***ALL TRANSFERS MUST BE STOPPED UNTIL NOTIFIED BY TERMINAL MANAGER.*** The warning should include type and the amount of product spilled/leaked.			
Accountability: Ensure all personnel on site are accounted for. If necessary, evacuate site personnel to the nearest muster point and ensure everyone on site is accounted for.			
Secure all outfalls/drains downstream from the affected area if it is safe to do so to prevent spilled material from leaving the site.			
IC assesses extent of emergency. >Direct personnel to appropriately respond, >Restrict access to the area to prevent non-emergency response personnel from entering the affected area.			
IC requests trained Terminal First Aid/CPR personnel to assess and assist injured (if applicable). The administering of First Aid/CPR is strictly voluntary "good Samaritan". Any person administering First Aid/CPR on a voluntary basis who feels that they may have come in contact with blood or other potentially infectious material will accompany the injured to the clinic or hospital for treatment and/or evaluation.			
After damage is assessed, and the spill is contained the IC makes outside Responder Notification to obtain assistance and makes other necessary calls to sensitive receptors, as required.			
Secure perimeter during response. If necessary, obtain security. (Restrict access to the area to prevent non-emergency response personnel from entering the affected area).			
Monitor situation, provide updates as necessary to KMT management.			
Terminate Incident, issue all clear, and conduct investigation.			
Terminal Manager completes incident report and ensures the incident has been entered into IMPACT.			
Perform After Action Review/Incident Conference Call.			

NOTE: The terminal's spill control valves will remain closed until water testing confirms it is safe to release any collected surface water.

Comments:

Completed by:	Signature:	Date:

APPENDIX I: VAPOR RELEASE CHECKLIST

Incident Start Time:	**Start Date:**
Incident End Time:	**Checklist Initiated by:**

Vapor Checklist

Incident Command	Yes	No	N/A
Terminal office is notified via radio or in person. Establish Incident Command (IC).			
IC initiates the appropriate Emergency Employee Notification system throughout the Terminal. Initiate or delegate ERL and agency notifications as required. ALL TRANSFERS MUST BE STOPPED UNTIL NOTIFIED BY TERMINAL MANAGER. The warning should include type and the amount of product spilled/leaked.			
Accountability: Ensure all personnel on site are accounted for. If necessary, evacuate site personnel to the nearest muster point and ensure everyone on site is accounted for.			
IC assesses extent of emergency. > Direct personnel to appropriately respond, or > Direct Evacuation and account for all personnel > Restrict access to the area to prevent non-emergency response personnel from entering the affected area.			
IC requests trained Terminal First Aid/CPR personnel to assess and assist injured (if applicable). The administering of First Aid/CPR is strictly voluntary “good Samaritan”. Any person administering First Aid/CPR on a voluntary basis who feels that they may have come in contact with blood or other potentially infectious material will accompany the injured to the clinic or hospital for treatment and/or evaluation.			
After damage is assessed, and the vapor release is contained the IC makes outside Responder Notification to obtain assistance and makes other necessary calls to sensitive receptors, as required.			
Secure perimeter during response. If necessary, obtain security. (Restrict access to the area to prevent non-emergency response personnel from entering the affected area).			
Monitor situation, provide updates as necessary to KMT management.			
Terminate Incident, issue all clear, and conduct investigation.			
Terminal Manager completes incident report and ensures the incident has been entered into IMPACT.			
Perform After Action Review/Incident Conference Call.			

Comments:		
Completed by:	Signature:	Date:

APPENDIX J: MOB Checklist (see next page)

Incident Start Time: **Start Date:**
Incident End Time: **Checklist Initiated by:**

Man Overboard (MOB) Response Guidance / Training Checklist

Reference		Yes	No	N/A
1.16.3	Person observing MOB situation notifies terminal office via radio or in person of emergency MOB situation and loudly announces "MAN OVERBOARD!". IF IN DOUBT ASSUME THE WORST CASE AND NOTIFY. Teammates on dock / landside throw life ring(s) & floatation devices to victim(s) where possible.			
1.16.3	Teammate observing MOB visually identifies victim in the water and STAYS ON POINT, KEEPING EYES ON THE VICTIM, or the last spot where the victim was seen. Teammate continually observes victim while pointing to where victim is located, even if victim is carried up/down stream with current. Teammate observing victim DOES NOT LEAVE HIS POST unless or until relieved by Terminal Manager or leadership person.			
1.16.3	Terminal Manager or assigned leadership person: 1. Alerts all trained rescue personnel to respond to XXX location for a MOB rescue situation via radio or PA system. Consider installation of an alarm system to rapidly notify the facility of a MOB incident. 2. Alerts vessel crew (if manned vessel) of MOB situation & request response assistance (throw additional life rings, etc). In most cases, active vessel transfers & dockside work should be immediately stopped. 3. S/he then notifies additional non-rescue teammates for response assistance and assigns duties as needed (helping responders launch watercraft, retrieving rescue equipment, clearing traffic from entrances & roadways for emergency vehicles, notifying site security about incoming emergency traffic, etc). 4. Make an immediate accounting of all personnel, including visitors.			
1.16.3	Terminal Manager or assigned leadership person designates an individual to: 1. Call 911, local USCG, state wildlife dept., and/or site rescue team to request MOB response assistance. Specifically state situation specifics (body of water, direction of current, wearing PFD, # of victims, etc). 2. Calls company management for notification. 3. ERL / ERL+ is generated & sent as soon as possible.			
1.16.3	For nighttime rescue, activate additional landside lighting as needed but be cautious that lighting does not blind or impede on-water rescue teammates from seeing the victim on the water. Be prepared to turn off lighting facing the water if needed.			
1.16.3	• If victim is within reach of rescuers - assist victim with self-rescue or extricate victim from water using two person lift. Admininster first aid / CPR as needed. • If victim is within reach of a rope or pole - assist the victim with self-rescue or extricate from the water using two or more persons. Admininster first aid / CPR as needed. • If the victim is beyond reach - on-water rescue team visually verifies equipment & supplies before launching watercraft in the direction of the victim. Once the victim is located, approach with watercraft in a safe manner, extricate from the water and wrap the victim in a themal blanket(s) to keep them warm. Admininster first aid / CPR as needed while returning to land-based assets. **In all cases, immediately provide dry clothes and/or blankets to keep the victim warm once onboard or on land, even in warm weather months. The victim should be immediately transported to a clinic or hospital for medical evaluation.**			
1.16.3	Terminal Manager or assigned leadership person coordinates response with inbound/arriving outside Rescue Services (local rescue squads, fire dept, etc.) for deployment of additional on-water rescue assets.			
1.16.3	Terminal Manager establishes Incident or Unified Command System, invoking the location's ICS structure, and to the appropriate size/scale. Terminal Manager assigns a specific teammate to oversee the rescue operations. If TM oversees the rescue operations directly, assign a Deputy IC to run ICS.			
1.16.3	When the victim is rescued and returned to land, assess their medical condition from on-site first aid trained persons, site healthcare professionals (EMT's, occupational medicine nurse, etc.) or public EMS crew regarding medical status & transport to Emergency Dept as needed.			
1.16.3	Issue a follow-up ERL as necessary with conference calls as needed to provide an update.			
1.16.3	Monitor situation, provide updates as necessary to KMT management.			
1.16.3	TerminateiIncident, issue an all clear, and conduct an investigation.			
1.16.3	Terminal Manager completes incident report and ensures the incident has been entered into IMPACT.			
1.16.3	Perform After Action Review or incident conference call.			

Reference	Communications	Yes	No	NA
O&M 159	ERL / ERL+ initial & follow up broadcasts for situation updates			
EAP 006	Incident Command System staffing / management POC's / periodic briefings			
EAP 003	Off-site media center or corporate communications (as needed for media involvement)			
O&M 159	IMPACT initial & follow up entries			

Comments:

APPENDIX K: SEVERE WEATHER CHECKLIST

Incident Start Time:	Incident Start Date:
Incident End Time:	Checklist Initiated by:

Tornado Checklist			
Incident Command	Yes	No	NA
When a **TORNADO WATCH** is issued an IC will be established when it has been determined it is necessary to do so.			
The IC sounds the appropriate Emergency Employee notification System throughout the Terminal; initiate the ERL and agency Notifications as required.			
Spotters are to look for approaching storms.			
The IC is to be tuned to radio, such as a NOAA Weather Radio, or television for additional advisories.			
IC makes appropriate contacts for community emergency response.			
Monitor situation, provide updates as necessary to KMT management.			
When a **TORNADO WARNING** is issued a tornado has been sighted in the area and or is indicated by radar. IC will be established when it has been determined it is necessary to do so.			
The IC will sound appropriate warning and personnel will take shelter onsite immediately.			
Thunderstorm Watch/Warning			
Monitor NOAA radio, Internet and/or local news			
Prepare for high winds by removing diseased and damaged limbs on trees			
Move or secure equipment and articles subject to movement in high winds			
Watch for tornado danger signs			
Tornado Watch			
Review plan with employees			
Continue usual activities, be prepared to take shelter			
Tornado Warning			
Evacuate to tornado shelter, bring weather radios			
Roll call within 3 minutes of evacuation			
Post Tornado Touchdown			
Identify immediate Hazards			
Control ignition sources if leakage from flammables is detected			
Barricade any areas with downed power lines			
Assess damage and report			
Notify outside agencies as needed			
Begin salvage operations			
Cover openings in buildings			
Clean up debris			
Inspect electrical and process systems for damage			

Comments:			
Completed by:	Signature:	Date:	Time:

APPENDIX L: FLOOD CHECKLIST

Incident Start Time:		Incident Start Date:	
Incident End Time:		Checklist Initiated by:	
Flood Checklist			
Flood Imminent	Yes	No	NA
Activate Incident Command Team			
Evaluate flood potential			
Drainage check			
Supplies obtained			
Hazard assessment			
Verify PPE for Incident Command Team			
De-energize equipment			
Protect buildings, products and equipment			
Move equipment, supplies and or products to higher ground			
Evacuate non-essential personnel			
Flood Recovery			
Hazard assessment			
Damage assessment			
Water removal			
Remediation professionals scheduled			
Re-occupancy			
EHS assessment completed			
Authorize re-occupancy			
Comments:			
Completed by:	Signature:	Date:	Time:

APPENDIX M: BOMB THREAT CHECKLIST

Questions to Ask	Caller's Voice
When is the bomb going to explode?	☐ Calm ☐ Crying ☐ Raspy ☐ Angry ☐ Normal ☐ Deep
Where is the bomb right now?	☐ Excited ☐ Distinct ☐ Ragged ☐ Slow ☐ Slurred ☐ Clearing Throat
What does the bomb look like?	☐ Rapid ☐ Whispered ☐ Cracking Voice ☐ Soft ☐ Nasal ☐ Disguised
What kind of bomb is it?	☐ Loud ☐ Stutter ☐ Accent ☐ Laughter ☐ Lisp ☐ Familiar
What will cause it to explode?	☐ Man ☐ Woman Approx. Age_____
Did you place the bomb?	Nationality:_____ If voice is familiar, who did it sound like?
Why?	**Background Sounds**
Where are you now?	☐ Street ☐ House Noises ☐ Clear ☐ Traffic ☐ Motor ☐ Static ☐ Voices ☐ Office Machinery ☐ Local
What is your name?	☐ PA System ☐ Factory Machine ☐ Long Distance ☐ Music ☐ Animal Noises ☐ Booth
What is your Address?	Other:

Remarks:

Exact Wording of Threat:

Time Threat Received:	Date:	Number that received call:
Terminal:	Received by:	Reported to:

APPENDIX N: EMERGENCY EQUIPMENT

The following is a list of emergency equipment maintained by this facility. Locations of equipment are noted. A site plan located in plan as Figure 1 identifies all major buildings at the facility. Any response equipment that is utilized in an emergency must be replenished as quickly as possible.

Personal Protective Equipment

The maximum level of personal protective clothing employees are trained to use is EPA and OSHA Level C (as per 1910.120 HAZWOPER regulations). The personal protective equipment used at this facility is:

- Hard Hat
- Safety Glasses with side shields
- Steel Toe Boots
- Hearing protection (optional)
- Gloves
- Flame Retardant Clothing with reflective

Facility Spill and Response Materials

- Windsocks
- Safety Data Sheet Book(s)
- Chemical Inventory list
- A current DOT Emergency Response Guidebook
- Computer located in the office.

First Aid Kit(s)

To provide care for sick or injured personnel prior to transportation for treatment (if required). First Aid Kit(s) can be found in the Control Room.

Fire Extinguishers (Dry Chemical)

To provide protection against Class A, B, and C fires. Fire extinguishers are located:

LOCATION	FIRE EXTINGUISHMENT
Smoke Pen	**A.B.C.**
ATL Rack	**B.C.**
Warehouse	**B.C.**
Warehouse	**A.B.C.**
Pavilion	**A.B.C.**
Pavilion	**B.C.**
Pavilion	**A.B.C.**
Pavilion	**A.B.C.**
Pavilion	**A.B.C.**

Pavilion	**A.B.C.**
Of Warehouse	**A.B.C.**
Of Tank 187-1	**A.B.C.**
Of Tank 80-22	**A.B.C.**
Of Tank 80-22	**A.B.C.**
Of Tank 80-18	**A.B.C.**
Of Tank 80-18	**A.B.C.**
Of Tank 80-22	**B.C.**
Of Tank 80-22	**A.B.C.**
Of Tank 187-1	**A.B.C.**
Cart 07013	**A.B.C.**
Stairs	**A.B.C.**
Of Rack	**B.C.**
Truck 46721	**A.B.C.**
Operations	**B.C.**
IT Building	**Carbon Dioxide**
IT Building	**B.C.**
Station A	**Carbon Dioxide**
Stairs	**B.C.**
Of Station A	**A.B.C.**
Cart 07034	**A.B.C.**
Of Tank 207	**A.B.C.**
Of Lunch Room	**A.B.C.**
Door	**Halotron**

Door	**Carbon Dioxide**
Locker Room	**A.B.C.**
West Wall	**A.B.C.**
Door	**A.B.C.**
Southwest Wall	**A.B.C.**
Maintenance	**B.C.**
Maintenance	**A.B.C.**
Of Tank 115	**A.B.C.**
Cart 07017	**A.B.C.**
Of Tank 106	**A.B.C.**
Of Tank 103	**B.C.**
Of Tank 116	**B.C.**
Of Tank 120	**A.B.C.**
Of Tank 129	**A.B.C.**
Of Tank 129	**A.B.C.**
Of Tank 147	**A.B.C.**
Of Tank 141	**A.B.C.**
Of Tank 141	**Nitrogen**
Of Tank 141	**A.B.C.**
Of Tank 135	**A.B.C.**
Substation C	**Carbon Dioxide**
Of Tank 151	**A.B.C.**
Of Tank 153	**A.B.C.**
Track Mobile	**A.B.C.**

Of Tank 155	**A.B.C.**
Of Tank 155	**Nitrogen**
Of Tank 155	**Purple K**
Of Substation B	**A.B.C.**
Truck 83074	**A.B.C.**
Truck 65615	**A.B.C.**
Flammable 8A	**Nitrogen**
Stairs	**B.C.**
House	**A.B.C.**
House	**A.B.C.**
House	**A.B.C.**
Office	**A.B.C.**
Cart	**A.B.C.**
Of Substation B	**A.B.C.**
Substation A	**Carbon Dioxide**
From Substation A	**B.C.**
At Stairs	**A.B.C.**
Of Rack	**B.C.**
Of Rack	**B.C.**
Of Rack	**B.C.**
Second	**B.C.**
Second	**B.C.**
Sub	**A.B.C.**
Dock	**Purple K**

Dock	**A.B.C.**
Dock	**B.C.**
Dock	**A.B.C.**
Dock Sub	**A.B.C.**
Dock Sub	**A.B.C.**
Dock	**A.B.C.**
Smoke Pen	**A.B.C.**
Kitchen	**A.B.C.**
Storage	**A.B.C.**
Building	**Purple K**
Dock	**A.B.C.**
Dock	**A.B.C.**
Truck Rack 11	**A.B.C.**
Truck Rack 11	**A.B.C.**
Flammable 8A	**A.B.C.**
Flammable 8A	**Purple K**
Flammable 8B	**A.B.C.**
Building 8145	**A.B.C.**
Tank 80-13	**A.B.C.**
Tank 80-13	**A.B.C.**
Tank 80-13	**A.B.C.**
Tank 80-13	**A.B.C.**
Tank 80-13	**A.B.C.**
Exit	**Carbon Dioxide**

Tank 25-12	**A.B.C.**
Tank 25-12	**A.B.C.**
Tank 25-19	**A.B.C.**
Tank 25-19	**Purple K**
Tank 25-19	**A.B.C.**
Tank 12-17	**A.B.C.**
Tank 12-17	**A.B.C.**
Tank 100-24	**A.B.C.**
Mobil Tractor	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**A.B.C.**
Truck Rack 10	**Purple K**
Exit	**Carbon Dioxide**
Cart Vehicle	**A.B.C.**
Fork Lift	**A.B.C.**
Smoke Pen	**A.B.C.**
Engineer Office	**B.C.**
Engineer Office	**B.C.**

Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**B.C.**
Dock	**A.B.C.**
Exit	**Carbon Dioxide**
Stairs	**A.B.C.**
Wash Station	**A.B.C.**
Pressure Washer	**A.B.C.**
Vacuum Truck	**A.B.C.**
Wash Station	**A.B.C.**
Wash Station	**Purple K**
Tank 22	**A.B.C.**
Tank 22	**A.B.C.**
Office	**A.B.C.**
Smoke Pen	**A.B.C.**
Flammable 7A	**A.B.C.**
Tank 25-13	**A.B.C.**
Tank 25-13	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Sample House 6	**B.C.**

Exit	**Carbon Dioxide**
Exit	**Carbon Dioxide**
Exit	**Carbon Dioxide**
Exit	**Carbon Dioxide**
Exit	**Carbon Dioxide**
Man Lift	**A.B.C.**
Man Lift	**A.B.C.**
Flammable 7B	**A.B.C.**
Stairs	**A.B.C.**
Stairs	**A.B.C.**
Stairs	**Purple K**
Stairs	**A.B.C.**
Stairs	**A.B.C.**
Second	**A.B.C.**
Second	**A.B.C.**
Second	**A.B.C.**
Gate	**A.B.C.**
Building	**A.B.C.**
Exit	**A.B.C.**
Kitchen	**A.B.C.**
Kitchen	**A.B.C.**
Basement	**B.C.**
Exit	**A.B.C.**
Exit	**A.B.C.**

Exit	**A.B.C.**
Exit	**A.B.C.**
Exit	**Carbon Dioxide**
Kitchen	**A.B.C.**
Exit	**Carbon Dioxide**
Exit	**A.B.C.**
Hallway	**A.B.C.**
Exit	**A.B.C.**
Exit	**A.B.C.**
Exit	**A.B.C.**
Kitchen	**A.B.C.**
Exit	**A.B.C.**
Exit	**A.B.C.**
Exit	**A.B.C.**
Exit	**A.B.C.**
Telephone Room	**Halotron**
	A.B.C.
Kitchen	**A.B.C.**
Kitchen	**A.B.C.**
Stairs	**A.B.C.**
Doorway	**A.B.C.**
At Storage	**A.B.C.**
Wall	**A.B.C.**
Wall	**A.B.C.**

Office	**A.B.C.**
Guard Shack	**A.B.C.**
Kitchen	**A.B.C.**
Server Room	**Halotron**
Exit	**A.B.C.**
Hallway	**A.B.C.**
Smoke Pen	**A.B.C.**
Guard Shack	**A.B.C.**
Street	**A.B.C.**
Stairs	**A.B.C.**
Stairs	**A.B.C.**
Stairs	**A.B.C.**
Stairs	**A.B.C.**
Building	**A.B.C.**
Building	**Purple K**
Stairs	**A.B.C.**
Stairs	**A.B.C.**
Tank 15-01	**A.B.C.**
Manifold	**Carbon Dioxide**
Tank 5-21	**A.B.C.**
Exit	**Carbon Dioxide**
Tank 100-08	**A.B.C.**
Tank 100-08	**Purple K**
Exit	**Carbon Dioxide**

Dock	**Purple K**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Dock	**A.B.C.**
Tank 100-13	**B.C.**
Tank 100-13	**Carbon Dioxide**
Dock	**Purple K**
Dock	**A.B.C.**
Dock	**A.B.C.**
Exit	**Carbon Dioxide**
Fork Lift	**A.B.C.**
Exit	**Carbon Dioxide**
Exit	**Carbon Dioxide**
Tank 15-02	**A.B.C.**
Tank 15-02	**A.B.C.**
Tank 20-01	**B.C.**
Tank 20-01	**B.C.**
Tank 50-03	**B.C.**
Tank 50-03	**B.C.**
Tank 50-02	**B.C.**

Tank 50-02	**B.C.**
Tank 50-02	**B.C.**
Tank 50-02	**B.C.**
Tank 50-01	**B.C.**
Tank 50-01	**B.C.**
Tank 50-01	**B.C.**
Tank 50-01	**B.C.**
Truck Rack 12	**Purple K**
Truck Rack 12	**A.B.C.**
Truck Rack 12	**A.B.C.**
Truck Rack 13	**A.B.C.**
Truck Rack 13	**B.C.**
Exit	**Carbon Dioxide**
Truck Rack 13	**Purple K**
Truck Rack 13	**Purple K**
Building 5135	**A.B.C.**
Truck 65475	**A.B.C.**
Truck 96429	**A.B.C.**
Truck 65536	**A.B.C.**
Truck 25965	**A.B.C.**
Truck 24598	**A.B.C.**
Truck 39497	**A.B.C.**
Truck 31487	**A.B.C.**
Truck 83281	**B.C.**

Truck 06887	**A.B.C.**
Truck 66824	**B.C.**
Truck 23110	**B.C.**
Truck 19083	**A.B.C.**
Truck 39898	**B.C.**
Truck 77165	**A.B.C.**
Truck 65549	**B.C.**
Truck 63146	**A.B.C.**
Truck 19256	**A.B.C.**
Truck 40080	**A.B.C.**
Truck 40030	**A.B.C.**
Truck 59249	**A.B.C.**
Truck 47816	**A.B.C.**
Truck 01025	**A.B.C.**
Truck 01025	**A.B.C.**
Truck 38892	**A.B.C.**
Truck 51476	**A.B.C.**
Truck 15750	**A.B.C.**
Truck 03259	**A.B.C.**
Truck 51984	**B.C.**
Truck 15735	**A.B.C.**
Truck 16123	**A.B.C.**
Truck 59213	**A.B.C.**
Truck 65562	**A.B.C.**

Truck 04729	**B.C.**
Baby Crane	**A.B.C.**
Truck 34300	**A.B.C.**
Hallway	**A.B.C.**
Control Room	**Halotron**
Control Room	**Halotron**
Server Room	**Halotron**
Hallway	**A.B.C.**
Exit	**A.B.C.**
Smoke Pen	**A.B.C.**
Doorway	**A.B.C.**
Hallway	**A.B.C.**
Hallway	**A.B.C.**
Office	**A.B.C.**
Exit	**A.B.C.**
Attack	**A.B.C.**
Fire Truck	**A.B.C.**
Wall	**A.B.C.**
Wall	**A.B.C.**
Wall	**A.B.C.**
Wall	**Foam**
Spare Cage	**A.B.C.**
Spare Cage	**A.B.C.**
Spare Cage	**A.B.C.**

Spare Cage	**A.B.C.**
Spare Cage	**B.C.**
Spare Cage	**B.C.**
Spare Cage	**A.B.C.**
Spare Cage	**A.B.C.**
Fire Truck	**A.B.C.**
Truck 93731	**A.B.C.**
Truck 92744	**A.B.C.**
Truck 01038	**A.B.C.**
Truck 05975	**B.C.**
Emergency Response	**A.B.C.**
Truck 51963	**A.B.C.**
Truck 15764	**A.B.C.**
Truck 42888	**A.B.C.**
Stairs	**Nitrogen**
Dock	**Nitrogen**
Building	**Nitrogen**
Truck Rack 12	**Nitrogen**
Truck Rack 13	**Nitrogen**
Truck Rack 13	**Nitrogen**
Building	**Nitrogen**
Tank 100-08	**Nitrogen**
Dock	**Nitrogen**
Dock	**Nitrogen**

Dock	**Nitrogen**
Wash Station	**Nitrogen**
Tank 25-19	**Nitrogen**
Truck Rack 10	**Nitrogen**
Truck 28813	**A.B.C.**
Hallway	**Halotron**
Server Room	**Halotron**
Hallway	**A.B.C.**
Hallway	**A.B.C.**
Attack Truck	**A.B.C.**
House	**A.B.C.**
Of Rack	**B.C.**
Of Rack	**B.C.**
At Gate	**A.B.C.**
At Fire Pump	**A.B.C.**
Of Dock	**A.B.C.**
Of Dock	**B.C.**
Of Dock	**A.B.C.**
Of Rack	**A.B.C.**
Of Rack	**A.B.C.**
Of Rack	**B.C.**
Of Rack	**B.C.**
Of Rack	**B.C.**
Of Rack	**B.C.**

Of Operations	**A.B.C.**
Of Tank 210	**B.C.**
Of Tank 216	**B.C.**
Of Tank 220	**A.B.C.**
Of Tank 220	**A.B.C.**
Of Tank 201	**B.C.**
Of Tank 200	**A.B.C.**
Of Tank 199	**A.B.C.**
Of Tank 236	**A.B.C.**
Of Tank 236	**A.B.C.**
Of Tank 232	**A.B.C.**
Of Tank 223	**A.B.C.**
Truck 46804	**A.B.C.**
Of Tank 215	**A.B.C.**
Truck 65779	**A.B.C.**
Cart 07044	**A.B.C.**
Truck 46863	**A.B.C.**
Truck 59615	**A.B.C.**
Truck 65778	**A.B.C.**
Truck 58605	**A.B.C.**
Truck 76542	**A.B.C.**
Truck 55400	**A.B.C.**
Truck 18603	**A.B.C.**
Truck 27107	**A.B.C.**

Truck 15729	**A.B.C.**
Truck 11124	**A.B.C.**
Truck 09590	**A.B.C.**
Door	**A.B.C.**
Welding Machine	**A.B.C.**
Truck 65638	**A.B.C.**
On Pole	**A.B.C.**
Of Tank 80-22	**B.C**
Truck 16176	**A.B.C.**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**
Warehouse	**A.B.C**

Warehouse	**A.B.C**
Truck 75927	**A.B.C.**
Truck 75929	**A.B.C.**
Truck 75921	**A.B.C.**
Truck 97087	**A.B.C.**
Exit	**Carbon Dioxide**
Warehouse	**A.B.C.**
Road	**A.B.C.**
Road	**A.B.C.**
Stack	**A.B.C.**
Stack	**A.B.C.**
Kitchen	**A.B.C.**
Guard Shack	**A.B.C.**
Guard Shack	**A.B.C.**
Truck 82620	**B.C.**

Fire Fighting Foam

LOCATION	FIREFIGHTING FOAM
Tank 187-1	Universal Gold 1%X3% AR-AFFF
Tank 80-21	Universal Gold 1%X3% AR-AFFF
Tank 80-16	Universal Gold 1%X3% AR-AFFF
Tank 80-15	Universal Gold 1%X3% AR-AFFF
Tank 80-19	Universal Gold 1%X3% AR-AFFF
Ship Dock 2	Universal Gold 1%X3% AR-AFFF
Ship Dock 3	Universal Gold 1%X3% AR-AFFF
Tank 12-20	Universal Gold 1%X3% AR-AFFF
Tank 12-17	Universal Gold 1%X3% AR-AFFF
Tank 25-18	Universal Gold 1%X3% AR-AFFF

Tank 25-12	Universal Gold 1%X3% AR-AFFF
Tank 25-13	Universal Gold 1%X3% AR-AFFF
Tank 80-13	Universal Gold 1%X3% AR-AFFF
Ship Dock 2	Universal Gold 1%X3% AR-AFFF
Ship Dock 1	Universal Gold 1%X3% AR-AFFF
Ship Dock 3	Universal Gold 1%X3% AR-AFFF
3100 Manifold	Universal Gold 1%X3% AR-AFFF
3100 Manifold	Universal Gold 1%X3% AR-AFFF
3100 Manifold	Universal Gold 1%X3% AR-AFFF
On Barge Dock 3	Universal Gold 1%X3% AR-AFFF
Tank 100-8	Universal Gold 1%X3% AR-AFFF
On Ship Dock 4	Universal Gold 1%X3% AR-AFFF
3400 Manifold	Universal Gold 1%X3% AR-AFFF
3300 Manifold	Universal Gold 1%X3% AR-AFFF
3500 Manifold	Universal Gold 1%X3% AR-AFFF
3300 Manifold	Universal Gold 1%X3% AR-AFFF
3500 Manifold	Universal Gold 1%X3% AR-AFFF
Truck Rack 1	Thunderstorm 1%X3% AR-AFFF
Truck Rack 1	Thunderstorm 1%X3% AR-AFFF
Truck Rack 1	Thunderstorm 1%X3% AR-AFFF
Truck Rack 1	Thunderstorm 1%X3% AR-AFFF
3400 Manifold	Universal Gold 1%X3% AR-AFFF
Tank 100-19	Thunderstorm 1%X3% AR-AFFF
Tank 100-19	Thunderstorm 1%X3% AR-AFFF
Tank 100-103	Thunderstorm 1%X3% AR-AFFF
Tank 25-18	Universal Gold 1%X3% AR-AFFF
Tank 100-24	Thunderstorm 1%X3% AR-AFFF
Truck Rack 14	Thunderstorm 1%X3% AR-AFFF
Truck Rack 14	Thunderstorm 1%X3% AR-AFFF
Truck Rack 14	Thunderstorm 1%X3% AR-AFFF
Truck Rack 14	Thunderstorm 1%X3% AR-AFFF
Ship Dock 1	Thunderstorm 1%X3% AR-AFFF

Barge Dock 2	Thunderstorm 1%X3% AR-AFFF
Barge Dock 2	Thunderstorm 1%X3% AR-AFFF
Galena Park Fire Truck	Thunderstorm 1%X3% AR-AFFF
Tank 205	Thunderstorm 1%X3% AR-AFFF
Tank 141	Thunderstorm 1%X3% AR-AFFF
Tank 155	Thunderstorm 1%X3% AR-AFFF
Tank 150-110	Thunderstorm 1%X3% AR-AFFF
Tank 150-113	Thunderstorm 1%X3% AR-AFFF
On Ship Dock	Thunderstorm 1%X3% AR-AFFF
Tank 147	Thunderstorm 1%X3% AR-AFFF
Tank 135	Thunderstorm 1%X3% AR-AFFF
Tank 123	Thunderstorm 1%X3% AR-AFFF
Operations Building	Thunderstorm 1%X3% AR-AFFF
Operations Building	Thunderstorm 1%X3% AR-AFFF
Central Rail Rack	Thunderstorm 1%X3% AR-AFFF
Central Rail Rack	Thunderstorm 1%X3% AR-AFFF
Central Rail Rack	Thunderstorm 1%X3% AR-AFFF
Central Rail Rack	Thunderstorm 1%X3% AR-AFFF
Central Rail Rack	Thunderstorm 1%X3% AR-AFFF
Central Rail Rack	Thunderstorm 1%X3% AR-AFFF
GP Attack Truck	Thunderstorm 1%X3% AR-AFFF

APPENDIX O: EMPLOYEE EMERGENCY RESPONSIBILITIES

Incident IC & Alternate:

- Conduct and document an annual exercise
- Communications systems checked monthly with documentation
- Training all employees with documentation of training, including new employees or those with new responsibilities

Terminal Employees:

- Know the initial action to be taken
- Track and maintain adequate stocks of response materials
- Check all safety showers daily
- Check all release containment devices monthly
- Know the evacuation routes and command post locations

First Responder (ERT members):

- Will understand what to do when an unintentional release occurs
- Will manage response activities by other agencies
- Will maintain adequate stocks of response materials
- Will know the location of the command post
- Will know evacuation routes
- Will participate in an annual emergency response exercise
- Will be available to respond during operations hours
- Will contact EMS or 911 in case of injury or potential for catastrophic release

Operations Terminal Manager:

- Will ensure loaders are sufficiently trained to perform the transfer
- Will ensure that adequate stocks of response material are available
- Will contact appropriate agencies identified in response plan contact list
- Will conduct post emergency review (develop a documented timeline of events)
- Will initiate emergency response exercise at least annually
- Will ensure remediation is completed, this includes the disposal of wastes generated
- Will be available during routine operating hours
- Will report all findings to the Regional Manager within two workdays
- Will perform the functions of the Regional Manager in their absence
- Will ensure all necessary reporting (EPA, DOT, State & Local) is completed in the prescribed time
- Will be the primary contact for the First Responder

Regional Operations Manager:

- Will be able to be contacted during the normal operations hours
- Will perform the functions of the Manager in his/her absence
- Will contact the customer and primary contact for the customer
- Will participate in the annual emergency response exercise

APPENDIX P: Reserved

APPENDIX Q: SDS VAULT INSTRUCTIONS

1. Go to www.sdsvault.com. or you can go to KMONLINE/Common Resources/EHS and click on SDS Vault.com under “EHS Hot Links”. (No login will be required if going through KMONLINE).

APPENDIX R: EAP EVALUATION

Emergency Response Exercise/Evacuation Evaluation

Terminal: _____ Date: _____

Start Time of Exercise/Drill_____ End Time of Exercise/Drill: _____

Type of Drill/Exercise Conducted:

☐ Fire ☐ Severe Weather ☐ Medical Emergency ☐ Chemical Release

☐ Bomb Threat ☐ Power Outage ☐ Other _____

Performance Objective	Yes	No	N/A	Comments
All employees received/heard alarm				
All employees arrived at designated rally point				
Visitor log and Grab Binder present at roll call				
Roll call held within designated time [1]				
All employees/visitors accounted for				
Emergency Communication Tested				
Emergency Kit(s) Inventoried and complete				
Emergency Checklist used				
Teams Functioned Effectively				
Personnel Understood Individual Tasks				
Post Brief Held for Employee Observations and Recommendations				
After Action Report Completed				

Observed By:_____ Title:_____

[1] 5 minutes except for tornado warning which is 3 minutes.

APPENDIX S: DEFINITIONS

Incident Commander

The Incident Commander is the on-scene KM employee or representative in charge of emergency response. Typically, it is the most senior employee with operational responsibility (a supervisor, crew leader operations coordinator, foreman, manager, engineer, etc.) who has received the required Emergency Response (Hazwoper) operations level training, training in the ICS, emergency response or local training per the site-specific ERP. However, the Incident Commander role will always be filled with the most qualified individual, not necessarily most senior or highest ranked individual available.

Incident Safety Officer

The Incident Safety Officer (ISO) reports directly to the Incident Commander, is typically the second role filled within the ICS, and commonly filled by an EHS representative. The ISO is the only role within the ICS who has the authority to override the IC in situations that jeopardize the safety of responders or community.

Operations Section Chief

The Operations Section Chief (OSC) reports directly to the Incident Commander and is best suited to manage the resources required to perform tactical operations in order to achieve the objectives/goals outlined in the Incident Action Plan (IAP).

Area/Facility Manager

The Area/Facility Manager can be the Incident Commander in the action plans for the three types of emergencies or can delegate the responsibility to another trained individual.

Area/Facility Personnel

Area/facility personnel are responsible for providing initial on-scene response commensurate with their training and capabilities to contain the emergency.

Crisis Support Team

In the event of a major emergency, the Crisis Support Team (CST) may send support personnel to the site to provide assistance. Additionally, an Accident Investigation Team may be dispatched to the scene to begin the investigation, which will allow the on-site Incident Commander, to focus on resolving operating problems and returning the facility to service.

APPENDIX T: RESERVED

APPENDIX U: RESERVED

APPENDIX V: RESERVED

APPENDIX X: RESERVED

APPENDIX Y: RESERVED

APPENDIX Z: DOCUMENTS

Exercise/Incident Name

Exercise/Incident Date

After Action Report

Date Published

Emergency Response After Action Report

Summary

[When writing the Summary, keep in mind that this section may be the only part of the that some people will read. Introduce this section by stating the full name of the exercise/Emergency Response and providing a brief overview of the exercise/response. This brief overview should discuss why the exercise/response was conducted; the exercise/response objectives; and what capabilities, activities, and scenario(s) were used to achieve those objectives. All of these areas will be discussed in more detail in the subsequent sections.]

The following should be used for Drills/Exercises:

The [exercise] was developed to test [terminal]'s [Capability 1], [Capability 2], and [Capability 3] capabilities. The exercise planning team was composed [list of employees participating in planning team]. The exercise planning team discussed [include a brief overview of the major issues encountered, discussed, and resolved during the exercise planning process. Topics to address in this section could include the length of the planning process, the reasoning behind the planning team's choice of objectives to exercise, etc.]

Based on the exercise planning team's deliberations, the following objectives were developed for [exercise name]:

- Objective 1: [Insert 1 sentence description of the exercise objective]
- Objective 2: [Insert 1 sentence description of the exercise objective]
- Objective 3: [Insert 1 sentence description of the exercise objective]

The following should be used for an emergency response. In this paragraph answer the following questions:

6) What caused the emergency?
7) Was it preventable? If so, how?
8) Were inadequate or incorrect orders given or actions taken?
9) Were these the result of bad judgment, wrong or insufficient information, or poor procedures?
10) Can procedures or training be improved?

The purpose of this report is to analyze exercise/emergency action results, identify strengths to be maintained and built upon, identify potential areas for further improvement, and support development of corrective actions.

[In general, the major strengths and primary areas for improvement should be limited to three each to ensure the Executive Summary is high-level and concise.]

Major Strengths

The major strengths identified during this exercise/emergency action are as follows:

- [Use complete sentences to describe each major strength.]
- [Additional major strength]
- [Additional major strength]

Primary Areas for Improvement

Throughout the exercise/emergency, several opportunities for improvement in [terminal]'s ability to respond to the incident were identified. The primary areas for improvement, including recommendations, are as follows:

- [Use complete sentences to state each primary area for improvement and its associated key recommendation(s).]
- [Additional key recommendation]
- [Additional key recommendation]

[End this section by describing the overall exercise/incident as successful or unsuccessful, and briefly state the areas in which subsequent exercises/incidents conducted/occurring by this terminal should focus.]

Exercise/Incident Overview

Exercise/Incident Details

Exercise/Incident Name

[Insert a name of exercise/incident, which should match the name in the header.]

Exercise/Incident Start Date

[Insert the month, day, and year that the exercise began.]

Exercise/Incident End Date

[Insert the month, day, and year that the exercise ended.]

Duration

[Insert the total length of the exercise/incident, in day or hours, as appropriate.]

Mission

[Insert the appropriate mission areas of the exercise (e.g. Prevent, Protect, Response, and/or Recovery).]

Capabilities

[Insert a list of the capabilities addressed within the exercise/incident.]

Scenario/Incident Type

[Name the exercise scenario type (e.g. chemical release).]

Exercise Planning Incident Team Leadership

[The name of each member of the planning/incident team(s) leadership should be listed along with their role in the exercise/incident and job title.]

Participating Organizations

[Insert a list of the individual participating organizations or agencies, including Federal, State, local and international agencies, and contract support companies as applicable.]

Analysis of Capabilities

This section of the report reviews the performance of the exercised capabilities, activities, and tasks.

Capability 1: [Capability Name]

Capability Summary: [Include a detailed overview of the capability, and a description of how the capability was performed during an exercise/incident. The exact length of this summary will depend on the scope of the exercise/incident.]

Observation 1.1: [Begin this section with a heading indicating whether the observation is a "Strength" or an "Area for Improvement." A strength is an observed action, behavior, procedure, and/or practice that is worthy of recognition and special notice. Areas for improvement are those areas that a necessary task was not performed or that a task was performed with notable problems. Following this heading, insert a short, complete sentence that describes the general observation.]

References: [List relevant plans, policies, procedures, laws, and/or regulations, or sections of these plans, policies, procedures, laws, and/or regulations. If no references apply to the observation, it is acceptable to simply list "N/A" or "Not Applicable."]

1. [Name of the task and the applicable plans, policies, procedures, laws, and/or regulations and 1-2 sentences describing their relation to the task]
2. [Name of the task and the applicable plans, policies, procedures, laws, and/or regulations and 1-2 sentences describing their relation to the task]
3. [Name of the task and the applicable plans, policies, procedures, laws, and/or regulations and 1-2 sentences describing their relation to the task]

Analysis: [The analysis section should be the most detailed section. Include a description of the behavior or actions at the core of the observation, as well as a brief description of what happened and the consequence(s) (positive or negative) of the action or behavior. If an action was performed successfully, include any relevant innovative approaches utilized by the exercise participants. If an action was not performed adequately, the root-causes contributing to the shortcoming must be identified.]

Recommendations: [Insert recommendations to address identified areas for improvement, based on the judgment and experience. If the observation was identified as a strength, without corresponding recommendations, insert "None.]

1. [Complete description of recommendation]
2. [Complete description of recommendation]
3. [Complete description of recommendation]

[Continue to add additional observations, references, analyses, and recommendations for each capability as necessary. Maintain numbering convention to allow for easy reference.]

Conclusion

[This section is a conclusion for the entire document. It provides an overall summary to the report. It should include the demonstrated capabilities, lessons learned, major recommendations, and a summary of what steps should be taken to ensure that the concluding results will help to further refine plans, policies, procedures, and training for this type of incident.

Lessons Learned to be Shared

Following are revealed lessons learned which should be shared with the broader KM audience.

- **Lesson Learned:** Knowledge and experience, positive or negative, derived from actual incidents as well as those derived from observations and historical study of operations, training, and exercises.
- **Best Practices:** Exemplary, peer-validated techniques, procedures, good ideas, or solutions that work and are solidly grounded in actual operations, training, and exercise experience.
- **Good Stories:** Exemplary, but non-peer-validated, initiatives that have shown success in their specific environments and that may provide useful information to other terminals.
- **Practice Note:** A brief description of innovative practices, procedures, methods, programs, or tactics that an terminal uses to adapt to changing conditions or to overcome an obstacle or challenge.

GLOSSARY OF TERMS AND ACRONYMS

GLOSSARY OF TERMS

This glossary contains definitions of terms that will be used frequently during the course of response operations.

Activate: The process of mobilizing personnel and/or equipment within the response organization to engage in response operations.

Activator: An individual in the response organization whose responsibilities include notifying other individuals or groups within the organization to mobilize personnel and/or equipment.

Adverse Weather: The weather conditions that will be considered when identifying response systems and equipment in a response plan for the applicable operating environment. Factors to consider include significant wave height, ice, temperature, weather - related visibility, and currents within the Captain of the Port (COTP) zone in which the systems or equipment are intended to function.

Agency Representative: Individual assigned to an incident from an agency who has been delegated full authority to make decisions on all matters affecting that agency's participation in response operations.

Area Committee: As defined by Sections 311(a)(18) and (j)(4) of CWA, as amended by OPA, means the entity appointed by the President consisting of members from Federal, State, and local agencies with responsibilities that include preparing an Area Contingency Plan for the area designated by the President. The Area Committee may include ex-officio (i.e., non-voting) members (e.g., industry and local interest groups).

Area Contingency Plan: As defined by Sections 311(a)(19) and (j)(4) of CWA, as amended by OPA, means the plan prepared by an Area Committee, that in conjunction with the NCP, shall address the removal of a discharge including a worst-case discharge and the mitigation or prevention of a substantial threat of such a discharge from a vessel, offshore facility, or onshore facility operating in or near an area designated by the President.

Average Most Probable Discharge: A discharge of the lesser of 50 barrels or 1% of the volume of the worst case discharge.

Barrel (bbl): Measure of space occupied by 42 U.S. gallons at 60 degrees Fahrenheit.

Bioremediation Agents: Means microbiological cultures, enzyme additives, or nutrient additives that are deliberately introduced into an oil discharge and that will significantly increase the rate of biodegradation to mitigate the effects of the discharge.

Boom: A piece of equipment or a strategy used to either contain free floating oil to a confined area or protect an uncontaminated area from intrusion by oil.

Booming Strategies: Strategic techniques which identify the location and quantity of boom required to protect certain areas. These techniques are generated by identifying a potential spill source and assuming certain conditions which would affect spill movement on water.

Bulk: Material that is stored or transported in a loose, unpackaged liquid, powder, or granular form capable of being conveyed by a pipe, bucket, chute, or belt system.

Chemical Agents: Means those elements, compounds, or mixtures that coagulate, disperse, dissolve, emulsify, foam, neutralize, precipitate, reduce, solubilize, oxidize, concentrate, congeal, entrap, fix, make the pollutant mass more rigid or viscous, or otherwise facilitate the mitigation of deleterious effects or the removal of the oil pollutant from the water. Chemical agents include biological additives, dispersants, sinking agents, miscellaneous oil spill control agents, and burning agents, but do not include solvents.

Cleanup: For the purposes of this document, cleanup refers to the removal and/or treatment of oil, hazardous substances, and/or the waste or contaminated materials generated by the incident. Cleanup includes restoration of the site and its natural resources.

Clean-up Contractor: Persons contracted to undertake a response action to clean up a spill.

Coastal Waters: For the purpose of classifying the size of discharges, means the waters of the coastal zone except for the Great Lakes and specified ports and harbors on inland rivers.

Coastal Zone: As defined for the purpose of the NCP, means all United States waters subject to the tide, United States waters of the Great Lakes, specified ports and harbors on inland rivers, waters of the contiguous zone, other waters of the high seas subject to the NCP, and the land surface or land substrata, ground waters, and ambient air proximal to those waters. The term coastal zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.

Coast Guard District Response Group (DRG): As provided for by CWA sections 311(a)(20) and (j)(3), means the entity established by the Secretary of the department in which the USCG is operating within each USCG district and shall consist of: the combined USCG personnel and equipment, including firefighting equipment, of each port within the district; additional prepositioned response equipment; and a district response advisory team.

Command: The act of controlling manpower and equipment resources by virtue of explicit or delegated authority.

Command Post: A site located at a safe distance from the spill site where response decisions are made, equipment and manpower deployed, and communications handled. The Incident Commander and the On-Scene Coordinators may direct the on-scene response from this location.

Communications Equipment: Equipment that will be utilized during response operations to maintain communication between the Company employees, contractors, Federal/State/Local agencies. (Radio/ telephone equipment and links)

Containment Boom: A flotation/freeboard device, made with a skirt/curtain, longitudinal strength member, and ballast unit/weight designed to entrap and contain the product for recovery.

Contingency Plan: A document used by (1) federal, state, and local agencies to guide their planning and response procedures regarding spills of oil, hazardous substances, or other emergencies; (2) a document used by industry as a response plan to spills of oil, hazardous substances, or other emergencies occurring upon their vessels or at their facilities.

Contract or Other Approved Means: For OPA 90, a written contract with a response contractor; certification by the facility owner or operator that personnel and equipment are owned, operated, or under the direct control of the facility, and available within the stipulated times; active membership in a local or regional oil spill removal organization; and/or the facility's own equipment.

Critical Areas to Monitor: Areas which if impacted by spilled oil may result in threats to public safety or health.

Cultural Resources: Current, historic, prehistoric and archaeological resources which include deposits, structures, ruins, sites, buildings, graves, artifacts, fossils, or other objects of antiquity which provide information pertaining to the historical or prehistorical culture of people in the state as well as to the natural history of the state.

Damage Assessment: The process of determining and measuring damages and injury to the human environment and natural resources, including cultural resources. A Damages include differences between the conditions and use of natural resources and the human environment that would have occurred without the incident, and the conditions and use that ensued following the incident. A Damage assessment includes planning for restoration and determining the costs of restoration.

Decontamination: The removal of hazardous substances from personnel and their equipment necessary to prevent adverse health effects.

Discharge: Any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

Dispersants: Means those chemical agents that emulsify, disperse, or solubilize oil into the water column or promote the surface spreading of oil slicks to facilitate dispersal of the oil into the water column.

Diversion Boom: A floatation/freeboard device, made with a skirt/curtain, longitudinal strength member, and ballast unit/weight designed to deflect or divert the product towards a pick up point, or away from certain areas.

Drinking Water Supply: As defined by Section 101(7) of CERCLA, means any raw or finished water source that is or may be used by a public water system (as defined in the Safe Drinking Water Act) or as drinking water by one or more individuals.

Economically Sensitive Areas: Those areas of explicit economic importance to the public that due to their proximity to potential spill sources may require special protection and include, but are not limited to: potable and industrial water intakes; locks and dams; and public and private marinas.

Emergency Management: The personnel identified to staff the organizational structure identified in a response plan to manage response plan implementation.

Emergency Response Team: Designated Facility individuals who will fulfill the roles determined in the oil spill response plan in the event of an oil or hazardous substance spill. They will supervise and control all response and clean-up operations.

Emergency Service: Those activities provided by state and local government to prepare for and carry out any activity to prevent, minimize, respond to, or recover from an emergency.

Environmentally Sensitive Areas: Streams and water bodies, aquifer recharge zones, springs, wetlands, agricultural areas, bird rookeries, endangered or threatened species (flora and fauna) habitat, wildlife preserves or conservation areas, parks, beaches, dunes, or any other area protected or managed for its natural resource value.

Facility: Either an onshore facility or an offshore facility and includes, but is not limited to structures, equipment, and appurtenances thereto, used or capable of being used to transfer oil to or from a vessel or a public vessel. A facility includes federal, state, municipal, and private facilities.

Facility Operator: The person who owns, operates, or is responsible for the operation of the facility.

Federal Fund: The spill liability trust fund established under OPA.

Federal Regional Response Team: The federal response organization (consisting of representatives from selected federal and state agencies) which acts as a regional body responsible for planning and preparedness before an oil spill occurs and providing advice to the FOSC in the event of a major or substantial spill.

Federal Response Plan (FRP): Means the agreement signed by 25 federal departments and agencies in April 1987 and developed under the authorities of the Earthquake Hazards Reduction Act of 1977 and the Disaster Relief Act of 1974, as amended by the Stafford Disaster Relief Act of 1988.

First Responders, First Response Agency: A public health or safety agency (e.g., fire service or police department) charged with responding to a spill during the emergency phase and alleviating immediate danger to human life, health, safety, or property.

Handle: To transfer, transport, pump, treat, process, store, dispose of, drill for, or produce.

Harmful Quantity Of Oil: The presence of oil from an unauthorized discharge in a quantity sufficient either to create a visible film or sheen upon or discoloration of the surface of the water or a shoreline, tidal flat, beach, or marsh, or to cause a sludge or emulsion to be deposited beneath the surface of the water or on a shoreline, tidal flat, beach, or marsh.

Hazardous Material: Any non-radioactive solid, liquid, or gaseous substance which, when uncontrolled, may be harmful to humans, animals, or the environment. Including but not limited to substances otherwise defined as hazardous wastes, dangerous wastes, extremely hazardous wastes, oil, or pollutants.

Hazardous Substance: Any substance designed as such by the Administrator of the EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act; regulated pursuant to Section 311 of the Federal Water Pollution Control Act, or discharged by the SERC.

Hazardous Waste: Any solid waste identified or listed as a hazardous waste by the Administrator of the EPA pursuant to the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C., Section 6901,et seq as amended. The EPA Administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in Title 40 of the Code of Federal Regulations, Part 261, Subparts C and D respectively.

HAZMAT: Hazardous materials or hazardous substances, exposure to which may result in adverse effects on health or safety of employees.

HAZWOPER: Hazardous Waste Operations and Emergency Response Regulations published by OSHA to cover worker safety and health aspects of response operations.

Heat Stress: Dangerous physical condition caused by over exposure to extremely high temperatures.

Hypothermia: Dangerous physical condition caused by over exposure to freezing temperatures.

Incident: Any event that results in a spill or release of oil or hazardous materials. Action by emergency service personnel may be required to prevent or minimize loss of life or damage to property and/or natural resources.

Incident Briefing Meeting: Held to develop a comprehensive, accurate, and up-to-date understanding of the incident, nature of status of control operations, and nature and status of response operations; ensure the adequacy of control and response operations; begin to organize control and response operations; and prepare for interactions with outside world.

Incident Command Post (ICP): That location at which all primary command functions are executed.

Incident Command System (ICS): The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, with responsibility for the management of assigned resources at an incident.

Incident Commander (IC): The one individual in charge at any given time of an incident. The Incident Commander will be responsible for establishing a unified command with all on-scene coordinators.

Indian Tribe: As defined in OPA section 1001, means any Indian tribe, band, nation, or other organized group or community, but not including any Alaska Native regional or village corporation, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians and has governmental authority over lands belonging to or controlled by the Tribe.

Initial Cleanup: Remedial action at a site to eliminate acute hazards associated with a spill. An initial clean-up action is implemented at a site when a spill of material is an actual or potentially imminent threat to public health or the environment, or difficulty of cleanup increases significantly without timely remedial action. All sites must be evaluated to determine whether initial cleanup is total cleanup, however, this will not be possible in all cases due to site conditions (i.e., a site where overland transport or flooding may occur).

Initial Notification: The process of notifying necessary the Company personnel and Federal/ State/Local agencies that a spill has occurred, including all pertinent available information surrounding the incident.

Initial Response Actions: The immediate actions that are to be taken by the spill observer after detection of a spill.

Inland Area: The area shoreward of the boundary lines defined in 46 CFR part 7, except that in the Gulf of Mexico, it means the area shoreward of the lines of demarcation (COLREG lines) as defined in §80.740 through 80.850 of this chapter. The inland area does not include the Great Lakes.

Inland Waters: State waters not considered coastal waters; lakes, rivers, ponds, streams, underground water, et. al.

Inland Zone: Means the environment inland of the coastal zone excluding the Great Lakes, and specified ports and harbors on inland rivers. The term inland zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.

Interim Storage Site: A site used to temporarily store recovered oil or oily waste until the recovered oil or oily waste is disposed of at a permanent disposal site. Interim storage sites include trucks, barges, and other vehicles, used to store waste until the transport begins.

Lead Agency: The government agency that assumes the lead for directing response activities.

Lead Federal Agency: The agency which coordinates the federal response to incident on navigable waters. The lead federal agencies are:

- **U.S. Coast Guard:** Oil and chemically hazardous materials incidents on navigable waters.
- **Environmental Protection Agency:** Oil and chemically hazardous materials incidents on inland waters.

Lead State Agency: The agency which coordinates state support to federal and/or local governments or assumes the lead in the absence of federal response.

Loading: Transfer from Facility to vehicle.

Local Emergency Planning Committee (LEPC): A group of local representatives appointed by the State Emergency Response Commission (SERC) to prepare a comprehensive emergency plan for the local emergency planning district, as required by the Emergency Planning and Community Right-to-know Act (EPCRA).

Lower Explosive Limit: Air measurement utilized to determine the lowest concentration of vapors that support combustion. This measurement must be made prior to entry into a spill area.

Marinas: Small harbors with docks, services, etc. for pleasure craft.

Medium Discharge: Means a discharge greater than 2,100 gallons (50 Bbls) and less than or equal to 36,000 gallons (85+ Bbls) or 10% of the capacity of the largest tank, whichever is less and not to exceed the WCD.

National Contingency Plan: The plan prepared under the Federal Water Pollution Control Act (33 United State Code §1321 et seq) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 United State Code § 9601 et seq), as revised from time to time.

National Pollution Funds Center (NPFC): Means the entity established by the Secretary of Transportation whose function is the administration of the Oil Spill Liability Trust Fund (OSLTF). Among the NPFC's duties are: providing appropriate access to the OSLTF for federal agencies and states for removal actions and for federal trustees to initiate the assessment of natural resource damages; providing appropriate access to the OSLTF for claims; and coordinating cost recovery efforts.

National Response System (NRS): Is the mechanism for coordinating response actions by all levels of government in support of the OSC. The NRS is composed of the NRT, RRTs, OSC, Area Committees, and Special Teams and related support entities.

National Strike Force (NSF): Is a special team established by the USCG, including the three USCG Strike Teams, the Public Information Assist Team (PIAT), and the National Strike Force Coordination Center. The NSF is available to assist OSCs in their preparedness and response duties.

National Strike Force Coordination Center (NSFCC): Authorized as the National Response Unit by CWA section 311(a)(23) and (j)(2), means the entity established by the Secretary of the department in which the USCG is operating at Elizabeth City, North Carolina, with responsibilities that include administration of the USCG Strike Teams, maintenance of response equipment inventories and logistic networks, and conducting a national exercise program.

Natural Resource: Land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to or otherwise controlled by the state, federal government, private parties, or a municipality.

Navigable Waters: As defined by 40 CFR 110.1 means the waters of the United States, including the territorial seas. The term includes:

All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

Interstate waters, including interstate wetlands;

All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

- that are or could be used by interstate or foreign travelers for recreational or other purposes;
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and
- that are used or could be used for industrial purposes by industries in interstate commerce.

All impoundments of waters otherwise defined as navigable waters under this section;

Tributaries of waters identified in paragraphs (a) through (d) of this definition, including adjacent wetlands; and

Wetlands adjacent to waters identified in paragraphs (a) through (e) of this definition: Provided, that waste treatment systems (other than cooling ponds meeting the criteria of this paragraph) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act jurisdiction remains with EPA.

Nearshore Area: For OPA 90, the area extending seaward 12 miles from the boundary lines defined in 46 CFR Part 7, except in the Gulf of Mexico. In the Gulf of Mexico, it means the area extending seaward 12 miles from the line of demarcation defined in §80.740 - 80.850 of title 33 of the CFR.

Non-persistent or Group I Oil: A petroleum-based oil that, at the time of shipment, consists of hydrocarbon fractions:

1. At least 50% of which by volume, distill at a temperature of 340 degrees C (645 degrees F);

2. At least 95% of which volume, distill at a temperature of 370 degrees C (700 degrees F).

Ocean: The open ocean, offshore area, and nearshore area as defined in this subpart.

Offshore area: The area up to 38 nautical miles seaward of the outer boundary of the nearshore area.

Oil or Oils: Naturally occurring liquid hydrocarbons at atmospheric temperature and pressure coming from the earth, including condensate and natural gasoline, and any fractionation thereof, including, but not limited to, crude oil, petroleum gasoline, fuel oil, diesel oil, oil sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Oil does not include any substance listed in Table of 40 CFR Part 302 adopted August 14, 1989, under Section 101(14) of the federal comprehensive environmental response, compensation, and liability act of 1980, as amended by P. L. 99-499.

Oil Spill Liability Trust Fund: Means the fund established under section 9509 of the Internal Revenue Code of 1986 (26 U.S.C. 9509).

Oily Waste: Product contaminated waste resulting from a spill or spill response operations.

On-Scene Coordinator (OSC): Means the federal official predesignated by the EPA or the USCG to coordinate and direct response under subpart D.

On-site: Means the area extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a response action.

Open Ocean: means the area from 38 nautical miles seaward of the outer boundary of the nearshore area, to the seaward boundary of the exclusive economic zone.

Owner or Operator: Any person, individual, partnership, corporation, association, governmental unit, or public or private organization of any character.

Persistent Oil: A petroleum-based oil that does not meet the distillation criteria for a non-persistent oil. For the purposes of this Appendix, persistent oils are further classified based on specific gravity as follows:

1. Group II specific gravity less than .85

2. Group III specific gravity between .85 and less than .95

3. Group IV specific gravity .95 and including 1.0

4. Group V specific gravity greater than 1.0

Plan Holder: The plan holder is the industry transportation related facility for which a response plan is required by federal regulation to be submitted by a vessel or facility's owner or operator.

Post Emergency Response: The portion of a response performed after the immediate threat of a release has been stabilized or eliminated and cleanup of the sites has begun.

Post Emergency: The phase of response operations conducted after the immediate threat of the release has been stabilized, and cleanup operations have begun.

Primary Response Contractors or Contractors: An individual, company, or cooperative that has contracted directly with the plan holder to provide equipment and/or personnel for the containment or cleanup of spilled oil.

Qualified Individual (QI): That person or entity who has authority to activate a spill cleanup contractors, act as liaison with the "On-Scene Coordinator" and obligate funds required to effectuate response activities.

Regional Response Team (RRT): The Federal response organization (consisting of representatives from selected Federal and State agencies) which acts as a regional body responsible for overall planning and preparedness for oil and hazardous materials releases and for providing advice to the OSC in the event of a major or substantial spill.

Remove or Removal: As defined by section 311(a)(8) of the CWA, refers to containment and removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare (including, but not limited to, fish, shellfish, wildlife, public and private property, and shorelines and beaches) or to the environment. For the purpose of the NCP, the term also includes monitoring of action to remove discharge.

Response Activities: The containment and removal of oil from the water and shorelines, the temporary storage and disposal of recovered oil, or the taking of other actions as necessary to minimize or mitigate damage to public health or welfare, or the environment.

Response Contractors: Persons/companies contracted to undertake a response action to contain and/or clean up a spill.

Response Guidelines: Guidelines for initial response that are based on the type of product involved in the spill, these guidelines are utilized to determine clean-up methods and equipment.

Response Plan: A practical manual used by industry for responding to a spill. Its features include:
(1) identifying the notifications sequence, responsibilities, response techniques, etc. in an easy to use format; (2) using decision trees, flowcharts, and checklists to insure the proper response for spills with varying characteristics; and (3) segregating information needed during the response from data required by regulatory agencies to prevent confusion during a spill incident.

Response Priorities: Mechanism used to maximize the effective use of manpower and equipment resources based upon their availability during an operational period.

Response Resources: All personnel and major items of equipment available, or potentially available, for assignment to incident tasks on which status is maintained.

Responsible Party: Any person, owner/operator, or facility that has control over an oil or hazardous substance immediately before entry of the oil or hazardous substance into the atmosphere or in or upon the water, surface, or subsurface land of the state.

Restoration: The actions involved in returning a site to its former condition.

Rivers and Canals: A body of water confined within the inland area that has a project depth of 12 feet or less, including the Intracoastal Waterway and other waterways artificially created for navigation.

Securing the Source: Steps that must be taken to stop discharge of oil at the source of the spill.

Sinking Agents: Means those additives applied to oil discharges to sink floating pollutants below the water surface.

Site Characterization: An evaluation of a cleanup site to determine the appropriate safety and health procedures needed to protect employees from identified hazards.

Site Conditions: Details of the area surrounding the facility, including shoreline descriptions, typical weather conditions, socioeconomic breakdowns, etc.

Site Safety and Health Plan: A site specific plan developed at the time of an incident that addresses:

- Safety and health hazard analysis for each operation.
- Personal protective equipment to be used.
- Training requirements for site workers.
- Medical surveillance requirements.
- Air monitoring requirements.
- Site control measures.
- Decontamination procedures.
- Emergency response procedures.
- Confined space entry procedures.

Site Security and Control: Steps that must be taken to provide safeguards needed to protect personnel and property, as well as the general public, to ensure an efficient clean-up operation.

Skimmers: Mechanical devices used to skim the surface of the water and recover floating oil. Skimmers fall into four basic categories (suction heads, floating weirs, oleophilic surface units, and hydrodynamic devices) which vary in efficiency depending on the type of oil and size of spill.

Snare Boom: Oil will adhere to the material of which this boom is made of and thus collect it.

Sorbents: Materials ranging from natural products to synthetic polymeric foams placed in confined areas to soak up small quantities of oil. Sorbents are very effective in protecting walkways, boat decks, working areas, and previously uncontaminated or cleaned areas.

Spill: An unauthorized discharge of oil or hazardous substance into the waters of the state.

Spill Observer: The first Facility individual who discovers a spill. This individual must function as the first responder and person-in-charge until relieved by an authorized supervisor.

Spill of National Significance (SONS): Means a spill which due to its severity, size, location, actual or potential impact on the public health and welfare or the environment, or the necessary response effort, is so complex that it requires extraordinary coordination of federal, state, local, and responsible party resources to contain and cleanup the discharge.

Spill Management Team: The personnel identified to staff the organizational structure identified in a response plan to manage response plan implementation.

Spill Response: All actions taken in responding to spills of oil and hazardous materials, e.g.: receiving and making notifications; information gathering and technical advisory phone calls; preparation for and travel to and from spill sites; direction of clean -up activities; damage assessments; report writing, enforcement investigations and actions; cost recovery; and program development.

Spill Response Personnel: Federal, state, local agency, and industry personnel responsible for participating in or otherwise involved in spill response. All spill response personnel will be pre- approved on a list maintained in each region.

Staging Areas: Designated areas near the spill site accessible for gathering and deploying equipment and/or personnel.

State Emergency Response Commission (SERC): A group of officials appointed by the Governor to implement the provisions of Title III of the Federal Superfund Amendments and Re-authorization Act of 1986 (SARA). The SERC approves the State Oil and Hazardous Substance Discharge Prevention and Contingency Plan and Local Emergency Response Plans.

Surface Collecting Agents: Means those chemical agents that form a surface film to control the layer thickness of oil.

Surface Washing Agent: Is any product that removes oil from solid surfaces, such as beaches and rocks, through a detergency mechanism and does not involve dispersing or solubilizing the oil into the water column.

Tanker: A self-propelled tank vessel constructed or adapted primarily to carry or hazardous material in bulk in the cargo spaces.

Tidal Current Tables: Tables which contain the predicted times and heights of the high and low waters for each day of the year for designated areas.

Trajectory Analysis: Estimates made concerning spill size, location, and movement through aerial surveillance or computer models.

Transfer: Any movement of oil to, from, or within a vessel by means of pumping, gravitation, or displacement.

Trustee: Means an official of a federal natural resources management agency designated in subpart G of the NCP or a designated state official or Indian tribe or, in the case of discharges covered by the OPA, a foreign government official, who may pursue claims for damages under section 1006 of the OPA.

Underwriter: An insurer, a surety company, a guarantor, or any other person, other than an owner or operator of a vessel or facility, that undertakes to pay all or part of the liability of an owner or operator.

Unified Command: The method by which local, state, and federal agencies and the responsible party will work with the Incident Commander to:

- Determine their roles and responsibilities for a given incident.
- Determine their overall objectives for management of an incident.
- Select a strategy to achieve agreed-upon objectives.
- Deploy resources to achieve agreed-upon objectives.

Unified or Coordinated Command Meeting: Held to obtain agreement on strategic objectives and response priorities; review tactical strategies; engage in joint planning, integrate response operations; maximize use of resources; and minimize resolve conflicts.

Volunteers: An individual who donates their services or time without receiving monetary compensation.

Waste: Oil or contaminated soil, debris, and other substances removed from coastal waters and adjacent waters, shorelines, estuaries, tidal flats, beaches, or marshes in response to an unauthorized discharge. Waste means any solid, liquid, or other material intended to be disposed of or discarded and generated as a result of an unauthorized discharge of oil. Waste does not include substances intended to be recycled if they are in fact recycled within 90 days of their generation or if they are brought to a recycling facility within that time.

Wetlands: Those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs, and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds (40 CFR 112.2(y)).

Wildlife Rescue: Efforts made in conjunction with Federal and State agencies to retrieve, clean, and rehabilitate birds and wildlife affected by an oil spill.

Worst Case Discharge: The largest foreseeable discharge under adverse weather conditions. For facilities located above the high water line of coastal waters, a worst case discharge includes those weather conditions most likely to cause oil discharged from the facility to enter coastal waters.

ACRONYMS

AC	Area Committee
AOR	Area of Review
AQI	Alternate Qualified Individual
ACP	Area Contingency Plan
ACPs	Area Contingency Plans
bbl/hr	Barrel per Hour
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BPD	Barrels Per Day
BOD	Biological Oxygen Demand
BOM	Bureau of Mines
BSEE	Bureau of Safety and Environmental Enforcement
CAER	Community Awareness and Emergency Response
CAS Number	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEMG	Corporate Emergency Management Group
CFR	Code of Federal Regulations
CG	Coast Guard
CHEMTREC	Chemical Transportation Emergency Center
COE	U.S. Army Corps of Engineers
COTP	Captain of the Port
CPI	Corrugated Plate Interceptor
CRZ	Contamination Reduction Zone
CST	Civil Support Team
CMT	Crisis Management Team
CWA	Clean Water Act (Federal - Public Law 100-4)
CWS	Community Water System
CZM	Coastal Zone Management
DECON	Decontamination
DENR	Department of Environment and Natural Resources
DHS	Department of Homeland Security
DNR	Department of Natural Resources
DOC	Department of Commerce
DOCL	Documentation Unit Leader
DOD	Department of Defense

DOE	Department of Energy
DOI	Department of Interior
DOJ	Department of Justice
DOL	Department of Labor
DOS	Department of State
DOT	Department of Transportation
DRAT	District Response Advisory Team
DRG	District Response Group
EBS	Emergency Broadcast System
EDRC	Estimated Daily Recovery Capability
EET	Environmental Emergency Team
EHS	Extremely Hazardous Substance
EM	Emergency Manager
EMA	Emergency Management Agency
EMS	Emergency Management System
EOC	Emergency Operations Center
EPA	U. S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986 (Title III of SARA)
EQ	Environmental Quality
ERT	Emergency Response Team
ESA	Endangered Species Act
ETA	Estimated Time of Arrival
FAA	Federal Aviation Administration
FACT	First Assessment Crisis Team
FAX	Facsimile Machine
FBI	Federal Bureau of Investigation
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FIR	Field Investigation Report
FOSC	Federal On-Scene Coordinator
FR	Federal Register
FRDA	Federal Resources Damage Assessment
FRF	Federal Revolving Fund
GIS	Geographic Information System
GSA	General Services Administration
HAZMAT	Hazardous Material
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard

HEPA OVV	High Efficiency Particle Air Device
HF ERW	High Frequency Electric-Resistance Weld
HHS	Department of Health and Human Services
HLS	Homeland Security
HOPD	Head Office Products Distribution
HVAC	Heating, Ventilating, and Air Conditioning
IAP	Incident Action Plan
IBRRC	International Bird Rescue Research Center
IC	Incident Commander
ICS	Incident Command System
ID NO.	Identification Number
IDNR	Illinois Department of Natural Resources
IMH	Incident Management Handbook
IMS	Incident Management System
IMT	Incident Management Team
IOCC	Interstate Oil Compact Commission
KM	Kilometer
KP	Kilometer Point
LE	Law Enforcement
LEPC	Local Emergency Planning Committee
LFL	Lower Flammable Limit
LO	Liaison Officer
LOSC	Local On-Scene Coordinator
LPG	Liquefied Petroleum Gas
LSC	Logistics Section Chief
LF ERW	Low Frequency Electric-Resistance Weld
LEL	Lower Explosive Limit
MBL	Mobile
MEDEVAC	Medical Evacuation
MER	Marine Emergency Response
MMT	Marine Management Team
MOU	Memorandum of Understanding
MSO	Marine Safety Office
NCP	National Contingency Plan
NCWS	Non-Community Water System
NEPA	National Environmental Policy Act

NFPA	National Fire Protection Association
NIMS	National Incident Management System
NOAA	National Oceanographic Atmospheric Administration
NRC	National Response Center
NRDAR	Natural Resource Damage Assessment and Restoration
NRS	National Response System
NRT	National Response Team
NSF	National Strike Force
NSFCC	National Strike Force Coordination Center
NTNCWS	Non -Transient Non-Community Water System
O&M	Operations and Maintenance
OCC	Operations Coordination Center
OP	Operational Period
OPA	Oil Pollution Act
OPS	Operations
OSC	On-Scene Coordinator
OSC	Operation Section Chief
OSHA	Occupational Safety & Health Administration
OSLTF	Oil Spill Liability Trust Fund
OSPRA	Oil Spill Prevention and Response Act
OSRO	Oil Spill Removal Organization
OSRP	Oil Spill Response Plan
OSRV	Oil Spill Response Vessel
OV	Organic Vapor
PCB	Polychlorinated Biphenyl's
PFD	Personal Floatation Device
PGR	Pager
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIAT	Public Information Assist Team
POC	Point of Contact
POLREP	Pollution Report
PPE	Personal Protective Equipment
PPM	Parts Per Million
PREP	Preparedness for Response Exercise Program
PSC	Planning Section Chief
PSD	Prevention of Significant Deterioration
PVC	Polyvinyl Chloride
PWSD	Public Water Supply District

QI	Qualified Individual
RACT	Reasonably Achievable Control Technology
RCP	Regional Contingency Plan
RCRA	Resource Conservation and Recovery Act
RECON	Reconnaissance
REP	Radiological Emergency Preparedness
RERT	Radiological Emergency Response Team
RESL	Resource Leader
RP	Responsible Party
RPIC	Responsible Party Incident Commander
RPT	Regional Preparedness Team
RQ	Reportable Quantity
RRT	Regional Response Team
RSPA	Research and Special Programs Administration (replaced by PHMSA)
R/W	Right-of-Way
RWD	Rural Water District
SAR	Search and Rescue
SARA	Superfund Amendments and Reauthorization Act
SART	Search and Rescue Transporter
SCADA	Supervisory Control and Data Acquisition
SCBA	Self Contained Breathing Apparatus
SDS	Safety Data Sheets
SDWA	Safe Drinking Water Act
SERC	State Emergency Response Center
SERC	State Emergency Response Commission
SI	Security Incident
SIC	State Implementation Plan
SITL	Situation Unit Leader
SMT	Spill Management Team
SO	Security Officer
SONS	Spill of National Significance
SOP	Standard Operating Procedure
SOR	Statutory Orders and Regulations
SORS	Spilled oil Recovery System
SOSC	State On-Scene Coordinator
SPCC	Spill Prevention, Control, and Countermeasure
Sq. Ft.	Square Foot
SSC	Scientific Support Coordinator (NOAA)

SSPs	Site Safety Plans
STAM	Staging Area Manager
STEL	Short Term Exposure Limits
SUPSALV	United States Navy Supervisor of Salvage
SWD	Salt Water Disposal
TBA	To be Assigned
TSB	Transportation Safety Board
TSC	Temporary Storage Capacity
TSCA	Toxic Substances Control Act
TSD	Temporary Storage and Disposal
TSDF	Treatment, Storage or Disposal Facility
TWIC	Transportation Worker Identification Credential
UC	Unified Command
UCS	Unified Command System
UN Number	United Nations
US	United States
USACOE	U. S. Army Corps of Engineers
USCG	United States Coast Guard
USDA	U. S. Department of Agriculture
USDL	U. S. Department of Labor
USDOD	U. S. Department of Defense
USDOE	U. S. Department of Energy
USDW	Underground Source of Drinking Water
USEPA	U. S. Environmental Protection Agency
USFWS	U. S. Fish and Wildlife Services
USGS	U. S. Geological Survey
VOC	Volatile Organic Compound
Vol.	Volume
VOSS	Vessel of Opportunity Skimmer System
Vsl.	Vessel
WCD	Worst Case Discharge

REGULATORY CROSS REFERENCES

U.S. EPA - OPA 90 ..... Cross Ref-2

USCG OPA 90 Final Rule ..... Cross Ref-6

DOT/PHMSA 49 CFR Part 194 ..... Cross Ref-30

TGLO Discharge Prevention and Response Plan 31 TAC §19.13 ..... Cross Ref-34

OSHA Emergency Action Plans 29 CFR Part 1910.38 and Part 1910.165 ..... Cross Ref-36

OSHA HAZWOPER 29 CFR Part 1910.120 ..... Cross Ref-37

RCRA Contingency Plan 40 CDR Part 265.52 – 265.56 ..... Cross Ref-39

U.S. EPA - OPA 90 *40 CFR Part 112.20 (h) and Appendix F*			
40 CFR 112.20 (h)	**40 CFR 112Appendix F**	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
-----	1.0	***Model Facility-Specific Response Plan***	-----
(1)	1.1	***Emergency Response Action Plan***	-----
(1)(i)		1. Qualified Individual Information	ERAP - QI Info
(1)(ii)		2. Emergency Notification Phone List	ERAP - Fig 3.1-3.9
(1)(iii)		3. Spill Response Notification Form	ERAP - Fig 3.10
(1)(iv)		4. Response Equipment List and Location	ERAP – 4.4
-----		5. Response Equipment Testing and Deployment	ERAP - Testing/ Deployment Log
(1)(v)		6. Facility Response Team	ERAP – Fig 3.1 - 3.4
(1)(vi)		7. Evacuation Plan	ERAP - Evacuation Diagram
(1)(vii)		8. Immediate Actions	ERAP - Initial Response Actions
(1)(viii)		9. Facility Diagram	ERAP - Facility Diagram
(2)	1.2	***Facility Information***	-----
		Facility name and location	Fig 1.1
		Latitude and Longitude	Fig 1.1
		Wellhead Protection Area	Fig 1.1
		Owner/operator	Fig 1.1
		Qualified Individual	Fig 1.1
		Date of Oil Storage Start-up	Fig 1.1
		Current Operation & NAICS	Fig 1.1
		Dates and Types of Substantial Expansion	Fig 1.1
(3)	1.3	***Emergency Response Information***	-----
(3)(i)	1.3.4	Personnel	Fig 3.1 -3.3
	1.3.2	Response Equipment Testing/Location	4.4
(3)(ii)	1.3.3	Evidence of Contracts	Fig 5.5
(3)(iii)	1.3.1	Notification	3.0
(3)(iv)	----	A description of information to pass to response personnel	Fig 3.10

U.S. EPA - OPA 90 *40 CFR Part 112.20 (h) and Appendix F*			
40 CFR 112.20 (h)	**40 CFR 112Appendix F**	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(3)(v)	----	A description of response personnel capabilities, including:	-----
	----	• duties of persons at the Facility during a response action	5.2, 5.3
	----	• response times and qualifications...	Fig 3.1, 3.2, 3.3
(3)(vi)	1.3.3	Response Equipment Testing/Deployment	App F
(3)(vii)	1.3.5	Evacuation Plan	2.4
(3)(viii)	1.3.5	Evacuation Plan Diagrams	App F
-----	1.3.6	Qualified Individual's Duties	5.2
(3)(ix)		A description of the duties of the qualified individual that include	-----
(3)(ix)(A)		Activate internal alarms and hazard communications systems	5.2
(3)(ix)(B)		Notify all response personnel, as needed	5.2
(3)(ix)(C)		Identify the character, exact source, amount, and extent of release	5.2
(3)(ix)(D)		Notify and provide necessary information to the appropriate Federal, State, and local authorities	5.2
(3)(ix)(E)		Assess the interaction of the spilled substance with water and/or other substances stored at the Facility	5.2
(3)(ix)(F)		Assess the possible hazards to human health and environment	5.2
(3)(ix)(G)		Assess and implement prompt removal actions	5.2
(3)(ix)(H)		Coordinate rescue and response actions	5.2
(3)(ix)(I)		Use authority to immediately access company funding	5.2
(3)(ix)(J)		Direct cleanup activities until properly relieved	5.2
(4)	1.4	***Hazard Evaluation***	-----
	1.4.1	Hazard Identification	App C.1
	1.4.2	Vulnerability Analysis	App A.5
	1.4.3	Analysis of the Potential for an Oil Spill	App C.4
	1.4.4	Facility Reportable Oil Spill History	App C.5

U.S. EPA - OPA 90 *40 CFR Part 112.20 (h) and Appendix F*			
40 CFR 112.20 (h)	**40 CFR 112 Appendix F**	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(5)	1.5	***Discharge Scenarios***	-----
(5)(i)	1.5.2	Worst Case Discharge	App B.2
(5)(ii)	1.5.1	Small and Medium Discharges	App B.2
(5)(iii)	1.5.1	Medium Discharges	App B.2
(6)	1.6	***Discharge Detection Systems***	-----
	1.6.1	Discharge Detection by Personnel	App C.2
	1.6.2	Automated Discharge Detection	App C.2
(7)	1.7	***Plan Implementation***	-----
(7)(i)	1.7.1	Response actions to be carried out by facility personnel or contracted personnel, Response Resources for Small, Medium, and Worst Case Spills	2.0 – 6.0
(7)(iii)	1.7.2	Disposal Plans	6.0
(7)(iv)	1.7.3	Containment and Drainage Planning	App C.1
(8)	1.8	***Self-Inspection, Drills/Exercises, and Response Training***	-----
(8)(i)	1.8.1	Facility Self-Inspection	App C.3
	1.8.1.1	Tank Inspection	App C.3
	1.8.1.2	Response Equipment Inspection	4.4
	1.8.1.3	Secondary Containment Inspection	Fig C.2
(8)(ii)	1.8.2	Facility Drills/Exercises	App E
	1.8.2.1	Qualified Individual Notification Drill Log	App F
	1.8.2.2	Spill Management Team Tabletop Exercise Log	App F
(8)(iii)	1.8.3	Response Training	App E
(8)(iv)	1.8.3.1	Personnel Response Training Log	App F
	1.8.3.2	Discharge Prevention Meeting Log	App F
(9)	1.9	***Diagrams***	-----
		(1) Site Plan Diagram	App G
		(2) Site Drainage Plan Diagram	App G
		(3) Site Evacuation Plan Diagram	App G
(10)	1.10	***Security***	App C.1
(11)	2.0	***Response Plan Cover Sheet***	Fig 1.1, App I
-----	3.0	***Acronyms***	Glossary and Acronyms Tab

U.S. EPA - OPA 90 *40 CFR Part 112.20 (h) and Appendix F*			
40 CFR 112.20 (h)	**40 CFR 112 Appendix F**	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(a)	1.8.2	Develop a training and drill program that satisfies the requirements of this section	App E
(b)	1.8.3	Develop a facility response training program to train personnel involved in response activities.	App E
(b)(1)	1.8.3	Proper instruction of facility personnel in the procedures to respond to discharges of oil and in applicable oil spill response laws, rules, and regulations	App E
(b)(2)	1.8.3	Training shall be functional in nature according to job tasks for both supervisory and non-supervisory operational personnel	App E
(b)(3)	1.8.2	Trainers shall develop specific lesson plans on subject areas relevant to facility personnel involved in oil spill response and cleanup	App E
(c)	1.8.2	Develop a program of facility response drills/ exercises, including evaluation procedures. Can follow PREP.	App E

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1026	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(a)	The response plan must identify a qualified individual and at least one alternate that meet the requirements of this section.	ERAP, 5.2, Fig 1.1
(c)	The owner or operator shall provide each qualified individual and alternate qualified individual identified in the plan with a document designating them as a qualified individual and specifying their full authority to...(1)...contract with OSRO, (2) act as liaison with FOSC; and (3) obligate funds...	Fig 1.1
33 CFR 154.1028		
(a)	When required in this subpart, the availability of response resources must be ensured...	Fig 5.6
33 CFR 154.1029		
(a)	The response plan must use the appropriate criteria in this section to develop the worst case discharge.	App B.2
33 CFR 154.1030		
(a)	The plan must be written in English.	Entire Plan
(b)	A response plan must be divided into the sections listed in this paragraph and formatted in the order specified herein unless noted otherwise. It must also have some easily found marker identifying each section listed below. The following are the sections and subsections of a facility response plan:	ERAP, TOC, Tabs and Cross Reference
(b)(1)	Introduction and plan contents.	1.0
(b)(2)	Emergency response action plan:	-----
(b)(2)(i)	Notification procedures.	ERAP, 3.0, 3.1, 3.2, Fig 3.1 - 3.9
(b)(2)(ii)	Facility's spill mitigation procedures.	ERAP, 4.2,4.3
(b)(2)(iii)	Facility's response activities.	ERAP, 4.2, 4.3, 4.4
(b)(2)(iv)	Fish and wildlife and sensitive environments.	ERAP, App A, Fig A.1, Fig A.2
(b)(2)(v)	Disposal plan.	6.4
(b)(3)	Training and Exercises:	-----
(b)(3)(i)	Training procedures.	App E.1 – E-3
(b)(3)(ii)	Exercise procedures.	App E.4- E.5
(b)(4)	Plan review and update procedures.	1.4
(b)(5)	Appendices.	-----
(b)(5)(i)	Facility-specific information.	Fig 1.1
(b)(5)(ii)	List of contacts.	Fig 3.1 -3.9

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1030	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(b)(5)(iii)	Equipment lists and records.	4.4, Fig 5.5
(b)(5)(iv)	Communications plan.	2.8
(b)(5)(v)	Site-specific safety and health plan.	5.1, App F
(b)(5)(vi)	List of acronyms and definitions.	Glossary of Terms/Acronyms
(b)(5)(vii)	A geographic-specific Appendix for each zone in which a mobile facility operates.	N/A
(c)	The required contents for each section and subsection of the plan are contained in 154.1035, 154.1040, and 154.1041, as appropriate.	-----
(d)	The sections and subsections of response plans submitted to the COTP must contain at a minimum all the information required in 154.1035, 154.1040, and 154.1041, as appropriate. It may contain other appropriate sections, subsections, or information that are required by other Federal, State, and local agencies.	See Cross Reference
(e)	For initial and subsequent submission, a plan that does not follow the format specified in paragraph (b) of this section must be supplemented with a detailed cross-reference section to identify the location of the applicable sections required by this subpart.	See Cross Reference
(f)	The information contained in a response plan must be consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR part 300) and the Area Contingency Plan(s) (ACP) covering the area in which the facility operates. Facility owners or operators shall ensure that their response plans are in accordance with the ACP in effect 6 months prior to initial plan submission or the annual plan review required under 154.1065(a). Facility owners or operators are not required to, but may at their option, conform to an ACP which is less than 6 months old at the time of plan submission.	1.4, 1.5
33 CFR 154.1035		
(a)	*Introduction and plan content.* This section of the plan must include facility and plan information as follows:	-----
(a)(1)	The facility's name, street address, city, county, state, ZIP code, facility telephone number, and tele-facsimile number, if so equipped. Include mailing address if different from street address.	Fig 1.1

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(a)(2)	The facility's location described in a manner that could aid both a reviewer and a responder in locating the specific facility covered by the plan, such as, river mile or location from a known landmark that would appear on a map or chart.	Fig 1.1
(a)(3)	The name, address, and procedures for contacting the facility's owner or operator on a 24-hour basis.	Fig 1.1
(a)(4)	A table of contents.	TOC
(a)(5)	During the period that the submitted plan does not have to conform to the format contained in this subpart, a cross index, if appropriate.	Cross Reference
(a)(6)	A record of change(s) to record information on plan updates.	Foreword (Record of Revisions)
(b)	Emergency Response Action Plan. This section of the plan must be organized in the subsections described in this paragraph:	-----
(b)(1)	*Notification procedures.* (i) This subsection must contain a prioritized list identifying the person(s), including name, telephone number, and their role in the plan, to be notified of a discharge or substantial threat of a discharge of oil. The telephone number need not be provided if it is listed separately in the list of contacts required in the plan. This Notification Procedures listing must include --	3.0
(b)(1)(A)	Facility response personnel, the spill management team, oil spill removal organizations, and the qualified individual(s) and the designated alternate(s); and	Fig 1.1, Fig 3.1 - 3.4
(b)(1)(B)	Federal, State, or local agencies, as required.	Fig 3.5 -3.9
(b)(1)(B)(ii)	This subsection must include a form, which contains information to be provided in the initial and follow-up notifications to Federal, State, and local agencies.	Fig 3.10
(b)(2)	*Facility's spill mitigation procedures.* (i) This subsection must describe the volume(s) and oil groups that would be involved in the --	-----
(b)(2)(A)	Average most probable discharge from the MTR facility;	App B
(b)(2)(B)	Maximum most probable discharge from the MTR facility;	App B
(b)(2)(C)	Worst case discharge from the MTR facility; and	App B

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(b)(2)(D)	Where applicable, the worst case discharge from the non-transportation-related facility. This must be the same volume provided in the response plan for the non-transportation-related facility.	App B
(b)(2)(D)(ii)	This subsection must contain prioritized procedures for facility personnel to mitigate or prevent any discharge or substantial threat of a discharge of oil resulting from operational activities associated with internal or external facility transfers including specific procedures to shut down affected operations. Facility personnel responsible for performing specified procedures to mitigate or prevent any discharge or potential discharge shall be identified by job title. A copy of these procedures shall be maintained at the facility operations center. These procedures must address actions to be taken by facility personnel in the event of a discharge, potential discharge, or emergency involving the following equipment and scenarios:	-----
(b)(2)(D)(ii)(A)	Failure of manifold, mechanical loading arm, other transfer equipment, or hoses, as appropriate;	4.2, App B.2
(b)(2)(D)(ii)(B)	Tank overfill;	4.2, App B.2
(b)(2)(D)(ii)(C)	Tank failure;	4.2, App B.2
(b)(2)(D)(ii)(D)	Piping rupture;	4.2, App B.2
(b)(2)(D)(ii)(E)	Piping leak, both under pressure and not under pressure, if applicable;	4.2, App B.2
(b)(2)(D)(ii)(F)	Explosion or fire; and	4.2
(b)(2)(D)(ii)(G)	Equipment failure (e.g. pumping system failure, relief valve failure, or other general equipment relevant to operational activities associated with internal or external facility transfers.)	4.2, App B.2
(b)(2)(D)(iii)	This subsection must contain a listing of equipment and the responsibilities of facility personnel to mitigate an average most probable discharge.	4.4, B.2
(b)(3)	*Facility's response activities.* (i) This subsection must contain a description of the facility personnel's responsibilities to initiate a response and supervise response resources pending the arrival of the qualified individual.	4.2
(b)(3)(ii)	This subsection must contain a description of the responsibilities and authority of the qualified individual and alternate as required in 154.1026.	5.2
(b)(3)(iii)	This subsection must describe the organizational structure that will be used to manage the response actions. This structure must include the following functional areas.	App D
(b)(3)(iii)(A)	Command and control;	App D
(b)(3)(iii)(B)	Public information;	App D

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(b)(3)(iii)(C)	Safety;	App D
(b)(3)(iii)(D)	Liaison with government agencies;	App D
(b)(3)(iii)(E)	Spill Operations;	App D
(b)(3)(iii)(F)	Planning;	App D
(b)(3)(iii)(G)	Logistics support; and	App D
(b)(3)(iii)(H)	Finance.	App D
(b)(3)(iv)	This subsection must identify the oil spill removal organizations and the spill management team to:	5.3
(b)(3)(iv)(A)	Be capable of providing the following response resources:	-----
(b)(3)(iv)(A)(*1*)	Equipment and supplies to meet the requirements of 154.1045, 154.1047 or subparts H or I of this part, as appropriate; and	Fig 5.5
(b)(3)(iv)(A)(*2*)	Trained personnel necessary to continue operation of the equipment and staff of the oil spill removal organization and spill management team for the first 7 days of the response.	Fig 5.5
(b)(3)(iv)(B)	This section must include job descriptions for each spill management team member within the organizational structure described in paragraph (b)(3)(iii) of this section. These job descriptions should include the responsibilities and duties of each spill management team member in a response action.	App D
(b)(3)(v)	For mobile facilities that operate in more than one COTP zone, the plan must identify the oil spill removal organization and the spill management team in the applicable geographic-specific Appendix The oil spill removal organization(s) and the spill management team discussed in paragraph (b)(3)(iv)(A) of this section must be included for each COTP zone in which the facility will handle, store, or transport oil in bulk.	N/A
(b)(3)(vi)	For facilities that handle, store, or transport group II through group IV petroleum oils, and that operate in waters where dispersant use in pre-authorized, this subsection of the plan must also separately list the resource providers and specific resources, including appropriately trained dispersant-application personnel, necessary to provide the dispersant capabilities required in the subpart. All resources providers and resources must be available by contract or other approved means as described in §154.1028(a). The dispersant resources to be listed within this section must include the following:	Fig 5.5
(b)(3)(vi)(A)	Identification of each primary dispersant staging site to be used by each dispersant-application platform to meet the requirements of this subpart.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(b)(3)(vi)(B)	Identification of the platform type, resource-providing organization, location, and dispersant payload for each dispersant-application platform identified. Location data must identify the distance between the platform's home base and the identified primary dispersant staging site for this section.	Fig 5.5
(b)(3)(vi)(C)	For each unit of dispersant stockpile required to support the effective daily application capacity (EDAC) of each dispersant-application platform necessary to sustain each intended response tier of operation, identify the dispersant product resource provider, location, and volume. Location data must include the stockpile's distance to the primary staging sites where the stockpile would be loaded onto the corresponding platforms.	Fig 5.5
(b)(3)(vi)(D)	If an oil spill removal organization has been evaluated by the Coast Guard, and its capability is equal to or exceeds the response capability needed by the owner or operator, the section may identify only the oil spill removal organization, and not the information required in paragraphs (b)(3)(vi)(A) through (b)(3)(vi)(C) of this section.	Fig 5.5
(b)(3)(vii)	This subsection of the plan must also separately list the resource providers and specific resources necessary to provide aerial oil tracking capabilities requir4ed in this subpart. The oil tracking resources to be listed within this section must include the following:	Fig 5.5
(b)(3)(vii)(A)	The identification of a resource provider; and	Fig 5.5
(b)(3)(vii)(B)	Type and location of aerial surveillance aircraft that are ensured available, through contract or other approved means, to meet the oil tracking requirements of §154.1045(j).	Fig 5.5
(b)(3)(viii)	For mobile facilities that operate in more than one COTP zone, the plan must identify the oil spill removal organization and the spill management team in the applicable geographic-specific appendix. The oil spill removal organization(s) and the spill management team discussed in paragraph (b)(3)(iv) or this section must be included for each COTP zone in which the facility will handle, store, or transport oil in bulk.	N/A
(b)(3)(ix)	For mobile facilities that operate in more than one COTP zone, the plan must identify the oil spill removal organization and the spill management team in the applicable geographic-specific appendix. The oil spill removal organization(s) and the spill management team discussed in paragraph (b)(3)(iv)(A) of this section must be included for each COTP zone in which the facility will handle, store, or transport oil in bulk.	N/A

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(b)(4)	*Fish and wildlife and sensitive environments.* (i) This section of the plan must identify areas of economic importance and environmental sensitivity, as identified in the ACP, which are potentially impacted by a worst case discharge. ACPs are required under section 311(j)(4) of the FWPCA to identify fish and wildlife and sensitive environments. The applicable ACP shall be used to designate fish and wildlife and sensitive environments in the plan. Changes to the ACP regarding fish and wildlife and sensitive environments shall be included in the annual update of the response plan, when available.	App A
(b)(4)(ii)	For a worst case discharge from the facility, this section of the plan must --	-----
(b)(4)(ii)(A)	List all fish and wildlife and sensitive environments identified in the ACP which are potentially impacted by a discharge of persistent oils, non-persistent oils, or non-petroleum oils.	Fig A.1
(b)(4)(ii)(B)	Describe all the response actions that the facility anticipates taking to protect these fish and wildlife and sensitive environments.	App A.6
(b)(4)(ii)(C)	Contain a map or chart showing the location of those fish and wildlife and sensitive environments which are potentially impacted. The map or chart shall also depict each response action that the facility anticipates taking to protect these areas. A legend of activities must be included on the map page.	Fig A.2
(b)(4)(iii)	For a worst case discharge, this section must identify appropriate equipment and required personnel, available by contract or other approved means as described in 154.1028, to protect fish and wildlife and sensitive environments which fall within the distances calculated using the methods outlined in this paragraph as follows:	-----
(b)(4)(iii)(A)	Identify the appropriate equipment and required personnel to protect all fish and wildlife and sensitive environments in the ACP for the distances, as calculated in paragraph (b)(4)(iii)(B) of this section, that the persistent oils, non-persistent oils, or non-petroleum oils are likely to travel in the noted geographic area(s) and number of days listed in Table 2 of Appendix C of this part;	Fig 5.5
(b)(4)(B)	Calculate the distances required by paragraph (b)(4)(iii)(A) of this section by selecting one of the methods described in this paragraph;	-----
(b)(4)(B)(*1*)	Distances may be calculated as follows:	-----
(b)(4)(B)(*1*)(*i*)	For persistent oils and non-petroleum oils discharged into non-tidal waters, the distance from the facility reached in 48 hours at maximum current.	B.4, C.4

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(b)(4)(B)(*1*)(*ii*)	For persistent and non-petroleum oils discharged into tidal waters, 15 miles from the facility down current during ebb tide and to the point of maximum tidal influence or 15 miles, whichever is less, during flood tide.	App B.4
(b)(4)(B)(*1*)(*iii*)	For non-persistent oils discharged into non-tidal waters, the distance from the facility reached in 24 hours at maximum current.	N/A
(b)(4)(B)(*1*)(*iv*)	For non-persistent oils discharged into tidal waters, 5 miles from the facility down current during ebb tide and to the point of maximum tidal influence or 5 miles, whichever is less, during flood tide.	N/A
(b)(4)(B)(*2*)	A spill trajectory or model may be substituted for the distances calculated under paragraph (b)(4)(iii)(B)(*l) of this section.* The spill trajectory or model must be acceptable to the COTP.	N/A
(b)(4)(B)(*3*)	The procedures contained in the Environmental Protection's Agency's regulations on oil pollution prevention for non-transportation-related onshore facilities at 40 CFR part 112, Appendix C, Attachment C-III may be substituted for the distances listed in non-tidal and tidal waters; and	App B.4
(b)(4)(C)	Based on historical information or a spill trajectory or model, the COTP may require the additional fish and wildlife and sensitive environment's also be protected.	-----
(b)(5)	*Disposal Plan.* This subsection must describe any actions to be taken or procedures to be used to ensure that all recovered oil and oil contaminated debris produced as a result of any discharge are disposed according to Federal, state, or local requirements	6.4
(c)	*Training and exercises.* This section must be divided into the following two subsections:	-----
(c)(1)	*Training procedures.* This subsection must describe the training procedures and programs of the facility owner or operator to meet the requirements in 154.1050.	E.1 – E.3
(c)(2)	*Exercise procedures.* This subsection must describe the exercise program to be carried out by the facility owner or operator to meet the requirements in 154.1055.	E.4
(d)	*Plan review and update procedures.* This section must address the procedures to be followed by the facility owner or operator to meet the requirements of 154.1065 and the procedures to be followed for any post-discharge review of the plan to evaluate and validate its effectiveness.	1.4
(e)	*Appendices.* This section of the response plan must include the appendices described in this paragraph.	-----
(e)(1)	*Facility-specific information.* This Appendix must contain a description of the facility's principal characteristics.	-----

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(e)(1)(i)	There must be a physical description of the facility including a plan of the facility showing the mooring areas, transfer locations, control stations, locations of safety equipment, and the location and capacities of all piping and storage tanks.	Fig 1.1, App G
(e)(1)(ii)	The Appendix must identify the sizes, types, and number of vessels that the facility can transfer oil to or from simultaneously.	Fig 1.1
(e)(1)(iii)	The Appendix must identify the first valve(s) on facility piping separating the transportation-related portion of the facility from the non-transportation-related portion of the facility, if any. For piping leading to a manifold located on a dock serving tank vessels, this valve is the first valve inside the secondary containment required by 40 CFR part 112.	Fig 1.2, App G
(e)(1)(iv)	The Appendix must contain information on the oil(s) and hazardous material handled, stored, or transported at the facility in bulk. A material safety data sheet meeting the requirements of 29 CFR 1910.1200, 33 CFR 154.310(a)(5) or an equivalent will meet this requirement. This information can be maintained separately providing it is readily available and the Appendix identifies its location. This information must include --	Fig 1.1, 4.3 (maintained separately at the Facility)
(e)(1)(iv)(A)	The generic or chemical name;	4.3 (maintained separately at the Facility)
(e)(1)(iv)(B)	A description of the appearance and odor;	4.3 (maintained separately at the Facility)
(e)(1)(iv)(C)	The physical and chemical characteristics;	4.3 (maintained separately at the Facility)
(e)(1)(iv)(D)	The hazards involved in handling the oil(s) and hazardous materials. This shall include hazards likely to be encountered if the oil(s) and hazardous materials come in contact as a result of a discharge; and	4.3 (maintained separately at the Facility)
(e)(1)(iv)(E)	A list of firefighting procedures and extinguishing agents effective with fires involving the oil(s) and hazardous materials.	4.3 (maintained separately at the Facility)
(e)(1)(iv)(E)(v)	The Appendix may contain any other information which the facility owner or operator determines to be pertinent to an oil spill response.	-----

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(e)(2)	*List of contacts.* This Appendix must include information on 24-hour contact of key individuals and organizations. If more appropriate, this information may be specified in a geographic-specific Appendix The list must include --	-----
(e)(2)(i)	The primary and alternate qualified individual(s) for the facility;	Fig 1.1
(e)(2)(ii)	The contact(s) identified under paragraph (b)(3)(iv) of this section for activation of the response resources; and	Fig 3.1 -3.3
(e)(2)(iii)	Appropriate Federal, State, and local officials.	Fig 3.5 – 3.9
(e)(3)	*Equipment list and records.* This Appendix must include the information specified in this paragraph.	-----
(e)(3)(i)	The Appendix must contain a list of equipment and facility personnel required to respond to an average most probable discharge, as defined in 154.1020. The Appendix must also list the location of the equipment.	4.4, Fig 5.5
(e)(3)(ii)	The Appendix must contain a detailed listing of all the major equipment identified in the plan as belonging to an oil spill removal organization(s) that is available, by contract or other approved means as described in 154.1028(a), to respond to a maximum most probable or worst case discharge, as defined in 154.1020. The detailed listing of all major equipment may be located in a separate document referenced by the plan. Either the Appendix or the separate document referenced in the plan must provide the location of the major response equipment.	N/A
(e)(3)(iii)	It is not necessary to list response equipment from oil spill removal organization(s) when the organization has been classified by the Coast Guard and their capacity has been determined to equal or exceed the response capability needed by the facility. For oil spill removal organization(s) classified by the Coast Guard, the classification must be noted in this section of the plan. When it is necessary for the Appendix to contain a listing of response equipment, it shall include all of the following items that are identified in the response plan: Skimmers; booms; dispersant application, in-situ burning, bioremediation equipment and supplies, and other equipment used to apply other chemical agents on the NCP Product Schedule (if applicable); communications, firefighting, and beach cleaning equipment; boats and motors; disposal and storage equipment; and heavy equipment. The list must include for each piece of equipment --	Fig. 5.5
(e)(3)(iii)(A)	The type, make, model, and year of manufacture listed on the nameplate of the equipment;	N/A
(e)(3)(iii)(B)	For oil recovery devices, the effective daily recovery rate, as determined using section 6 of Appendix C of this part;	N/A

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1035	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(e)(3)(iii)(C)	For containment boom, the overall boom height (draft and freeboard) and type of end connectors;	N/A
(e)(3)(iii)(D)	The spill scenario in which the equipment will be used for or which it is contracted;	N/A
(e)(3)(iii)(E)	The total daily capacity for storage and disposal of recovered oil;	N/A
(e)(3)(iii)(F)	For communication equipment, the type and amount of equipment intended for use during response activities. Where applicable, the primary and secondary radio frequencies must be specified.	N/A
(e)(3)(iii)(G)	Location of the equipment; and	N/A
(e)(3)(iii)(H)	The date of the last inspection by the oil spill removal organization(s).	N/A
(e)(4)	*Communications plan.* This Appendix must describe the primary and alternate method of communication during discharges, including communications at the facility and at remote locations within the areas covered by the response plan. The Appendix may refer to additional communications packages provided by the oil spill removal organization. This may reference another existing plan or document.	2.8
(e)(5)	*Site-specific safety and health plan.* This Appendix must describe the safety and health plan to be implemented for any response location(s). It must provide as much detailed information as is practicable in advance of an actual discharge. This Appendix may reference another existing plan requiring under 29 CFR 1910.120.	5.1.2, App F Site Safety Plan
(e)(6)	*List of acronyms and definitions.* This Appendix must list all acronyms used in the response plan including any terms or acronyms used by Federal, State, or local governments and any operational terms commonly used at the facility. This Appendix must include all definitions that are critical to understanding the response plan.	Glossary of Terms/Acronyms
33 CFR 154.1045		
(a)	The owner or operator of a facility that handles, stores, or transports Group I through Group IV petroleum oils shall use the criteria in this section to evaluate response resources identified in the response plan for the specified operating environment.	Fig 5.5
(a)(1)	The criteria in Table 1 of appendix C of this part are to be used solely for identification of appropriate equipment in a response plan. These criteria reflect conditions used for planning purposes to select mechanical response equipment and are not conditions that would limit response actions or affect normal facility operations.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(a)(2)	The response resources must be evaluated considering limitations for the COTP zones in which the facility operates, including but not limited to--	Fig 5.5
(a)(2)(i)	Ice conditions;	
(a)(2)(ii)	Debris;	
(a)(2)(iii)	Temperature ranges;	
(a)(2)(iv)	Weather-related visibility; and	
(a)(2)(v)	Other appropriate environmental conditions as determined by the COTP.	
(a)(3)	The COTP may reclassify a specific body of water or location within the COTP zone. Any reclassifications will be identified by the COTP in the applicable ACP. Reclassifications may be to--	Fig 5.5
(a)(3)(i)	A more stringent operating environment if the prevailing wave conditions exceed the significant wave height criteria during more than 35 percent of the year; or	Fig 5.5
(a)(3)(ii)	A less stringent operating environment if the prevailing wave conditions do not exceed the significant wave height criteria for the less stringent operating environment during more than 35 percent of the year.	Fig 5.5
(b)	Response equipment must--	----
(b)(1)	Meet or exceed the operating criteria listed in Table 1 of appendix C of this part;	Fig 5.5
(b)(2)	Function in the applicable operating environment; and	Fig 5.5
(b)(3)	Be appropriate for the petroleum oil carried.	Fig 5.5
(c)	The response plan for a facility that handles, stores, or transports Group I through Group IV petroleum oils must identify response resources that are available, by contract or other approved means as described in Sec. 154.1028(a)(1)(4), to respond to the facility's average most probable discharge. The response resources must include, at a minimum--	Fig 5.5
(c)(1)	1,000 feet of containment boom or two times the length of the largest vessel that regularly conducts petroleum oil transfers to or from the facility, whichever is greater, and the means of deploying and anchoring the boom available at the spill site within 1 hour of the detection of a spill; and	Fig 5.5
(c)(2)	Oil recovery devices and recovered oil storage capacity capable of being at the spill site within 2 hours of the discovery of a petroleum oil discharge from a facility.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(d)	The response plan for a facility that handles, stores, or transports Group I through Group IV petroleum oils must identify response resources that are available, by contract or other approved means as described in Sec. 154.1028(a)(1)(4), to respond to a discharge up to the facility's maximum most probable discharge volume.	Fig 5.5
(d)(1)	The response resources must include sufficient containment boom, oil recovery devices, and storage capacity for any recovery of up to the maximum most probable discharge planning volume, as contained in Appendix C.	Fig 5.5
(d)(2)	The response resources must be appropriate for each group of petroleum oil identified in Sec. 154.1020 that is handled, stored, or transported by the facility.	Fig 5.5
(d)(3)	These response resources must be positioned such that they can arrive at the scene of a discharge within the following specified times:	Fig 5.5
(d)(3)(i)	The equipment identified in paragraphs (c)(1) and (c)(2) of this section or in Sec. 154.1040(d) must arrive within the times specified in those paragraphs or that section, as appropriate.	Fig 5.5
(d)(3)(ii)	In higher volume port areas and the Great Lakes, response resources must be capable of arriving on scene within 6 hours of the discovery of a petroleum oil discharge from a facility.	Fig 5.5
(d)(3)(iii)	In all other locations, response resources must be capable of arriving on scene within 12 hours of the discovery of a petroleum oil discharge from a facility.	Fig 5.5
(d)(4)	The COTP may determine that mobilizing response resources to an area beyond the response times indicated in this paragraph invalidates the response plan. In this event, the COTP may impose additional operational restrictions (e.g., limitations on the number of transfers at a facility), or, at the COTP's discretion, the facility may operate with temporarily modified response plan development and evaluation criteria (e.g., modified response times, alternate response resources, etc.).	Fig 5.5
(e)	The response plan for a facility that handles, stores, or transports Group I through Group IV petroleum oils must identify the response resources that are available, by contract or other approved means as described in Sec. 154.1028(a)(1)(4), to respond to the worst case discharge volume of petroleum oil to the maximum extent practicable.	Fig 5.5
(e)(1)	The location of these response resources must be suitable to meet the response times identified in paragraph (f) of this section for the applicable geographic area(s) of operation and response tier.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(e)(2)	The response resources must be appropriate for--	-----
(e)(2)(i)	The volume of the facility's worst case discharge;	App B
(e)(2)(ii)	Group(s) of petroleum oil as identified in Sec. 154.1020 that are handled, stored, or transported by the facility; and	Fig 1.1
(e)(2)(iii)	The geographic area(s) in which the facility operates.	Fig 1.1
(e)(3)	The response resources must include sufficient boom, oil recovery devices, and storage capacity to recover the worst case discharge planning volumes.	Fig 5.5
(e)(4)	The guidelines in appendix C of this part must be used for calculating the quantity of response resources required to respond at each tier to the worst case discharge to the maximum extent practicable.	Fig 5.5
(e)(5)	When determining response resources necessary to meet the requirements of this section, a portion of those resources must be capable of use in close-to-shore response activities in shallow water. The following percentages of the response equipment identified for the applicable geographic area must be capable of operating in waters of 6 feet or less depth.	Fig 5.5
(e)(5)(i)	Offshore--10 percent.	Fig 5.5
(e)(5)(ii)	Nearshore/inland/Great Lakes/rivers and canals--20 percent.	Fig 5.5
(e)(6)	The COTP may determine that mobilizing response resources to an area beyond the response times indicated in this paragraph invalidates the response plan. In this event, the COTP may impose additional operational restrictions (e.g., limitations on the number of transfers at a facility), or, at the COTP's discretion, the facility may be permitted to operate with temporarily modified response plan development and evaluation criteria (e.g., modified response times, alternate response resources, etc.).	Fig 5.5
(f)	(f) Response equipment identified in a response plan for a facility that handles, stores, or transports Group I through Group IV petroleum oils must be capable of arriving on scene within the times specified in this paragraph for the applicable response tier in a higher volume port area, Great Lakes, and in other areas. Response times for these tiers from the time of discovery of a discharge are...	Fig 5.5
(g)	For the purposes of arranging for response resources for a facility that handles, stores, or transports Group I through Group IV petroleum oils, by contract or other approved means as described in Sec. 154.1028(a)(1)-(4), response equipment identified for Tier 1 plan credit must be capable of being mobilized and en route to the scene of a discharge within 2 hours of notification. The notification procedures identified in the plan must provide for notification and authorization of mobilization of identified Tier 1 response resources--	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(g)(1)	Either directly or through the qualified individual; and	Fig 5.5
(g)(2)	Within 30 minutes of a discovery of a discharge or substantial threat of discharge.	Fig 5.5
(h)	Response resources identified for Tier 2 and Tier 3 plan credit must be capable of arriving on scene within the time specified for the applicable tier.	Fig 5.5
(i)	The owner or operator of a facility that handles, stores, or transports groups II through IV petroleum oils within the inland, nearshore, or offshore areas where pre-authorization for dispersant use exists must identify in their response plan, and ensure the availability of, through contract or other approved means, response resources capable of conducting dispersant operations within those areas.	Fig 5.5
(i)(1)	Dispersant response resources must be capable of commencing dispersant-application operations at the site of a discharge within 7 hours of the decision by the Federal On-Scene Coordinator to use dispersants.	Fig 5.5
(i)(2)	Dispersant response resources must include all of the following:	Fig 5.5
(i)(2)(i)	Sufficient volumes of dispersants for application as required by paragraph (i)(3) of this section. Any dispersants identified in a response plan must be of a type listed on the National Oil and Hazardous Substances Pollution Contingency Plan Product Schedule (which is contained in 40 CFR part 300, and available online from the U.S. Government Printing Office).	Fig 5.5
(i)(2)(ii)	Dispersant-application platforms capable of delivering and applying the dispersant on a discharge in the amounts as required by paragraph (i)(3) of this section. At least 50 percent of each EDAC tier requirement must be achieved through the use of fixed-wing, aircraft-based application platforms. For dispersant-application platforms not detailed within the DMP2, adequacy of performance criteria must be documented by presentation of independent evaluation materials (e.g., field tests and reports of actual use) that record the performance of the platform.	Fig 5.5
(i)(2)(iii)	Dispersant-application systems that are consistent in design with, and are capable of applying dispersants within, the performance criteria in ASTM F1413-07 (incorporated by reference, see Sec. 154.106). For dispersant-application systems not fully covered by ASTM F1413-07, such as fire monitor-type applicators, adequacy of performance criteria must be documented by presentation of independent evaluation materials (e.g., laboratory tests, field tests, and reports of actual use) that record the design of performance specifications.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(i)(2)(iv)	Dispersant-application personnel trained in and capable of applying dispersants according to the recommended procedures contained within ASTM F1737-07 (incorporated by reference, see Sec. 154.106).	Fig 5.5
(i)(3)	Dispersant stockpiles, application platforms, and other supporting resources must be available in a quantity and type sufficient to treat a facility's worst-case discharge (as determined by using the criteria in appendix C, section 8) or in quantities sufficient to meet the requirements in Table 154.1045 (i) of this section, whichever is the lesser amount.	Fig 5.5
(j)	The owner or operator of a facility handling Groups I through IV petroleum oil as a primary cargo must identify in the response plan, and ensure the availability through contract or other approved means, of response resources necessary to provide aerial oil tracking to support oil spill assessment and cleanup activities. Facilities operating exclusively on inland rivers are not required to comply with this paragraph. Aerial oil tracking resources must:	Fig 5.5
(j)(1)	Be capable of arriving at the site of a discharge in advance of the arrival of response resources identified in the plan for tiers 1, 2, and 3 Worst-Case Discharge response times, and for a distance up to 50 nautical miles from shore (excluding inland rivers);	Fig 5.5
(j)(2)	Be capable of supporting oil spill removal operations continuously for three 10-hour operational periods during the initial 72 hours of the discharge;	Fig 5.5
(j)(3)	Include appropriately located aircraft and personnel capable of meeting the response time requirement for oil tracking from paragraph (j)(1) of this section; and	Fig 5.5
(j)(4)	Include sufficient numbers of aircraft, pilots, and trained observation personnel to support oil spill removal operations, commencing upon initial assessment, and capable of coordinating on-scene cleanup operations, including dispersant and mechanical recovery operations. Observation personnel must be trained in:	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(j)(4)(i)	The protocols of oil-spill reporting and assessment, including estimation of slick size, thickness, and quantity; and	Fig 5.5
(j)(4)(ii)	The use of assessment techniques in ASTM F1779-08 (incorporated by reference, see Sec. 154.106), and familiar with the use of other guides, such as NOAA's "Open Water Oil Identification Job Aid for Aerial Observation," and NOAA's "Characteristic Coastal Habitats" guide (available on the Internet at http://response.restoration.noaa.gov/use the following links in the order presented: Home[bond]Emergency Response[bond] Responding to Oil Spills).	Fig 5.5
(k)	A response plan for a facility that handles, stores, or transports Group I through Group IV petroleum oils must identify response resources with firefighting capability. The owner or operator of a facility that does not have adequate firefighting resources located at the facility or that can not rely on sufficient local firefighting resources must identify and ensure, by contract or other approved means as described in Sec. 154.1028(a)(1)-(4), the availability of adequate firefighting resources. The response plan must also identify an individual located at the facility to work with the fire department for petroleum oil fires. This individual shall also verify that sufficient well-trained firefighting resources are available within a reasonable time to respond to a worst case discharge. The individual may be the qualified individual as defined in Sec. 154.1020 and identified in the response plan or another appropriate individual located at the facility.	Fig 5.5
(l)	The response plan for a facility that handles, stores, or transports Groups I through IV petroleum oils must identify equipment and required personnel available, by contract or other approved means as described in Sec. 154.1028(a) (1)-(4), to protect fish and wildlife and sensitive environments.	Fig 5.5
(l)(1)	Except as set out in paragraph (k)(2) of this section, the identified response resources must include the quantities of boom sufficient to protect fish and wildlife and sensitive environments as required by Sec. 154.1035(b)(4).	Fig 5.5
(l)(2)	The resources and response methods identified in a facility response plan must be consistent with the required resources and response methods to be used in fish and wildlife and sensitive environments, contained in the appropriate ACP. Facility owners or operators shall ensure that their response plans are in accordance with the ACP in effect 6 months prior to initial plan submission or the annual plan review required under Sec. 154.1065(a). Facility owners or operators are not required to, but may at their option, conform to an ACP which is less than 6 months old at the time of plan submission.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(m)	The response plan for a facility that handles, stores, or transports Groups I through IV petroleum oils must identify an oil spill removal organization(s) with response resources that are available, by contract or other approved means as described in Sec. 154.1028(a) (1)-(4), to effect a shoreline cleanup operation commensurate with the quantity of emulsified petroleum oil to be planned for in shoreline cleanup operations.	Fig 5.5
(m)(1)	Except as required in paragraph (l)(2) of this section, the shoreline cleanup response resources required must be determined as described in appendix C of this part.	Fig 5.5
(m)(2)	The resources and response methods identified in a facility response plan must be consistent with the required shoreline cleanup resources and methods contained in the appropriate ACP. Facility owners or operators shall ensure that their response plans are in accordance with the ACP in effect 6 months prior to initial plan submission or the annual plan review required under Sec. 154.1065(a). Facility owners or operators are not required to, but may at their option, conform to an ACP which is less than 6 months old at the time of plan submission.	Fig 5.5
(n)	Appendix C of this part describes the procedures to determine the maximum extent practicable quantity of response resources that must be identified and available, by contract or other approved means as described in Sec. 154.1028(a) (1)-(4), for the maximum most probable discharge volume, and for each worst case discharge response tier.	Fig 5.5
(n)(1)	Included in appendix C of this part is a cap that recognizes the practical and technical limits of response capabilities that an individual facility owner or operator can be expected to contract for in advance.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1045	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(n)(2)	Table 5 in appendix C of this part lists the caps that apply in February 18, 1993, and February 18, 1998. Depending on the quantity and type of petroleum oil handled by the facility and the facility's geographic area of operations, the resource capability caps in this table may be reached. The owner or operator of a facility whose estimated recovery capacity exceeds the applicable contracting caps in Table 5 shall identify sources of additional equipment equal to twice the cap listed in Tiers 1, 2, and 3 or the amount necessary to reach the calculated planning volume, whichever is lower. The identified resources must be capable of arriving on scene not later than the Tier 1, 2, and 3 response times in this section. No contract is required. While general listings of available response equipment may be used to identify additional sources, a response plan must identify the specific sources, locations, and quantities of equipment that a facility owner or operator has considered in his or her planning. When listing Coast Guard classified oil spill removal organization(s) which have sufficient removal capacity to recover the volume above the response capability cap for the specific facility, as specified in Table 5 in appendix C of this part, it is not necessary to list specific quantities of equipment.	Fig 5.5
(o)	The Coast Guard will continue to evaluate the environmental benefits, cost efficiency and practicality of increasing mechanical recovery capability requirements. This continuing evaluation is part of the Coast Guard's long term commitment to achieving and maintaining an optimum mix of oil spill response capability across the full spectrum of response modes. As best available technology demonstrates a need to evaluate or change mechanical recovery capacities, a review of cap increases and other requirements contained within this subpart may be performed. Any changes in the requirements of this section will occur through a public notice and comment process. During this review, the Coast Guard will determine if established caps remain practicable and if increased caps will provide any benefit to oil spill recovery operations. The review will include, at least, an evaluation of: 1. Best available technologies for containment and recovery; 2. Oil spill tracking technology; 3. High rate response techniques; 4. Other applicable response technologies; and 5. Increases in the availability of private response resources.	Fig 5.5

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1050	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
33 CFR 154.1050		
(a)	A response plan submitted to meet the requirements of Sec. 154.1035 or Sec. 154.1040, as appropriate, must identify the training to be provided to each individual with responsibilities under the plan. A facility owner or operator must identify the method to be used for training any volunteers or casual laborers used during a response to comply with the requirements of 29 CFR 1910.120.	E.1 –E.3
(b)	A facility owner or operator shall ensure the maintenance of records sufficient to document training of facility personnel; and shall make them available for inspection upon request by the U.S. Coast Guard. Records for facility personnel must be maintained at the facility for 3 years.	E.3
(c)	Where applicable, a facility owner or operator shall ensure that an oil spill removal organization identified in a response plan to meet the requirements of this subpart maintains records sufficient to document training for the organization's personnel and shall make them available for inspection upon request by the facility's management personnel, the qualified individual, and U.S. Coast Guard. Records must be maintained for 3 years following completion of training.	E.3
(d)	The facility owner or operator remains responsible for ensuring that all private response personnel are trained to meet the Occupational Safety and Health Administration (OSHA) standards for emergency response operations in 29 CFR 1910.120.	E.2
33 CFR 154.1055		
(a)(1)	Qualified individual notification exercises (quarterly).	E.4
(a)(2)	Spill management team tabletop exercises (annually). In a 3-year period, at least one of these exercises must include a worst case discharge scenario.	E.4
(a)(3)(i)	Equipment deployment exercises: Semiannually for facility owned and operated equipment.	E.4
(a)(3)(ii)	Equipment deployment exercises: Annually for oil spill removal organization equipment.	E.4
(a)(4)	Emergency procedures exercises (optional)	E.4

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1057	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
33 CFR 154.1057 Inspection and maintenance of response resources.		
(a)	A facility owner or operator required to submit a response plan under this part must ensure that--	-----
(a)(1)	Containment booms, skimmers, vessels, and other major equipment listed or referenced in the plan are periodically inspected and maintained in good operating condition, in accordance with manufacturer's recommendations, and best commercial practices; and	4.4
(a)(2)	All inspection and maintenance is documented and that these records are maintained for 3 years.	4.4
(b)	For equipment which must be inspected and maintained under this section the Coast Guard may--	4.4
(b)(1)	Verify that the equipment inventories exist as represented;	-----
(b)(2)	Verify the existences of records required under this section;	-----
(b)(3)	Verify that the records of inspection and maintenance reflect the actual condition of any equipment listed or referenced; and	-----
(b)(4)	Inspect and require operational tests of equipment.	-----
(c)	This section does not apply to containment booms, skimmers, vessels, and other major equipment listed or referenced in the plan and ensured available from an oil spill removal organization through the written consent required under Sec. 154.1028(a)(5).	N/A
33 CFR 154.1060 Submission and approval procedures.		
(a)	The owner or operator of a facility to which this subpart applies shall submit one copy of a facility response plan meeting the requirements of this subpart to the COTP for initial review and, if appropriate, approval.	1.5, Distribution List
(b)	The owner or operator of a facility to which this subpart applies shall include a statement certifying that the plan meets the applicable requirements of subparts F, G, H, and I of this part, as appropriate.	Fig 1-1, App I
(c)	For an MTR facility that is located in the inland response zone where the EPA Regional Administrator is the predesignated Federal On- Scene Coordinator, the COTP may consult with the EPA Federal On-Scene Coordinator prior to any final approval.	-----
(d)	For an MTR facility identified in Sec. 154.1015(c) of this subpart that is also required to prepare a response plan under 40 CFR part 112, if the COTP determines that the plan meets all applicable requirements and the EPA Regional Administrator raises no objection to the response plan contents, the COTP will notify the facility owner or operator in writing that the plan is approved.	Whole Document

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1060	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(e)	The plan will be valid for a period of up to 5 years. The facility owner or operator must resubmit an updated plan every 5 years as follows:	1.4
(e)(1)	For facilities identified in only Sec. 154.1015(b)of this subpart, the 5-year period will commence on the date the plan is submitted to the COTP.	1.4
(e)(2)	For facilities identified in Sec. 154.1015(c) of this subpart, the 5-year period will commence on the date the COTP approves the plan.	1.4
(e)(3)	All resubmitted response plans shall be accompanied by a cover letter containing a detailed listing of all revisions to the response plan.	1.4
(f)	For an MTR facility identified in Sec. 154.1015(c)(2) the COTP will notify the facility owner or operator in writing that the plan is approved.	-----
(g)	If a COTP determines that a plan does not meet the requirements of this subpart either upon initial submission or upon 5-year resubmission, the COTP will return the plan to the facility owner or operator along with an explanation of the response plan's deficiencies. The owner or operator must correct any deficiencies in accordance with Sec. 154.1070 and return the plan to the COTP within the time specified by the COTP in the letter describing the deficiencies.	-----
(h)	The facility owner or operator and the qualified individual and the alternative qualified individual shall each maintain a copy of the most current response plan submitted to the COTP. One copy must be maintained at the facility in a position where the plan is readily available to persons in charge of conducting transfer operations.	Distribution List
33 CFR 154.1065 Plan review and revision procedures.		
(a)	A facility owner or operator must review his or her response plan (s) annually. This review shall incorporate any revisions to the plan, including listings of fish and wildlife and sensitive environments identified in the ACP in effect 6 months prior to plan review.	1.4
(a)(1)	For an MTR facility identified in Sec. 154.1015(c)of this subpart as a "significant and substantial harm facility," this review must occur within 1 month of the anniversary date of COTP approval of the plan. For an MTR facility identified in Sec. 154.1015(b) of this subpart, as a "substantial harm facility" this review must occur within 1 month of the anniversary date of submission of the plan to the COTP.	1.4
(a)(2)	The facility owner or operator shall submit any revision(s) to the response plan to the COTP and all other holders of the response plan for information or approval, as appropriate.	1.4

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1065	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(a)(2)(i)	Along with the revisions, the facility owner or operator shall submit a cover letter containing a detailed listing of all revisions to the response plan.	1.4
(a)(2)(ii)	If no revisions are required, the facility owner or operator shall indicate the completion of the annual review on the record of changes page.	1.4
(a)(2)(iii)	The COTP will review the revision(s) submitted by the owner or operator and will give written notice to the owner or operator of any COTP objection(s) to the proposed revisions within 30 days of the date the revision(s) were submitted to the COTP. The revisions shall become effective not later than 30 days from their submission to the COTP unless the COTP indicates otherwise in writing as provided in this paragraph. If the COTP indicates that the revision(s) need to be modified before implementation, the owner or operator will modify the revision(s) within the time period set by the COTP.	-----
(3)	Any required revisions must be entered in the plan and noted on the record of changes page.	Foreword
(3)(b)	The facility owner or operator shall submit revisions to a previously submitted or approved plan to the COTP and all other holders of the response plan for information or approval within 30days, whenever there is--	1.4
(3)(b)(1)	A change in the facility's configuration that significantly affects the information included in the response plan;	1.4
(3)(b)(2)	A change in the type of oil (petroleum oil group)handled, stored, or transported that affects the required response resources;	1.4
(3)(b)(3)	A change in the name(s) or capabilities of the oil spill removal organization required by Sec. 154.1045;	1.4
(3)(b)(4)	A change in the facility's emergency response procedures;	1.4
(3)(b)(5)	A change in the facility's operating area that includes ports or geographic area(s) not covered by the previously approved plan. A facility may not operate in an area not covered in a plan previously submitted or approved, as appropriate, unless the revised plan is approved or interim operating approval is received under Sec. 154.1025; or	N/A
(3)(b)(6)	Any other changes that significantly affect the implementation of the plan.	1.4

USCG OPA 90 FINAL RULE *33 CFR Part 154*		
33 CFR 154.1065	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(3)(c)	Except as required in paragraph (b) of this section, revisions to personnel and telephone number lists included in the response plan do not require COTP approval. The COTP and all other holders of the response plan shall be advised of these revisions and provided a copy of the revisions as they occur.	1.4
(3)(d)	The COTP may require a facility owner or operator to revise a response plan at any time as a result of a compliance inspection if the COTP determines that the response plan does not meet the requirements of this subpart or as a result of inadequacies noted in the response plan during an actual pollution incident at the facility.	-----

DOT/PHMSA 49 CFR PART 194 CROSS REFERENCE		
§ 194.105	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	... determine the worst case discharge ... provide methodology, including calculations, used to arrive at the volume.	App. B
(b)	The worst case discharge is the largest volume, in barrels of the following	----
(b)(1)	... maximum release time in hours, plus the maximum shutdown response time in hours, multiplied by the maximum flow rate expressed in barrels per hour, plus the largest line drainage volume after shutdown of the line section(s)...; or	App. B
(b)(2)	The largest foreseeable discharge for the line section(s) within a response zone, expressed in barrels, based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective or preventative action take, or;	App. B
(b)(3)	If the response zone contains one or more breakout tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels.	App. B
(b)(4)	Operators may claim prevention credits for breakout tank secondary containment and other specific spill prevention measures as follows: ...	App. B
§ 194.107	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	Each response plan must plan for resources for responding, to the maximum extent practicable, to a worst case discharge, and to a substantial threat of such a discharge.	Fig. 5.3, 5.5, App. B
(b)	An operator must certify in the plan ... reviewed NCP and each applicable ACP ...	§ 1.5, App. I
(b)(1)	As a minimum to be consistent with the NCP as a facility response plan must:	----
(b)(1)(i)	Demonstrate an operator's clear understanding of the function of the Federal response structure...	§ 5.0
(b)(1)(ii)	Establish provisions to ensure the protection of safety at the response site;	§ 3.0, § 4.0
(b)(1)(iii)	Identify the procedures to obtain any required Federal and State permissions for using alternative response strategies such as in-situ burning and dispersants...	App. A.8
(b)(2)	As a minimum, to be consistent with the applicable ACP the plan must:	----
(b)(2)(i)	Address the removal of a worst case discharge and the mitigation or prevention of a substantial threat of a worst case discharge;	§ 4.0, App. B
(b)(2)(ii)	Identify environmentally and economically sensitive areas;	App. A
(b)(2)(iii)	Describe the responsibilities of the operator and of Federal, State and local agencies in removing a discharge and in mitigating or preventing a substantial threat of a discharge; and	§ 5.0
(b)(2)(iv)	Establish the procedures for obtaining an expedited decision on use of dispersants or other chemicals.	App. A.8
(c)	Each response plan must include:	----
(c)(1)	A core plan consisting of ...	----
(c)(1)(i)	An information summary as required in § 194.113,	Fig 1.1
(c)(1)(ii)	Immediate notification procedures,	§ 3.0
(c)(1)(iii)	Spill detection and mitigation procedures,	§ 2.0, 4.0
(c)(1)(iv)	The name, address and telephone number of the oil spill response organization, if appropriate,	Fig 3.3, 3.4
(c)(1)(v)	Response activities and response resources,	§ 4.0, 5.0, App. A
(c)(1)(vi)	Names and telephone numbers of Federal, state and local agencies which the operator expects to have pollution control responsibilities or support,	Fig 3.5 - 3.6
(c)(1)(vii)	Training procedures,	App. E

DOT/PHMSA 49 CFR PART 194 CROSS REFERENCE (Cont'd)		
§ 194.107	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(c)(1)(viii)	Equipment testing,	App. E
(c)(1)(ix)	Drill program – an operator will satisfy the requirement for a drill program by following the National Preparedness for Response Exercise Program (PREP) guidelines. An operator choosing not to follow PREP guidelines must have a drill program that is equivalent to PREP. The operator must describe the drill program in the responsive plan and OPS will determine if the program is equivalent to PREP.	App. E
(c)(1)(x)	Plan review and update procedures	§ 1.4, App. E.5
(c)(2)	An appendix for each response zone that includes the information required in paragraph (c)(1)(i)-(ix) of this section and the worst case discharge calculations that are specific to that response zone. An operator submitting a response plan for a single response zone does not need to have a core plan and a responsive zone appendix. The operator of a single response zone onshore pipeline shall have a single summary in the plan that contains the required information in § 194.113.7; and.	Fig 1.1
(c)(3)	A description of the operator's response management system including the functional areas of finance, logistics, operations, planning, and command. The plan must demonstrate that the operator's response management system uses common terminology and has a manageable span of control, a clearly defined chain of command, and sufficient trained personnel to fill each position	§ 5.0, App. D
§ 194.111	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	Each operator shall maintain relevant proportions of its response plan at the operator's headquarters and at other locations from which response activities may be conducted, for example, in field offices, supervisor's vehicles, or spill response trailers.	Foreword Distribution List
§ 194.113	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	The information summary of the core plan, required by § 194.107, must include:	----
(a)(1)	The name and address of the operator.	Fig 1.1
(a)(2)	For each response zone which contains one or more line sections that meet the criteria for determining significant and substantial harm as described in § 194.103, a listing and description of the response zones, including county(s) and state(s).	Fig 1.1
(b)	The information summary for the response zone appendix, required in § 194.107, must include:	----
(b)(1)	The information summary for the core plan.	Fig 1.1
(b)(2)	The names or titles and 24-hour telephone numbers of the qualified individual(s) and at least one alternate qualified individual(s);	Fig 1.1
(b)(3)	The description of the response zone, including county(s) and state(s), for those zones in which a worst case discharge could cause substantial harm to the environment.	Fig 1.1
(b)(4)	A list of line sections for each pipeline contained in the response zone, identified by milepost or survey station number, or other operator designation.	Fig 1.1
(b)(5)	The basis for the operator's determination of significant and substantial harm.	App. I
(b)(6)	The type of oil and volume of the worst case discharge.	Fig 1.1, App. B

DOT/PHMSA 49 CFR PART 194 CROSS REFERENCE (Cont'd)		
§ 194.115	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	Each operator shall identify and ensure, by contract or other approved means, the resources necessary to remove, to the maximum extent practicable, a worst case discharge and to mitigate or prevent a substantial threat of a worst case discharge.	§ 5.0
(b)	An operator shall identify in the response plan the response resources which are available to respond within the time specified, after discovery of a worst case discharge, or to mitigate the substantial threat of such a discharge.	§ 5.0, App. B
§ 194.117	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	Each operator shall conduct training to ensure that:	----
(a)(1)	All personnel know --	----
(a)(1)(i)	Their responsibility under the response plan	§ 4.0, App D
(a)(1)(ii)	The name and address of, and the procedure for contacting, the operator on a 24-hour basis	Fig 1.1 § 3.0, Fig 3.2, App. D
(a)(2)	Reporting personnel know --	----
(a)(2)(i)	The content of the information summary of the response plan.	Fig 1.1, App. D
(a)(2)(ii)	The toll-free telephone number of the National Response Center	Fig 3.5
(a)(2)(iii)	The notification process	§ 3.0
(a)(3)	Personnel engaged in response activities know --	----
(a)(3)(i)	The characteristics and hazards of the oil discharged	Fig. 4.1
(a)(3)(ii)	The conditions that are likely to worsen emergencies, including the consequences of facility malfunctions or failures, and the appropriate corrective actions.	§ 2.0, App. A.6
(a)(3)(iii)	The steps necessary to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity, or environmental damage	§ A.6, App. B
(a)(3)(iv)	The proper firefighting procedures and use of equipment, fire suits, and breathing apparatus	§ 1.2, 4.0
(b)	Each operator shall maintain a training record for each individual that has been trained as required by this section. These records must be maintained in the following manner as long as the individual is assigned duties under the response plan	----
(b)(1)	Records for operator personnel must be maintained at the operator's headquarters	App. E
(b)(2)	Records for personnel engaged in response, other than operator personnel, shall be maintained as determined by the operator.	App. E
(c)	Nothing in this section relieves an operator from the responsibility to ensure that all response personnel are trained to meet the OSHA standards for emergency response operations in 29 CFR 1910.120	App. E

DOT/PHMSA 49 CFR PART 194 CROSS REFERENCE (Cont'd)		
§ 194.119	**BRIEF DESCRIPTION**	**LOCATION in PLAN**
(a)	Each owner shall submit two copies...electronic format is preferred	Foreword (List of Plan Holders)
(b)	...PHSMA will notify the operator of any alleged deficiencies...	----
(c)	The operator...may petition PHSMA for reconsideration within 30 days...	----
(d)	...PHSMA will approve the Response Plan...	----
(e)	...The operator may submit a certification to PHSMA... that the operator has obtained, through contract or other approved means, the necessary private personnel and equipment to record, to the maximum extent practicable, to a worst case discharge...	App. I (Operator's Statement)
(f)	...PHSMA may require an operator to provide a copy of the response plan to the FOSC...	----

TGLO DISCHARGE PREVENTION AND RESPONSE PLAN *31 TAC §19.13* *CROSS REFERENCE*		
§ 19.13	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(c)	Required elements of discharge prevention and response plans for all facility classifications.	-----
(1)	The owner and operator of the facility;	Fig. 1.1
(2)	The person or persons in charge of this facility….	Fig. 1.1
(3)	The name and address (both physical and mailing) of the facility;	Fig. 1.1
(4)	A description of the facility, including:	-----
(A)	The location of the facility by latitude and longitude;	Fig. 1.1
(B)	The facility's primary activity;	Fig. 1.1
(C)	The types of oil handled, whether material safety data sheets (MSDS) have been prepared for them, and the location where the MSDS are maintained;	Fig. 1.1, 4.3
(D)	The storage capacity of each tank used for storing oil;	App. C
(E)	The diameter of all lines through which oil is transferred;	App C.1
(F)	The average daily throughput of oil at the facility; and	App C.1
(G)	The dimensions and capacity in barrels of the largest oil-handling vessel which docks at the facility	Fig. 1.1
(5)	For a facility which normally does not have personnel on-site...	N/A
(6)	A general description of measures taken by the facility to prevent unauthorized discharges of oil;	§4.0, App. C
(7)	A plan to conduct an annual oil spill drill that entails notifying the GLO and National Response Center and keeping a log…	App. E
(8)	If oil is transferred at the facility, emergency transfer procedures to be implemented if an actual or threatened unauthorized discharge of oil occurs at the facility;	§4 .0
(9)	Strategic plans to contain and clean up unauthorized discharges of oil from the facility;	§ 4.0, 6.0
(10)	A statement that all facility personnel who might be involved in an oil spill response have been informed that detergents or other surfactants are prohibited from being used on an oil spill in the water, and that dispersants can only be used with the approval of the Regional Response Team…	App. A.8
(11)	A description of any secondary containment or diversionary structures or equipment at the facility to prevent discharged oil from reaching coastal waters…	App C
(e)	Additional requirements for facilities classified as large	-----
(1)	Maps showing vehicular access to the facility, pipelines to and from the facility, and nearby residential or other populous areas;	Fig 1.3, A.2
(2)	A site plan of the facility showing:	-----
(A)	The location of all structures in which oil is stored;	Fig 1.3, App C
(B)	The location of all areas where oil is transferred at the facility; and	Fig 1.3, App C
(C)	Drainage and diversion systems at the facility…	Fig 1.3, App C
(3)	A plan to conduct an annual oil spill drill that includes the following elements:	-----
(A)	Notifying the GLO and National Response Center;	Fig 3.5
(B)	Notifying any third parties, such as discharge cleanup organizations	Fig 3.3

TGLO DISCHARGE PREVENTION AND RESPONSE PLAN 31 TAC §19.13 CROSS REFERENCE (Cont'd)		
§ 19.13	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
(C)	If the facility has spill response equipment stored on-site, deployment of a representative portion of the equipment which would be used to respond	Fig 4.2, App. E
(D)	A log documenting when the annual drill was conducted and the facility personnel who participated in it;	App. F
(4)	A detailed description of the facility's discharge prevention and response capability, including:	----
(A)	Leak detection and safety systems to prevent accidental discharges	App. C
(B)	Schedules, methods, and procedures for testing, maintaining, and inspecting storage tanks, pipelines, and other equipment used for handling oil;	App. C
(C)	Schedules, methods, and procedures for conducting accidental discharge response drills;	App. E
(D)	Whether the facility's oil spill response capability will primarily be based on contracts or agreements with third parties or on the facility's own personnel and equipment;	Fig 3.4, 4.2, 5.5
(E)	Planned response actions, the chain of command, lines of communication, and procedures for notifying the GLO, emergency response and public safety entities;	§2.0, 3.0, 4.0
(F)	Oil spill response equipment and supplies located at the facility;	Fig 4.2
(G)	If the facility owns and maintains oil spill response equipment, the schedules, methods, and procedures for maintaining the equipment;	App. E
(H)	If the operator has entered into any oil spill response or cleanup contracts or basic ordering agreements with a discharge cleanup organization, copies of the contracts or agreements or a narrative description of their terms;	Fig 5.5
(I)	The worst case unauthorized discharge of oil reasonably likely to occur at the facility and the rationale used to determine the worst case unauthorized discharge;	App. B
(J)	A description and map of environmentally sensitive areas that would be impacted by the worst case unauthorized discharge;	App. A
(K)	A description of response strategies that would be implemented to contain and clean up worst case unauthorized discharge;	App. A, B
(L)	Information on the facility's program for training facility personnel;	App. E
(M)	Information on facility personnel who have been specifically designated to respond to an oil spill, including any training they have received and where the training records are maintained;	Fig. 3.1, 3.2, App. E
(N)	Plans for transferring oil during an emergency; plans for recovering, storing, separating, transporting, and disposing of oily waste materials generated during an oil spill response; and	App. B
(O)	Plans for providing emergency medical treatment, site safety, and security during an oil spill	§4.0

OSHA EMERGENCY ACTION PLANS *(29 CFR Part 1910.38) and Employee Alarm Systems (29 CFR Part 1910.165)*		
29 CFR	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
1910.38	***Emergency action plan:***	
(a)	Application	1.0
(b)	Written and Oral Emergency Plans	Entire Plan
(c)	Elements:	-----
(c)(1)	Procedures for reporting a fire or other emergency;	3.0
(c)(2)	Procedures for emergency evacuation, including type of evacuation and exit route assignments;	2.4
(c)(3)	Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;	2.0
(c)(4)	Procedures to account for all employees after emergency evacuation has been completed.	2.4
(c)(5)	Procedures to be followed by employees performing rescue and medical duties;	2.4
(c)(6)	The name or job titles of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.	3.0
(d)	Alarm system	2.4, 3.1
(e)	Training	App E
(f)	Review of Emergency Action Plan	1.4
1910.165	***Employee alarm systems:***	
(b)	General requirements	3.1
(b)(1)	Purpose of alarm system	2.4, 3.1
(b)(4)	Preferred means of reporting emergencies	3.1
(d)	Maintenance and testing	2.4

OSHA HAZWOPER *29 CFR Part 1910.120*		
29 CFR	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
1910.120(q)	***Emergency response to hazardous substance releases:***	
(1)	Emergency response plan	Entire Plan
(2)	Elements of an emergency response plan:	-----
(i)	Pre-emergency planning and coordination with outside parties	2.0, 3.0
(ii)	Personnel roles, lines of authority, training, and communication	2.0, 3.0, 4.0, App E
(iii)	Emergency recognition and prevention	2.0
(iv)	Safe distances and places of refuge	2.4
(v)	Site security and control	App C.1
(vi)	Evacuation routes and procedures	2.4
(vii)	Decontamination procedures	4.6
(viii)	Emergency medical treatment and response procedures	2.4
(ix)	Emergency alerting and response procedures	2.0, 3.0
(x)	Critique of response and follow-up	App E.5
(xi)	PPE and emergency equipment	4.0
(xii)	Emergency response plan coordination and integration	1.2
(3)	Procedures for handling emergency response:	-----
(i)	The senior emergency response official responding to an emergency shall become the individual in charge of a site-specific Incident Command System (ICS).	2.0, 4.0, 5.0, App F
(ii)	The individual in charge of the ICS shall identify, to the extent possible, all hazardous substances or conditions, present and shall address as appropriate site analysis, use of engineering controls, maximum exposure limits, hazardous substance handling procedures, and use of any new technologies.	2.0, 4.0, 5.0, App F
(iii)	Implementation of appropriate emergency operations and use of PPE.	2.0, 4.0, 5.0, App F
(iv)	Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard shall wear positive pressure self-contained breathing apparatus while engaged in emergency response.	2.0, 4.0, 5.0, App F
(v)	The individual in charge of the ICS shall limit the number of emergency response personnel at the emergency site, in those areas of potential or actual exposure to incident or site hazards, to those who are actively performing emergency operations.	2.0, 4.0, 5.0, App F
(vi)	Backup personnel shall stand by with equipment ready to provide assistance or rescue.	2.0, 4.0, 5.0, App F

OSHA HAZWOPER *29 CFR Part 1910.120*		
29 CFR	**BRIEF DESCRIPTION**	**LOCATION IN PLAN**
1910.120(q)	***Emergency response to hazardous substance releases (Cont'd):***	
(vii)	The individual in charge of the ICS shall designate a safety official, who is knowledgeable in the operations being implemented at the emergency response site.	2.0, 4.0, 5.0, App F
(viii)	When activities are judged by the safety official to be an IDLH condition and/or to involve an imminent danger condition, the safety official shall have authority to alter, suspend, or terminate those activities.	2.0, 4.0, 5.0, App F
(ix)	After emergency operations have terminated, the individual in charge of the ICS shall implement appropriate decontamination procedures.	2.0, 4.0, 5.0, App F
(x)	When deemed necessary for meeting the tasks at hand, approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating.	2.0, 4.0, 5.0, App F
(4)	Skilled support personnel	5.0
(5)	Specialist employees	5.0
(6)	Training	App E
(7)	Trainers	App E
(8)	Refresher training	App E
(9)	Medical surveillance and consultation	App E
(10)	Chemical protective clothing	App E
(11)	Post-emergency response operations	2.0, 4.0, App E

U.S. EPA – RCRA Contingency Plan 40 CFR § 265.52 – 265.56		
40 CFR § 265	**BRIEF DESCRIPTION**	**SECTION**
§265.52	**Content of contingency plan.**	-----
(a)	The contingency plan must describe the actions facility personnel must take to comply with §§265.51 and 265.56 in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.	Whole Plan
(b)	If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan in accordance with Part 112 of this chapter, or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this Part. The owner or operator may develop one contingency plan which meets all regulatory requirements. EPA recommends that the plan be based on the National Response Team's Integrated Contingency Plan Guidance ("One Plan"). When modifications are made to non-RCRA provisions in an integrated contingency plan, the changes do not trigger the need for a RCRA permit modification.	SPCC Plan
(c)	The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to §265.37.	Foreword, Agency Correspondence
(d)	The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see §265.55), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as	Fig. 1.1
(e)	The plan must include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	Fig. 4.2
(f)	The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).	§ 2.4

U.S. EPA – RCRA Contingency Plan 40 CFR § 265.52 – 265.56 (Cont'd)		
40 CFR § 265	**BRIEF DESCRIPTION**	**SECTION**
§265.53	**Copies of contingency plan.**	-----
	A copy of the contingency plan and all revisions to the plan must be:	-----
(a)	Maintained at the facility; and	Foreword
(b)	Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.	Foreword (Distribution)
§265.54	**Amendment of contingency plan.**	-----
	The contingency plan must be reviewed, and immediately amended, if necessary, whenever:	-----
(a)	Applicable regulations are revised;	§ 1.4
(b)	The plan fails in an emergency;	§ 1.4
(c)	The facility changes—in its design, construction, operation, maintenance, or other circumstances—in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;	§ 1.4
(d)	The list of emergency coordinators changes; or	§ 1.4
(e)	The list of emergency equipment changes.	§ 1.4
§265.55	**Emergency coordinator.**	-----
	At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.	Fig. 3.1
§265.56	**Emergency procedures.**	-----
(a)	Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately:	§ 5.2
(a)(1)	Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and	§ 5.2
(a)(2)	Notify appropriate State or local agencies with designated response roles if their help is needed.	§ 5.2
(b)	Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials. He may do this by observation or review of facility records or manifests and, if necessary, by chemical analysis.	§ 5.2

U.S. EPA – RCRA Contingency Plan 40 CFR § 265.52 – 265.56 (Cont'd)		
40 CFR § 265	**BRIEF DESCRIPTION**	**SECTION**
(c)	Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-offs from water or chemical agents used to control fire and heat-induced explosions).	§ 5.2
(d)	If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he must report his findings as follows:	§ 5.2
(d)(1)	If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and	§ 5.2
(d)(2)	He must immediately notify either the government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include:	§ 5.2
(d)(2)(i)	Name and telephone number of reporter;	Fig. 3.10
(d)(2)(ii)	Name and address of facility;	Fig. 3.10
(d)(2)(iii)	Time and type of incident (e.g., release, fire);	Fig. 3.10
(d)(2)(iv)	Name and quantity of material(s) involved, to the extent known;	Fig. 3.10
(d)(2)(v)	The extent of injuries, if any; and	Fig. 3.10
(d)(2)(vi)	The possible hazards to human health, or the environment, outside the facility.	Fig. 3.10
(e)	During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.	§ 4.2
(f)	If the facility stops operations in response to a fire, explosion or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.	§ 4.2
(g)	Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.	§ 6.4

U.S. EPA – RCRA Contingency Plan 40 CFR § 265.52 – 265.56 (Cont'd)		
40 CFR § 265	**BRIEF DESCRIPTION**	**SECTION**
(h)	The emergency coordinator must ensure that, in the affected area(s) of the facility:	-----
(h)(1)	No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and	§ 6.4
(h)(2)	All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.	§ 4.6
(i)	The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the Regional Administrator.	Fig. 3.10, App. C.5